



Sustainable building technologies



Construction Specifications

Solar Decathlon 2017

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Utrecht, The Netherlands

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00 General information

00.1 Team information

Selficient

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00.2 Project information

This section includes the following subjects:

- Work covered by the documents
- Specification formats and conventions

This set of documents, including the drawings, specifications and other data provided by selficient, is an incomplete representation of the selficient house regarding the Solar Decathlon Challenge 2017 in Denver, Colorado. The pricing of the project is estimated using these documents and this will result in a cost estimate for building the project. Commencing or pursuing construction activities by using these documents, including ordering of materials, systems and labor, is not permitted.

00.2.1 Work covered by documents

Project definition: Selficient house concept, a project of The University of Applied Sciences, Utrecht for the Solar Decathlon Challenge 2017 held in Denver, Colorado.

Owner: Team Selficient and the University of Applied Sciences, Utrecht

The work described in these documents consists of the following:

- The work includes the construction of a new starter home created by different modules, designed to be modular and easy to reassemble on different building locations. The work includes the foundation, structure, exterior and interior finishes, fixtures, appliances, furniture and electrical, mechanical and plumbing systems. The work in these documents also includes some exterior work for making the house transportable and open for visits and accessing of the house.
- The owner, Team Selficient, desires to have a minimal impact on the environment by creating this home and by constructing it. Hereby, the construction work will leave a minimum of construction and demolition waste, which will be recycled if there is any. Some materials will be applied for single use, and could be left out during the finals.

00.2.2 Specification formats and conventions

Specification format: The specifications are organized using the NL-SFB format “STABU BOUWBREED” including their numbering system and its software.

00.3 Project management and coordination

Key personnel names: Within 14 days before the start of construction operations, a list of personnel will be submitted for safety. This list will contain the superintendent and all personnel in attendance of

the project site, Their e-mail addresses and telephone numbers. All of the personnel will acquire the VOL-VCA certification which is necessary to build on a construction site following the Dutch codes and rules.

Coordination: Coordination of construction is done by dividing it in several operations and sections of the specifications to ensure efficient and orderly installation of the house.

Request for Information: On the discovery of the need for additional information or interpretation of the contracted documents, Contractor shall prepare and submit the RFI. Use forms are acceptable to Architect and owner. Given RFI will be set-up according to a specified document with the applicable product sheets and rules as an appendix.

Schedule and meetings: Schedules and conduct progress meetings are at the project site at weekly intervals. Notify Owner and Architect of meeting dates and times. Require attendance of each subcontractor or other entity concerned with current stage of construction or involved of planning, coordination or performance of future activities.

Recordings: Meetings are recorded and written down according to a specific document for meetings. After the meeting, all attendants will receive a copy for their information and their further progress.

00.4 Submittal administrative requirements

Digital data files: Electronic digital data files of construction specifications, drawings and applicable rules will be provided by the architect to the contractors and distributors for their preparation of the submittals. Architect will deliver contractor one set of digital drawing files for preparation of Shop Drawings and Project record drawings. Architect makes no representation to the accuracy or completeness of the digital drawings as they are relatable to the Contract Drawings.

Coordination: Coordinate of each submittal with fabrication, purchasing, testing, delivery and other submittals, including related activities. No extension of the Contract time will be authorized due to failure of transferring the submittals in advance to the competition. Each submittal will be given out three times, where Architect will return two copies. Submittal of information will be done with two copies, where the Architect will return none. Architect will return the submittals with review received from Contractor, other sources are sent back without review.

Electronic submittals: Identification and incorporation of all necessary information is submitted in each (Electronic) file as followed:

- Assembly of complete submittal packages into a single indexed file, incorporated with the required Specifications, Sections and correct transmittal form to navigate through the document by ease.
- File name with unique identifier, project identifier, Specification section number and revision identifier.
- Identify options followed by the required selection of the Architect.
- Identified deviations from the documents on the submittals

00.5 Product submittal procedures

Product data: All used products will be identified and incorporated in the construction specification. Where applicable, the following information will be given in the appendix:

- Manufacturers written recommendations, product specifications and installation instructions.
- Performance curves and operational range diagrams.
- Testing reports by a recognized testing agency.
- Compliance with specified standards and requirements.
- Used dimensions, edits and requirements for application.

Electronic submittal: All used products will be identified and incorporated in the construction specifications, drawings and other necessary submittal. The information Will be given using the following rules:

- Assemble of complete submittal package in a single indexed file incorporating the requirements of the products, their specification and section.
- Name of the product with its unique identifier, project identifier, specification number and revision identifier.
- Providing the information requires that the Contractor will use it and Contractor needs to review products for approval. Mark will be given on approved products and where not, actions will be taken by Architect to alter to other material.

Samples: Where applicable, sample of used product will be sent for review of kind, material, color and for comparison to required rules.

00.6 Informational procedures

Informational submittals: Submit of two paper copies to Contractor for review of each submittal unless otherwise indicated. If not possible, send Electronic documents.

Qualification data: Include lists of completed projects with project names and addresses, names and addresses of Architects and Owners, and other information that is necessary.

Product certificates: Prepare written statements on manufacturers letterhead certifying that used product complies with requirements given in the Construction specifications.

Performance and design criteria: Where professionals require design services or certifications by design professionals, specific required by Contractor or Competition. Provide products and systems specifically assigned to Contractor to be reviewed and certified by a professional.

Design submittal: In addition to Drawings, Product Data and other required submittals, submit three copies of a statement, sealed by responsible design professional, for each product and system specifically assigned to Contractor for certification by a professional. Indication that products and systems comply with given performance and design criteria in Construction documents. Including list of codes, loads and other factors used for certification.

00.7 Quality requirements

Testing: Testing and inspecting services are required to verify compliance with requirements and specifications that are indicated. These services do not relieve Contractor of its responsibility for compliance with the Construction requirements.

Reference standards: If compliance with two or more standards, specification and standards established are different or conflicting, comply with the most stringent requirement. Refer with uncertainties to Architect for a decision.

Minimum quality levels: The quality or quantity level that is shown or specified shall be the minimum. The actual installation may exceed the minimum requirements within reasonable limits. Indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to Architect for decision.

Contractors statement of Responsibility: When required by Authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities before construction work.

Test reports: Prepare and submit certified written reports specified in other Sections. Including the following:

- Date of issue
- Project title and number
- Name, Address, telephone number of testing Agency
- Dates and locations of samples and tests or inspections

Permits, Licenses and Certificates: For Owners record. Submit copies of necessary permits, licenses and certifications to competition before start of construction. Documents need to be established for compliance with standards and regulations bearing on performance of the work.

Engineer Qualifications: A professional Engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services indicated.

Testing Agency qualifications: An independent agency with experience and capability to conduct testing and inspecting as indicated.

Reinspecting: Regardless of whether original tests or inspections were Contractors responsibility, provide quality-control services, including retesting, for construction that replaced work that failed to comply with Construction specifications.

00.8 Quality codes and rules

The construction specifications will comply to the following rules and codes if applicable:

- Rules set by the Solar Decathlon Challenge
- Bouwbesluit (Dutch code for building), 2012
- NEN
- NEN-EN
- ISO
- KOMO
- NPR
- Eurocode
- CE
- FSC
- PEFC

Besides the given codes and rules, each product needs to be compliant following the rules that are applicable for the use, material and edits. These codes are given by the Manufacturer and its Distributor.

01 Building site

01.01 Building site specifications

- 1: Location: Denver, Colorado
- 2: Size: 32,9 x 28,95 m¹
- 3: Document: Drawing G-100, G-101, G-102, G-103, G-200, G-201, G-202.

01.02 Building site logistics

- 1: Location: Denver, Colorado
- 2: During construction, the following services will be available for use. Some may be applicable for an extend of time. For the precise equipment and time of use, ask Contractor for planning and further information.

01.02.2010 Cleaning of building site

- 1: Building site has to be clean and excess materials should be removed before start of the competition.
- 2: Storage- and workshop containers need to be secured and locked during the competition.
- 3: Before and during the competition, the building site and the house need to be kept clean. Cleaning will be done using standard cleaning products out a U.S. supermarket. Special cleaners or industrial products will be made available for review 14 days before start of construction.

01.03 Building location

- 1: Location: Denver, Colorado
- 2: Excavation: Not applicable
- 3: Document: Drawing G-100 Site Plan.
- 3: Conditions: Ground bearing 2500 PSF, top layer consists of loose soil, possibility to excavate or tighten top layer.

01.03.1932 Placement of building location

- 1: The setting of the correct building location is done by the Selficient team with collaboration of the Solar Decathlon competition.
- 2: The known boundaries are given in Drawing G-100, which has to be verified by the Solar Decathlon before setting up the building location. The boundaries have been set by the Solar Decathlon in their rules or in the given information overtime.
- 3: For placing the construction on the correct building location, at least one known measuring point should be available throughout the entire competition. From this point, the construction will be measured and set up. If no point is given, the team will use the boundaries of its building site and measure from the Gravel road that is used as the main road during the event.

01.03.1165 Construction window

- 1: The construction window is used to measure the house within the given boundaries from the Solar Decathlon.
- 2: The construction window should be kept throughout the entire competition.
- 3: The construction window is set up using the known measuring points.
- 4: Measuring points are given by the Solar Decathlon competition.
- 5: The construction window is set up where the top of the finished floor is equal to = 0.
- 6: Construction window has to be set up using a total station or a similar known method.

02 Building construction

02.01 Foundation

- 1: Location: 17452 E 61st Ave, Denver, CO 80249
- 2: Size: 17 x 14 m¹
- 3: Document: Drawing S-200 Foundation Plan, S-201 Adjustable Footing Detail, S-202 Steel Substructure Framing Plan.

02.01.1137 Foundation posts

- 1: Company: Jackpad
- 2: Item no: -
- 3: Material: Black painted steel adjuster, Support block 400 mm¹ from 100% recycled plastic, incremental packers 450 mm¹ from 100% recycled plastic.
- 4: Length: 450 mm¹
- 5: Width: 450 mm¹
- 6: Height: Variable, from 130 to 680 mm¹, depending from height differences in soil.
- 7: Mass: -
- 8: Strength: 48 kN Safe working load per Jackpad. However, bearing capacity of ground needs to be at least 130 kN/m² for maximum use of Jackpad.
- 9: Requirement: Adjustable footing. Steel bearing construction needs to be centered on the top plate(s).
- 10: Add. material: Size of top plate differs from the amount of Jackpads used on a location for deducting the load.
- 11: Edits: -
- 12: Application: Footings underneath the bearing construction. Drawing S-201 shows the correct placement of each Jackpad.

02.01.2346 Foundation beams

- 1: Company:
- 2: Distributor: Royal BAM Group
- 3: Item no: HE240A
- 4: Material: S235 Steel
- 5: Length: Different lengths, 3480 – 10840 mm¹.
- 6: Width: 240 mm¹
- 7: Height: 230 mm¹
- 8: Mass: 61,50 kg/m¹
- 9: Quality: S235JRG2, regarding EN 10025. Roller tolerance regarding EN 10034.
- 10: Requirement: Steel beams will not be coated for long-lasting use outdoors. Steel beams need to be covered with anti-corrosion paint when used outdoors for longer than a period of three months.
- 11: Add. material: Steel joists and head plates used for connecting steel beams to create the steel bearing construction. Angle bracket welded at steel beam to connect Suteki beams to steel beam. Connection between beams with M16x50 mm bolts.
- 12: Edits: -
- 13: Application: Steel beams used as bearing construction. Drawing S-202 shows the correct placement of each beam.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Bolt M16x50 mm¹
- 4: Material: Galvanized steel
- 5: Length: 50 mm¹
- 6: Diameter: M16 mm¹
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams at head plate.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Nut M16
- 4: Material: Galvanized steel
- 5: Length: -
- 6: Diameter: M16 mm¹
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams at head plate.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Ring M16
- 4: Material: Galvanized steel
- 5: Length: -
- 6: Diameter: M16 mm¹
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams at head plate.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Bolt M12x150 mm¹
- 4: Material: Galvanized steel
- 5: Length: 150 mm¹
- 6: Diameter: M12
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams and Suteki Beams.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Nut M12
- 4: Material: Galvanized steel
- 5: Length: -
- 6: Diameter: M12
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams at head plate.

02.01.5000 Fasteners

- 1: Company: Techwinkel.nl
- 2: Distributor: Royal BAM Group
- 3: Item no: Ring M12
- 4: Material: Galvanized steel
- 5: Length: -
- 6: Diameter: M12
- 7: Mass: -
- 8: Quality: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Fire resistance: -
- 10: Requirement: -
- 11: Add. material: -
- 12: Edits: -
- 13: Application: Connection between steel beams at head plate.

02.02 Bearing construction

- 1: Location: 17452 E 61st Ave, Denver, CO 80249
- 2: Size: 12 x 12 m¹
- 3: Document: Drawing S-203 Floor Framing Plan, S204 Floor Framing Suteki Connections Plan, S205 Suteki Columns Plan, S206 Suteki Columns Connections Plan, S207 Roof Framing Plan, S208 Roof Framing Suteki Connections Plan.

02.02.2013 Beams ground floor

- 1: Company: Suteki
- 2: Item no: Beam type 120x390
- 3: Material: CLT (Cross Laminated Timber) made from European red pine
- 4: Length: 1620, 2860, 3600, 3720, 4840, 5340 mm¹, depending on position.
- 5: Width: 120 mm¹
- 6: Height: 390 mm¹
- 7: Weight: 23,4 kg/m¹
- 8: Quality: E120-F330
- 9: Requirement: Beams need to be cleaned from wood residues before handling on building site. Beams need to be inspected on excessive amounts of damages.
- 10: Add. material: Suteki joints for connections between beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints. Additional holes for attaching the façade elements and the ground floor elements.
- 12: Application: Outer beams of the ground floor bearing construction frame. Drawing S-203 shows the correct beams and their lengths. Drawing S204 shows the correct Suteki Connections.

02.02.3013 Post

- 1: Company: Suteki
- 2: Item no: Post type 120x120
- 3: Material: CLT (Cross Laminated Timber) made from European white spruce.
- 4: Length: 120 mm¹.
- 5: Width: 120 mm¹
- 6: Height: 2696, 3086, 3476 mm¹
- 7: Weight: 7,2 kg/m¹
- 8: Quality: E95-F315
- 9: Requirement: Posts need to be cleaned from wood residues before handling on building site. Posts need to be inspected on excessive amounts of damage.
- 10: Add. material: Suteki joints for connections between beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints. Additional holes for attaching the façade elements.
- 12: Application: Posts between the ground floor bearing construction and the roof bearing construction. Drawing S-205 shows the correct beams and their lengths. Drawing S-206 shows the correct Suteki Connections.

02.02.2013 Beams roof

- 1: Company: Suteki
- 2: Item no: Beam type 120x390
- 3: Material: CLT (Cross Laminated Timber) made from European red pine.
- 4: Length: 1620, 2860, 3600, 3720, 4840, 5340 mm¹, depending on position.
- 5: Width: 120 mm¹
- 6: Height: 390 mm¹
- 7: Weight: 23,4 kg/m¹
- 8: Quality: E120-F330
- 9: Requirement: Beams need to be cleaned from wood residues before handling on building site. Beams need to be inspected on excessive amounts of damage.
- 10: Add. material: Suteki joints for connections between beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints. Additional holes for attaching the façade elements.
- 12: Application: Outer beams of the roof floor bearing construction frame. Drawing S-207 shows the correct beams and their lengths. Drawing S208 shows the correct Suteki Connections

02.02.2013 Beams roof

- 1: Company: Suteki
- 2: Item no: Type 120x270
- 3: Material: CLT (Cross Laminated Timber) made from European red pine.
- 4: Length: 3600 mm¹, depending on position.
- 5: Width: 120 mm¹
- 6: Height: 270 mm¹
- 7: Weight: 16,2 kg/m¹
- 8: Quality: E120-F330
- 9: Requirement: Beam needs to be cleaned from wood residues before handling on building site. Beam needs to be inspected on excessive amounts of damage.
- 10: Add. material: Suteki joints for connections between beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints. Additional holes for the façade elements and the fire suppression system.
- 12: Application: Roof bearing construction beam above the bathroom. Drawing S-207 shows the correct beam and their lengths.

02.02.4021 Joint beam-beam

- 1: Company: Suteki
- 2: Item no: S-3A
- 3: Material: Carbon Steel
- 4: Length: -
- 5: Width: 133 mm¹
- 6: Height: 130 mm¹
- 7: Weight: -
- 8: Quality: -
- 9: Requirement: -
- 10: Add. material: Suteki joints for connecting beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints.
- 12: Application: Connection between beams or post-beam. Floor beams and roof beams use the same connection. Drawing S-204, S-206 and S-208 shows the correct Suteki Connections.

02.02.4022 Joint post-beam

- 1: Company: Suteki
- 2: Item no: S-3B
- 3: Material: Carbon Steel
- 4: Length: -
- 5: Width: 133 mm¹
- 6: Height: 130 mm¹
- 7: Weight: -
- 8: Quality: -
- 9: Requirement: -
- 10: Add. material: Suteki joints for connecting beam-beam and beam-post.
- 11: Edits: Pre-drilled holes for the Suteki joints.
- 12: Application: Drawing S-204, S-206 and S-208 shows the correct Suteki Connections.

02.02.4023 Connector post-beam

- 1: Company: Suteki
- 2: Item no: HD-H
- 3: Material: Carbon Steel
- 4: Length: -
- 5: Width: -
- 6: Height: -
- 7: Weight: -
- 8: Quality: -
- 9: Requirement: -
- 10: Add. material: Suteki connectors for post-beam and beam-post connections.
- 11: Edits: Pre-drilled holes for the Suteki D-120 pins
- 12: Application: Drawing S-204, S-206 and -S208 shows the correct Suteki Connections.

02.02.4023 Connector post-beam

- 1: Company: Suteki
- 2: Item no: D-120
- 3: Material: Carbon Steel
- 4: Length: -
- 5: Width: -
- 6: Height: -
- 7: Weight: -
- 8: Quality: -
- 9: Requirement: -
- 10: Add. material: Suteki pins for connecting S-3A, S-3B and HD-H connectors to Suteki wood.
- 11: Edits: -
- 12: Application: Drawing S-204, S-206 and S-208 shows the correct Suteki Connections

02.02.4023 Connector post-beam

- 1: Company: Suteki
- 2: Item no: S-5B
- 3: Material: Carbon Steel
- 4: Length: -
- 5: Width: -
- 6: Height: -
- 7: Weight: -
- 8: Quality: -
- 9: Requirement: -
- 10: Add. material: -
- 11: Edits: -
- 12: Application: Drawing S-204, S-206 and S-208 shows the correct Suteki Connections.

02.03 Exterior walls

- 1: Location: 17452 E 61st Ave, Denver, CO 80249
- 2: Size: -
- 3: Document: Drawing S-211 Wall framing plan, All Horizontal and Vertical details.

02.03.1110 Wall structure

- 1: Company: Steico
- 2: Distributor: Steico
- 3: Item no: SW45-Wall, I-beam
- 4: Material: Hardboard, Body of Natural Fiber Board
- 5: Length: 4056, 3446, 2496, 980, 560 and 370 mm¹ (differs from wallelement type)
- 6: Width: 45 mm¹
- 7: Height: 300 mm¹
- 8: Weight: 3,3 kg/m¹
- 9: Quality: Given in the specifications sheet, designed following Eurocode 5. 70% usage of wood with FSC certification.
- 10: Requirement: Joists need to be placed in the length of the element for the highest strength.
- 11: Add. material: -
- 12: Edits: -
- 13: Application: For the construction of the wall elements, I-beams are placed inside.

02.03.1110 Wall structure

- 1: Company: Maat Chalets
- 2: Distributor: Maat Chalets
- 3: Item no: Beam 285x38 mm¹
- 4: Material: Pinewood
- 5: Length: 1630, 1220, 1170 and 182 mm¹ (differs from wall element type)
- 6: Width: 38 mm¹
- 7: Height: 285 mm¹
- 8: Weight: 5,4 kg/m¹
- 9: Quality: Wood class C24
- 10: Requirement: Beams need to be placed between I-beams for maximum support and strength.
- 11: Add. material: Nails for application of beams to I-beams.
- 12: Edits: Beams are sawn to specific sizes for use in the wall element.
- 13: Application: For the stability of the wall elements, beams are placed at the bottom and top of the elements.

02.03.6210 Inner panel

- 1: Company: Maat Chalets
- 2: Distributor: Maat Chalets
- 3: Item no: OSB 2440 x 1220
- 4: Material: OSB, (Oriented Strand Board)
- 5: Length: 2440 mm¹
- 6: Width: 1220 mm¹
- 7: Thickness: 18 mm¹
- 8: Weight: 11,7 kg/m²
- 9: Strength: Class 4
- 10: Requirement: Euroclass B-s2,d0 according to EN13501-1 fire resistance.
- 11: Add. material: Nils for application of panel to wall element structure.
- 12: Edits: OSB sawn to specific sizes for use in the wall element.
- 13: Application: To hold the insulation and support the wall elements, panels are placed at the inside of the wall element.

02.03.1610 Insulation

- 1: Company: Isofloc
- 2: Distributor: Warmteplan BV
- 3: Item no: LM
- 4: Material: Isofloc LM, cellulose vezels en boraten
- 5: Length: -
- 6: Width: -
- 7: Thickness: 300 mm¹
- 8: Weight: 60 kg/m³
- 9: Quality: Approved according to ETA-05/0226, EN13501, ISO 846
- 10: Fire resistance: Euroclass B-s2,d0 according to EN13501-1 fire resistance
- 11: Heat conductivity: 0,038W/(m.K), according to ETA-05/0226
- 12: Requirement: Blowing machines necessary for application of insulation. Application needs to be carried out by trained Isofloc specialists.
- 13: Add. materials: -
- 14: Edits: -
- 15: Application: The insulation is placed inside of the wall element.

02.03.6211 Outer panel

- 1: Company: Maat Chalets
- 2: Distributor: Maat Chalets
- 3: Item no: OSB3 2440 x 1220
- 4: Material: OSB3-Zero (Oriented02.0 Strand Board)
- 5: Length: 2440 mm¹
- 6: Width: 1220 mm¹
- 7: Thickness: 12 mm¹
- 8: Weight: 5,4 kg/m²
- 9: Quality: Class 3, without use of formaldehyde
- 10: Requirement: Straight edge panels
- 11: Add. materials: Nails for application of element to wall structure.
- 12: Edits: Sawn to specific sizes for use in the wall panels.
- 13: Application: To hold the insulation and support the wall elements, panels are placed at the outside of the wall element.

02.03.1221 Water retaining façade foil

- 1: Company: Pro Clima
- 2: Distributor: Maat Chalets
- 3: Item no: Solitex Fronta Quattro
- 4: Material: Polypropylene
- 5: Length: 50 m¹
- 6: Width: 1500 mm¹
- 7: Thickness: 0,6 mm¹
- 8: Weight: 1 kg/m²
- 9: Quality: Water resistance class W1,
- 10: Fire resistance: Euroclass E according to EN13501-1.
- 11: Requirement: Needs to be applied at the timber frame factory before shipment of wall elements. Additional pieces of façade foil need to be sent with panels for any errors on building site.
- 12: Add. materials: Staples and stapler for application of foil to structure(s).
- 13: Edits: -
- 14: Application: Stapled against wall panels. Each foil needs to hang over at least 100 mm¹ to following panel for maximum closure of the façade.

02.03.1221 Airtight tape

- 1: Company: Plaka
- 2: Distributor: Plaka
- 3: Item no: Mavo
tex 600 40/6-15
- 4: Material: Polypropene
- 5: Length: 30,1 m¹
- 6: Width: 6 mm¹
- 7: Thickness: 0,6 mm¹
- 8: Quality: According to DIN4108-7, SIA 180 and OENORM B 8110-2
- 9: Requirement: Applied during construction on building site. Applied on a clean underground.
Rub firmly after application.
- 10: Add. materials: Mavoplas DS tape, for reparations on site. Pressure roller for
compliant application of tape and foil.
- 11: Edits: Cut to specific sizes before use.
- 12: Application: Application between wall elements and Suteki beams.

02.03.2010 Battens

- 1: Company: Maat Chalets
- 2: Distributor: Maat Chalets
- 3: Item no: Battens 22 x 50 mm¹
- 4: Material: Spruce wood
- 5: Length: Standard length 4000 mm¹
- 6: Width: 50 mm¹
- 7: Height: 22 mm¹
- 8: Weight: 0,6 kg/m¹
- 9: Quality: Class C
- 10: Requirement: FSC or PEFC certified, KOMO certificate 32882/03
- 11: Add. materials: Screws 6x50 mm¹ for application to wall element.
- 12: Edits: Shaved. Colored with black paint to match façade foil color.
- 13: Application: Applied at the outside of the wall elements to mount the façade finishing
rails.

02.03.5000 Fasteners exterior panels

- 1: Company: Toggler
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: Toggler Hollow-wall anchor BE 5/16"
- 4: Material: Polymeric
- 5: Length: - mm¹
- 6: Width: 8 mm¹
- 7: Weight: -
- 8: Strength: 121,5 kg vertical and pull direction
- 9: Requirement: Hollow wall anchors have to meet the requirements of Toggler.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 of stainless steel.
- 12: Application: Use with pre-drilled holes in wall panels to apply Toggler plugs.

02.03.5000 Fasteners exterior panels

- 1: Company: WEKO
- 2: Distributor: Geritsse
- 3: Item no: 372672
- 4: Material: Messing
- 5: Length: 12,6 mm¹
- 6: Width: 11,1 mm¹
- 7: Thickness: 1,25 mm¹
- 8: Weight: -
- 9: Strength: -
- 10: Requirement: Compliant for use with M8 bolts.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Inserts used in Suteki columns and roof elements for application of M8 bolts for wall elements.

02.03.5000 Fasteners exterior panels

- 1: Company: Merford Plaatmaterialen BV
- 2: Distributor: Merford Plaatmaterialen BV
- 3: Item no: Angular steel, L-profile
- 4: Material: Zinc plated steel
- 5: Length: 120 mm¹
- 6: Width: 120 mm¹
- 7: Thickness: 4 mm¹
- 8: Weight: -
- 9: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 10: Requirement: Compliant for use with M8 bolts.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Angular steel used for application of wall elements at Suteki columns and beams.

02.03.5000 Fasteners exterior panels

- 1: Company: Merford Plaatmaterialen BV
- 2: Distributor: Merford Plaatmaterialen BV
- 3: Item no: Angular steel, L-profile
- 4: Material: Zinc plated steel
- 5: Length: 140 mm¹
- 6: Width: 140 mm¹
- 7: Thickness: 4 mm¹
- 8: Weight: -
- 9: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 10: Requirement: Compliant for use with M8 bolts.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Angular steel used for application of wall elements at Suteki columns and roof beams.

02.03.5000 Fasteners exterior panels

- 1: Company: -
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: Bolt M8x60 mm¹
- 4: Material: Galvanized steel
- 5: Length: 60 mm¹
- 6: Width: M8
- 7: Thickness: -
- 8: Weight: -
- 9: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 10: Requirement: Bolts need to comply with DIN 571.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Bolts M8x60 mm used for application of wall elements at Suteki columns and roof beams.

02.03.5000 Fasteners exterior panels

- 1: Company: -
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: Bolt M8x160 mm¹
- 4: Material: Galvanized steel
- 5: Length: 160 mm¹
- 6: Width: M8
- 7: Thickness: -
- 8: Weight: -
- 9: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 10: Requirement: Bolts need to comply with DIN 571.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Bolts M8x160 mm used for application of wall elements at Suteki ground beams.

02.03.5000 Fasteners exterior panels

- 1: Company: -
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: Ring M8
- 4: Material: Galvanized steel
- 5: Length: -
- 6: Width: M8
- 7: Thickness: -
- 8: Weight: -
- 9: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 10: Requirement: Bolts need to comply with DIN 571.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Bolts M8x160 mm used for application of wall elements at Suteki ground and roof beams and columns.

02.04 Exterior wall openings

- 1: Location: 17452 E 61st Ave, Denver, CO 80249
- 2: Size: -
- 3: Document: Drawing A-500 Window & Door schedule.

02.04.1100 Mounting frame tilt and turn window

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Pinewood
- 5: Length: Standard length 3600 mm¹
- 6: Width: 185 mm¹
- 7: Height: 38 mm¹
- 8: Mass: 3,5 kg/m¹
- 9: Quality: Wood class C24
- 10: Fire resistance: Euroclass D according to EN13501-1, higher grading acquired with use of flame retardant coatings.
- 11: Requirement: Application needs to be done with steel fasteners, class A2 or A4. Material needs to be closed off from the interior finishes.
- 12: Add. materials: Screws for application on window frames and wall panels.
- 13: Edits: Sawn to specific sizes for application with window frames.
- 14: Application: Mounting frame apply for the two tilt and turn windows at the south of the house. Application with the use of screws 4x40 mm¹.

02.04.2329 Mounting frame facade door

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Pinewood
- 5: Length: Standard length 3600 mm¹
- 6: Width: 185 mm¹
- 7: Height: 38 mm¹
- 8: Mass: 3,5 kg/m²
- 9: Quality: Wood class C24
- 10: Fire resistance: Class D, higher class acquired with the use of fire resistant coatings.
- 11: Requirement: Application needs to be done with steel fasteners, class A2 or A4. Material needs to be closed off from the interior finishes.
- 12: Add. materials: Screws for application on window frames and wall panels.
- 13: Edits: Sawn to specific sizes for application with window frames.
- 14: Application: Mounting frame apply for the façade doors in the living, dining and bedroom Application with the use of screws 4x40 mm¹.

02.04.1100 Mounting frame front door

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Pinewood
- 5: Length: Standard length 4000 mm¹
- 6: Width: 185 mm¹
- 7: Height: 38 mm¹
- 8: Mass: 3,5 kg/m²
- 9: Quality: Wood class C24
- 10: Fire resistance: Class D, higher class acquired with the use of fire resistant coatings.
- 11: Requirement: Application needs to be done with steel class A2 or A4. Material needs to be closed off from the interior finishes.
- 12: Add. materials: Screws for application on window frames and wall panels.
- 13: Edits: Sawn to specific sizes for application with window frames.
- 14: Application: Mounting frame apply for the façade doors in the living, dining and bedroom Application with the use of screws 4x40 mm¹.

02.04.1400 Tilt and turn window

- 1: Company: Van de Vin
- 2: Distributor: Van de Vin
- 3: Item no: -
- 4: Material: Ibrid
- 5: Length: 2009 mm¹
- 6: Width: 87 mm¹
- 7: Height: 2465 mm¹
- 8: Mass: 44 kg/m²
- 9: Quality: According to the rules set by Accoya Technologies. Accoya class A1 or A2, KOMO 33058/13, FSC CU-CW-807363, EN 408.
- 10: Fire resistance: Euroclass C according to EN13501-1, higher grading acquired with use of flame retardant coatings.
- 11: Requirement: Application needs to be done with steel class A2 or A4. Materials need to be painted before application.
- 12: Add. materials: Steel mounting strip for application at mounting frame.
- 13: Edits: Painted in RAL9011. Triple glazing placed before handling on building site. Windows delivered including paint, glazing, glue, hinges and locks.
- 14: Application: Application of the two tilt and turn windows at the south of the house. Application with the use of screws 4x40 mm¹.

02.04.1400 Facade door window

- 1: Company: Van de Vin
- 2: Distributor: Van de Vin
- 3: Item no: -
- 4: Material: Ibrid
- 5: Length: 2009, 3370 and 4610 mm¹
- 6: Width: 87 mm¹
- 7: Height: 2465 mm¹
- 8: Mass: 3,5 kg/m²
- 9: Quality: According to the rules set by Accoya Technologies. Accoya class A1 or A2, KOMO 33058/13, FSC CU-CW-807363, EN 408.
- 10: Fire resistance: Euroclass C according to EN13501-1, higher grading acquired with use of flame retardant coatings.
- 11: Requirement: Application needs to be done with steel class A2 or A4. Materials need to be painted before application.
- 12: Add. materials: Steel mounting strip for application at mounting frame.
- 13: Edits: Painted in RAL9011. Triple glazing placed before handling on building site. Windows delivered including paint, glazing, glue, hinges and locks.
- 14: Application: Application of the three façade door windows in the bedroom and livingroom and kitchen of the house. Application with the use of screws 4x40 mm¹.

02.04.1496 Front door

- 1: Company: Ecogarant
- 2: Distributor: Van de Vin
- 3: Item no: -
- 4: Material: MDF with insulation within door.
- 5: Length: 2315 mm¹
- 6: Width: 880 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: According the set standards from Ecogarant.
- 10: Fire resistance: Euroclass B-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: Application needs to be done with steel class A2 or A4. Materials need to be painted before application.
- 12: Add. materials: Steel mounting strip for application at mounting frame.
- 13: Edits: Painted in RAL9011. Windows delivered including paint, glazing, glue, hinges and locks
- 14: Application: Application of the two tilt and turn windows at the south of the house. Application with the use of screws 4x40 mm¹.

02.04.2100 Tilt and turn window glazing

- 1: Company: Saint- Gobain Glass solutions
- 2: Distributor: Saint-Gobain Glass solutions
- 3: Item no: SGG Planitherm XN 12mm
- 4: Material: Triple glazing, safety glass
- 5: Length: -
- 6: Width: 4-12-4-12-4
- 7: Height: -
- 8: Mass: 44 kg/m²
- 9: Quality: According to EN 673 and EN 410. Complies with requirements of Class B of BS-EN1096.
- 10: Requirement: Needs to have a maximum U-value of 0,7 W/(m².K)
- 11: Add. materials: -
- 12: Edits: Installed in window frame before handling on building site.
- 13: Application: Application of the two tilt and turn windows at the south of the house.

02.04.2100 Facade door glazing

- 1: Company: Saint-Gobain Glass solutions
- 2: Distributor: Saint-Gobain Glass solutions
- 3: Item no: SGG Planitherm Xn 12mm
- 4: Material: Triple glazing, safety glass
- 5: Length: -
- 6: Width: 4-12-4-12-4
- 7: Height: -
- 8: Mass: 44 kg/m²
- 9: Quality: According to EN 673 and EN 410. Complies with requirements of Class B of BS-EN1096.
- 10: Requirement: Needs to have a maximum U-value of 0,7 W/(m².K)
- 11: Add. materials: -
- 12: Edits: Installed in window frame before handling on building site.
- 13: Application: Application of the two tilt and turn windows at the south of the house.

02.04.2200 Tilt and turn window fittings

- 1: Company: To be determined
- 2: Distributor: Deurbeslag.nl
- 3: Item no: GPF9250.49
- 4: Material: Stainless steel
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: Complies with the delivered window frames, applied before placement of the window frames in the construction.
- 10: Fire resistance: -
- 11: Requirement: Needs to be (un) lockable from the inside.
- 12: Add. materials: Keys
- 13: Edits: Polished stainless steel

02.04.2200 Façade door fittings

- 1: Company: SECU
- 2: Distributor: Deurbeslag.nl
- 3: Item no: CC03000069
- 4: Material: Stainless steel
- 5: Length: 1800-3000 mm¹
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to set requirements from SECU.
- 10: Requirement: Applicable with wooden sliding door
- 11: Add. materials: -
- 12: Edits: -

02.04.2200 Front door fittings

- 1: Company: Bruynzeel
- 2: Distributor: Bruynzeel
- 3: Item no: BRZ61VG01
- 4: Material: Stainless steel
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to set requirements by Bruynzeel. SKG and Police requirements for burglar resistance
- 10: Requirement: Applicable with door BRZ 45-303. Pre-applied on front door before installation.
- 11: Add. materials: Hinges and locks, draft sill,
- 12: Edits: Polished stainless steel

02.04.1221 Airtight tape

- 1: Company: Plaka
- 2: Distributor: Plaka
- 3: Item no: DS foil
- 4: Material: Polypropene
- 5: Length: 30 m¹
- 6: Width: 6 mm¹
- 7: Thickness: 0,6 mm¹
- 8: Quality: According to DIN4108-7, SIA 180 and OENORM B 8110-2
- 9: Requirement: Applied during construction on building site. Applied on a clean underground.
Rub firmly after application.
- 10: Add. materials: Mavoplas DS tape, for reparations on site. Pressure roller for
compliant application of tape and foil.
- 11: Edits: Cut to specific sizes before use.
- 12: Application: Around inside of the windows.

02.05 Exterior wall finishes

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing A-220 A-221 Section view, All horizontal and Vertical details.

02.05.1490 Aluminum subframe railing system

- 1: Company: Derako façade systems
- 2: Distributor: Derako façade systems
- 3: Item no: -
- 4: Material: Aluminum
- 5: Length: maximum of 1765 mm¹
- 6: Width: 70 mm¹
- 7: Height: 50 mm¹
- 8: Mass: -
- 9: Quality: According to Derako requirements and conditions. ISO 14001, FSC and PEFC certified.
- 10: Fire resistance: B-s2-d0 according to EN13501
- 11: Requirement: Framing used with SLR clips from Derako. Facade panels delivered with the specific cut-outs for the Derako façade system.
- 12: Add. materials: SLR clips, screws 3,2x16mm
- 13: Edits: -
- 14: Application: On every wall panel except, the wall panels underneath the overhang.

02.05.4063 Aluminum clips exterior finish

- 1: Company: Derako façade systems
- 2: Distributor: Derako façade systems
- 3: Item no: SLR
- 4: Material: Aluminum
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to requirements of Derako and its conditions. Compliant with ISO 14001.
- 10: Fire resistance: B-s2-d0 according to EN13501
- 11: Requirement: Applied before installation of facade panels.
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: On every aluminum subframe railing system.

02.05.1140 Vertical façade panels

- 1: Company: Foreco
- 2: Distributor: Derako façade systems
- 3: Item no: Nobelwood
- 4: Material: Radiata Pine
- 5: Length: 3900 mm¹
- 6: Width: 115 mm¹
- 7: Height: 18 mm¹
- 8: Mass: 12 kg/m², including SLR clips and aluminum framing
- 9: Quality: Durability class 1 according to NEN-EN 807. Strength according to EN-408.
- 10: Fire resistance: B-s2-do after application of fire resistant coating. Standard D-s2-d0
- 11: Requirement: Application with use of the Derako façade system and SLR clips. Delivered including cut-outs and clips.

- 12: Add. materials: -
- 13: Edits: Fire resistant impregnation in factory.
- 14: Application: Added on the aluminum clips exterior finish.

02.05.1140 Vertical façade panels

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Plywood
- 5: Length: 3500 mm¹
- 6: Width: 1530 mm¹
- 7: Height: 12 mm¹
- 8: Mass: 6 kg/m²
- 9: Quality: Bonding according to EN 314. Certified by EN 636, CE4 and KOMO.
- 10: Fire resistance: D-s2,d0
- 11: Requirement: Primer applied before installation. First layer of coating applied before installation, second layer afterwards. Panels need to have a straight edge.
- 12: Add. materials: Screws
- 13: Edits: Painted with Copperant primer and coating. Sawn. Screws 4x40mm
- 14: Application: On every wall panel underneath the overhang

02.06 Interior walls

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-211 Wall Framing Plan

02.06.1480 Setting lath

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Spruce
- 5: Length: 2700 mm¹
- 6: Width: 75 mm¹
- 7: Height: 50 mm¹
- 8: Mass: 1,75 kg/m¹
- 9: Strength: C18 according to NEN 5466. Quality C, Durability Class IV.
- 10: Fire resistance: -
- 11: Requirement: Pre-drilled holes for securing lath to floor elements. Lag screws used for appliance. Applying a notch at the location of the angular anchors of the façade panels.
- 12: Add. materials: -
- 13: Edits: Shaved to 45x70 mm¹.
- 14: Application: In every interior wall

02.06.1417 Battening

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Spruce
- 5: Length: 2700 mm¹
- 6: Width: 120 mm¹
- 7: Height: 50 mm¹
- 8: Mass: 1,75 kg/m¹
- 9: Strength: C18 according to NEN 5466, Quality C, Durability Class IV
- 10: Fire resistance: -
- 11: Requirement: Installation of inner wall panel done in timber factory. Applied with finishing and insulation. Plywood finish on top side extended with 270 mm.
- 12: Add. materials: Wood screws 4x40mm
- 13: Edits: -
- 14: Application: In every interior wall

02.06.2210 Insulation wall

- 1: Company: QualyCork
- 2: Distributor: eco-logisch.nl
- 3: Item no: -
- 4: Material: Cork
- 5: Length: 500 mm¹
- 6: Width: 1000 mm¹
- 7: Height: -
- 8: Thickness: 120 mm¹
- 9: Mass: 95-110 kg/m³
- 10: Quality: Bonding according to EN13501, CSTB,
- 11: Fire resistance: Euroclass B2-s2,d0 according to EN13501-1 fire resistanc
- 12: Heat conductivity: 0,038W/(m.K), according to ETA-05/0226
- 13: Requirement: -
- 14: Add. materials: -
- 15: Edits: -
- 16: Application: In every interior wall

02.06.1110 Interior wall panels

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Plywood
- 5: Length: 3550 mm¹
- 6: Width: 1530 mm¹
- 7: Height: 12 mm¹
- 8: Mass: 8,1 kg/m²
- 9: Quality: Bonding according to EN 314. Certified by EN 636, CE4 and KOMO.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: Primer and first lauer of coating applied before installation, second layer of coating applied afterwards. Panels need to have a cut-off edge.
- 12: Add. materials: Screws 6x60mm
- 13: Edits: Painted with Copperant primer and coating. Possibly sawn to specific lengths.
- 14: Application: On every interior wall

02.07 Interior wall openings

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-211 Wall Framing Plan.

02.07.1400 Door frame interior

- 1: Company: Bron Bouwbedrijf
- 2: Distributor: Bron Bouwbedrijf
- 3: Item no: -
- 4: Material: Spruce
- 5: Length: 1004 mm¹
- 6: Width: 114 mm¹
- 7: Height: 2315 mm¹
- 8: Mass: -
- 9: Quality: According to Bruynzeel requirements and conditions.
- 10: Requirement: Screws 5x60mm
- 11: Add. materials: -
- 12: Edits: Painted with Copperant Pura primer and coating before application.
- 14: Application: In every interior wall opening

02.07.1400 Interior door

- 1: Company: Berkvens
- 2: Distributor: Bron Bouwbedrijf
- 3: Item no: -
- 4: Material: Particleboard
- 5: Length: 908 mm¹
- 6: Width: 40 mm¹
- 7: Height: 2315 mm¹
- 8: Mass: -
- 9: Quality: According to Bruynzeel requirements and conditions
- 10: Fire resistance: 30 minutes fire resistant according to NEN6069
- 11: Requirement: -
- 12: Add. materials: Including hinges and locks, pre-applied holes and finishing.
- 13: Edits: Painted with RAL color 9010
- 14: Application: In every interior door frame

02.07.2200 Door fittings

- 1: Company: Hoppe
- 2: Distributor: Hoppe
- 3: Item no: Duraplus Bonn E150Z/42H
- 4: Material: Aluminum
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to Bruynzeel requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Applicable with interior door BRZ 20-023. Pre-applied before installation of interior door on construction site
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: In every interior door except the bathroom door.

02.07.2200 Door fittings

- 1: Company: Hoppe
- 2: Distributor: Hoppe
- 3: Item no: Duraplus Bonn 150/42KV/42KVS with fittings for bathroom (lockable)
- 4: Material: Aluminum
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to Bruynzeel requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Applicable with interior door BRZ 20-023. Pre-applied before installation of interior door on construction site
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: In the bathroom door.

02.08 Interior wall finishes

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing I-200 Interior Finishes

02.08.4028 Glass panels

- 1: Company: Steinfort
- 2: Distributor: Steinfort
- 3: Item no: GLAZZ
- 4: Material: Safety Glass with enamel
- 5: Length: 2500 mm¹
- 6: Width: 1250 mm¹
- 7: Height: 6 mm¹
- 8: Mass: 15 kg/m²
- 9: Quality: According to Steinfort requirements and conditions. Complies with NEN 12150 according hardened/safety glass.
- 10: Fire resistance: A1-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: Applied according the installation requirements of Steinfort. Pre-applied before installation of the bathroom unit in the house. Kit joints at the construction site
- 12: Add. materials: -
- 13: Edits: Enamelled glass
- 14: Application: Applied on the interior bathroom wall

02.07.2085 Presence board

- 1: Company: Viking
- 2: Distributor: Viking
- 3: Item no: QH2-883732
- 4: Material: Aluminum frame
- 5: Length: 260 mm¹
- 6: Width: 770 mm¹
- 7: Height: 20 mm¹
- 8: Mass: -
- 9: Quality: According to Viking requirements and conditions.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: -
- 14: Application:

02.08.1130 Coving around columns

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Plywood
- 5: Length: 220 mm¹
- 6: Width: 170 mm¹
- 7: Height: 2880 mm¹
- 8: Thickness: 12 mm¹
- 9: Mass: 6,2 kg/m²
- 10: Quality: Bonding according to NEN-EN 314. Application compliant with NEN-EN 636-1.
- 11: Requirement: Applied on Spruce laths 45x70 mm¹ for fixation on columns.
Application with screws 3.6x38 mm¹
- 12: Add. materials: wooden screws 3.6x38 mm¹
- 13: Edits: Painted with Copperant primer and coating, RAL color 9016.
- 14: Application: A cove needs to be placed around every Suteki column.

02.08.1130 Coving around beams

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Plywood
- 5: Length: 975-4560 mm¹
- 6: Width: 238 mm¹
- 7: Height: 120 mm¹
- 8: Mass: 6,2 kg/m²
- 9: Quality: Bonding according to NEN-EN 314. Application compliant with NEN-EN 636-1.
- 10: Requirement: Applied on Spruce laths 45x70 mm¹ for fixation on columns.
Application with screws 3.6x38 mm¹
- 11: Add. materials: Screws 3.6x38 mm¹
- 12: Edits: Painted with Copperant primer and coating, RAL color 9016.
- 14: Application: A cove needs to be placed around every Suteki beam above the windows.

02.09 Floors

- 1: Location: Denver, Colorado
- 2: Omvang: -
- 3: Document: Drawing A-200 Floor Plan, S-203 Structural floor framing plan, S-207 Ground Floor plan.

02.09.1010 Floor elements

- 1: Company: Binderholtz
- 2: Distributor: Ekoflin
- 3: Item no: -
- 4: Material: CLT (Cross Layered Timber)
- 5: Length: 5080 and 3840 mm¹
- 6: Width: 1220 mm¹
- 7: Height: 180 mm¹
- 8: Mass: 81 kg/m²
- 9: Strength: Structural calculations in according with EN 1995-1-1, DIN 1052. VI quality.
- 10: Fire resistance: D-s2,d0 without application of flame retardants.
With use of those, CLT can comply to Class C-s2,d0 and B-s2,d0.
- 11: Requirement: CLT floors need to be applied with a flame-retardant coating, to be determined.
- 12: Add. materials: 4 M10 lag screws, 280 mm¹ for fastening to underlying bearing construction. Wooden batten to connect the floor elements to eachother. Lag screws 6x200 mm¹ to create disk function of floor elements, apply crosswise.
- 13: Edits: -
- 14: Application: Position of the different floor elements for application can be found at drawing S204 Floor plan.

02.09.1605 Insulation

- 1: Company: Homatherm
- 2: Distributor: Warmteplan BV
- 3: Item no: HDP Protect
- 4: Material: Wood fiberboard
- 5: Length: 1200 mm¹
- 6: Width: 625 mm¹
- 7: Height: 200 mm¹
- 8: Mass: 33,6 kg/m²
- 9: Quality: According to Homatherm requirements and conditions.
Compliant with DIN 4108-10 and PEFC certified.
- 10: Fire resistance: Euroclass E according to EN 13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: Possibly sawn for correct placement
- 14: Application: Application according to installation plan.

02.09.1011 Floor fasteners

- 1: Company: -
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 280 mm¹
- 6: Diameter: 10 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571. Use with pre-drilled holes.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 14: Application: Screws needed to fasten the floor elements to underlying bearing construction.
Application of the screws should be with a spacing of 500mm at the edge of every element.

02.09.1011 Insulation fasteners

- 1: Company: -
- 2: Distributor: Langerak IJzerwaren
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 240 mm¹
- 6: Diameter: 6 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 14: Application: Screws needed to fasten the insulation floor to construction above.

02.10 Floor openings

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: -

02.10.1010 Floor opening Bathroom

- 1: Company: -
- 2: Distributor: -
- 3: Item no: -
- 4: Material: -
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality / Strength: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: -

02.11 Floor finish

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing M-201 HVAC Floor Heating.

02.11.1310 Dry top floor

- 1: Company: Jupiter BV
- 2: Distributor: Jupiter BV
- 3: Item no: Ideal OKO
- 4: Material: Fiberboard
- 5: Length: 1000 mm¹
- 6: Width: 500 mm¹
- 7: Height: 50 mm¹
- 8: Mass: -
- 9: Quality: According to Jupiter requirements and conditions.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: Panels sawn to specific lengths. Notches for heating pipes. Aluminum plates for heat spreading in notches and on top of dry floor.
- 14: Application: Applied in bedroom, hallway, bathroom, Livingroom and kitchen.

02.11.4030 Floor tile Bathroom

- 1: Company: Jupiter
- 2: Distributor: Jupiter
- 3: Item no: -
- 4: Material: Ceramic
- 5: Length: 300 mm¹
- 6: Width: 300 mm¹
- 7: Height: 10 mm¹
- 8: Mass: ~25 kg/m²
- 9: Quality: According with suppliers requirements and conditions.
- 10: Fire resistance: -
- 11: Requirement: Water resistant. Compliant with sealants and mortar. Color to be determined.
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: Applied in bathroom.

02.11.1769 Underfloor laminate

- 1: Company: Isofoam
- 2: Distributor: Masterplast
- 3: Item no: -
- 4: Material: XPS
- 5: Length: 1000 mm¹ per roll
- 6: Width: 500 mm¹
- 7: Height: 1,6 mm¹
- 8: Mass: -
- 9: Quality: According to SPEA requirements and conditions. Compliant with ISO 0140 and ISO 717-2.
- 10: Fire resistance: -
- 11: Requirement: Edges taped with aluminum tape. Clean and dry underfloor system.
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: Applied in bedroom, hallway, Livingroom and kitchen.

02.11.1771 Laminate

- 1: Company: My Floor Residence
- 2: Distributor: My Floor Residence
- 3: Item no: ML1015
- 4: Material: ER (Registered Emboss)
- 5: Length: 1845 mm¹
- 6: Width: 244 mm¹
- 7: Height: 10 mm¹
- 8: Mass: 2,6 kg/m²
- 9: Quality: According to requirements and conditions of the AC-classes, this product is conform AC5/33
- 10: Fire resistance: Euroclass Cfl-s1 according to EN 13501-1 fire resistance
- 11: Requirement: Applicable with floor heating and -cooling. Tools for application necessary.
- 12: Add. materials: Underfloor laminate.
- 13: Edits: -
- 14: Application: Applied in bedroom, hallway, Livingroom and kitchen.

02.11.1468 Plinth

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: MDF
- 5: Length: Different lengths
- 6: Width: 22
- 7: Height: 50
- 8: Mass: -
- 9: Quality: According to Jongeneel requirements and specifications.
- 10: Fire resistance: -
- 11: Requirement: Screws for application of plinth to walls.
- 12: Add. materials: -
- 13: Edits: Painted with Copperant Pura primer and coating. Pre-drilled holes before application.
- 14: Application: Underneath every interior finishing. Except for the bathroom

02.11.5000 Fasteners

- 1: Company: Heco
- 2: Distributor: Geritsse
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 35 mm¹
- 6: Diameter: 4 mm¹
- 7: Mass: -
- 8: Quality: -
- 9: Fire resistance: -
- 10: Requirement: Applicable with used plinth.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Underneath every interior finishing. Screws should be placed with a spacing of 600 mm¹

02.12 Roof

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing A-201 Roof Plan, S-208 Roof framing plan, S-211 Roof floor plan.

02.12.1010 Roof elements

- 1: Company: Binderholz-Bauwsysteme GmbH
- 2: Distributor: Ekoflin
- 3: Item no: BBS 125
- 4: Material: CLT (Cross Layered Timber)
- 5: Length: 6680 and 3800 mm¹
- 6: Width: 582-1250 mm¹
- 7: Height: 180 mm¹
- 8: Mass: 81 kg/m²
- 9: Strength: Structural calculations in according with EN 1995-1-1, DIN 1052. VI quality, one sided visible quality.
- 10: Fire resistance: D-s2,d0 without application of flame retardants. With use of those, CLT can comply to Class C-s2,d0 and B-s2,d0.
- 11: Requirement: CLT floors need to be applied with a flame-retardant coating, to be determined. One side visible quality
- 12: Add. materials: 4 M10 lag screws, 280 mm¹ for fastening to underlying bearing construction. Wooden batten to connect the roof elements to eachother. Lag screws 6x200 mm¹ to create disk function of roof elements, apply crosswise
- 13: Edits: -
- 14: Application: Applied on the whole roof. For application see drawing S208 Roof plan.

02.12.1011 Roof fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: 2040.01.71801
- 4: Material: Galvanized steel
- 5: Length: 280 mm¹
- 6: Diameter: 10 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571. Use with pre-drilled holes.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 14: Application: Screws needed to fasten the roof elements to underlying bearing construction. Application of the screws should be with a spacing of 500mm at the edge of every element.

02.13 Roof openings

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: -

02.14 Roof finishes

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-209 Roof Framing, S-211 Roof framing plan.

02.14.2285 Vapor barrier

- 1: Company: Rockwool
- 2: Distributor: Bouwcenter Nieuwegein
- 3: Item no: 3098999999
- 4: Material: Polyethyleen
- 5: Length: 4x 25 m¹
- 6: Width: 1580 mm¹
- 7: Height: 0,6 mm¹
- 8: Mass: 0,69 kg/m²
- 9: Quality: According to Rockwool requirements and conditions. Compliant with EN 13984.
- 10: Fire resistance: Euroclass E according to EN 13501-1 fire resistance
- 11: Requirement: Vapor barrier tightened with the sticky layer to roof elements. Overlay between elements of at least 80 mm.
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: Application on top of the roof elements.

02.14.1605 Insulation

- 1: Company: Homatherm
- 2: Distributor: Warmteplan BV
- 3: Item no: HDP Protect
- 4: Material: Wood fiberboard
- 5: Length: 1265 mm¹
- 6: Width: 615 mm¹
- 7: Height: 200 mm¹
- 8: Mass: 33,6 kg/m²
- 9: Quality: According to Homatherm requirements and conditions. Compliant with DIN 4108-10 and PEFC certified.
- 10: Fire resistance: Euroclass E according to EN 13501-1 fire resistance.
- 11: Requirement: Water retaining barrier needs to be placed within 6 weeks of placement of insulation.
- 12: Add. materials:
- 13: Edits: Possibly sawn for correct placement
- 14: Application: Insulation on top of the vapor barrier. Application according to installation plan.

02.14.2254 Slope insulation

- 1: Company: Gutex
- 2: Distributor: Warmteplan BV
- 3: Item no: Gutex Thermoflat Gefälle 042
- 4: Material: Wood fiberboard
- 5: Length: 830 mm¹
- 6: Width: 600 mm¹

- 7: Height: average 96,2 mm¹
- 8: Mass: 140 kg/m²
- 9: Quality: According to Gutex requirements and conditions.
Compliant with DIN 4108-10 and PEFC certified.
- 10: Fire resistance: Euroclass E according to EN 13501-1 fire resistance.
- 11: Requirement: Water retaining barrier needs to be placed within 6 weeks of placement of insulation.
- 12: Add. materials: -
- 13: Edits: Possibly sawn for correct placement
- 14: Application: Slope insulation on top of the woodfiber insulation. Application according to installation plan.

02.14.1540 Water retaining barrier

- 1: Company: Van Beek EPDM BV
- 2: Distributor: Van Beek EPDM BV
- 3: Item no: BD K 60 A 00
- 4: Material: EPDM
- 5: Length: 7200 and 4700 mm¹
- 6: Width: 9200 and 11000 mm¹
- 7: Height: 1,6 mm¹
- 8: Mass: 1,35 kg/m²
- 9: Quality: According to Van Beek EPDM BV requirements and conditions. Compliant with EN 13956, EN 1928 for water tightness, EN1297 for UV exposure and EN 1107-2 for Dimensional stability and KOMO certificated.
- 10: Fire resistance: E according to EN 13501-1 fire resistance
- 11: Requirement: After application, ballast layer needs to be placed for securement of barrier.
Before application, check material for punctures or physical damage.
- 12: Add. materials: -
- 13: Edits: 3D EPDM layer
- 14: Application: Water retaining barrier applied on top of slope insulation. Application according to installation plan.

02.14.1013 Ballast layer

- 1: Company: -
- 2: Distributor: -
- 3: Item no: -
- 4: Material: Concrete tiles
- 5: Length: 300 mm¹
- 6: Width: 600 mm¹
- 7: Height: 50 mm¹
- 8: Mass: 80 kg/m²
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: Tiles need to be placed on solar panel footings.
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: Concrete tiles should be placed at every edge and corner of the roof.

02.14.5000 Roof trim

- 1: Company: Compri Aluminium
- 2: Distributor: Compri Aluminium
- 3: Item no: 140651300300
- 4: Material: Aluminium
- 5: Length: 11x 5000 mm¹

- 6: Width: 95 mm¹
- 7: Height: 130 mm¹
- 8: Mass: -
- 9: Quality: According to Compri Aluminium requirements and specifications.
- 10: Fire resistance: -
- 11: Requirement: Screws for application on façade panels.
- 12: Add. materials: Screws 4x40 mm¹
- 13: Edits: -
- 14: Application: Roof trim should be placed on every edge of the roof.

02.15 Ramps and railings

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-350 Structural ramp overview entrance, S-360 Structural ramp overview exit, S-362 Structural deck overview.

02.15.1640 Bearing construction

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Azobe wood
- 5: Length: Multiple lengths
- 6: Width: 50 mm¹
- 7: Height: 150 mm¹
- 8: Mass: 50 kg/m²
- 9: Strength: Class D40 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: 10x140 mm and 8x50 mm lag screws and steel corner anchor 45x45 mm for application to columns.
- 13: Edits: -
- 14: Application: All horizontal beams of the bearing construction of the ramp and platform. Beams connected to columns using 10x140 mm lag screws, steel quality 8.8 and a steel corner anchor 45x45 mm¹ fastened with 8x50 Hex lag screw.

02.15.1640 Columns

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Angelin Vermelho wood
- 5: Length: 1345 mm¹
- 6: Width: 90 mm¹
- 7: Height: 90 mm¹
- 8: Mass: 10,53 kg/m¹
- 9: Strength: Class D40 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: D-s2,d0
- 11: Requirement: -
- 12: Add. materials: M10x160 bolts for application to beams
- 13: Edits: -
- 14: Application: All horizontal beams of the bearing construction of the ramp and platform. Beams connected to columns using M12 bolts, steel quality 8.8

02.15.1640 Wooden slab footing

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Azobe wood
- 5: Length: Multiple lengths
- 6: Width: 50 mm¹
- 7: Height: 150 mm¹
- 8: Mass: 7,5 kg/m¹
- 9: Strength: Class D50 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: -.
- 14: Application: Bearing construction of the decks of the ramp and platform.

02.15.1641 Railings

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Cumaru wood
- 5: Length: Multiple lengths
- 6: Width: 145 mm¹
- 7: Height: 45 mm¹
- 8: Mass: 6,53 kg/m¹
- 9: Strength: Class D50 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: 5x80mm screws for application to columns
- 13: Edits: -
- 14: Application: Railing connected to columns using 5x80mm screws, steel quality 8.8 applied with pre-drilled holes.

02.15.1641 Railings

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Angelim Vermelho
- 5: Length: Multiple lengths
- 6: Width: 90 mm¹
- 7: Height: 45 mm¹
- 8: Mass: 4,46 kg/m¹
- 9: Strength: Class D50 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: 5x80mm screws for application to columns
- 13: Edits: -
- 14: Application: Railing connected to columns using 5x80mm screws, steel quality 8.8 applied with pre-drilled holes.

02.15.1642 Railings

- 1: Company: AP Houtconstructie

- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Angelim Vermelho
- 5: Length: Multiple lengths
- 6: Width: 35 mm¹
- 7: Height: 6 mm¹
- 8: Mass: 0,21 kg/m¹
- 9: Strength: Class D50 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: 4x40 mm¹ screws for application to columns
- 13: Edits: -
- 14: Application: Foot railing connected to columns using 4x40 mm¹.

02.15.1642 Columns

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Angelin Vermelho wood
- 5: Length: 1345 mm¹
- 6: Width: 90 mm¹
- 7: Height: 90 mm¹
- 8: Mass: 10,53 kg/m¹
- 9: Strength: Class D40 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: M10x160 and M10x140 bolts for application to beams
- 13: Edits: -
- 14: Application: Beams connected to columns using M10x160 and M10x140 bolts, steel quality 8.8.

02.15.5000 Fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 140 mm¹
- 6: Diameter: 10 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571. Use with pre-drilled holes and nuts.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 12: Application: Bearing construction and columns.

02.15.5001 Fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: -
- 4: Material: Galvanized steel

- 5: Length: 160 mm¹
- 6: Diameter: 10 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Bolts need to comply with DIN 571. Use with pre-drilled holes and nuts.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 12: Application: Bearing construction and columns

02.15.5002 Fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 80 mm¹
- 6: Diameter: 5 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571. Use with pre-drilled holes and nuts.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 12: Application: Bearing construction and columns

02.15.5003 Fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 40 mm¹
- 6: Diameter: 4 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Screws need to comply with DIN 571.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 12: Application: Hand railing.

02.15.5004 Fasteners

- 1: Company: Heco
- 2: Distributor: Gerritse
- 3: Item no: -
- 4: Material: Galvanized steel
- 5: Length: 140 mm¹
- 6: Diameter: 10 mm¹
- 7: Mass: -
- 8: Strength: Steel quality 8.8 according to NEN-EN-ISO 898-1:2009
- 9: Requirement: Bolts need to comply with DIN 571. Use with pre-drilled holes and nuts.
- 10: Add. materials: -
- 11: Edits: Galvanized, compliant with class A2 or A4 of stainless steel.
- 12: Application: Railing columns.

02.16 Ramps and railing finishes

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-350 Structural ramp overview entrance, S-360 Structural ramp overview exit, S-362 Structural deck overview.

02.16.1021 Decking

- 1: Company: AP Houtconstructie
- 2: Distributor: AP Houtconstructie
- 3: Item no: -
- 4: Material: Okan
- 5: Length: 4000 mm¹
- 6: Width: 145 mm¹
- 7: Height: 28 mm¹
- 8: Mass: 9,5 kg/ m¹
- 9: Strength: Class D60 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: Wood screws, 5x60 mm¹
- 13: Edits: -
- 14: Application: Deck wood applied with a spacing of 10 mm¹

02.16.1021 Decking

- 1: Company: Metaalhandel BV
- 2: Distributor: Metaalhandel BV
- 3: Item no: -
- 4: Material: Aluminium
- 5: Length: 620 mm¹
- 6: Width: 1524 mm¹
- 7: Height: 3 mm¹
- 8: Mass: 12,35 kg/ m¹
- 9: Strength: -
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: Applied at the begin of the ramp.

02.16.1021 Handrail

- 1: Company: Jongeneel
- 2: Distributor: Jongeneel
- 3: Item no: -
- 4: Material: Meranti wood
- 5: Diameter: 35 mm¹
- 8: Mass: 640 kg/ m³
- 9: Strength: Class D40 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338.
- 10: Fire resistance: Euroclass D-s2,d0 according to EN13501-1 fire resistance.
- 11: Requirement: -
- 12: Add. materials: Handrail attachers
- 13: Edits: -
- 14: Application: On top of the handrail of the ramp and platform.

02.19 Painting

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: -

02.19.1078 Coating exterior wall panels

- 1: Company: Wijzonol
- 2: Distributor: Gamma
- 3: Item no:
- 4: Material: Zijdeglans lakverf, 9104
- 5: Length: -
- 6: Width: -
- 7: Thickness: 45 um when dry, (80 um when wet)
- 8: Mass: -
- 9: Quality: According to Wijzonol requirements and conditions. Compliant with ISO 6504/1, ISO 11507, ISO 4628.
- 10: Fire resistance: -
- 11: Requirement: Application when subsurface is clean, dry and without residue. Primer needs to be applied before application of coating. Coating applied before installation of panels.
- 12: Add. materials: Tools for application of coating, multicleaner and sanding.
- 13: Edits: -
- 14: Application: On every plywood exterior wall panel.

02.19.1078 Coating interior wall panels

- 1: Company: Flexa
- 2: Distributor: Gamma
- 3: Item no: Flexa zijdeglans lakverf 9104
- 4: Material: Zijdeglans lakverf 9104
- 5: Length: -
- 6: Width: -
- 7: Thickness: 45 um when dry, (80 um when wet)
- 8: Mass: -
- 9: Quality: According to Flexa requirements and conditions. Compliant with ISO 6504/1, ISO 11507, ISO 4628.
- 10: Fire resistance: -
- 11: Requirement: Application when subsurface is clean, dry and without residue. Primer needs to be applied before application of coating. Coating applied before installation of panels.
- 12: Add. materials: Tools for application of primer, multicleaner and sanding.
- 13: Edits: -
- 14: Application: On every plywood interior wall panel.

02.19.1078 Coating coving

- 1: Company: Flexa
- 2: Distributor: Gamma
- 3: Item no: Flexa zijdeglans lakverf 9104
- 4: Material: Zijdeglans lakverf 9104
- 5: Length: -
- 6: Width: -
- 7: Thickness: 45 um when dry, (80 um when wet)
- 8: Mass:
- 9: Quality: According to Flexa requirements and conditions. Compliant with ISO 6504/1, ISO 11507, ISO 4628.
- 10: Fire resistance: -
- 11: Requirement: Application when subsurface is clean, dry and without residue. Primer needs to be applied before application of coating. Coating applied before installation of panels.
- 12: Add. materials: Tools for application of primer, multicleaner and sanding.
- 13: Edits: -
- 14: Application: On every plywood cove.

02.19.1078 Coating plinth and laths

- 1: Company: Flexa
- 2: Distributor: Gamma
- 3: Item no: Flexa zijdeglans lakverf 9104
- 4: Material: Zijdeglans lakverf 9104
- 5: Length: -
- 6: Width: -
- 7: Thickness: 45 um when dry, (80 um when wet)
- 8: Mass:
- 9: Quality: According to Flexa requirements and conditions. Compliant with ISO 6504/1, ISO 11507, ISO 4628.
- 10: Fire resistance: -
- 11: Requirement: Application when subsurface is clean, dry and without residue. Primer needs to be applied before application of coating. Coating applied before installation of panels.
- 12: Add. materials: Tools for application of primer, multicleaner and sanding.
- 13: Edits: -
- 14: Application: On every plinth and lath.

02.19 Terrain

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing L-200 Landscape plan.

02.20.1961 Plantation

- 1: Company: To be determined
- 2: Distributor: To be determined
- 3: Item no: -
- 4: Material: Festuca Blue, Lavender, Phlox (White-Rose), Phlox (Pink) and Hyndrea Magicals
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to distributors requirement and conditions.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Add. materials: -
- 13: Edits: -
- 14: Application: For application see drawing L-200

02.20 Terrain hard surfaces

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing L-200 Landscape.

02.21 Terrain separation

- 1: Location: Denver, Colorado
- 2: Omvang: -
- 3: Document: -

02.22 Terrain furniture and -objects

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: -

02.23 Specials

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing S-362 Structural deck overview.

02.24.2211 Pergola bearing construction

- 1: Company: gardenonline.nl
- 2: Distributor: gardenonline.nl
- 3: Item no: -
- 4: Material: Spruce wood
- 5: Length: 2100, 2500 and 4000 mm¹
- 6: Width: 115 mm¹
- 7: Height: 115 mm¹
- 8: Mass: 7,67 kg/m¹
- 9: Strength: Class C18 according to NEN-EN 1995-1-1, Eurocode 5, NEN-EN 338
- 10: Fire resistance: -
- 11: Requirement: Impregnated spruce wood.
- 12: Add. materials: 5x60 lag screw for application of steel anchors.
- 13: Edits: Flame retardant coating.
- 14: Application: Pergola is applied at the east side of the livingroom

02.24.2211 Pergola roof

- 1: Company: gardenonline.nl
- 2: Distributor: gardenonline.nl
- 3: Item no: Garviks Harmonica wavesail cloth-
- 4: Material: -
- 5: Length: 200 mm¹
- 6: Width: 300 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: Requirements and specifications given by manufacturer.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Add. materials: Fasteners for application at bearing construction.
- 13: Edits: -
- 14: Application: Application on top of the pergola bearing construction.

02.24.5000 Fasteners

- 1: Company: Unknown
- 2: Distributor: Gardenonline.nl
- 3: Item no: -
- 4: Material: Stainless steel
- 5: Length: 60 mm¹
- 6: Diameter: 5 mm¹
- 7: Mass: -
- 8: Quality: According to gardenonline.nl requirements and conditions.
- 9: Fire resistance: -
- 10: Requirement: Applicable with spruce wood.
- 11: Add. materials: -
- 12: Edits: -
- 13: Application: Applied to connect columns and beams.

03 Mechanical

03.01 Rainwater, wastewater and draining

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing P-001, P-100, P-101, P-102, P-200, P-201, P-300, P-400, P-500, P-501, P-600.

03.01.2111 Water drainage roof

- 1: Company: Van Beek EPDM
- 2: Distributor: Van Beek EPDM
- 3: Item no: -
- 4: Material: PVC
- 5: Length: 217mm¹
- 6: Width: 148mm¹
- 7: Height: 193mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: Holes made in eaves
- 12: Additional materials:
- 13: Edits: -

03.01.2221 Water drainage shower bathroom

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Various
- 4: Material: PE
- 5: Length: Various (maximum of 5 meters)
- 6: Width: -
- 7: Height: -
- 8: Mass: 0.95 g/cm³
- 9: Quality: 80 N/mm² (E-modulus= 3000 N/mm²)
- 10: Fire resistance: Melting point 210 degrees Celcius
- 11: Requirement: Connect to house type: Steel THVZ Ring (every 1 meter). Connect between pipes: Manchet muff connection with rubber ceiling
- 12: Additional materials: Vaseline, Lubrication
- 13: Edits: Possibly sawn for specific location

03.01.3211 Water drainage pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Various
- 4: Material: PE
- 5: Length: Various (maximum of 5 meters)
- 6: Width: Various (40 to 110mm diameter)
- 7: Height: -
- 8: Mass: 0.95 g/cm³
- 9: Quality: 80 N/mm² (E-modulus= 3000 N/mm²)
- 10: Fire resistance: Melting point 210 degrees Celcius
- 11: Requirement: Connect to house type: Steel THVZ Ring (every 1 meter). Connect between pipes: Manchet muff connection with rubber ceiling
- 12: Additional materials: Vaseline, Lubrication
- 13: Edits: Possibly sawn for specific location

03.01.3222 Waste water pipe – See 03.01.3211

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Various
- 4: Material: PE
- 5: Length: Various (maximum of 5 meters)
- 6: Width: -
- 7: Height: -
- 8: Mass: 0.95 g/cm³
- 9: Quality: 80 N/mm² (E-modulus= 3000 N/mm²)
- 10: Fire resistance: Melting point 210 degrees Celcius
- 11: Requirement: Connect to house type: Steel THVZ Ring (every 1 meter). Connect between pipes: Manchet muff connection with rubber ceiling
- 12: Additional materials: Vaseline, Lubrication
- 13: Edits: Possibly sawn for specific location

03.01.5311 Waste water tank

- 1: Company: Ekotank
- 2: Distributor: <http://www.dammekunststoffen.nl>
- 3: Item no: Custom
- 4: Material: Plastics
- 5: Length: 1700mm¹
- 6: Width: 2000mm¹
- 7: Height: 650mm¹
- 8: Mass: 1750kg when filled
- 9: Quality: According to Van DAMME requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Wooden pallet as underlay
- 12: Additional materials: Wooden pallet
- 13: Edits: -

03.01.5321 Waste water pump

- 1: Company: WILO
- 2: Distributor: WILO
- 3: Item no: Drainlift box 32/8
- 4: Material: Plastics/stainless steel
- 5: Length: 720mm¹
- 6: Width: 880mm¹
- 7: Height: 705mm¹
- 8: Mass: 26Kg when unfilled
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: Flat ground.
- 12: Additional materials: -
- 13: Edits: -

03.02 Water installation

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing P-001, P-100, P-101, P-102, P-200, P-201, P-300, P-400, P-500, P-501.

03.02.1261 Pressure Gauge

- 1: Company: VIKING
- 2: Distributor: VIKING
- 3: Item no: GAU GAU022DRY0-16
- 4: Material: Aluminum, Polycarbonate, Messing, Steel
- 5: Length: 102mm diameter, 4mm thick
- 6: Width: 102mm diameter, 4mm thick
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to VIKING requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Screw into riser manifold pipe
- 12: Additional materials: -
- 13: Edits: Pressure 0 to 16 bar

03.02.2124 Heat pump

- 1: Company: LG
- 2: Distributor: LG
- 3: Item no: HU091.U42
- 4: Material: -
- 5: Length: 950mm
- 6: Width: 834mm
- 7: Height: 330mm
- 8: Mass: 64kg
- 9: Quality: 9kW
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

03.02.2511 Water circulation pump

- 1: Company: WILO
- 2: Distributor: WILO
- 3: Item no: Wilo-MultiCargo FMC
- 4: Material: Steel, plastic
- 5: Length: 418mm
- 6: Width: 244mm
- 7: Height: 284mm
- 8: Mass: 26.1kg
- 9: Quality: 0.84W, 240V, 50Hz
- 10: Fire resistance: -
- 11: Requirement: Pump must be covered/insulated because of outside location
- 12: Additional materials: -
- 13: Edits: Placed in an insulated box with the other pumps

03.02.2523 Clean water tank

- 1: Company: Van DAMME
- 2: Distributor: <http://www.dammekunststoffen.nl>
- 3: Item no: Custom

- 4: Material: Plastics
- 5: Length: 1700mm
- 6: Width: 2000mm
- 7: Height: 550mm
- 8: Mass: 1750kg when filled
- 9: Quality: According to Van DAMME requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Wooden pallet as underlay
- 12: Additional materials: Wooden pallet
- 13: Edits: -

03.02.4222 Cold water supply pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Pushfit Various
- 4: Material: Triple layered plastic – aluminum - plastic
- 5: Length: 50m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: KOMO 3
- 10: Fire resistance: -
- 11: Requirement: Water tight
- 12: Additional materials: Geberit Scissor's, deburrer
- 13: Edits:

03.02.4222 Hot water supply pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Pushfit Various
- 4: Material: Triple layered plastic – aluminum - plastic
- 5: Length: 50m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: KOMO 3
- 10: Fire resistance: -
- 11: Requirement: Water tight
- 12: Additional materials: Geberit Scissor's, deburrer
- 13: Edits:

03.02.8151 Insulation pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Pushfit Various
- 4: Material: Triple layered plastic – aluminum - plastic
- 5: Length: 50m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: KOMO 3
- 10: Fire resistance: -
- 11: Requirement: Water tight
- 12: Additional materials: Geberit Scissor's, deburrer
- 13: Edits:

03.04 Fire sprinkler installation

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing F-001, F-100, F-101, F-200, F-400, F-401, F-402, F-500.

03.04.2111 Water tank sprinkler system

- 1: Company: Van DAMME
- 2: Distributor: Dammekunststoffen
- 3: Item no: Custom
- 4: Material: Plastics
- 5: Length: 1700mm
- 6: Width: 2000mm
- 7: Height: 650mm
- 8: Mass: 1400kg when filled
- 9: Quality / Strength: According to Van DAMME requirements and conditions
- 10: Fire resistance: -
- 11: Requirement: Wooden pallet as underlay
- 12: Additional materials: Wooden pallet
- 13: Edits: -

03.04.2211 Sprinkler pump system

- 1: Company: WILO
- 2: Distributor: WILO
- 3: Item no: Economy MHI 405 (1~230V, FKM)
- 4: Material: Steel
- 5: Length: 448mm
- 6: Width: 190mm
- 7: Height: 224mm
- 8: Mass: 15.2kg
- 9: Quality: 1.1kW, 230V, 50Hz
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: Pressure buffer vessel to max 10bar
- 13: Edits:

03.04.4111 Sprinkler system supply pipe

- 1: Company: Blazemaster
- 2: Distributor: Lubrizol
- 3: Item no: -
- 4: Material: CPVC
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: According to Blazemaster requirements and conditions
- 10: Fire resistance: 65 C at 12.1 bar
- 11: Requirement: Water tightening tape
- 12: Additional materials: Water tightening tape
- 13: Edits: -

03.04.5111 Sprinkler

- 1: Company: VIKING
- 2: Distributor: VIKING
- 3: Item no: VK102
- 4: Material: Frame casting: Brass UNS-C84400 of QM Brass. Deflector: Phosphor Bronze UNS-C51000 or Copper UNS-C19500. Bulb: Glass, nominal 5mm diameter. Belleville Spring Sealing Assembly: nickel Alloy, coated on both sides with PTFE Tape. Screw: Brass UNS-C63000. Pipe Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400.
- 5: Length: 44.5mm
- 6: Width: 54mm
- 7: Height: -
- 8: Mass: -
- 9: Quality: cULus, FM, VdS, LPCB, CE, CCCF approved.
- 10: Fire resistance: -
- 11: Requirement: According to NFPA-13D
- 12: Additional materials: Sprinkler Wrenches
- 13: Edits: -

03.04.5112 Sprinkler

- 1: Company: VIKING
- 2: Distributor: VIKING
- 3: Item no: VK430
- 4: Material: Frame casting: Brass UNS-C84400 of QM Brass. Deflector: Brass UNS-C26000. Bulb: Glass, nominal 3mm diameter. Belleville Spring Sealing Assembly: nickel Alloy, coated on both sides with Teflon Tape. Compression Screw: Brass UNS-C63000. Pipe Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400.
- 5: Length: 58mm
- 6: Width: 31.8mm
- 7: Height: -
- 8: Mass: -
- 9: Quality: cULus, NYC approved.
- 10: Fire resistance: -
- 11: Requirement: According to NFPA-13D
- 12: Additional materials: Sprinkler Wrenches
- 13: Edits: -

03.04.5113 Sprinkler

- 1: Company: VIKING
- 2: Distributor: VIKING
- 3: Item no: VK457
- 4: Material: Sprinkler Body: Brass UNS-C84400 of QM Brass. Deflector: Phosphor Bronze UNS-C51000. Deflector Pins: Stainless Steel UNS-S30200. Button: Brass UNS-C36000. Seat Assembly: Brass UNS-C31600. Compression Screw: Brass UNS-C63000. Fusible Element Assembly: Beryllium Nickel, coated with black acrylic paint. Levers: Stainless Steel UNS-S31600. Lever Bar: Copper Alloy UNS-C72500. Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape. Cover Adapter: Cold Rolled Steel UNS-G10080, Finish: Clear Chromate over Zinc Plating. Shipping Cap: Polyethylene. Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800. Spring: Beryllium Nickel. Solder: Eutectic.
- 5: Length: 65mm
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 8: Quality: cULus approved.
- 9: Fire resistance: -
- 10: Requirement: According to NFPA-13D
- 11: Additional materials: Sprinkler Wrenches
- 12: Edits: -

03.05 Heating installation

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing P-001, P-100, P-101, P-102, P-200, P-201, P-300, P-400, P-500, P-501.

03.05.2122 Air/water heating pump

- 1: Company: LG
- 2: Distributor: LG
- 3: Item no: HU091.U42
- 4: Material: -
- 5: Length: 950mm
- 6: Width: 834mm
- 7: Height: 330mm
- 8: Mass: 64kg
- 9: Quality: 9kW
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

03.05.2211 Heat exchanger

- 1: Company: Brink
- 2: Distributor: Brink
- 3: Item no: Renovent Excellent 400
- 4: Material: -
- 5: Length: 677mm
- 6: Width: 765mm
- 7: Height: 564mm
- 8: Mass: 38kg
- 9: Quality: CE Certified, IP30, NEN 5128
- 10: Fire resistance: -
- 11: Requirement: Minimal Airflow of 50m³/h. CO₂-controlled
- 12: Additional materials: Airfilters, Sensors, Montage Fixture, Heat Exchanger (Elan 4), Cables, Service Tool
- 13: Edits: -

03.05.4222 Heating supply pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Pushfit Various
- 4: Material: Triple layered plastic – aluminum - plastic
- 5: Length: 50m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: KOMO 3
- 10: Fire resistance: -
- 11: Requirement: Water tight
- 12: Additional materials: Geberit Scissor's, deburrer
- 13: Edits:

03.05.5152 Floor heating system

- 1: Company: Jupiter
- 2: Distributor: Jupiter
- 3: Item no: -
- 4: Material: Woodfiber
- 5: Length: Various
- 6: Width: Various
- 7: Height: -
- 8: Mass: 30kg/m²
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

03.02.8152 Insulation

- 1: Company: NMC
- 2: Distributor: Installand
- 3: Item no: 3008336
- 4: Material: Polyethylene
- 5: Length: 2m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: Insulation 0.036 W/mK at +10°C, 0.040 W/mK at +40°C,
0.053 W/mK at +90°C
- 10: Fire resistance: BLs1d0, 0 to 100 degrees C
- 11: Requirement: Self gluing
- 12: Additional materials: -
- 13: Edits: Sawn to correct length

03.06 Cooling installation

- 1: Location: Denver, Colorado
- 2: Size: -
- 3: Document: Drawing P-001, P-100, P-101, P-102, P-200, P-201, P-300, P-400, P-500, P-501.

03.06.2111 Water cooled cooling machine

- 1: Company: LG
- 2: Distributor: LG
- 3: Item no: HU091.U42
- 4: Material: -
- 5: Length: 950mm
- 6: Width: 834mm
- 7: Height: 330mm
- 8: Mass: 64kg
- 9: Quality: 9kW
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

03.06.4222 Cooling supply pipe

- 1: Company: Geberit
- 2: Distributor: Geberit
- 3: Item no: Pushfit Various
- 4: Material: Triple layered plastic – aluminum - plastic
- 5: Length: 50m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: KOMO 3
- 10: Fire resistance: -
- 11: Requirement: Water tight
- 12: Additional materials: Geberit Scissor's, deburrer
- 13: Edits:

03.02.8153 Insulation

- 1: Company: NMC
- 2: Distributor: Installand
- 3: Item no: 3008336
- 4: Material: Polyethylene
- 5: Length: 2m
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: Insulation 0.036 W/mK at +10°C, 0.040 W/mK at +40°C, 0.053 W/mK at +90°C
- 10: Fire resistance: BLs1d0, 0 to 100 degrees C
- 11: Requirement: Self gluing
- 12: Additional materials: -
- 13: Edits: Sawn to correct length

03.07 Ventilation

- 1: Location: Denver, Colorado
- 2: Omvang: -
- 3: Document: M-001, M-100, M-101, M-200, M-201, M-400, M-500.

03.07.2213 Air conditioning unit supply

- 1: Company: Brink
- 2: Distributor: Brink
- 3: Item no: Renovent Excellent 400
- 4: Material: -
- 5: Length: 677mm
- 6: Width: 765mm
- 7: Height: 564mm
- 8: Mass: 38kg
- 9: Quality: CE Certified, IP30, NEN 5128
- 10: Fire resistance: -
- 11: Requirement: Minimal Airflow of 150m³/h. CO₂-controlled
- 12: Additional materials: -
- 13: Edits: -

03.07.2413 Air conditioning unit exhaust

- 1: Company: Brink
- 2: Distributor: Brink
- 3: Item no: Elan 4
- 4: Material: -
- 5: Length: 676mm
- 6: Width: 640mm
- 7: Height: 429mm
- 8: Mass: 40kg
- 9: Quality: CE Certified
- 10: Fire resistance: -
- 11: Requirement: Minimal Airflow of 150m³/h. CO₂-controlled
- 12: Additional materials: Airfilters, Sensors, Montage Fixture, Heat Exchanger, Cables, Service Tool
- 13: Edits: -

03.07.4216 Ventilation supply pipe

- 1: Company: VELU
- 2: Distributor: VELU
- 3: Item no: -
- 4: Material: Galvanized Steel Spiro Pipe
- 5: Length: Various
- 6: Width: 125mm
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: Sawn to right length
- 12: Additional materials: -
- 13: Edits: -

03.07.5111 Air diffuser

- 1: Company: VELU
- 2: Distributor: VELU
- 3: Item no: Wucavo
- 4: Material: Steel
- 5: Length: 150mm
- 6: Width: 300mm
- 7: Height: 150mm
- 8: Mass: 4kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials:-
- 13: Edits: -

03.07.5132 Air diffuser kitchen

- 1: Company: IKEA
- 2: Distributor: IKEA
- 3: Item no: UTDRAK 203.046.23
- 4: Material: Metal
- 5: Length: 300mm
- 6: Width: 600mm
- 7: Height: 180mm
- 8: Mass: 7kg
- 9: Quality: Energy Class C
- 10: Fire resistance: -
- 11: Requirement: Electrical Wiring
- 12: Additional materials: -
- 13: Edits: Prefab installed in Kitchen

03.07.5231 Air diffuse box

- 1: Company: Brink
- 2: Distributor: Brink
- 3: Item no: Diffuse box Elan 4 4 outlets
- 4: Material: Metal
- 5: Length: 300mm
- 6: Width: 300mm
- 7: Height: 200mm
- 8: Mass: 2kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits:

04 Electrical

04.01 Central electricity system

- 1: Location: Denver, Colorado
- 2: Omvang: 4500 x 3800 mm¹
- 3: Document: Drawing E-100, Grid Interconnection

04.01.2351 Cable gutter

- 1: Company: Attema
- 2: Distributor: Technische Unie
- 3: Item no: 9234
- 4: Material: Plastic
- 5: Length: 2000 mm¹
- 6: Width: 24 mm¹
- 7: Height: 70 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2351 Cable gutter

- 1: Company: Attema
- 2: Distributor: Technische Unie
- 3: Item no: 9237
- 4: Material: Plastic
- 5: Length: 2000 mm¹
- 6: Width: 24 mm¹
- 7: Height: 70 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2351 Cable gutter

- 1: Company: Attema
- 2: Distributor: Technische Unie
- 3: Item no: 5621
- 4: Material: Plastic
- 5: Length: 2000 mm¹
- 6: Width: 25 mm¹
- 7: Height: 13 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.4001 Wire gutter

- 1: Company: Schneider Electric
- 2: Distributor: Technische Unie
- 3: Item no: 4511210
- 4: Material: Steel
- 5: Length: 3000 mm¹
- 6: Width: 100 mm¹
- 7: Height: 75 mm¹
- 8: Mass:
- 9: Quality: Electrolytically galvanized
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2391 Wire gutter

- 1: Company: Schneider Electric
- 2: Distributor: Technische Unie
- 3: Item no: 4511220
- 4: Material: Steel
- 5: Length: 3000 mm¹
- 6: Width: 200 mm¹
- 7: Height: 75 mm¹
- 8: Mass:
- 9: Quality: Electrolytically galvanized
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2391 Wire gutter

- 1: Company: Schneider Electric
- 2: Distributor: Technische Unie
- 3: Item no: 4511230
- 4: Material: Steel
- 5: Length: 3000 mm¹
- 6: Width: 300 mm¹
- 7: Height: 75 mm¹
- 8: Mass:
- 9: Quality: Electrolytically galvanized
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2441 Cable tube

- 1: Company: Pipelife
- 2: Distributor: Technische Unie
- 3: Item no: 1196030204
- 4: Material: PVC
- 5: Length: 4000 mm¹
- 6: Width: 19 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: -

- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2441 Cable tube

- 1: Company: Pipelife
- 2: Distributor: Technische Unie
- 3: Item no: 1396330102
- 4: Material: PVC
- 5: Length: 100000 mm¹
- 6: Width: 19 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: IP68, dust resistance and usable under water under specified conditions.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2486 Cable tube, attachments

- 1: Company: Pipelife
- 2: Distributor: Technische Unie
- 3: Item no: 1196900953
- 4: Material: PVC
- 5: Length: -
- 6: Width: 19 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2486 Cable tube, attachments

- 1: Company: OBO
- 2: Distributor: Technische Unie
- 3: Item no: 2149710
- 4: Material: Plastic
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2489 Energy transformator, low voltage

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN693003
- 4: Material: Plastic

- 5: Length: 92 mm¹
- 6: Width: 17.5 mm¹
- 7: Height: 68.1 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.2489 Energy transformator, low voltage

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN684064
- 4: Material: Plastic
- 5: Length: 90 mm¹
- 6: Width: 72 mm¹
- 7: Height: 65 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.3762 Software system solar panels

- 1: Company: Schneider Electric
- 2: Distributor: OffGrid
- 3: Item no: MPPT 80 600
- 4: Material: Plastic
- 5: Length: 220 mm¹
- 6: Width: 220 mm¹
- 7: Height: 760 mm¹
- 8: Mass: 13.5 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -230

04.01.3763 Electricity converter solar panels

- 1: Company: Schneider Electric
- 2: Distributor: OffGrid
- 3: Item no: 865-7048-61
- 4: Material: Plastic
- 5: Length: 230 mm¹
- 6: Width: 410 mm¹
- 7: Height: 580 mm¹
- 8: Mass: 53.5 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water. IEC 62109-1, IEC 62109-2
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -

13: Edits: -

04.01.3764 Solar panels

1: Company: LG
2: Distributor: LG
3: Item no: LG320N1C-G4
4: Material: Anodized aluminum
5: Length: 1640 mm¹
6: Width: 1000 mm¹
7: Height: 40 mm¹
8: Mass: 17 kg
9: Quality: IP67, dust resistance and no water penetration if dipped under water (30 min to 1 m)
10: Fire resistance: Class C (ULC/ORD C1703)
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.01.3806 Solar panel meter

1: Company: Schneider Electric
2: Distributor: OffGrid
3: Item no: 865-1058
4: Material: Plastic
5: Length: 54 mm¹
6: Width: 169 mm¹
7: Height: 114 mm¹
8: Mass: 0.25 kg
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water. NEMA 1 and Indoor only.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.01.4017 Cable transmission system

1: Company: Attema
2: Distributor: Technische Unie
3: Item no: 1081
4: Material: Plastic
5: Length: 54 mm¹
6: Width: 76 mm¹
7: Height: -
8: Mass: -
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.01.4017 Cable transmission system

1: Company: Attema
2: Distributor: Technische Unie
3: Item no: 1120
4: Material: Plastic

- 5: Length: 53 mm¹
- 6: Width: 76 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.4017 Cable transmission system

- 1: Company: Attema
- 2: Distributor: Technische Unie
- 3: Item no: 2525
- 4: Material: Plastic
- 5: Length: 120 mm¹
- 6: Width: 120 mm¹
- 7: Height: 40 mm¹
- 8: Mass: -
- 9: Quality: IP40, protection against objects bigger than 1 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.4017 Cable transmission system

- 1: Company: Attema
- 2: Distributor: Technische Unie
- 3: Item no: 2280
- 4: Material: Plastic
- 5: Length: 95 mm¹
- 6: Width: 95 mm¹
- 7: Height: 45 mm¹
- 8: Mass: -
- 9: Quality: IP65, dust resistance and resistant against waterjets.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.01.4123 Battery Solar panel system

- 1: Company: Exide
- 2: Distributor: OffGrid
- 3: Item no: ES2400
- 4: Material: -
- 5: Length: 518 mm¹
- 6: Width: 279 mm¹
- 7: Height: 240 mm¹
- 8: Mass: 67 kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -

13: Edits: -

04.04 Lighting

1: Location: Denver, Colorado
 2: Omvang: 4500 x 3800 mm¹
 3: Document: Drawing E-100, Grid Interconnection

04.04.1001 Energy transformer

1: Company: YPHIX
 2: Distributor: Ledlampendirect
 3: Item no: 50349135
 4: Material: Plastic
 5: Length: 113 mm¹
 6: Width: 44 mm¹
 7: Height: 28 mm¹
 8: Mass: 0.12 kg
 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
 10: Fire resistance: -
 11: Requirement: -
 12: Additional materials: -
 13: Edits: -

04.04.1001 Energy transformer

1: Company: YPHIX
 2: Distributor: Ledlampendirect
 3: Item no: 50089490
 4: Material:
 5: Length: 252 mm¹
 6: Width: 90 mm¹
 7: Height: 45 mm¹
 8: Mass: 1.68 kg
 9: Quality: IP67, IP67, dust resistance and no water penetration if dipped under water (30 min to 1 m)
 10: Fire resistance: -
 11: Requirement: -
 12: Additional materials: -
 13: Edits: -

04.04.1003 Central lighting system and management

1: Company: Schneider Electric
 2: Distributor: Schneider Electric
 3: Item no: MTN6710-0004
 4: Material: Plastic
 5: Length: -
 6: Width: 144 mm¹
 7: Height: -
 8: Mass: -
 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
 10: Fire resistance: -
 11: Requirement: -
 12: Additional materials: -

13: Edits: -

04.04.1003 Central lighting system and management

1: Company: Zennio
2: Distributor: Bsmart
3: Item no: 10241798
4: Material: Plastic
5: Length: 67 mm¹
6: Width: 90 mm¹
7: Height: 79 mm¹
8: Mass: -
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.04.1003 Central lighting system and management

1: Company: Schneider Electric
2: Distributor: Schneider Electric
3: Item no: MTN648493
4: Material: Plastic
5: Length: -
6: Width: 216 mm¹
7: Height: -
8: Mass: -
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.04.1004 Tube and pipeline installation

1: Company: YPHIX
2: Distributor: Ledlampendirect
3: Item no: 50279470
4: Material: Aluminum
5: Length: 2500 mm¹
6: Width: 19 mm¹
7: Height: 19 mm¹
8: Mass: 0.4 kg
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.04.1004 Tube and pipeline installation

1: Company: YPHIX
2: Distributor: Ledlampendirect
3: Item no: 50279415
4: Material: Aluminum

- 5: Length: 2500 mm¹
- 6: Width: 23 mm¹
- 7: Height: 10 mm¹
- 8: Mass: 0.7 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm1. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.1004 Tube and pipeline installation

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50279910
- 4: Material: PMMA
- 5: Length: 2500 mm¹
- 6: Width:
- 7: Height:
- 8: Mass: 0.3 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm1. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.1004 Tube and pipeline installation

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50279935
- 4: Material: PMMA
- 5: Length: 2500 mm¹
- 6: Width:
- 7: Height:
- 8: Mass: 0.4 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm1. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2487 Electric socket

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN2300-6034
- 4: Material: Polycarbonate
- 5: Length: 71 mm¹
- 6: Width: 71 mm¹
- 7: Height: 40 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -

- 12: Additional materials: -
13: Edits: -

04.04.5028 Electric socket

- 1: Company: ABL Sursum
2: Distributor: Technische Unie
3: Item no: 2421110
4: Material: Plastic
5: Length: -
6: Width: -
7: Height: -
8: Mass: -
9: Quality: IP20, protection against objects bigger then 12,5 mm1. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
2: Distributor: Isolectra
3: Item no: GST18I3 16 AWG
4: Material: Rubber and copper
5: Length: Depends on the cable
6: Width: -
7: Height: -
8: Mass: -
9: Quality:
10: Fire resistance:
11: Requirement:
12: Additional materials:
13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
2: Distributor: Isolectra
3: Item no: GST18I3 14 AWG
4: Material: Rubber and copper
5: Length: Depends on the cable
6: Width: -
7: Height: -
8: Mass: -
9: Quality:
10: Fire resistance:
11: Requirement:
12: Additional materials:
13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
2: Distributor: Isolectra
3: Item no: GST18I4 16 AWG
4: Material: Rubber and copper
5: Length: Depends on the cable

- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality:
- 10: Fire resistance:
- 11: Requirement:
- 12: Additional materials:
- 13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
- 2: Distributor: Isolectra
- 3: Item no: GST18I4 14 AWG
- 4: Material: Rubber and copper
- 5: Length: Depends on the cable
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
- 2: Distributor: Isolectra
- 3: Item no: GST18I5 16 AWG
- 4: Material: Rubber and copper
- 5: Length: Depends on the cable
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Isolectra
- 2: Distributor: Isolectra
- 3: Item no: GST18I5 14 AWG
- 4: Material: Rubber and copper
- 5: Length: Depends on the cable
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2508 Electric wiring

- 1: Company: Wieland
- 2: Distributor: Isoelectra
- 3: Item no: 92.030.5353.1
- 4: Material: Plastic
- 5: Length: 44 mm¹
- 6: Width: 52 mm¹
- 7: Height: 52.5 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2516 Ceiling lights

- 1: Company: Philips
- 2: Distributor: Karwei
- 3: Item no: 531765
- 4: Material: Plastic
- 5: Length: 155 mm¹
- 6: Width: 630 mm¹
- 7: Height: 65 mm¹
- 8: Mass: 1.6 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2516 Ceiling lights

- 1: Company: Lampgigant
- 2: Distributor: Lampgigant
- 3: Item no: -
- 4: Material: Metal and fabric
- 5: Length: -
- 6: Width: 500 mm¹
- 7: Height: 180 mm¹
- 8: Mass: 1.11 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2516 Ceiling lights

- 1: Company: Lampgigant
- 2: Distributor: Lampgigant
- 3: Item no: -
- 4: Material: Steel
- 5: Length: 730 mm¹
- 6: Width: 200 mm¹

- 7: Height: 1100 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2516 Ceiling lights

- 1: Company: Lampgigant
- 2: Distributor: Lampgigant
- 3: Item no: -
- 4: Material: Steel
- 5: Length: -
- 6: Width: 340 mm¹
- 7: Height: 420 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2516 Ceiling lights

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50228056
- 4: Material: Stainless steel 304
- 5: Length: 197 mm¹
- 6: Width: 76 mm¹
- 7: Height: 111 mm¹
- 8: Mass: 0.55 kg
- 9: Quality: IP54, no complete protection against dust but sufficient to not interfere with proper operation. No damage if sprayed (10l/min) under one angle.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2518 Lighting spots

- 1: Company: 123ledspots
- 2: Distributor: 123ledspots
- 3: Item no: 11882299
- 4: Material: Stainless steel and glass
- 5: Length: -
- 6: Width: 75 mm¹
- 7: Height: 22 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2538 Led lighting

- 1: Company: Philips
- 2: Distributor: LEDGloeilamp
- 3: Item no: 8718696577998
- 4: Material: -
- 5: Length: -
- 6: Width: 60 mm¹
- 7: Height: 110 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2538 Led lighting

- 1: Company: Philips
- 2: Distributor: LEDGloeilamp
- 3: Item no: 8718696577998
- 4: Material: Glass and plastic
- 5: Length: -
- 6: Width: 60 mm¹
- 7: Height: 110 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2538 Led lighting

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50263580
- 4: Material: Glass
- 5: Length: -
- 6: Width: 125 mm¹
- 7: Height: 129 mm¹
- 8: Mass: 0,058 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2538 Led lighting

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50260735
- 4: Material: Glass and plastic
- 5: Length: -
- 6: Width: 50 mm¹

- 7: Height: 53 mm¹
- 8: Mass: 0,042 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04.2538 Led lighting strip

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50055050
- 4: Material: -
- 5: Length: 5000 mm¹
- 6: Width: 12 mm¹
- 7: Height: 2.2 mm¹
- 8: Mass: 0.25 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: Led strip profile, diffuse cover cap and accessory set.
- 13: Edits: -

04.04.2539 Led lighting strip

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50054850
- 4: Material: -
- 5: Length: 5000 mm¹
- 6: Width: 14.5 mm¹
- 7: Height: 5 mm¹
- 8: Mass: 0.39 kg
- 9: Quality: IP68, dust resistance and usable under water under specified conditions.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: Led strip profile, diffuse cover cap and accessory set.
- 13: Edits: -

04.04.2516 Lighting spots

- 1: Company: YPHIX
- 2: Distributor: Ledlampendirect
- 3: Item no: 50258907
- 4: Material: -
- 5: Length: -
- 6: Width: 90 mm¹
- 7: Height: 50 mm¹
- 8: Mass: 0.2 kg
- 9: Quality: IP65, dust resistance and resistant against waterjets.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.04 Domotica

- 1: Location: Denver, Colorado
- 2: Omvang: 4500 x 3800 mm¹
- 3: Document: Drawing E-100, Grid Interconnection

04.05.1004 Climate system

- 1: Company: Brink
- 2: Distributor: Brink
- 3: Item no: 532126
- 4: Material: Plastic
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1004 Climate system

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN6005-0001
- 4: Material: Plastic
- 5: Length: 74 mm¹
- 6: Width: 74 mm¹
- 7: Height: 31 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1004 Climate system

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN6730-0001
- 4: Material: Plastic
- 5: Length: -
- 6: Width: 72 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1004 Climate system

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric

- 3: Item no: MTN648493
- 4: Material: Plastic
- 5: Length: -
- 6: Width: 216 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1004 Climate system

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN649808
- 4: Material: Plastic
- 5: Length: -
- 6: Width: 144 mm¹
- 7: Height: -
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1004 Climate system

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN682991
- 4: Material: Plastic
- 5: Length: -
- 6: Width: -
- 7: Height: -
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1005 Control and visualization

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN644592
- 4: Material: Plastic
- 5: Length: 65 mm¹
- 6: Width: 72 mm¹
- 7: Height: 90 mm¹
- 8: Mass: -

- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1005 Control and visualization

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN644592
- 4: Material: Plastic
- 5: Length: 65 mm¹
- 6: Width: 72 mm¹
- 7: Height: 90 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1005 Control and visualization

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN644592
- 4: Material: Plastic
- 5: Length: 65 mm¹
- 6: Width: 72 mm¹
- 7: Height: 90 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1005 Control and visualization

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN6501-0002
- 4: Material: Plastic
- 5: Length: 63 mm¹
- 6: Width: 162 mm¹
- 7: Height: 95 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1006 Security and safety

- 1: Company: Schneider Electric

- 2: Distributor: Schneider Electric
- 3: Item no: MTN5480-1119
- 4: Material: Plastic
- 5: Length: -
- 6: Width: 112 mm¹
- 7: Height: 49 mm¹
- 8: Mass: -
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1006 Security and safety

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: MTN548001
- 4: Material: Plastic
- 5: Length: 34 mm¹
- 6: Width: 50 mm¹
- 7: Height: 44 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1007 Energy monitoring

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: A9XMZA08
- 4: Material: Plastic
- 5: Length: 40 mm¹
- 6: Width: 359 mm¹
- 7: Height: 23 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1007 Energy monitoring

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: A9MEM1521
- 4: Material: Plastic
- 5: Length: 42.7 mm¹
- 6: Width: 35.4 mm¹
- 7: Height: 16.5 mm¹
- 8: Mass: 0.0175 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.

- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1007 Energy monitoring

- 1: Company: Schneider Electric
- 2: Distributor: Schneider Electric
- 3: Item no: A9MEM2155
- 4: Material: Plastic
- 5: Length: 64 mm¹
- 6: Width: 36 mm¹
- 7: Height: 90 mm¹
- 8: Mass: 0.175 kg
- 9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1008 Audio and video system

- 1: Company: Sonos
- 2: Distributor: Coolblue
- 3: Item no: 386826
- 4: Material: -
- 5: Length: 119.7 mm¹
- 6: Width: 119.7 mm¹
- 7: Height: 161.45 mm¹
- 8: Mass: 1.95 kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1008 Audio and video system

- 1: Company: Sonos
- 2: Distributor: Coolblue
- 3: Item no: 158021
- 4: Material: Plastic
- 5: Length: 74 mm¹
- 6: Width: 140 mm¹
- 7: Height: 136 mm¹
- 8: Mass: 0.69 kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.1008 Audio and video system

- 1: Company: Philips
- 2: Distributor: Coolblue
- 3: Item no: 702466

- 4: Material:
- 5: Length: 77 mm
- 6: Width: 918 mm
- 7: Height: 650 mm
- 8: Mass:
- 9: Quality:
- 10: Fire resistance:
- 11: Requirement:
- 12: Additional materials:
- 13: Edits:

04.05.2004 Sunscreen system

- 1: Company: Smits
- 2: Distributor: Wonnink Amersfoort
- 3: Item no: SolidScreen 95XS
- 4: Material: Glass fiber cloth and aluminum.
- 5: Length: -
- 6: Width: 2009 mm¹
- 7: Height: 2465 mm¹
- 8: Mass: 525 gr/m²
- 9: Quality: The screens are TÜV and CE tested
- 10: Fire resistance: B1/ M1/FR/ BS5867, Type B, Classe 1
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.2004 Sunscreen system

- 1: Company: Smits
- 2: Distributor: Wonnink Amersfoort
- 3: Item no: SolidScreen 95XS
- 4: Material: Glass fiber cloth and aluminum.
- 5: Length: -
- 6: Width: 1352 mm¹
- 7: Height: 2465 mm¹
- 8: Mass: 525 gr/m²
- 9: Quality: The screens are TÜV and CE tested
- 10: Fire resistance: B1/ M1/FR/ BS5867, Type B, Classe 1
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.2004 Sunscreen system

- 1: Company: Smits
- 2: Distributor: Wonnink Amersfoort
- 3: Item no: Excellent 95
- 4: Material: Glass fiber cloth and aluminum.
- 5: Length: -
- 6: Width: 732 mm¹
- 7: Height: 2465 mm¹
- 8: Mass: 525 gr/m²
- 9: Quality: The screens are TÜV and CE tested
- 10: Fire resistance: B1/ M1/FR/ BS5867, Type B, Classe 1
- 11: Requirement: -
- 12: Additional materials: -

13: Edits: -

04.05.2004 Sunscreen system

1: Company: Somfy
2: Distributor: Wonnink Amersfoort
3: Item no: Atlas LT50 15/12
4: Material: -
5: Length: 513 mm¹
6: Width: -
7: Height: -
8: Mass: -
9: Quality: IP44, protection against objects bigger than 1 mm¹. Protection against splashing of water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.05.2004 Sunscreen system

1: Company: Somfy
2: Distributor: Wonnink Amersfoort
3: Item no: LS40
4: Material: -
5: Length: 442 mm¹
6: Width: -
7: Height: -
8: Mass: -
9: Quality: IP44, protection against objects bigger than 1 mm¹. Protection against splashing of water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.05.2004 Sunscreen system

1: Company: Schneider Electric
2: Distributor: Schneider Electric
3: Item no: MTN649808
4: Material: Plastic
5: Length: -
6: Width: 144 mm¹
7: Height: -
8: Mass: -
9: Quality: IP20, protection against objects bigger then 12,5 mm¹. No protection against water.
10: Fire resistance: -
11: Requirement: -
12: Additional materials: -
13: Edits: -

04.05.4110 Control unit bus system

1: Company: Schneider Electric
2: Distributor: Schneider Electric
3: Item no: LSS100100
4: Material: Plastic

- 5: Length: 58 mm¹
- 6: Width: 52 mm¹
- 7: Height: 90 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.4110 Control unit bus system

- 1: Company: LINKSYS
- 2: Distributor: Coolblue
- 3: Item no: WRT1900ACS-EU
- 4: Material: Plastic
- 5: Length: 115 mm¹
- 6: Width: 322 mm¹
- 7: Height: 239 mm¹
- 8: Mass: 1,61 kg
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.4110 Control unit bus system

- 1: Company: TP-LINK
- 2: Distributor: Coolblue
- 3: Item no: TL-SG1024
- 4: Material: Metal
- 5: Length: 180 mm¹
- 6: Width: 440 mm¹
- 7: Height: 44 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

04.05.4110 Control unit bus system

- 1: Company: TP-LINK
- 2: Distributor: Coolblue
- 3: Item no: TL-SG1008P
- 4: Material: Metal
- 5: Length: 98 mm¹
- 6: Width: 171 mm¹
- 7: Height: 27 mm¹
- 8: Mass: -
- 9: Quality: -
- 10: Fire resistance: -
- 11: Requirement: -
- 12: Additional materials: -
- 13: Edits: -

10. Furniture and equipment

10.01.1818 Base Cabinet

1:	Company:	IKEA
2:	Distributor:	IKEA
3:	Item no:	-
4:	Material:	Plywood Cabinets, Steel Hinges.
5:	Length:	2400mm
6:	Width:	800mm
7:	Height:	800mm
8:	Mass:	+/- 500kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Flat surface needed to level the base.
12:	Additional materials:	Screwdriver
13:	Edits:	-

10.01.1812 Kitchen Counter

1:	Company:	IKEA
2:	Distributor:	IKEA
3:	Item no:	-
4:	Material:	Plywood Cabinets, Steel Hinges.
5:	Length:	2400mm
6:	Width:	800mm
7:	Height:	25mm
8:	Mass:	+/- 80kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Cut holes in the counter to support the sink and induction plate
12:	Additional materials:	Screwdriver, included wrench for mixer tap sink
13:	Edits:	-

10.01.1819 Upper Cabinet

1:	Company:	IKEA
2:	Distributor:	IKEA
3:	Item no:	-
4:	Material:	Plywood Cabinets, Steel Hinges.
5:	Length:	Various
6:	Width:	2400mm
7:	Height:	800mm
8:	Mass:	800mm
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Wooden plank to support upper cabinets
12:	Additional materials:	Screwdriver
13:	Edits:	-

10.1122 Toilet

10.1122.3125 Toilet

1:	Company:	Geberit
2:	Distributor:	Geberit
3:	Item no:	Aquaclean Mera Comfort
4:	Material:	Ceramic, steel, plastic, chrome finish
5:	Length:	590mm
6:	Width:	360mm
7:	Height:	350mm (when closed) (810mm when opened)
8:	Mass:	60kg
9:	Quality / Strength:	IPX4
10:	Fire resistance:	I
11:	Requirement:	Electrical wiring, pre-cut holes in bathroom glass finish.
12:	Additional materials:	Geberit Sigma 80, Water Reserve
13:	Edits:	-

10.1122.3418 Water Reserve

1:	Company:	Geberit
2:	Distributor:	Geberit
3:	Item no:	Duofix 111.364.00.5
4:	Material:	Steel and Plastic
5:	Length:	110mm
6:	Width:	530mm
7:	Height:	1120mm
8:	Mass:	30kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Needs to be variable in height.
12:	Additional materials:	Sigma 80
13:	Edits:	-

10.2133 Wash Basin Mixer Tap

10.2133.3199 Wash Basin

1:	Company:	Sphinx
2:	Distributor:	Sphinx
3:	Item no:	345 Sink
4:	Material:	Ceramic
5:	Length:	600mm
6:	Width:	400mm
7:	Height:	100mm
8:	Mass:	40kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Pre-cut holes in bathroom glass finish.
12:	Additional materials:	-
13:	Edits:	-

10.2133.3132 Douch Combination

1:	Company:	Upfall Shower
2:	Distributor:	Beterbad BV
3:	Item no:	-
4:	Material:	Plastic
5:	Length:	1200mm
6:	Width:	900mm
7:	Height:	2000mm
8:	Mass:	100kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Electrical wiring.
12:	Additional materials:	-
13:	Edits:	-

10.2133.3182 Mixer Tap

1:	Company:	Hans Grohe
2:	Distributor:	Technische Unie
3:	Item no:	8635800
4:	Material:	Brass with chrome finish
5:	Length:	107mm
6:	Width:	-
7:	Height:	67mm
8:	Mass:	2kg
9:	Quality / Strength:	-
10:	Fire resistance:	-
11:	Requirement:	Pressure Mixed
12:	Additional materials:	-
13:	Edits:	Universal



Certificate No: EW201



This certificate is valid for Building Regulations & associated technical guidance in force on the date of registration and for the regulations in the countries indicated

Jackpad System comprising Jackpad 400 Support Block, 2 section Steel Adjuster & 50mm incremental packer

Description of Product

This Registered System is a support system for modular and relocatable buildings.



Key Factors Assessed

- Mechanical Resistance & Stability
- Safety in Use
- Durability serviceability and identification

Validity

This certificate was first issued on 2nd May 2012 and is valid until 2nd May 2018

Issue Dated 1st May 2015

Scope of Registration

Jackpad is a portable foundation system for modular and portable buildings of all types subject to the loading conditions detailed under the limitations section of this certificate.

Conditions of Certificate

The imposed load per Jackpad is no greater than 48kn. Typically, the ground bearing pressure is to be no less than 130kn/m², otherwise additional dispersion measures must be undertaken on a project specific basis.

LABC consider that, the Jackpad System, will meet the functional requirements of the Building Regulations (listed below) if the criteria detailed in this certificate are met;



The Building Regulations 2010 (as amended) England & Wales

Regulation 7 Materials and workmanship
Note: The product is acceptable.
AD A Structure
Note: Relates to A1 only



The Building Regulations 2010 (as amended) England

None Presently



The Building Regulations 2010 (as amended) Wales

None Presently



The Building (Scotland) Regulations 2004 (as amended)

If you would like to discuss a specific use of the product in Scotland it will require an additional assessment under the Scottish Building Regulations and accordingly you should contact the LABSS STAS Administrator at www.labss.org

Non-Regulatory Information



LABC Warranty

The use of the Jackpad System has not been assessed to meet the requirements of the LABC Warranty Technical Manual. If you would like to discuss a specific use please make an enquiry to technical.services@labcwarranty.co.uk

Supporting Documentation

Structural Calculations from John Strange Chartered Structural Engineer, sheets 1-14 inclusive.

Contact Information

Jackpad Limited

17 Bitteswell Road

Lutterworth

Leicester

LE17 4EL

Tel: 0116 2866966

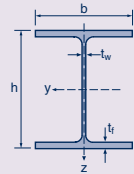
Email: enquiries@jackpad.co.uk

Web: www.jackpad.co.uk

balkstaal

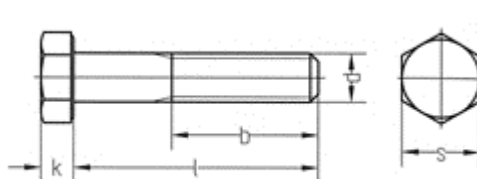
breedflensbalken, HEA

leveringsvoorwaarden: NEN-EN 10025-1 en -2
 toleranties: NEN-EN 10034; DIN 1025/3
 max. handelslengte: 28 m



profiel nr.	G ₈ kg/m	A mm ²	h mm	b mm	t _w mm	t _f mm	A _L m ² /m	I _y x10 ⁴ mm ⁴	W _{y,el} x10 ³ mm ³	I _z x10 ⁴ mm ⁴	W _{z,el} x10 ³ mm ³	profiel nr.
100	17,0	2124	96	100	5	8	0,561	349	72,8	134	26,8	100
120	20,3	2534	114	120	5	8	0,677	606	106	231	38,5	120
140	25,1	3142	133	140	5,5	8,5	0,794	1033	155	389	55,6	140
160	31,0	3877	152	160	6	9	0,906	1673	220	616	76,9	160
180	36,2	4525	171	180	6	9,5	1,02	2510	294	925	103	180
200	43,1	5383	190	200	6,5	10	1,14	3692	389	1336	134	200
220	51,5	6434	210	220	7	11	1,26	5410	515	1955	178	220
240	61,5	7684	230	240	7,5	12	1,37	7763	675	2769	231	240
260	69,5	8682	250	260	7,5	12,5	1,48	10455	836	3668	282	260
280	77,8	9726	270	280	8	13	1,60	13673	1013	4763	340	280
300	90,0	11253	290	300	8,5	14	1,72	18263	1260	6310	421	300
320	99,5	12437	310	300	9	15,5	1,76	22929	1479	6985	466	320
340	107	13347	330	300	9,5	16,5	1,79	27693	1678	7436	496	340
360	114	14276	350	300	10	17,5	1,83	33090	1891	7887	526	360
400	127	15989	390	300	11	19	1,91	45069	2311	8564	571	400
450	142	17803	440	300	11,5	21	2,01	63722	2896	9465	631	450
500	158	19754	490	300	12	23	2,11	86975	3550	10367	691	500
550	169	21176	540	300	12,5	24	2,21	111932	4146	10819	721	550
600	181	22646	590	300	13	25	2,31	141208	4787	11271	751	600
650	193	24164	640	300	13,5	26	2,41	175178	5474	11724	782	650
700	208	26048	690	300	14,5	27	2,50	215301	6241	12179	812	700
800	229	28583	790	300	15	28	2,70	303443	7682	12639	843	800
900	256	32053	890	300	16	30	2,90	422075	9485	13547	903	900
1000	277	34685	990	300	16,5	31	3,10	553846	11189	14004	934	1000

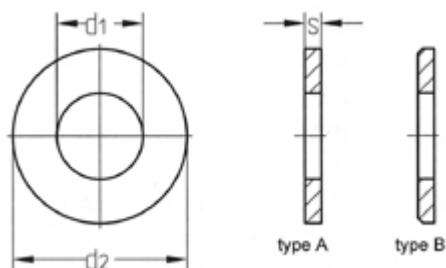
DIN 931 ZESKANTBOUT



d	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20	M22	M24
P	0.7	0.8	1	1	1.25	1.5	1.75	2	2	2.5	2.5	2.5	3
b1	14	16	18	20	22	26	30	34	38	42	46	50	54
b2	-	22	24	26	28	32	36	40	44	48	52	56	60
b3	-	-	-	-	-	45	49	53	57	61	65	69	73
k	2.8	3.5	4	4.8	5.3	6.4	7.5	8.8	10	11.5	12.5	14	15
S	7	8	10	11	13	17	19	22	24	27	30	32	36
d	M27	M30	M33	M36	M39	M42	M45	M48	M52	M56	M60	M64	
P	3	3.5	3.5	4	4	4.5	4.5	5	5	5.5	5.5	6	
b1	60	66	72	78	84	90	96	102	-	-	-	-	
b2	66	72	78	84	90	96	102	108	116	124	132	140	
b3	79	85	91	97	103	109	115	121	129	137	145	153	
k	17	18.7	21	22.5	25	26	28	30	33	35	38	40	
S	41	46	50	55	60	65	70	75	80	85	90	95	

b: minimale schroefdraadlengte b1: L =125mm b2: 125mm<L=200mm b3 : L>200mm

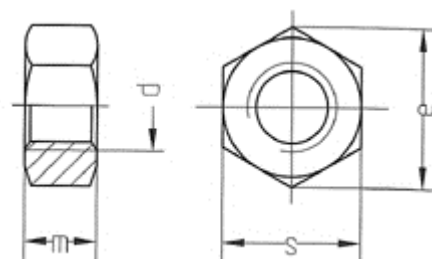
DIN 125a VLAKE SLUITRING ZONDER AFSCHUINING



	M3	M4	M5	M6	M7	M8	M10	M11	M12	M14	M16
	-	5/32	3/16	-	9/32	5/16	3/8	7/16	1/2	9/16	5/8
d1	3.2	4.3	5.3	6.4	7.4	8.4	10.5	12	13	15	17
d2	7	9	10	12	14	16	20	24	24	28	30
s	0.5	0.8	1	1.6	1.6	1.6	2	2.5	2.5	2.5	3

	M18	M20	M22	M24	M27	M30	M33	M36	M39	M42
	11/16	3/4	7/8	-	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8
d1	19	21	23	25	28	31	34	37	40	43
d2	34	37	39	44	50	56	60	66	72	78
s	3	3	3	4	4	4	5	5	6	7

DIN 934 ZESKANTMOER



d	M2	M3	M4	M5	M6	M7	M8	M10	M12	M14	M16	M18	M20
p	0.4	0.5	0.7	0.8	1	1	1.25	1.5	1.75	2	2	2.5	2.5
m	1.6	2.4	3.2	4	5	5.5	6.5	8	10	11	13	15	16
s	4	5.5	7	8	10	11	13	17	19	22	24	27	30
e	4.38	6.08	7.74	8.87	11.05	12.12	14.38	18.90	21.1	24.49	26.75	30.14	33.53

d	M22	M24	M27	M30	M33	M36	M39	M42
p	2.5	3	3	3.5	3.5	4	4	4.5
m	18	19	22	24	26	29	31	34
s	32	36	41	46	50	55	60	65
e	35.72	39.98	45.63	51.28	55.8	61.31	66.96	72.61

—

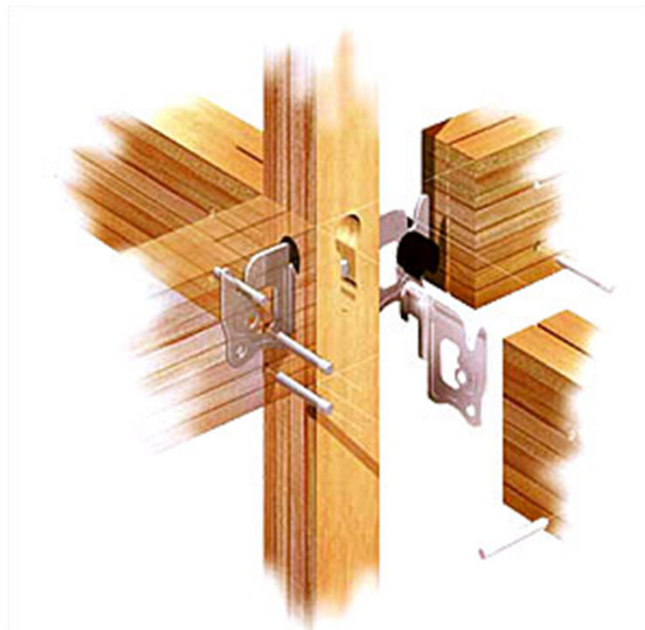


SUTEKI
WOOD SYSTEM

the next stage of building efficiency

TECHNICAL BOOK

solutions for professionals



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Introduction

Ecological awareness, changing lifestyles and attitudes of the public has led to stricter building regulations. In turn, the industry has developed new building concepts and products which have a low ecological footprint.

Passive houses and low carbon emission building systems are the next generation building system.

The mission of Suteki Europe is: “We are committed to working together with our customers to build the homes of their dreams”.

We realize our mission by using an environmental friendly and sustainable building system.

“ Suteki Wood System ” is a Japanese timber frame building method which uses no nuts and bolts in the structural elements. The timber is FSC certified, guaranteeing that the timber is grown, harvested and replanted in a responsible way.

Chapter 1: Suteki Wood System

1.1. What is Suteki Wood System?

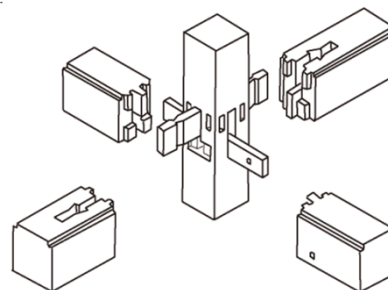
Suteki Wood System is an eco-friendly timber frame building method based on traditional Japanese post-beam building system.

The traditional Japanese way of building is a post-beam construction starting from a grid plan.

The posts and beams were usually made from one piece of timber and are positioned on the grid. Iron or metal nails were seldom used, because Japan lacks iron and metal ores. The joints were ingeniously chiseled out of the wood and were hammered into each other. Wooden pins kept the joints together.



traditional grid system



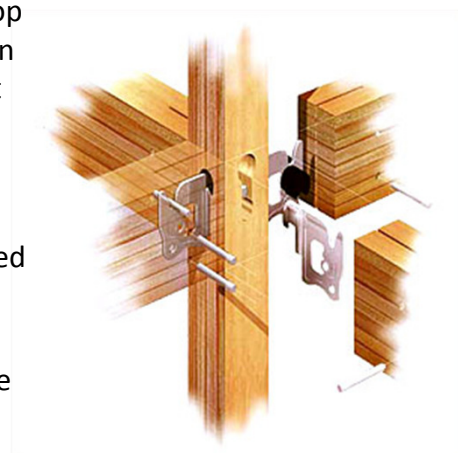
traditional joinery

Suteki Wood System has modernized this building system in three ways : the grid, the timber and connectors.

The grid system is updated with a X-Y axis to make plan reading the plan easier. Massive timber tends to develop cracks due to the changing temperature and humidity in the house. Instead of using massive timber for the post and beams, laminated timber is used for its increased strength and flexibility.

The wooden joints and pins are replaced by standardized carbon steel connectors and pins.

These are easy and quickly hammered into place, connecting the different structural elements. It is a time saving improvement, because the carpenter does not need to carve out the joints. The standardized joints guarantees that all the joints are equally strong.



1.2. The characteristics of Suteki Wood System :

There are 4 characteristics of Suteki Wood System:

- 1) ecological and sustainable
- 2), accurate and precise
- 3) cost-efficient and fast
- 4) transparent and clear at every stage

1) Ecological and sustainable

The timber comes from FSC managed forest. Trees absorb CO₂ and reduces the levels of carbon dioxide in the air. Trees also store the CO₂, preventing it from escaping in the atmosphere. Building in wood reduces the ecological footprint of the building project.

The posts and beams are made structural engineered wood called “Laminate timber”. Laminated timber consists of different small pieces of timber laminated together. Small pieces are obtained from smaller trees can be harvested easily in contrast to massive timber, there is no need for waiting until a tree has grown to a certain height before it can be used for a building project.

When a construction is demolished, Suteki Wood System makes it possible to recuperate the wood parts and the carbon steel connectors.

2) Accurate and precise

All the plans and sections are drawn in great detail. The drawings are checked by both the client’s architect and Suteki Europe’s engineers. The wooden sill, post and beam are cut on measure by the computer.

The precut spaces for the connectors and the openings for the pins are also made by the computer to ensure that they fit together precisely. Control mechanisms are integrated in the joints which enables the builder the control at each stage if the right parts are connected correctly.

3) Strong and stable

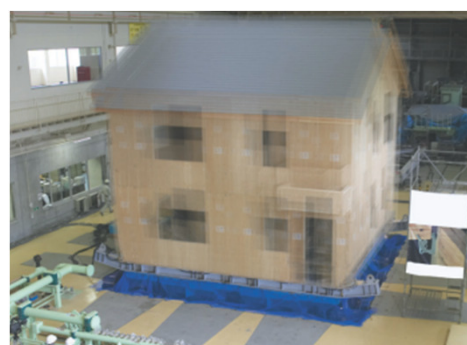
Laminated timber combines the characteristics and strengths of different trees which make it a strong and reliable building material. Both the timber and carbon steel connectors have passed rigid Japanese tests. Tests have proven that the structural integrity is not compromised when there is an earthquake with the strength of 7.2 on the scale of Richter.

The carbon steel connectors comply with the Japanese standard JIS G5101 for carbon steel. Carbon steel is tough, hard and durable with high tensile and impact resistance. It is used for example as car parts, parts for nuclear facilities and high-pressure valves. The carbon steel connectors have passed the salt water spray test. They were sprayed with salt water for 2,640 hours, 2.6 times longer than required for cars.

■ Earthquake resistance test

Numerique value used in earthquake test			
	Maximum gravitational acceleration (Gal=cm/s ²)	“Shindo” scale: seismic intensity	Richter magnitude scale : energy released during an earthquake
Great Hanshin earthquake (Kobe)1995	818 Gal	7	7.2
description:	major damage: Collapse of more than 30% of the houses , intense landslides, large fissures in the ground and faults		
test	1026	Hypothetical : massive earthquake	

TEST RESULTS :	Used force during test was 1.25 stronger than the Great Hanshin earthquake.
	Result 1 : The structure did not collapse .
	Result 2 : No deformities , nor damages found on connectors.
CONCLUSION :	The timber frame structure in combination with the carbon steel connector can withstand 1026 Gal or 1.25 times the Great Hanshin earthquake.



4) Cost-efficient and fast

Because of the accurate and precise preparation of the parts, the actual building process of the structure is executed at a very high pace (e.g. 130sqm, 2 floors, 3 days).

Standardized carbon steel connectors and pins are designed to ensure the compromising its strength and the stability of structure. The standardization ensures that the joints at any place of the structure have the same strength. The building speed is also improved by using standardized parts.

The pins are hammered into the joints quickly and effortlessly. Also because of the large size of the pins helps to speed up the building process, because they are easier to use than the small nails. No nuts and bolts are used in connecting the structural parts.

5) Transparent and clear at every stage

Suteki Europe NV strives for a close corporation and open communication with all the partners involved. A technical handbook is provided by Suteki Europe. Additional technical information is available upon request.

Detailed plans and sections of each floor is provided to all building parties involved. A construction manual is provided, explaining step by step the building process. On site technical assistance can be provided upon request.

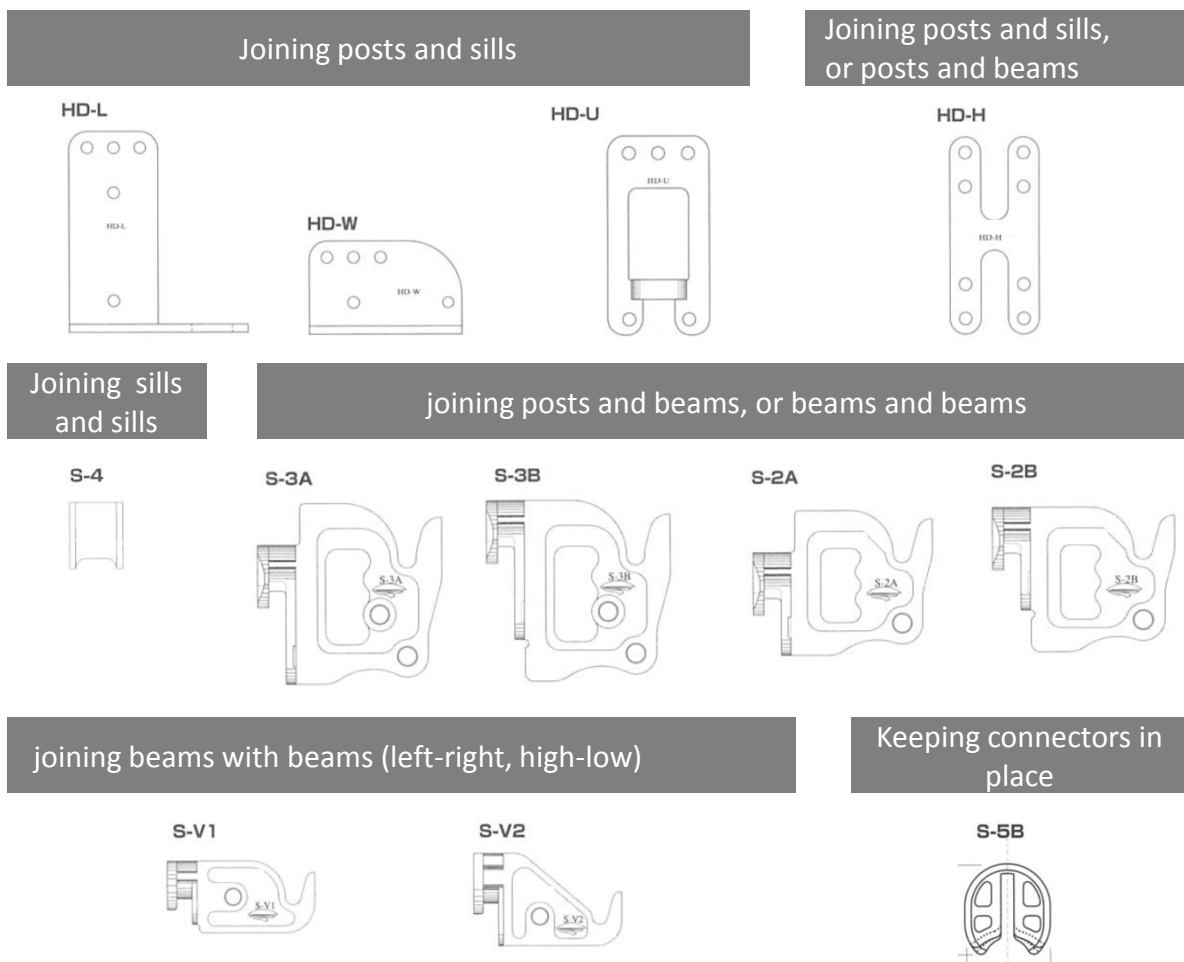
Chapter 2: Suteki Wood System main components: connectors and timber

The Suteki Wood System consists of three main components: connectors, pins and timber.

2.1. Connectors

There are 6 types of connectors:

- posts - sills (HD-L, HD-W, HD-U)
- posts - sills, or post - beams (HD-H)
- sills - sills (S-4)
- posts - beams, or beams - beams (S-3A, S-2B, S-2A, S-2B)
- beams - beams (S-V1, S-V2)
- Keeping the connectors in place (S-5B)

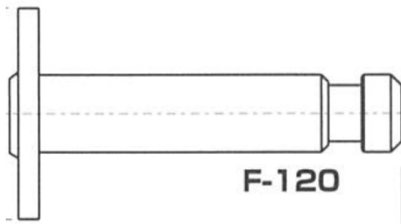


2.2. Pins

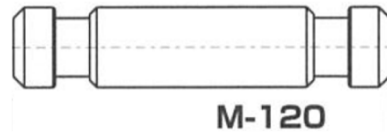
There are 3 types of pins:

- Fastening connectors on one side (F-120)
- Fastening connectors on two sides (M-120)
- Fastening connectors in general

Fastening connectors on one side



Fastening connectors on two sides



Fastening connectors in general



"Dedal - Attestation and Certification" Ltd. Bulgaria
 Notified body № 1922 Parter, 50 block, j k "Mladost" 8230 Nesebar Bulgaria

EC CERTIFICATE

of
 Factory Production Control
 1922 - CPD - 0204

In compliance with 'Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products (89/106/EEC)' (the Construction Products Directive or CPD), as amended by Directive 93/68/EEC of the Council of European Communities of 22 July 1993, it has been stated that the construction product

Connectors for timber structures:
 - punched metal plates: HD-H, HD-W, HD-LN, HD-U;
 - shear plates: F-120, F-105, S-V1, S-V2, S-2A, S-3A, S-2B, S-3B, ZG-U
 placed on the market by

POWER BUILD CO., LTD.
 33-1, Tsurumi-Chuo, 4-Chome, Tsurumi-Ku, Yokohama, 230-8571 Japan
 and produced in the factory of
ZHONGSHAN KINGDOM FLOW CONTROL CO., LTD
 23 Nanhe West Road, Nan-Tou, Zhongshan, Guangdong 528427, China

is submitted by the manufacturer to the initial type-testing of the product, a factory production control and to the further testing of samples taken at the factory in accordance with a prescribed test plan and that the notified body No. 1922 - "Dedal - Attestation and Certification" Ltd. - has performed the initial inspection of the factory and of the factory production control and performs the continuous surveillance, assessment and approval of the factory production control.

This certificate attests that all provisions concerning the attestation of factory production control described in Annex ZA of the standard.

EN 14545:2008

were applied.

This certificate was first issued on 21.06.2013 and remains valid as long as the conditions laid down in the harmonized technical specification in reference or the manufacturing conditions in the factory or the FPC itself are not modified significantly.



Issued: Nesebar, 21 June 2013

Embossed stamp of "Dedal - AAC-LU"

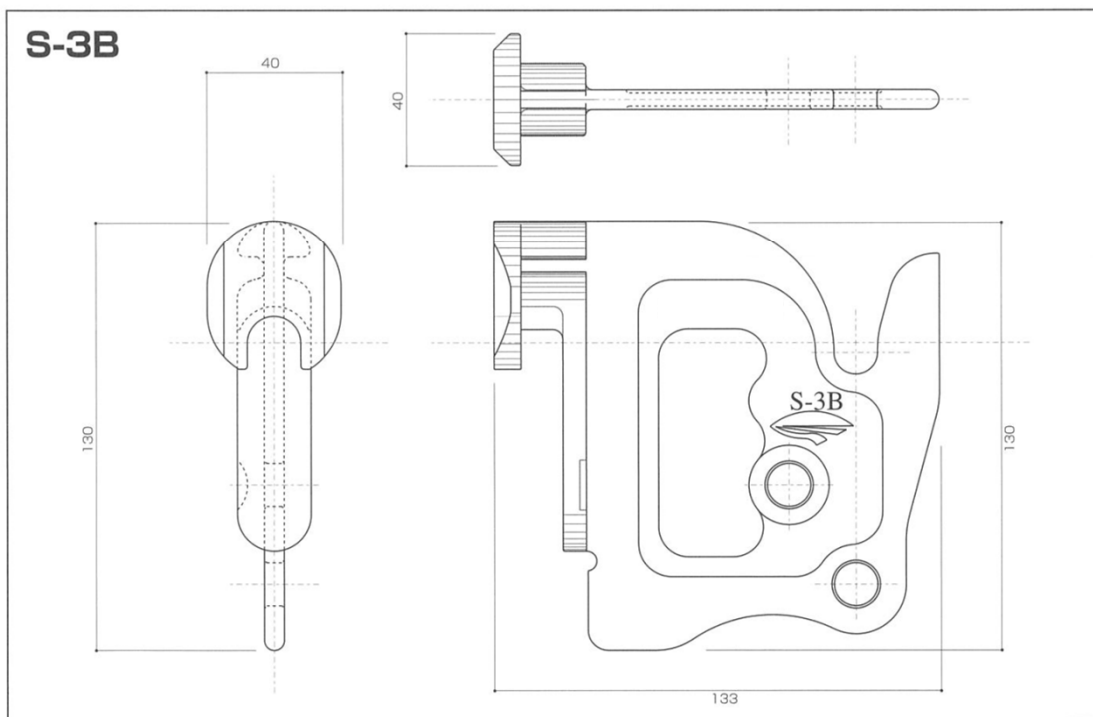
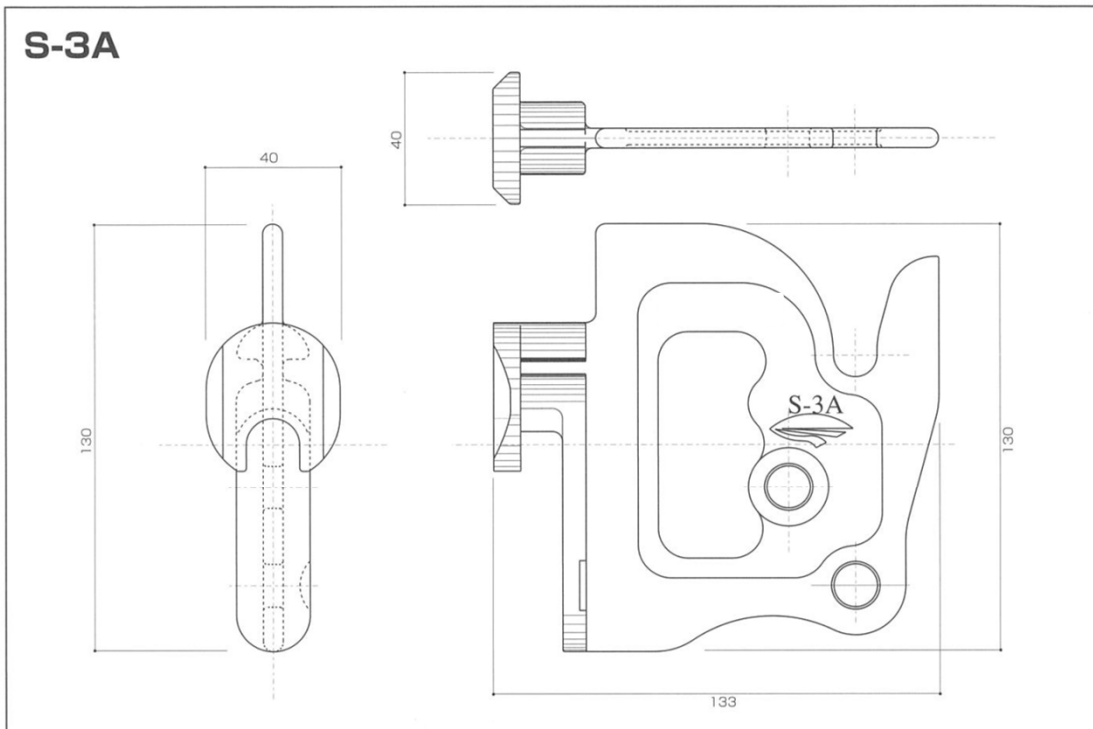


Manager: 

dipl. eng. Anna Vasilieva

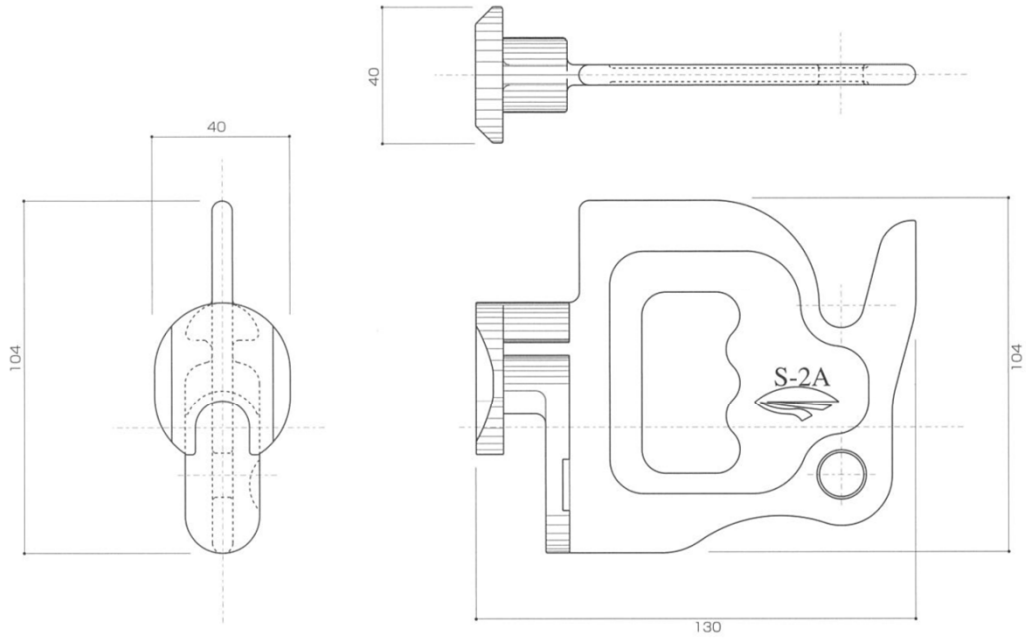
Verification of validity of the issued certificates can be done in the register of certificates on www.dedal-bg.net

Dimensions of connectors and pins

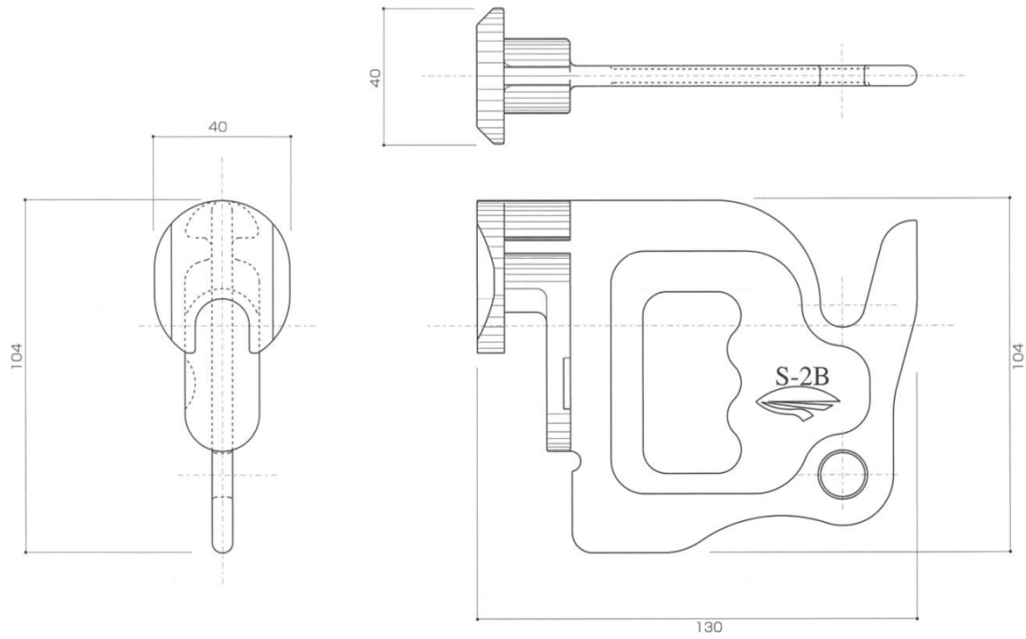


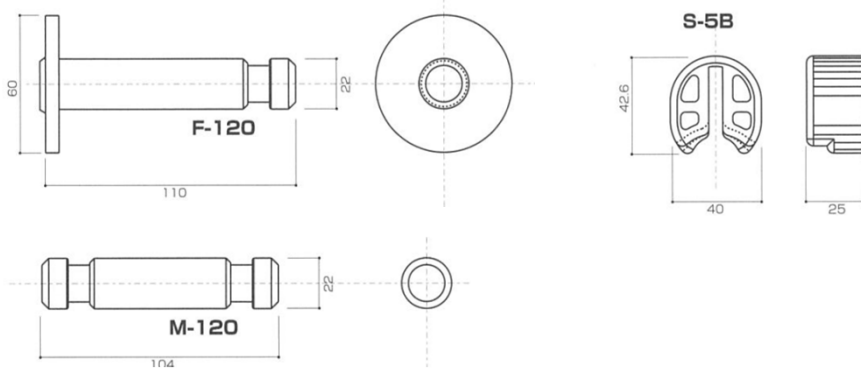
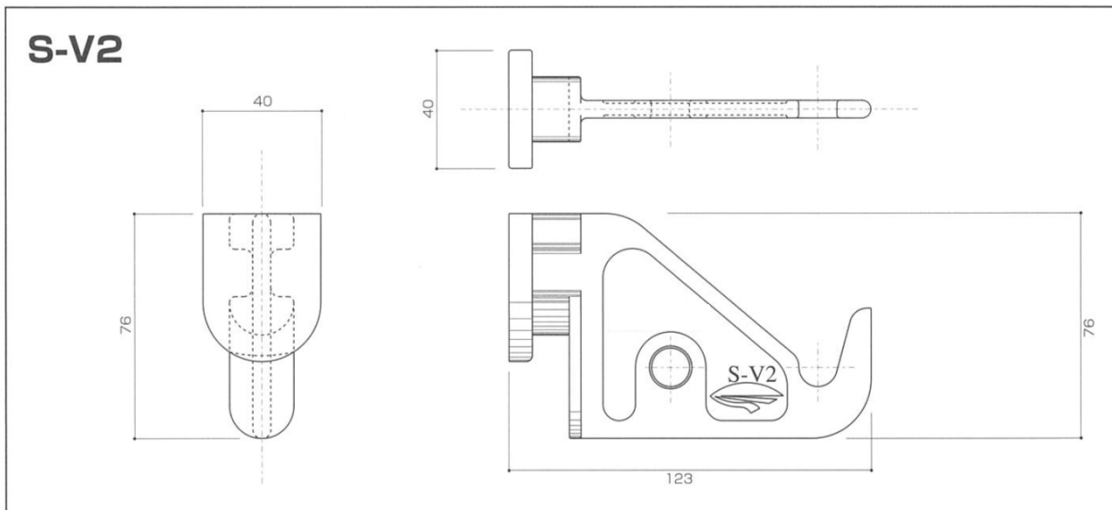
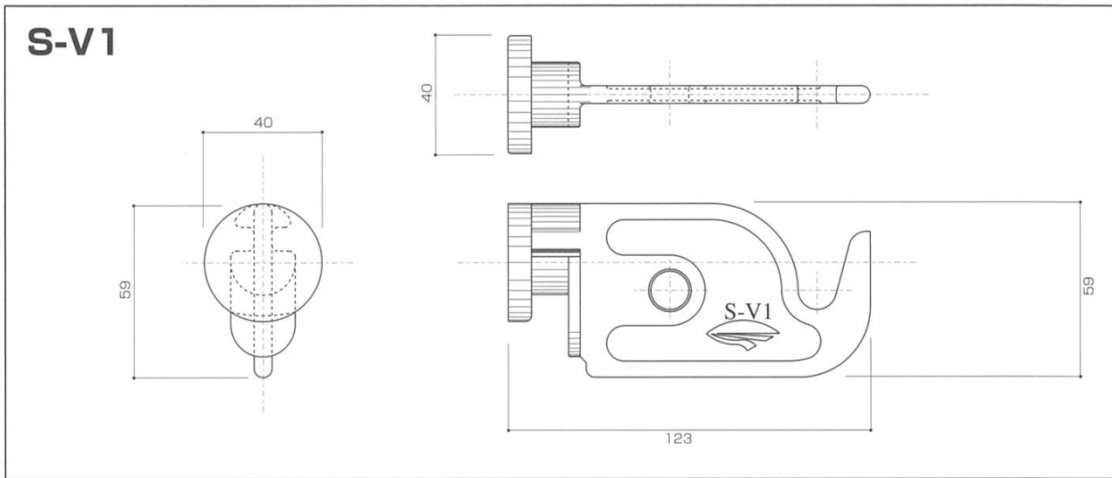
3

S-2A



S-2B





2.3 Timber

The following timber are used in Suteki Wood System:

- a. European white pine
- b. European red pine
- c. Oriented strand boards (OSB-boards) are used for floor panels

■ Wood item list

item	W		H		L	wood species	strength grade
sill	120	×	120	×	2985	european white spruce	E95-F315
	120	×	120	×	5985	european white spruce	E95-F315
post	120	×	120	×	2985	european white spruce	E95-F315
	120	×	120	×	5985	european white spruce	E95-F315
beam	45	×	120	×	2985	european white spruce	E95-F315
	120	×	180	×	3985	european red pine	E105-F300
	120	×	180	×	5985	european red pine	E105-F300
	120	×	270	×	3985	european red pine	E120-F330
	120	×	270	×	5985	european red pine	E120-F330
	120	×	390	×	3985	european red pine	E120-F330
	120	×	390	×	5985	european red pine	E120-F330
rafter	60	×	240	×	6480	european white spruce	C24
floor panel	590	×	22	×	2440	oriented strand board	
intermediate post	120	×	45	×	3000	european white spruce	

options

wall panel	600	×	15	×	2500	OSB	
roof panel	122	×	12	×	2500	OSB	

■ Wood strength

item		sill	post	beam	beam	※for reference	
tree species		european white spruce	european white spruce	european red pine	european red pine	glulam Softwood	glulam softwood
size(H)		120	120	180	270,390	-	-
strength grade (kN/mm ²)		E95-F315	E95-F315	E105-F300	E120-F330	GL24	GL28
Fc	standard compression	26.00	26.00	-	-	24	26.5
Fb	standard bending	30.24	30.24	28.80	31.68	24	28
Fs	standard shear	-	-	3.00	3.00	2.7	3.2
Fm	standard sink in	6.00	6.00	6.00	6.00	-	-
sfc	short-term allowable compression	17.33	17.33	-	-	16.00	17.66
sfb	short-term allowable bending	20.16	20.16	19.20	21.12	16.00	18.66
sfs	short-term allowable shear	-	2.00	2.00	2.00	1.80	2.13
sfm	short-term allowable sink in	4.00	4.00	4.00	4.00	-	-
lfc	long-term allowable compression	9.53	9.53	-	-	8.80	9.71
lfb	long-term allowable bending	11.09	11.09	10.56	11.62	8.80	10.26
lfs	long-term allowable shear	-	-	1.10	1.10	0.99	1.17
lfm	long-term allowable sink in	3.00	3.00	3.00	3.00	-	-
E	modulus of elasticity (E _{0,g,mean})	-	-	10.50	12.00	11.6	12.6
	modulus of elasticity (E _{0,g05})					9.4	10.2

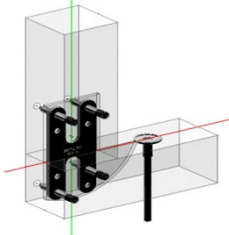
2.4. Possible variations of joints

There are three main types of joints:

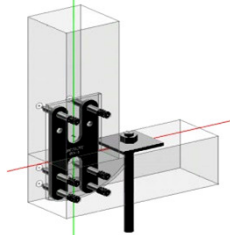
- post-sill joints (edge and center)
- post-beam joints (edge and center)
- other joint combination (hooks)

■ post-sill : edge

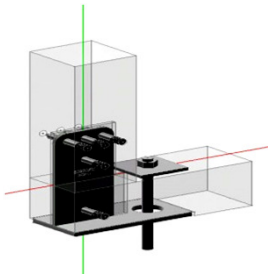
post-sill joint :
HD-H4



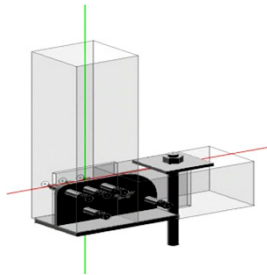
post-sill joint :
HD-H6



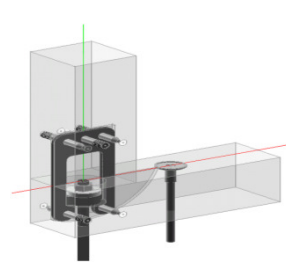
post-sill joint :
HD-L



post-sill joint :
HD-W

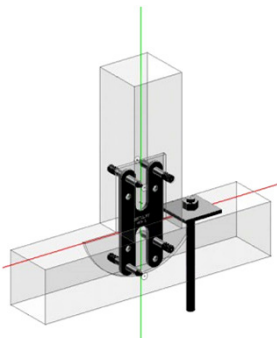


post-sill joint :
HD-U

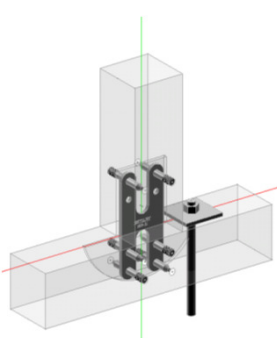


■ post-sill : center

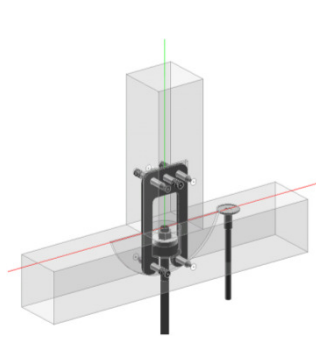
post-sill joint :
HD-H4



post-sill joint :
HD-H6

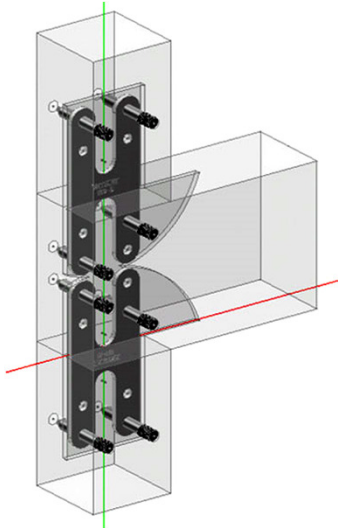


post-sill joint :
HD-U

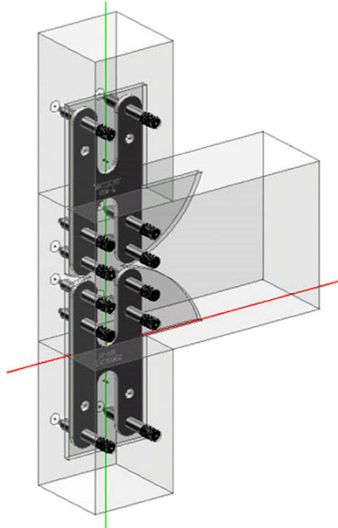


■ post-beam: edge

post-beam joint :
HD-H4

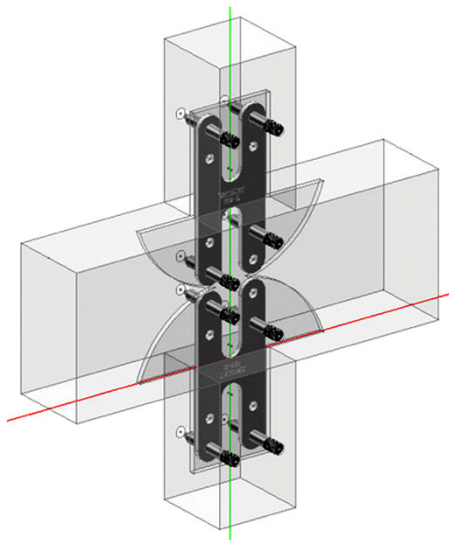


post-beam joint :
HD-H6

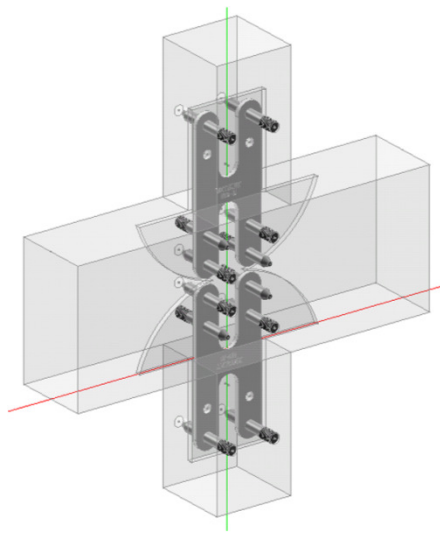


■ post-beam: center

post-beam joint :
HD-H4

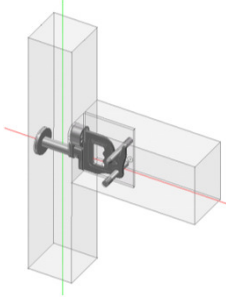


post-beam joint :
HD-H6

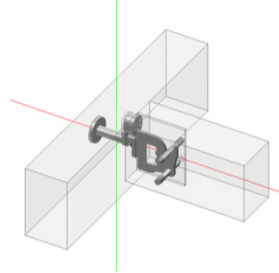


Other joints: hooks

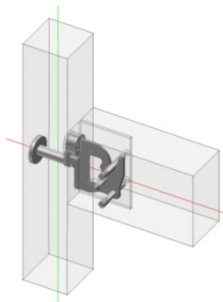
post-beam joint :
S-2A、 S-2B (2 pins)



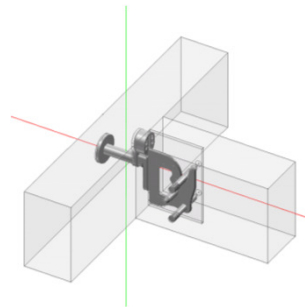
post-beam joint :
S-2A、 S-2B (2 pins)



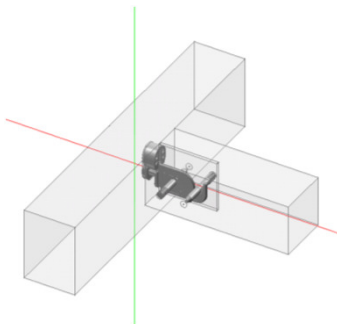
post-beam joint :
S-3A、 S-3B (3 pins)



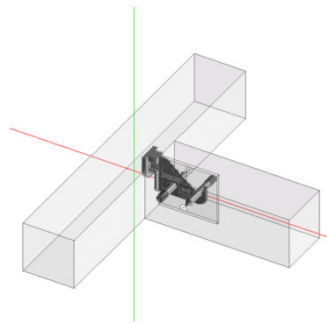
post-beam joint :
S-3A、 S-3B (3 pins)



Beam-beam or sill joint :
S-V1



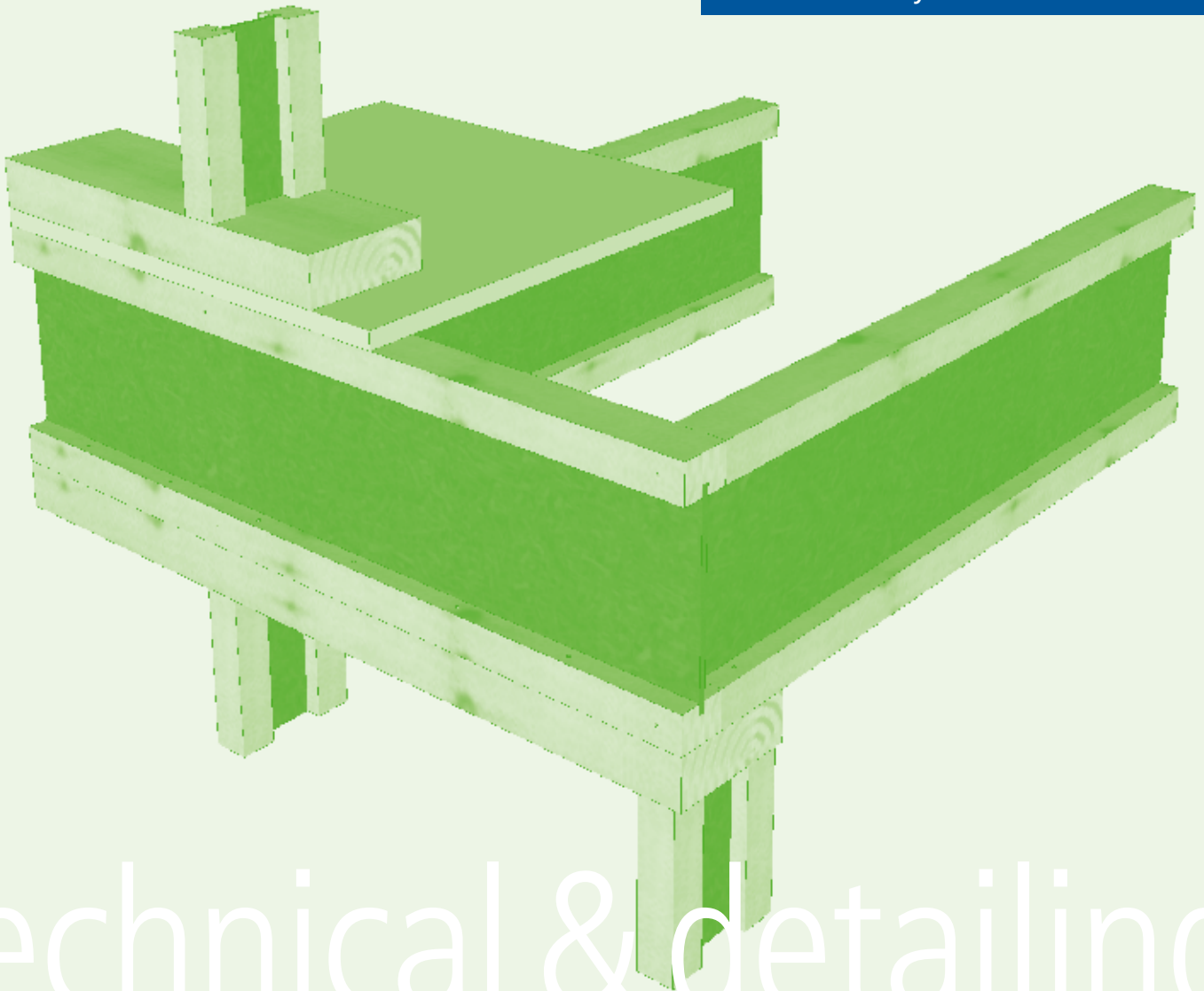
Beam-beam or sill joint :
S-V2



02.03.1110 - Wallstructure

Technical Guide **STEICO** *construction*

Construction elements –
made naturally out of wood



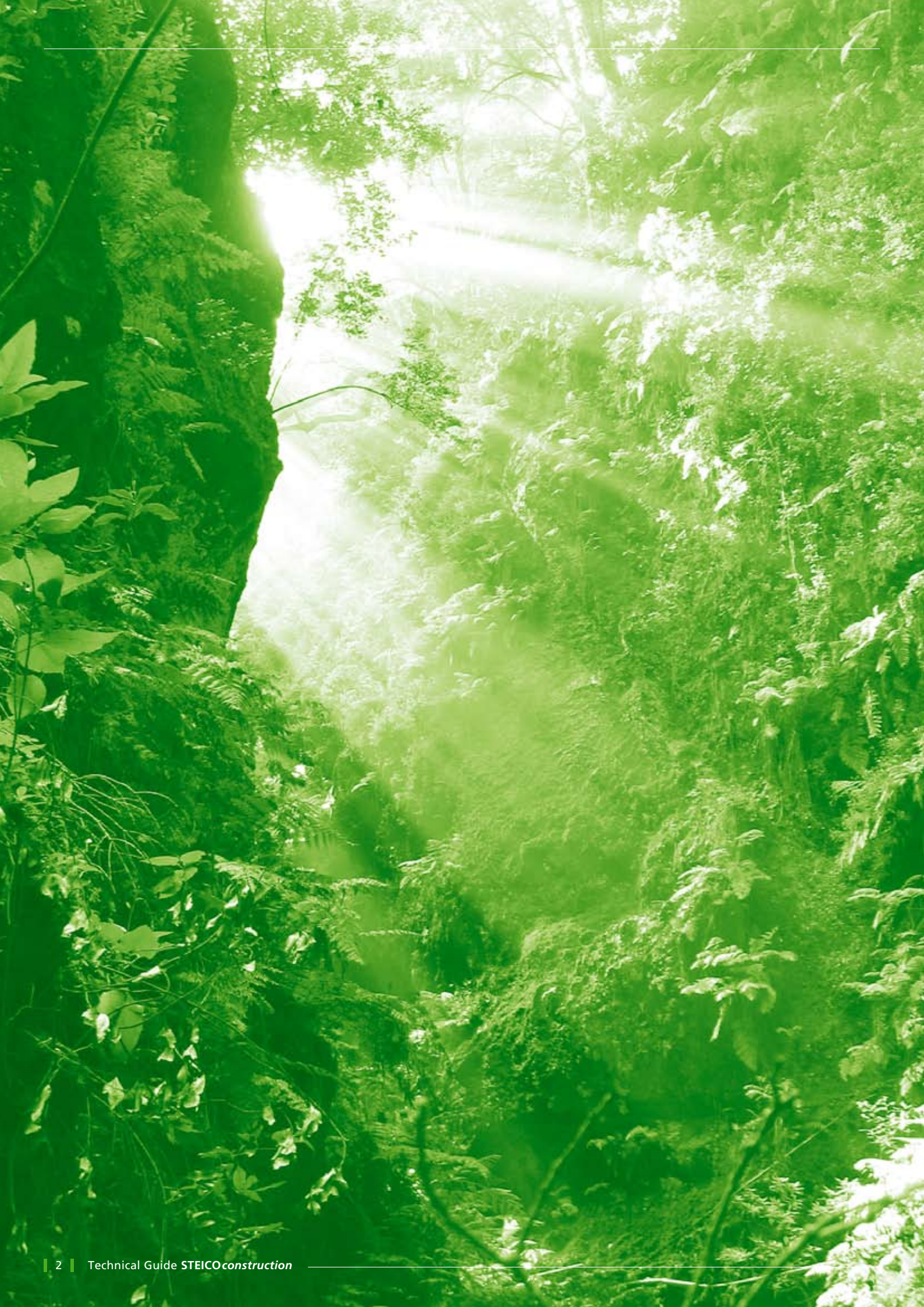
technical & detailing

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- Products
- Properties
- Applications
- Design values and span tables
- Detailing
- Connectors
- Insulation
- Safety instructions




STEICO
building system products



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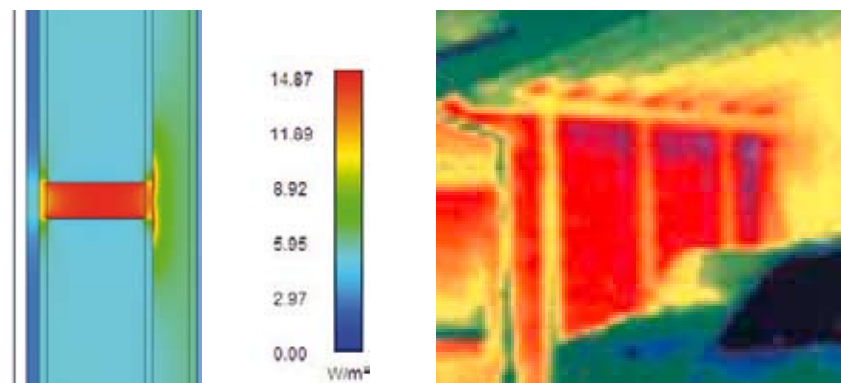
ENVIRONMENTALLY FRIENDLY BUILDING PRODUCTS MADE FROM SUSTAINABLE RESOURCES

How can we build in an energy efficient, environmentally responsible and sustainable way? This question has fascinated us since the start of our company in 1959, and in asking this we set ourselves a high quality standard for our products. Stringent tests and voluntary quality checks ensure that our products meet the highest requirements set for ecological building and modern methods of construction. Natureplus®, an independent quality certification organisation, certifies our insulation materials, and we only use raw materials certified by the FSC in our production.



As an insulation specialist we continually work to improve the energy efficiency of buildings and to increase their comfort to the occupier. The STEICO range of products includes products for both timber and masonry structures, for new buildings as well as refurbishments and renovations. Using STEICO products in a renovation project can increase the energy efficiency of the structure by up to twenty times.

Protecting our environment and the increasing costs of energy are two main drivers for the continued development of this system, and the production of I-Joists is a logical step forward. Lightweight and efficient engineered timber elements combined with high quality insulation materials form the basis for sustainable building and offer both security and comfort for future generations.



Where high quality insulation materials are used, traditional solid wood often poses a technical challenge to designers due to its thermal inefficiency as it acts as a thermal bridge.

Solid wood wall joists or rafters are construction elements that can be inefficient where they act as a thermal bridge. With the STEICO *construction* building system such thermal bridges are reduced to a minimum due to the inherent efficiency of the I-Section profile.

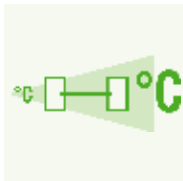
FOLLOWING NATURE'S STEPS: I-JOISTS ARE IDEAL BUILDING ELEMENTS

In nature we find numerous examples of highly efficient structures using a simple principle: where no materials are needed, none are used. The results speak for themselves: consistent performance values, lightweight, low embodied energy and improved energy efficiency in use.

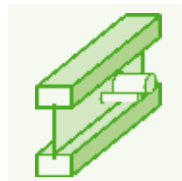
STEICO I-Joists follow these principles and due to their characteristic profile offer the following advantages:



Natural engineering: Bamboo can reach a height of 38 meters with a stem circumference of just 80 centimeters, all enabled by innovative construction principles.



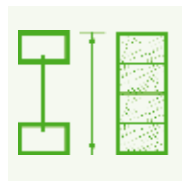
Reduction of thermal bridging



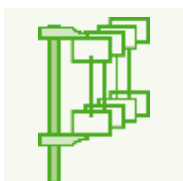
Easy installation of services



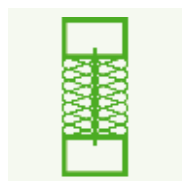
Lightweight. Easy to handle and install



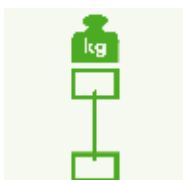
Manufactured to standard depths and to match standard connectors



High dimensional stability through controlled moisture content



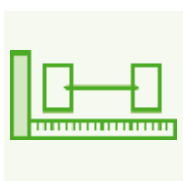
Available pre-insulated to form a solid cross section



High load bearing capacity



Easy to machine



Strict manufacturing tolerances

| STEICO*joist* AND STEICO*wall* ARE NATURAL PRODUCTS

The production basis for all our joists is wood. Made from slow grown spruce, the flanges are kiln dried and machine stress graded thereby guaranteeing a sustainable quality and defined mechanical properties.

The webs are made from structural fibreboard, jointed along the length with a V-groove profile, and offer a very high shear capacity. Both the preparation and manufacturing processes of the flanges and webs and the installation of durable adhesives are carried out using the latest automated assembly lines.

To guarantee a consistently high quality of our products, both internal and external parties control the production process. The I-Joist received a European technical certification from the British Board of Agrément (BBA), ETA-06/0238, and carries the CE-mark.

A unique product is the STEICO*wall* – a pre-insulated stud insulated with natural wood fibres. The spaces between the flanges and the web are pre-insulated thereby eliminating the need to profile the insulation on site, and the stud therefore can be used in the same way as a traditional, solid stud. The insulation materials are made with STEICO's standard quality of natural wood fibres, ensuring excellent thermal conductivity values.



| A PRODUCT FOR EACH APPLICATION

STEICO *joist*

I-Joist Building System for roofs & floors



Joists for applications such as floors or roofs.

Special characteristics:

- 8 mm thick structural fibreboard web for high shear capacities
- High quality grade softwood flange material

STEICO *wall*

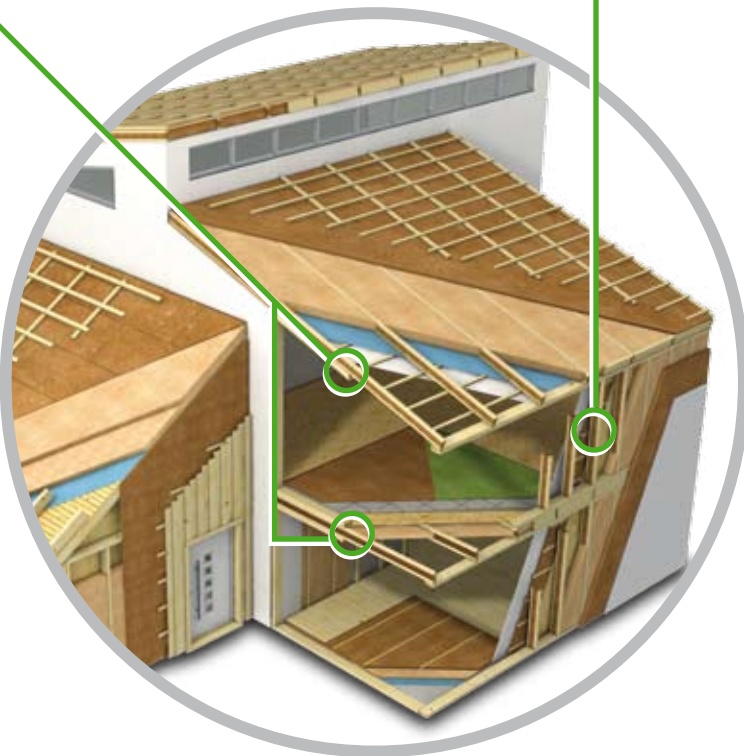
I-Joist Building System for walls



Joists for wall stud applications.

Special characteristics:

- 6 mm thick structural fibreboard web to reduce thermal bridging
- Available as a pre-insulated stud

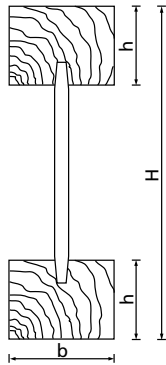


A perfect match with STEICO insulation materials

The STEICO I-Joists are suitable for combination with STEICO insulation materials. Whether wood, hemp or blown loose fibre insulation, fixed or flexible slabs, the complete range of STEICO's ecological insulation materials are available in conjunction with STEICO I-Joists.

For both new building and renovation projects STEICO offers a complimentary, optimised system enabling high-energy efficiency.

OVERVIEW OF ALL I-JOISTS



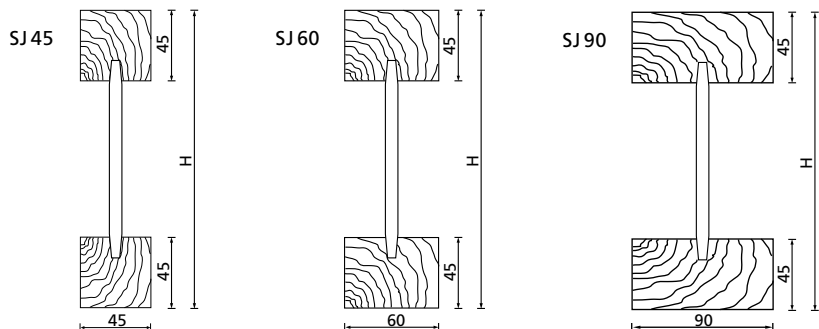
With lengths of up to 16 meters, depths from 160 – 400 mm, and the option for pre-insulation these combine to make the STEICOconstruction range a fully independent construction system.

Type	Flange b*h [mm]	Depth H [mm]	Length [m]	Weight [kg / m]
STEICOjoist SJ45	45*45	200		2.9
	45*45	220		3.1
	45*45	240		3.2
	45*45	300		3.7
	45*45	350		4.2
STEICOjoist SJ60	60*45	200	Available in lengths of 7.0 m. 9.0 m. 13.5 m, and upon request up to 16 meters	3.5
	60*45	220		3.8
	60*45	240		3.9
	60*45	300		4.3
	60*45	350		4.8
	60*45	400		5.1
STEICOjoist SJ90	90*45	200		4.8
	90*45	220		5.1
	90*45	240		5.1
	90*45	300		5.6
	90*45	350		6.2
	90*45	400		6.4
STEICOwall * SW45	45*45	160		2.4
	45*45	200		2.7
	45*45	240		2.9
	45*45	300		3.3
	45*45	350		3.6
STEICOwall * SW60	60*45	160	Available in lengths of 7.0 m. 9.0 m. 13.5 m, and upon request up to 16 meters	3.0
	60*45	200		3.3
	60*45	240		3.5
	60*45	300		3.9
	60*45	350		4.3
	60*45	400		4.5
STEICOwall * SW90	90*45	240		4.8
	90*45	300		5.2
	90*45	350		5.7
	90*45	400		5.8

* available in a pre-insulated option

STEICOjoist

With 8 mm thick structural fibreboard web for high shear applications



Properties

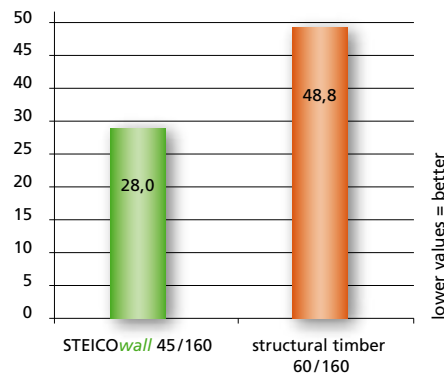
MATERIAL PROPERTIES

Material	Minimum density ρ [kg / m ³]	Declared thermal conductivity λ_{\perp} [W/(m*K)] acc. to EN 12524	Specific heat capacity c [J/(kg*K)] acc. to EN 12524	Water vapour diffusion resistance μ acc. to EN 12524	
				Dry	Humid
Flange	500	0.13	1600	50	20
Web	900	0.18	1700	10	20

Please note: All STEICO fibreboards are made up of wood fibres aligned in the direction of the mattress. Wood is an anisotropic material with different physical properties along and across the fibres, and with differing properties between the fibreboards and flanges. For an accurate thermal conductivity calculation please use the above value for thermal conductivity, multiplied by 2.2.

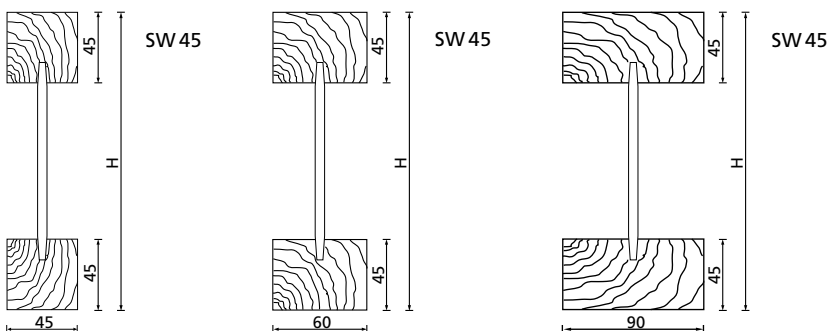
Heat transfer per meter [mW]

By using these engineered wood products in combination with an effective vapour check and airtight barrier a significant reduction of heat loss can be achieved. With a temperature difference of one Kelvin per running meter of joist the following results can be achieved.



FIRE PERFORMANCE

STEICOjoist and STEICOWall have fire classifications according to EN 13501-1:2002: D-s2,d0



STEICOwall

With 6 mm thick structural fibreboard web to reduce thermal bridging

Available in a pre-insulated option

CHARACTERISTIC DESIGN VALUES TO EC 5

Characteristic design values to EC 5

View page 12 for "Permissible design properties to BS 5268"

Type	Depth H [mm]	Moment capacity ^{a)} M _{y,k} [kNm]	Flexural rigidity EI _{y, mean} [Nmm ² * 10 ⁹]	Shear capacity V _k [kN]	Shear rigidity GA _{y, mean} [MN]
STEICO <i>joist</i> SJ 45	200	7.09	327	10.92	2.09
	220	8.00	416	11.85	2.42
	240	8.92	516	12.75	2.76
	300	11.74	888	15.36	3.77
	350	13.46	1281	17.43	4.61
STEICO <i>joist</i> SJ 60	200	9.45	436	10.84	2.09
	220	10.66	554	11.75	2.42
	240	11.87	687	12.64	2.76
	300	15.57	1177	15.17	3.77
	350	18.03	1693	17.16	4.61
STEICO <i>joist</i> SJ 90	200	14.13	651	10.76	2.09
	220	15.96	827	11.65	2.42
	240	17.75	1025	12.51	2.76
	300	23.21	1752	14.97	3.77
	350	26.80	2513	16.88	4.61
STEICO <i>wall</i> SW 45	160	2.49	127	4.50	1.12
	200	3.56	227	5.47	1.63
	240	4.48	359	6.40	2.13
	300	5.90	618	7.72	2.89
	350	6.86	893	8.77	3.52
STEICO <i>wall</i> SW 60	160	3.32	169	4.48	1.12
	200	4.74	302	5.43	1.63
	240	5.95	477	6.34	2.13
	300	7.82	818	7.61	2.89
	350	9.06	1178	8.62	3.52
STEICO <i>wall</i> SW 90	400	10.28	1608	8.23	4.15
	240	8.89	711	6.27	2.13
	300	11.64	1216	7.50	2.89
	350	13.44	1746	8.47	3.52
	400	15.21	2376	8.23	4.15

Characteristic values prepared in accordance with the recommendations of ETAG 011 and BSEN 1995-1-1.

^{a)} The characteristic bending moments are based on the assumption that lateral bracing to compression flange (at a spacing not exceeding ten times the flange width) is in place.

Characteristic bearing values to EC5

View page 13 for "Permissible bearing resistance to BS 5268"

Type	Depth H	End bearing [kN]				Intermediate bearing [kN]	
		Bearing length 45 mm		Bearing length 90 mm		Bearing length 90 mm	
		Web stiffener		Web stiffener		Web stiffener	
		no	yes	no	yes	no	yes
STEICO <i>joist</i> SJ45	200	8.1	9.7	8.7	10.7	16.0	16.1
	220		10.0		11.0		16.4
	240		10.3		11.3		16.7
	300		11.2		12.2		17.6
	350		11.9		13.0		18.3
STEICO <i>joist</i> SJ60	200	12.0	12.7	12.6	14.2	21.6	23.0
	220		13.0		14.5		23.3
	240		13.3		14.8		23.6
	300		14.2		15.7		24.5
	350		15.0		16.4		25.2
	400		15.7		17.2		26.0
STEICO <i>joist</i> SJ90	200	12.9	13.8	15.3	15.4	29.3	35.9
	220		14.1		15.7		36.2
	240		14.4		16.0		36.5
	300		15.3		16.9		37.4
	350		16.0		17.7		38.2
	400		16.8		18.4		38.9

Values of k_{mod} to be used with EC 5 when designing STEICO I-joist products

Duration of load	Bending and axial resistance		Shear resistance		Bearing resistance	
	Service class 1	Service class 2	Service class 1	Service class 2	Service class 1	Service class 2
Permanent	0.60	0.60	0.30	0.20	0.60	0.60
Long term	0.70	0.70	0.45	0.30	0.70	0.70
Medium term	0.80	0.80	0.65	0.45	0.80	0.80
Short term	0.90	0.90	0.85	0.60	0.90	0.90
Instantaneous	1.10	1.10	1.10	0.80	1.10	1.10

γ_m can be taken as 1.3 in general

PERMISSIBLE DESIGN PROPERTIES TO BS 5268

Design values to BS 5268

Type	Depth H [mm]	Moment ^{a)} [kNm]	Bending rigidity [Nmm ² *10 ⁹]	Shear [kN]	Shear rigidity [MN]
STEICO <i>joist</i> SJ45	200	2.73	327	2.70	1.25
	220	3.08	416	2.93	1.45
	240	3.43	516	3.15	1.66
	300	4.52	888	3.79	2.26
	350	5.25	1281	4.31	2.76
STEICO <i>joist</i> SJ60	200	3.64	436	2.68	1.25
	220	4.10	554	2.90	1.45
	240	4.57	687	3.12	1.66
	300	6.00	1177	3.75	2.26
	350	6.94	1693	4.24	2.76
	400	7.87	2310	4.71	3.27
STEICO <i>joist</i> SJ90	200	5.44	651	2.66	1.25
	220	6.14	827	2.88	1.45
	240	6.83	1025	3.09	1.66
	300	8.94	1752	3.70	2.26
	350	10.32	2513	4.17	2.76
	400	11.67	3419	4.62	3.27
STEICO <i>wall</i> SW45	160	0.96	127	1.11	0.67
	200	1.37	227	1.35	0.98
	240	1.72	359	1.58	1.28
	300	2.27	618	1.91	1.73
	350	2.64	893	2.17	2.11
STEICO <i>wall</i> SW60	160	1.28	169	1.11	0.67
	200	1.82	302	1.34	0.98
	240	2.29	477	1.57	1.28
	300	3.01	818	1.88	1.79
	350	3.49	1178	2.13	2.11
	400	3.96	1608	2.03	2.49
STEICO <i>wall</i> SW90	240	3.42	711	1.55	1.28
	300	4.48	1216	1.85	1.73
	350	5.18	1746	2.09	2.11
	400	5.86	2376	2.03	2.49

^{a)} The bending moments are based on the assumption that lateral bracing to the compression flange (at a spacing not exceeding ten times the flange width) is in place.

Notes:

- Values shown are for non-loadsharing conditions – where the joist centres are < 610 mm a load-sharing factor K_3 of 1,10 should be applied to the permissible moment, shear and bearing values in accordance with BS 5268.
- A K_{dom} factor of 1.12 can be adopted when designing residential floors within self contained dwellings where the imposed load is no greater than 1,5kN/m². This is applicable to the permissible moment, shear and bearing values.
- Data shown is taken from characteristic values, page 10.

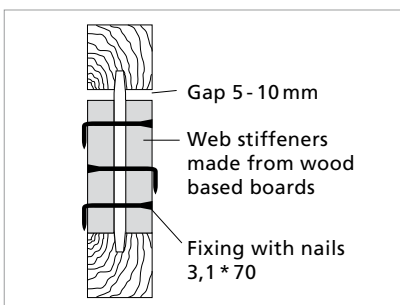
Permissible bearing resistance to BS 5268

Type	Depth H	End bearing [kN]				Intermediate bearing [kN]	
		Bearing length 45 mm		Bearing length 90 mm		Bearing length 90 mm	
		Web stiffener		Web stiffener		Web stiffener	
		no	yes	no	yes	no	yes
STEICOjoist SJ45	200	3.12	3.73	3.35	4.12	6.16	6.20
	220		3.85		4.24		6.31
	240		3.97		4.35		6.43
	300		4.31		4.70		6.78
	350		4.58		5.01		7.05
STEICOjoist SJ60	200	4.62	4.89	4.85	5.47	8.32	8.86
	220		5.01		5.58		8.97
	240		5.12		5.70		9.09
	300		5.47		6.04		9.43
	350		5.78		6.31		9.70
	400		6.04		6.62		10.01
STEICOjoist SJ90	200	4.97	5.31	5.89	5.93	11.28	13.82
	220		5.43		6.04		13.94
	240		5.54		6.16		14.05
	300		5.89		6.51		14.40
	350		6.16		6.81		14.71
	400		6.47		7.08		14.98

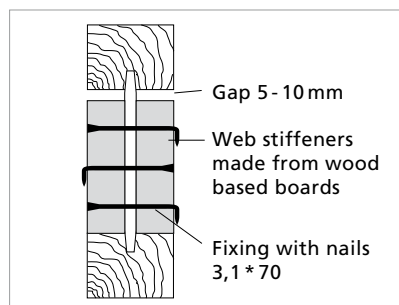
WEB STIFFENERS

In certain conditions or construction solutions web stiffeners are required. Web stiffeners are used specifically to increase the load capacity of middle and end bearings, to allow high point loads and to laterally support the top flange of the joist for some hanger applications.

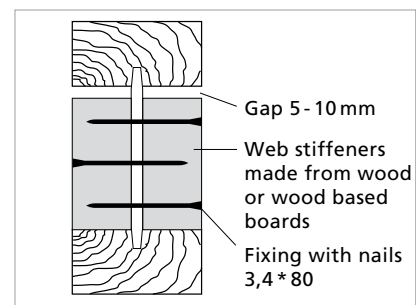
STEICOjoist SJ45



STEICOjoist SJ60



STEICOjoist SJ90



Installation of Web Stiffeners:

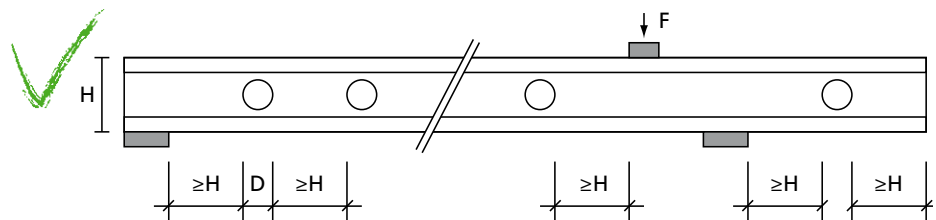
- For enhanced bearings, all pitched hanger and birdsmouth cut locations and where hangers do not restrain the top flange, web stiffeners must be fitted so that they are tight to the bottom flange and there is a 5-10 mm gap between the stiffeners and the top flange.
- Where concentrated point loads are applied onto the top flange, web stiffeners must be fitted so that they are tight to the top flange, leaving a 5-10 mm gap between the stiffeners and the bottom flange.

For web stiffener applications, please refer to Floor and Roof Construction Details

ACCESS AND SERVICE HOLES

Holes should be positioned in the middle of the web. The location and maximum sizes of the holes can be calculated in accordance with the drawing and table below.

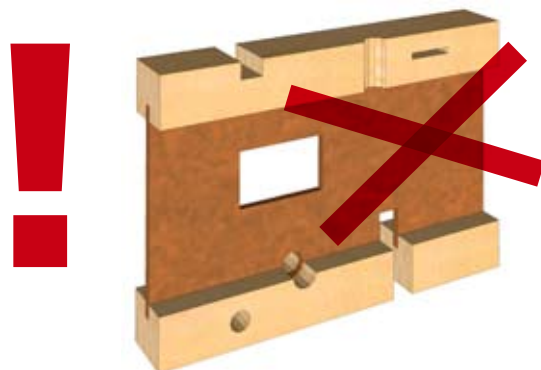
Holes up to a maximum 20 mm diameter can be made in any part of the web, as long as the distance between the edge of the holes is a minimum of 40 mm. A maximum row of 3 round holes with a diameter of up to 20 mm is allowed.



Joist depth	200 mm	240 mm	300 mm	360 mm	400 mm
Minimum distance to bearing or point load F	200 mm	240 mm	300 mm	360 mm	400 mm
Minimum distance between two holes	200 mm	240 mm	300 mm	360 mm	400 mm
Maximum diameter D	100 mm	140 mm	200 mm	200 mm	200 mm

INCORRECT HANDLING AND HOLES

- Notches and holes in the flanges are not allowed
- Holes have to be drilled
- Rectangular holes are not allowed



Floors

| FLOOR APPLICATIONS

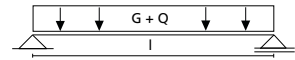


The STEICOjoist is a geometrically optimised product using nature as its model. Suitable material is only used in those places where it meets the needs, resulting in a slender and economical building element for floors.

Modern structures require high performance and cost efficient constructions in which shrinkage and movement are a thing of the past. The carefully selected components used in the flange and web create a high quality engineered wood product, designed to reduce movement and other problems associated with solid timber floors.

Thanks to its engineered properties the STEICOjoist is dimensionally stable, avoiding the need for mid span blocking to be installed and reducing the risk of nail popping in plasterboard by timber shrinkage. Due to its light-weight properties, new floors are easily incorporated into renovation projects where access is limited and handling issues are important.

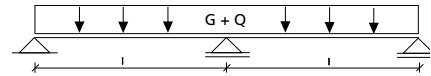
SPAN TABLES FOR STEICOjoist TO BS 5268



Maximum single spans l in [m],
max. deflection = 12 mm or $0,003 * l$

Live load $Q=1,5 \text{ kN/m}^2$

Type	Depth H [mm]	G=0,5 kN/m ² Joist centers [mm]		G=0,75 kN/m ² Joist centers [mm]		G=1,25 kN/m ² Joist centers [mm]	
		400	600	400	600	400	600
STEICOjoist SJ45	200	4.27	3.77	4.13	3.60	3.89	3.34
	220	4.53	4.07	4.39	3.92	4.16	3.64
	240	4.79	4.30	4.64	4.16	4.40	3.92
	300	5.49	4.93	5.32	4.78	5.05	4.52
	350	6.02	5.41	5.84	5.24	5.53	4.66
STEICOjoist SJ60	200	4.56	4.09	4.42	3.94	4.18	3.65
	220	4.85	4.34	4.70	4.21	4.45	3.98
	240	5.12	4.59	4.96	4.44	4.70	4.21
	300	5.87	5.26	5.68	5.09	5.39	4.82
	350	6.43	5.77	6.23	5.58	5.90	5.29
	400	6.95	6.23	6.73	6.04	6.38	5.72
STEICOjoist SJ90	200	5.00	4.47	4.84	4.33	4.58	3.97
	220	5.32	4.76	5.15	4.60	4.87	4.30
	240	5.61	5.02	5.44	4.86	5.15	4.60
	300	6.43	5.76	6.23	5.57	5.90	5.27
	350	7.04	6.31	6.82	6.11	6.46	5.78
	400	7.61	6.82	7.37	6.60	6.98	6.24



Maximum double spans with mid span support l in [m],
max. deflection = 12 mm or $0,003 * l$

Live load $Q=1,5 \text{ kN/m}^2$

Type	Depth H [mm]	G=0,5 kN/m ² Joist centers [mm]		G=0,75 kN/m ² Joist centers [mm]		G=1,25 kN/m ² Joist centers [mm]	
		400	600	400	600	400	600
STEICOjoist SJ45	200	4.80	4.31	4.70	4.21	4.52	3.61
	220	5.10	4.58	4.99	4.48	4.80	3.68
	240	5.38	4.84	5.27	4.50	5.08	3.68
	300	6.17	5.06	6.04	4.50	5.52	3.68
	350	6.77	5.06	6.63	4.50	5.52	3.68
STEICOjoist SJ60	200	5.13	4.60	5.02	4.30	4.83	3.59
	220	5.45	4.89	5.34	4.66	5.13	3.89
	240	5.76	5.17	5.64	5.01	5.42	4.19
	300	6.60	5.92	6.46	5.79	6.21	4.97
	350	7.23	6.49	7.08	6.07	6.81	4.97
	400	7.82	6.83	7.65	6.07	7.36	4.97
STEICOjoist SJ90	200	5.63	4.76	5.51	4.27	5.15	3.57
	220	5.98	5.15	5.86	4.63	5.58	3.86
	240	6.32	5.53	6.18	4.97	5.95	4.15
	300	7.24	6.49	7.08	5.95	6.81	4.97
	350	7.93	7.11	7.76	6.72	7.46	5.61
	400	8.57	7.68	8.38	7.46	8.06	6.23

General comments:

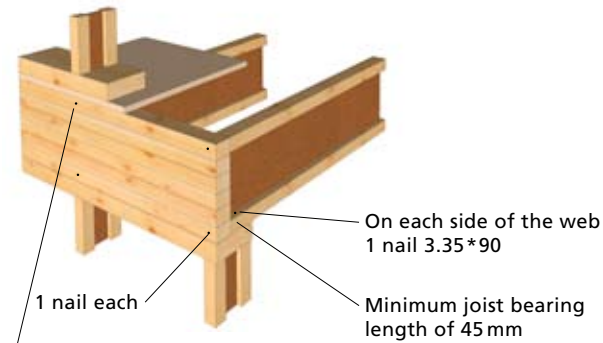
- These tables serve as a guide only and do not replace independent structural calculations prepared by a qualified structural engineer.
- Please pay special attention to the bearing conditions.
- Do not use these tables to calculate point or irregular loads.
- Spans indicated are between centres of supports.
- Q = design imposed loads. G = design dead loads. The UKTFA Engineered Wood Products Committee recommends a minimum dead load for single occupancy domestic floors of 0.41 kN/m^2 plus an allowance of 0.22 kN/2 for non-load-bearing partitions (up to 27 kg/m^2), irrespective of whether

they are present on the floor. Where partition positions are known, the final design should reflect the worst case of either the blanket UDL (incl partitions) or the dead load plus a minimum line load of 0.64 kN/m at partition locations. Where the calculated dead loads exceed the recommended minimum (ie: compartment floors and multi-boarded partitions), these must be adopted.

- Span tables are for floor joists under service class 1 conditions only.

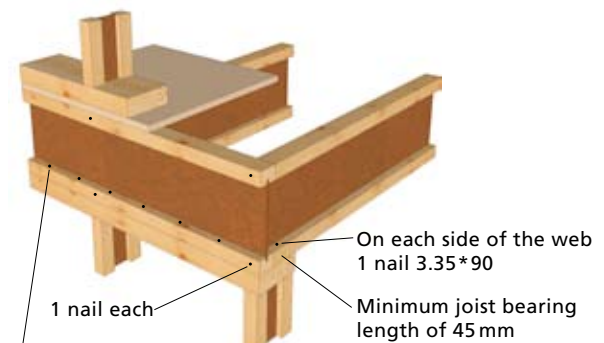
FLOOR CONSTRUCTION DETAILS

F1 Glulam (e.g. Panelam) Rim Board



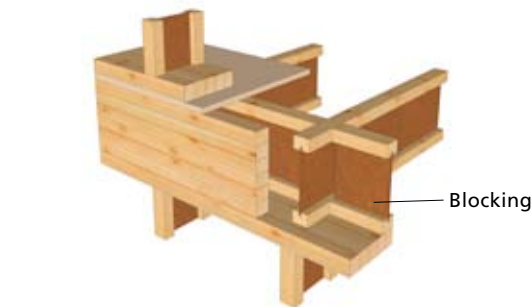
Minimum nailing for class 1 structures to be 3.00*75 nails at 300 mm centres which should be applied at each interface where lateral loads are to be transferred. Refer to UKTFA "Design Guidance on Disproportionate Collapse" for further information

F2 Rim Joist STEICOjoist



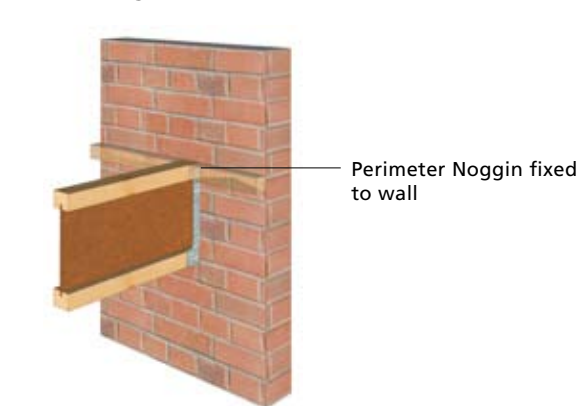
Minimum nailing for class 1 structures to be 3.00*75 nails at 300 mm centres which should be applied at each interface where lateral loads are to be transferred. Refer to UKTFA "Design Guidance on Disproportionate Collapse" for further information

F3 Glulam (e.g. Panelam) rim board with STEICOjoist blocking



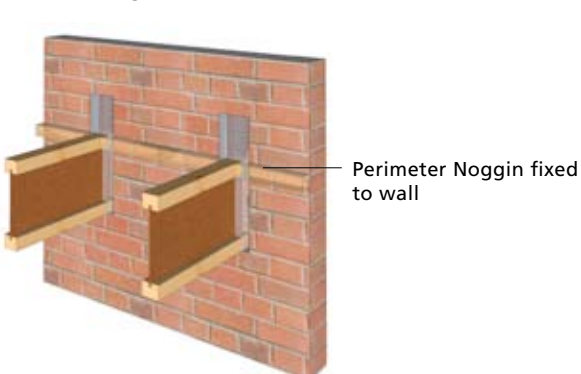
Minimum nailing for class 1 structures to be 3.00*75 nails at 300 mm centres which should be applied at each interface where lateral loads are to be transferred. Refer to UKTFA "Design Guidance on Disproportionate Collapse" for further information

F4 Bearing onto block or brick wall



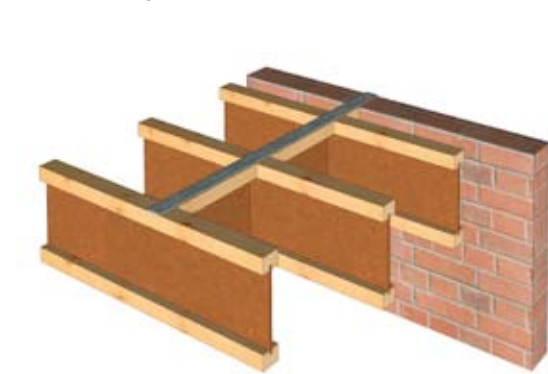
Top flange masonry hanger suitable for STEICOjoist

F5 Bearing onto block or brick wall



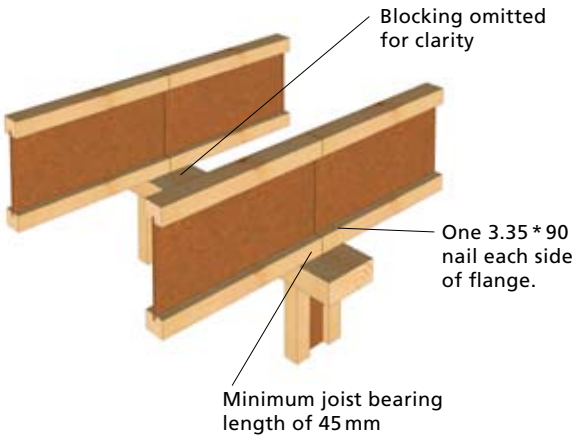
STEICOjoist built into wall – ensure minimum 45 mm bearing and provide end caps or suitable alternative to prevent moisture ingress to the joist, thermal bridging and air leakage.

F6 Masonry wall restraint

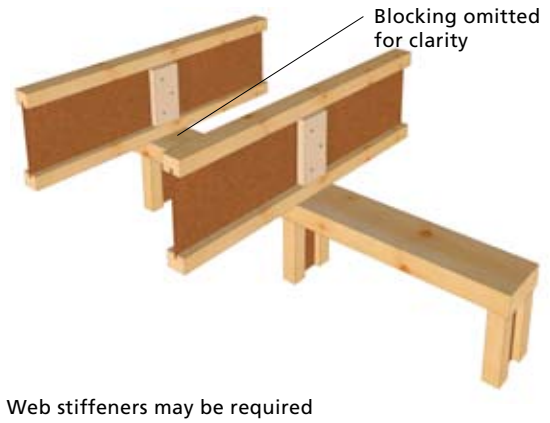


Galv masonry strap restraint fixed to minimum 3 joists in accordance with manufacturers recommendations. 38 x (0.5H) noggin under strap.

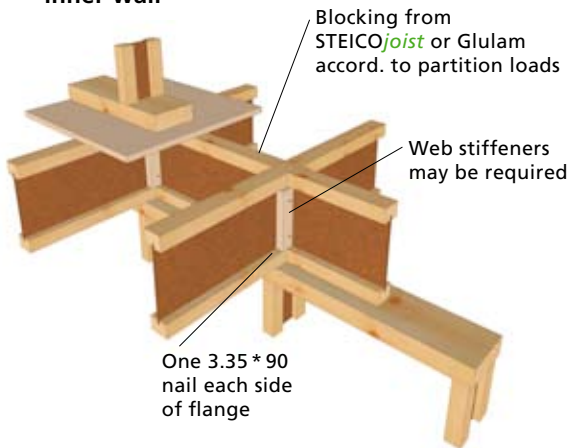
F7 Intermediate bearing with joists discontinuous



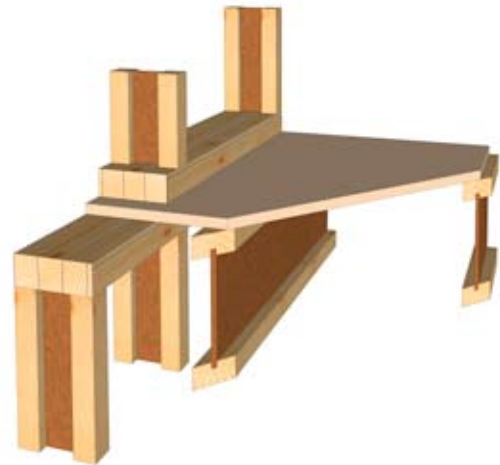
F8 Intermediate bearing with continuous joists



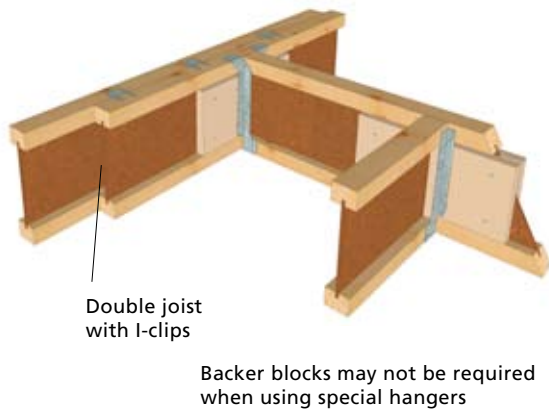
F9 Intermediate bearing with load bearing inner wall



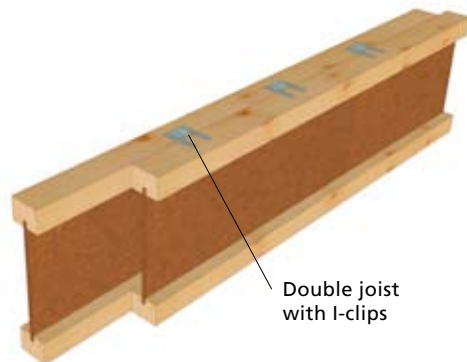
F10 Connection Floor/Wall



F11 Joist to Joist

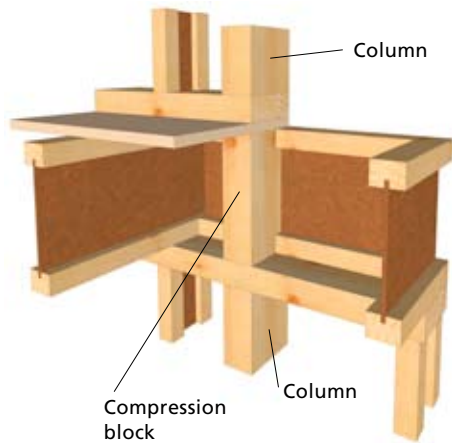


F12 Double Joist



FLOOR CONSTRUCTION DETAILS

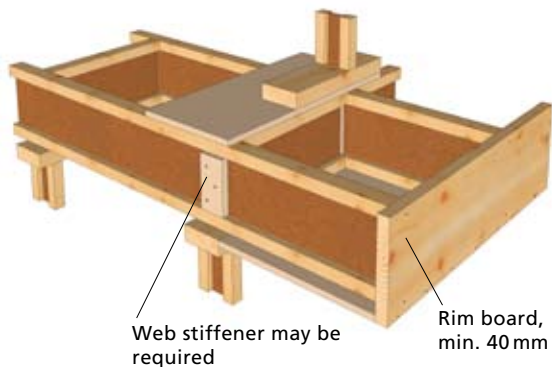
F13 Transfer of high point loads



F14 Different hanger applications



F15 Cantilever



Please make sure that external parts are protected against weather

NOTES TO THE DETAILS

Bearing lengths

- End bearing minimum 45 mm
- Intermediate bearing minimum 90 mm

Fastening

- Where bearing onto an external timber frame wall, STEICOjoists must be secured to a Glulam (e.g. Panelam) rim board, a rim joist or other suitable EWP using nails or suitable hangers.
- STEICOjoists to be nailed to head plates using minimum 2 No. 3.35 * 90 ring shank nails, located a minimum of 38 mm from the end of the joist. Nails may need to be skewed slightly to avoid splitting the bearing plate.
- Compression blocks to be fixed to each flange using a minimum of one 3.35 dia nail, ensure the block is cut from a suitable EWP to the same depth as the joist.
- Typical details shown are for guidance only and should be used in conjunction with the recommendations and requirements of the UKTFA, British Standards, NHBC, Zurich, Robust Details Ltd, Building regulations and all other statutory bodies.

CONNECTORS



Face fix hangers

Type	Depth H [mm]	Simpson-HWS® connector	Type of nail [mm] ^{a)} Prim. / sec. joist	Cullen® connector	Type of nail [mm] ^{b)} Prim. / sec. joist	For allowable loads please check the current Simpson Strong-Tie® or Cullen® Building Products technical brochures.
STEICOjoist SJ45	200	–	–	FFI 46 / 195	3.75 * 30	
	220	–	–	FFI 46 / 220	3.75 * 30	
	240	IUT 9	4.0 * 40	FFI 46 / 235	3.75 * 30	
	300	IUT 11	4.0 * 40	FFI 46 / 300	3.75 * 30	
	350	IUT 14	4.0 * 40	FFI 46 / 350	3.75 * 30	
STEICOjoist SJ60	200	–	–	FFI 61 / 195	3.75 * 30	
	220	–	–	FFI 61 / 220	3.75 * 30	
	240	IUT 3510	4.0 * 40	FFI 61 / 235	3.75 * 30	
	300	IUT 3512	4.0 * 40	FFI 61 / 300	3.75 * 30	
	350	IUT 3514	4.0 * 40	FFI 61 / 350	3.75 * 30	
STEICOjoist SJ90	400	IUT 380/60	4.0 * 40	FFI 61 / 400	3.75 * 30	
	200	–	–	FFI 92 / 195	3.75 * 30	
	220	–	–	FFI 92 / 220	3.75 * 30	
	240	IUT 410	4.0 * 40	FFI 92 / 235	3.75 * 30	
	300	IUT 412	4.0 * 40	FFI 92 / 300	3.75 * 30	
	350	IUT 414	4.0 * 40	FFI 92 / 350	3.75 * 30	
	400	IUT 380/91	4.0 * 40	FFI 92 / 400	3.75 * 30	

^{a)} Fixing nails to be installed strictly in accordance with Simpson Strong-Tie® recommendations

^{b)} sheradised square twist nails

General comments:

- The distance between the main and secondary joist must not exceed 3 mm
- Please pay special attention to bearing conditions
- All hangers to be installed strictly in accordance with the manufacturers recommendations
- Web stiffeners for lateral restraint to the top flange of the joist may be required

CONNECTORS



Top fix hangers

Type	Depth H [mm]	Simpson-HWS® connector	Type of nail [mm] ^{a)}		Cullen® connector	Type of nail [mm] ^{b)} Prim. / sec. joist
			Primary joist	Second. joist		
STEICOjoist SJ 45	200	ITB 200/45	4.0*50	4.0*40	TFI 46/200	3.75 * 30
					UI 46/200	3.75 * 30
	220	ITT 219/47	4.0*50	4.0*40	TFI 46/220	3.75 * 30
					ITT 220/45	4.0*50
	240	ITT 9.5	4.0*50	4.0*40	TFI 46/241	3.75 * 30
					ITB 240/45	4.0*50
	300	ITT 11.88	4.0*50	4.0*40	TFI 46/300	3.75 * 30
					ITB 302/45	4.0*50
	350	ITT 349/47	4.0*50	4.0*40	TFI 46/350	3.75 * 30
					UI 46/350	3.75 * 30
STEICOjoist SJ 60	200	ITB 200/60	4.0*50	4.0*40	TFI 61/200	3.75 * 30
					UI 61/200	3.75 * 30
	220	ITT 219/60	4.0*50	4.0*40	TFI 61/220	3.75 * 30
					ITT 220/60	4.0*50
	240	ITT 359.5	4.0*50	4.0*40	TFI 61/241	3.75 * 30
					ITB 240/60	4.0*50
	300	ITT 3511.88	4.0*50	4.0*40	TFI 61/300	3.75 * 30
					ITB 302/60	4.0*50
	350	ITT 349/60	4.0*50	4.0*40	TFI 61/350	3.75 * 30
					UI 61/350	3.75 * 30
	400	ITT 399/60	4.0*50	4.0*40	TFI 61/400	3.75 * 30
					UI 61/400	3.75 * 30
STEICOjoist SJ 90	200	ITB 200/90	4.0*50	4.0*40	TFI 92/200	3.75 * 30
					UI 92/200	3.75 * 30
	220	ITT 219/91	4.0*50	4.0*40	TFI 92/220	3.75 * 30
					ITT 220/90	4.0*50
	240	ITT 49.5	4.0*50	4.0*40	TFI 92/241	3.75 * 30
					ITB 240/90	4.0*50
	300	ITT 411.88	4.0*50	4.0*40	TFI 92/300	3.75 * 30
					ITB 302/90	4.0*50
	350	ITT 349/91	4.0*50	4.0*40	TFI 92/350	3.75 * 30
					HI 92/350	3.75 * 30
	400	ITT 399/91	4.0*50	4.0*40	TFI 92/400	3.75 * 30
					HI 92/400	3.75 * 30

For allowable loads please check the current Simpson Strong-Tie® or Cullen® Building Products technical brochures.

^{a)} Fixing nails to be installed strictly in accordance with Simpson Strong-Tie® recommendations

^{b)} sheradised square twist nails

General comments:

- The distance between the main and secondary joist must not exceed 3 mm
- Please pay special attention to bearing conditions
- All hangers to be installed strictly in accordance with the manufacturers recommendations
- Web stiffeners for lateral restraint to the top flange of the joist may be required

| ROOF APPLICATIONS



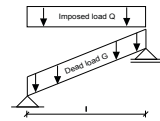
Highly insulated roof constructions are easily achieved with the STEICO*joist*. The light-weight joist provides the user a fast and efficient installation for which your carpenter will thank you.

SPAN TABLES FOR STEICOjoist TO BS 5268

Single span max. deflection = $0,003 * l$

Maximum single spans l in [m]

Imposed load $Q = 0,75 \text{ kN/m}^2$

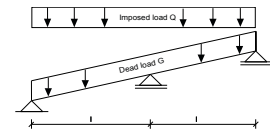


Type	Depth H [mm]	$0,5 \text{ kN/m}^2 < G \leq 0,75 \text{ kN/m}^2$						$0,75 \text{ kN/m}^2 < G \leq 1,0 \text{ kN/m}^2$					
		$\alpha < 5^\circ$		$5^\circ \leq \alpha < 30^\circ$		$30^\circ \leq \alpha < 45^\circ$		$\alpha < 5^\circ$		$5^\circ \leq \alpha < 30^\circ$		$30^\circ \leq \alpha < 45^\circ$	
		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]	
		400	600	400	600	400	600	400	600	400	600	400	600
STEICOjoist SJ45	200	4.83	4.18	4.52	3.92	4.09	3.55	4.57	3.95	4.27	3.69	3.84	3.33
	220	5.25	4.54	4.91	4.25	4.44	3.85	4.97	4.29	4.63	4.01	4.17	3.62
	240	5.65	4.89	5.29	4.58	4.78	4.15	5.35	4.63	4.99	4.32	4.49	3.89
	300	6.80	5.89	6.35	5.51	5.74	4.99	6.44	5.57	6.00	5.20	5.40	4.68
	350	7.70	6.67	7.19	6.24	6.50	5.64	7.29	6.32	6.79	5.89	6.11	5.30
STEICOjoist SJ60	200	5.30	4.58	4.96	4.29	4.49	3.89	5.01	4.32	4.68	4.04	4.22	3.65
	220	5.76	4.97	5.39	4.66	4.87	4.22	5.45	4.70	5.08	4.39	4.58	3.96
	240	6.20	5.36	5.80	5.02	5.24	4.55	5.86	5.06	5.47	4.73	4.93	4.27
	300	7.45	6.45	6.96	6.04	6.29	5.46	7.05	6.10	6.57	5.69	5.91	5.13
	350	8.42	7.30	7.88	6.83	7.12	6.18	7.98	6.91	7.44	6.44	6.69	5.80
STEICOjoist SJ90	200	6.03	5.20	5.65	4.88	5.12	4.43	5.70	4.90	5.32	4.59	4.80	4.15
	220	6.55	5.65	6.13	5.30	5.55	4.81	6.19	5.33	5.78	4.99	5.21	4.51
	240	7.05	6.08	6.60	5.71	5.97	5.17	6.67	5.75	6.22	5.37	5.61	4.85
	300	8.47	7.32	7.92	6.86	7.16	6.21	8.01	6.92	7.47	6.46	6.73	5.83
	350	9.57	8.28	8.95	7.76	8.10	7.02	9.06	7.83	8.45	7.31	7.61	6.60
400	10.63	9.20	9.94	8.62	8.98	7.80	10.06	8.71	9.38	8.12	8.44	7.32	

Double span max. deflection = $0,003 * l$

Maximum double spans l in [m]

Imposed load $Q = 0,75 \text{ kN/m}^2$



Type	Depth H [mm]	$0,5 \text{ kN/m}^2 < G \leq 0,75 \text{ kN/m}^2$						$0,75 \text{ kN/m}^2 < G \leq 1,0 \text{ kN/m}^2$					
		$\alpha < 5^\circ$		$5^\circ \leq \alpha < 30^\circ$		$30^\circ \leq \alpha < 45^\circ$		$\alpha < 5^\circ$		$5^\circ \leq \alpha < 30^\circ$		$30^\circ \leq \alpha < 45^\circ$	
		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]		Joist centers [mm]	
		400	600	400	600	400	600	400	600	400	600	400	600
STEICOjoist SJ45	200	6.03	5.26	5.66	4.93	5.14	4.49	5.80	5.06	5.42	4.73	4.91	4.28
	220	6.53	5.70	6.13	5.35	5.57	4.86	6.29	5.48	5.88	5.13	5.32	4.64
	240	7.02	6.13	6.59	5.75	5.99	5.23	6.76	5.89	6.32	5.51	5.72	4.99
	300	8.42	7.35	7.90	6.89	7.18	6.27	8.10	6.46	7.58	6.33	6.85	5.82
	350	9.52	7.54	8.93	7.40	8.11	6.84	9.02	6.46	8.39	6.79	7.72	6.22
STEICOjoist SJ60	200	6.63	5.78	6.22	5.42	5.66	4.93	6.38	5.56	5.97	5.20	5.40	4.71
	220	7.18	6.26	6.74	5.88	6.13	5.35	6.91	6.03	6.46	5.64	5.85	5.10
	240	7.72	6.73	7.24	6.32	6.58	5.75	7.43	6.48	6.95	6.06	6.28	5.48
	300	9.25	8.06	8.67	7.57	7.88	6.88	8.89	7.76	8.32	7.26	7.52	6.57
	350	10.44	9.11	9.79	8.55	8.90	7.77	10.04	8.46	9.39	7.86	8.49	7.23
STEICOjoist SJ90	200	7.57	6.60	7.11	6.20	6.46	5.64	7.29	5.97	6.82	5.94	6.17	5.38
	220	8.20	7.15	7.70	6.71	7.00	6.11	7.89	6.46	7.38	6.44	6.68	5.83
	240	8.81	7.68	8.27	7.21	7.52	6.56	8.48	6.94	7.93	6.92	7.18	6.26
	300	10.55	9.20	9.90	8.63	9.00	7.85	10.15	8.31	9.49	8.28	8.59	7.49
	350	11.90	10.38	11.17	9.74	10.15	8.86	11.45	9.38	10.71	9.34	9.69	8.45
400	13.19	11.51	12.38	10.80	11.25	9.82	12.69	10.41	11.87	10.23	10.73	9.37	

| SPAN TABLES FOR STEICOjoist

Different roof constructions require varying dead loads and pitches from 5 degrees upwards. In the tables these dead loads are summarised, with a difference made for light roofs (e.g. sheeting roofs) and heavier roofs (e.g. tiled roofs) and guidance on pitches between 5 degrees up to 45 degrees.

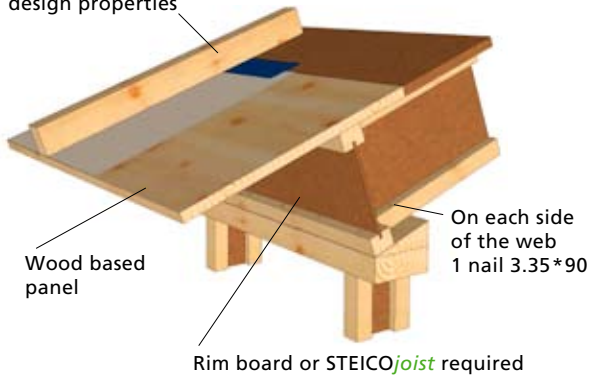
General comments:

- These tables serve as a guide only and do not replace independent structural calculations prepared by a qualified structural engineer.
- Please pay special attention to the bearing conditions.
- Do not use these tables to calculate point or irregular loads.
- Spans indicated are between centres of supports.
- Calculations are based on BS 5268.
- Lateral bracing to compression flange at a spacing not exceeding ten times the flange width is required.
- Q = design imposed loads on plan. G = design dead loads acting perpendicular with the roof slope. Imposed loads are from BS6399-3 clause 4.3.2 for small buildings. Dead loads will vary for differing roof finishes and manufacturers technical literature should be consulted to ensure adequate allowance is made when assessing the design dead load.
- Span tables are for roof joists under service class 1 conditions only and assume continuous lateral restraint is provided to the top flange from either tiling battens combined with suitable diagonal bracing or from a sheathing board. Where load reversal due to wind uplift is probable, suitable restraint from sheathing of plasterboard must be provided to the bottom flange.

ROOF CONSTRUCTION DETAILS

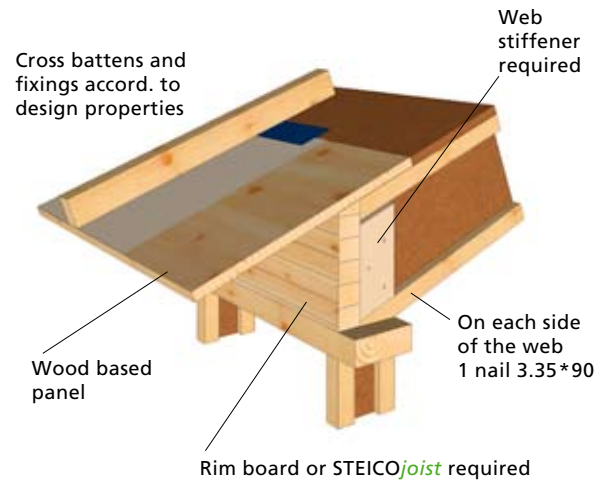
R1 Eaves with wood based panel

Cross battens and fixings accord. to design properties

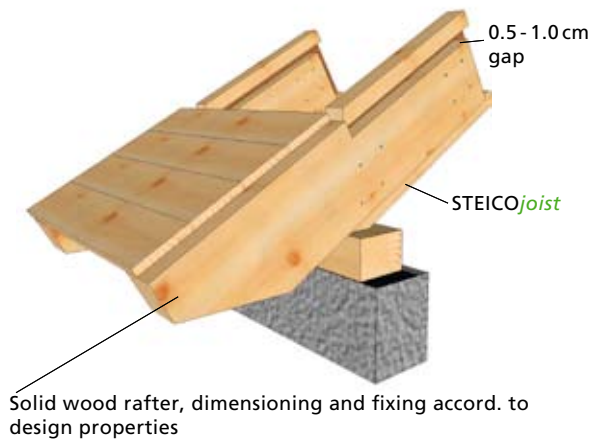


R2 Eaves with wood based panel

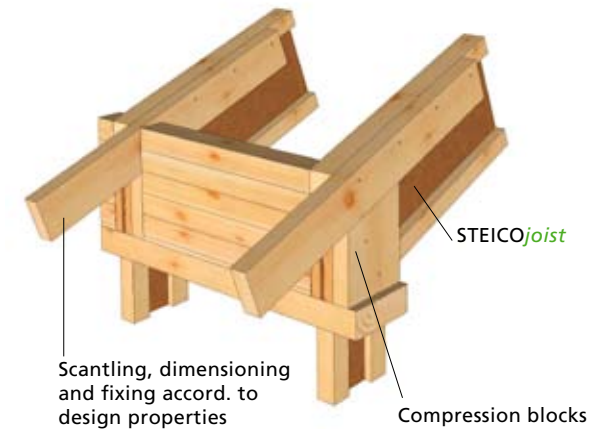
Cross battens and fixings accord. to design properties



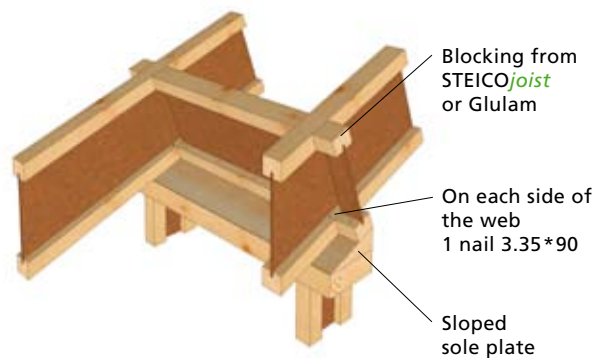
R3 Traditional eaves construction



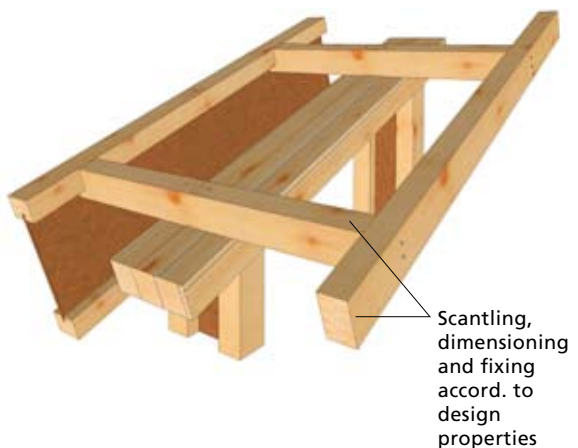
R4 Eaves construction with scantling



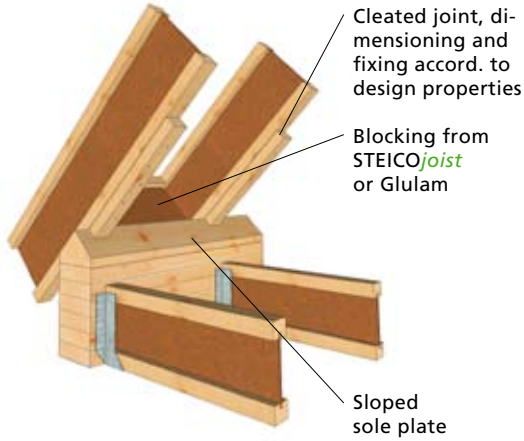
R5 Eaves construction with I-joists



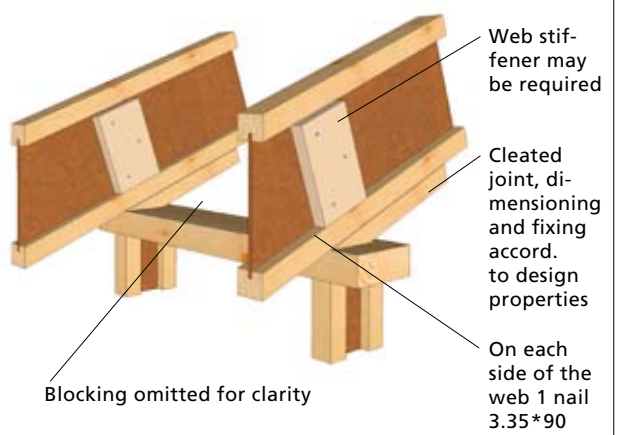
R6 Verge construction



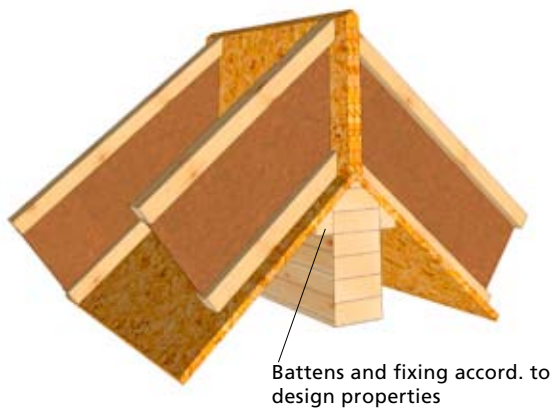
R7 Intermediate bearing with cleat



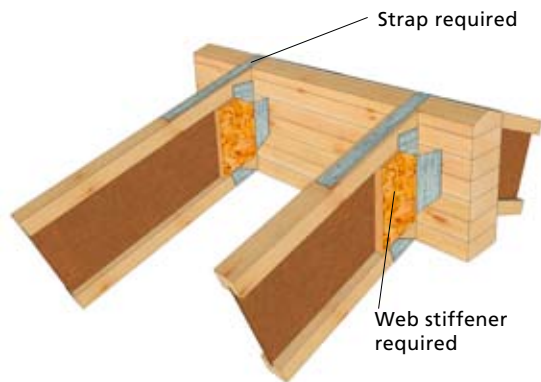
R8 Intermediate bearing with cleat



R9 Ridge construction for pre-fabrication

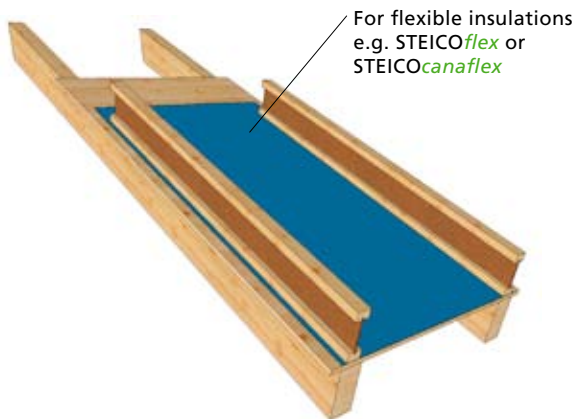


R10 Ridge construction with adjustable hangers

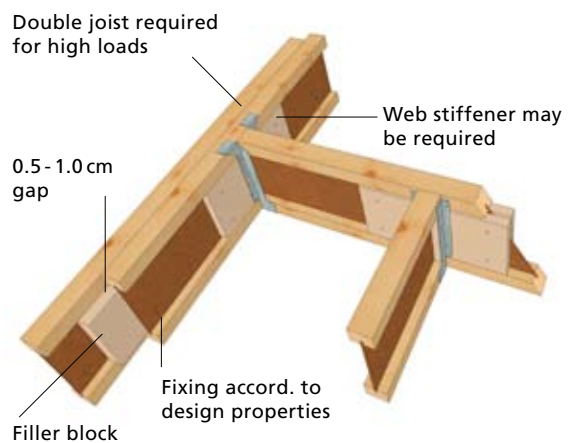


Note: Please refer to the information of the connector manufacturer (e.g. Simpson Strong-Tie®)

R11 Top roof insulation



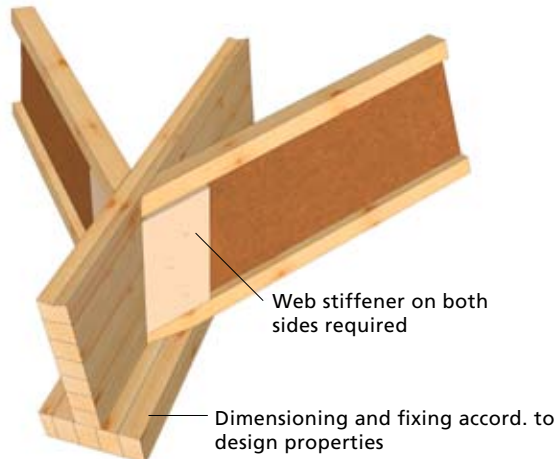
R12 Joist to Joist



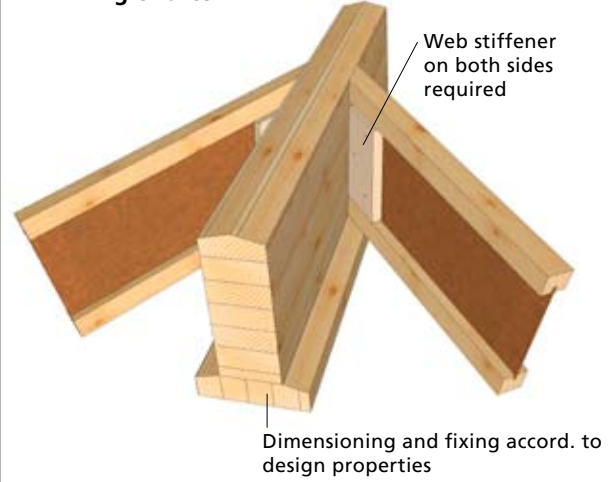
Filler block

ROOF CONSTRUCTION DETAILS

R13 Valley rafter



R14 Angle rafter



NOTES TO THE DETAILS

Bearing lengths

- End bearing minimum 45 mm
- Intermediate bearing minimum 90 mm

Fastening

- STEICO*joist* to be nailed to head plates using minimum 2 No. 3.35 * 90 ring shank nails, located a minimum of 38 mm from the end of the joist. Nails may need to be skewed slightly to avoid splitting the bearing plate. For roofs pitched > 25 degrees, lateral forces may be significant and additional fixings to prevent roof spread may be required.
- Typical details shown are for guidance only and should be used in conjunction with the recommendations and requirements of the UKTFA, British Standards, NHBC, Zurich, Robust Details Ltd, Building regulations and all other statutory bodies.

Web stiffeners

- Web stiffeners are required for birdsmouth cuts and should be independently verified by a suitably qualified structural engineer.
- Web stiffeners should be applied where the sides of the hanger do not laterally support the top flange of the joist.

Blocking

- Blocking to provide lateral restraint must be installed at bearings. Blocking can be from EWP such as glulam or STEICO*joist*.

Cantilevers

- Cantilevers should be restricted to a maximum of 750 mm past the centre of the bearing to the end of the joist. Ensure that blocking is installed at the bearing and that the top and bottom flanges are restrained by sheathing.

CONNECTORS



Adjustable ridge hanger

Type	Depth H [mm]	Simpson-HSW® connector	Type of nail [mm] ^{a)}		Cullen® connector	Type of nail [mm] ^{b)} Prim./sec. joist	For allowable loads please check the current manufacturer documentation
			Prim. joist	Second. joist			
STEICOjoist SJ45	200-360	LSSUI 25	3.7*50	3.8*38	ARC-46	3.75*30	
STEICOjoist SJ60	200-400	LSSUI 35	3.7*50	3.8*38	ARC-61	3.75*30	
STEICOjoist SJ90	200-400	LSSU 410	3.7*50	3.8*38	ARC-92	3.75*30	

^{a)} fixing nails to be installed strictly in accordance with Simpson Strong-Tie® recommendations

^{b)} sheradised square twist nails

In certain applications allowable loads can be increased by 14°- 45° with the use of an LSTA strap. In the case of sliding bearings the use of the LSTA strap is compulsory.

Type	Dimensions b*I [mm]	Use for	Type of nail ^{b)}	For allowable loads please check the current Simpson Strong-Tie® documentation
LSTA 21	32*533	LSSUI 25+ LSSUI 35	3.7*50	
LSTA 24	32*610	LSSUI 25+ LSSUI 35	3.7*50	
LSTA 30	32*762	LSSU 410	3.7*50	
LSTA 36	32*914	LSSU 410	3.7*50	



LSTA strap

^{b)} Galvanised Simpson Strong-Tie® nail

General comments:

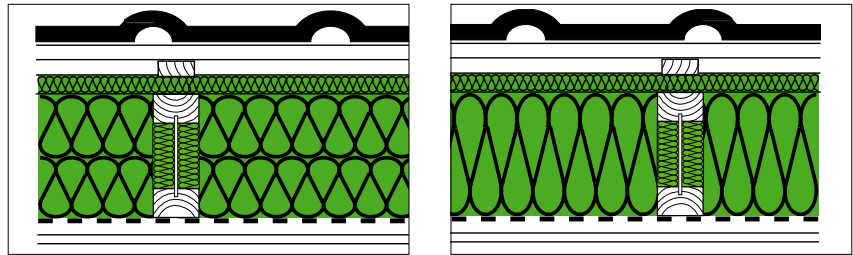
- The distance between the main and secondary joist must not exceed 3 mm
- Please pay special attention to bearing conditions
- All hangers to be installed strictly in accordance with the manufacturers recommendations
- Web stiffeners for lateral restraint to the top flange of the joist may be required

THERMAL INSULATION

With its I-section profile the STEICO*joist* is ideal for roof construction applications where there is a high demand for thermal protection. The STEICO*joist* is an ideal building element for low energy buildings.

Roof constructions with STEICO*joist*

- Tiles 8
- Tile battens 7
- Cross battens 6
- STEICO*universal* 5
- STEICO*flex*/STEICO*joist* 4
- Vapour check 3
- Battens 2
- Plasterboard 1



Material Values

Insulation thickness from inside to outside [mm]	U-Value, insulation only W/(m ² *K)	U-Value, I-joist only W/(m ² *K)	Overall U-Value W/(m ² *K)	Amplitude damping (1/TAV)	Phase shift in hours
200+21	0.174	0.537	0.19	14	11.5
200+35	0.166	0.469	0.18	17	12.7
240+21	0.148	0.480	0.16	21	13.1
240+35	0.142	0.425	0.16	25	14.3
300+21	0.120	0.414	0.13	39	15.5
300+35	0.117	0.372	0.13	47	16.7
360+21	0.102	0.364	0.11	73	17.9
360+35	0.099	0.331	0.11	87	19.0
400+21	0.092	0.336	0.10	110	19.5
400+35	0.090	0.309	0.10	132	20.6

Calculations according to DIN 4108

Walls

WALL APPLICATIONS



STEICOWall is a slender, efficient building element for wall constructions that demand a high level of both energy efficiency and strength. Using pre-insulated STEICOWall studs facilitates insulation and thereby contributes to overall cost savings.

CHARACTERISTIC AXIAL COMPRESSION LOADS FOR STEICOWall TO EC 5

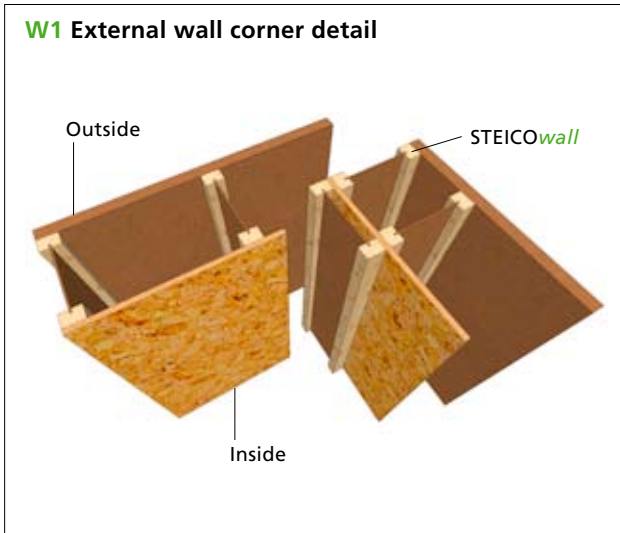
Type	Flange b*h [mm]	With one side only sheathed N _k [kN]	With both sides sheathed N _k [kN]
STEICOWall SW45	45*45	6.1	55.5
STEICOWall SW60	60*45	14.2	74.9
STEICOWall SW90	90*45	45.0	124.9

Note: The above tables are based on a wall panel height of 2,5m.

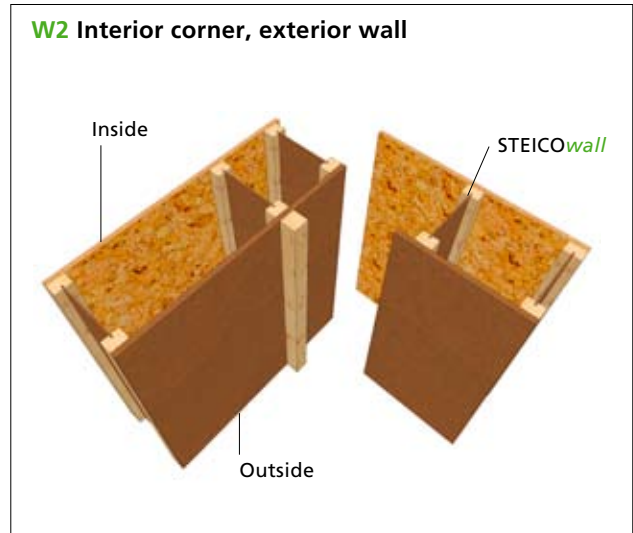
Sheathing to provide lateral restraint to the flanges should be in accordance with the requirements of BS 5268 and it is recommended that in all construction this is provided to both sides of the stud. Where the studs are part of a system offering lateral restraint to a structure, a minimum of 1 layer of category 1 or 2 sheathing must be provided. Where wind reversal occurs, both faces must be sheathed to prevent buckling.

WALL CONSTRUCTION DETAILS

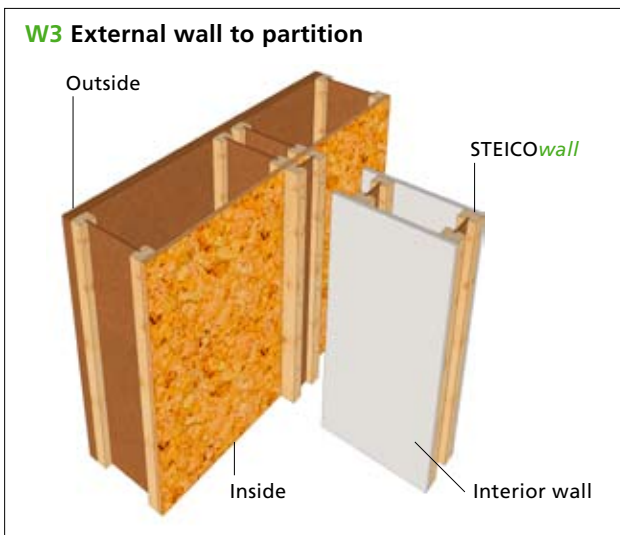
W1 External wall corner detail



W2 Interior corner, exterior wall



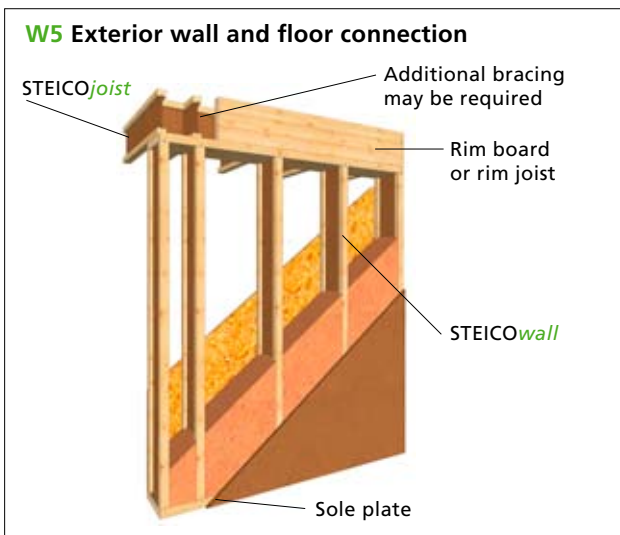
W3 External wall to partition



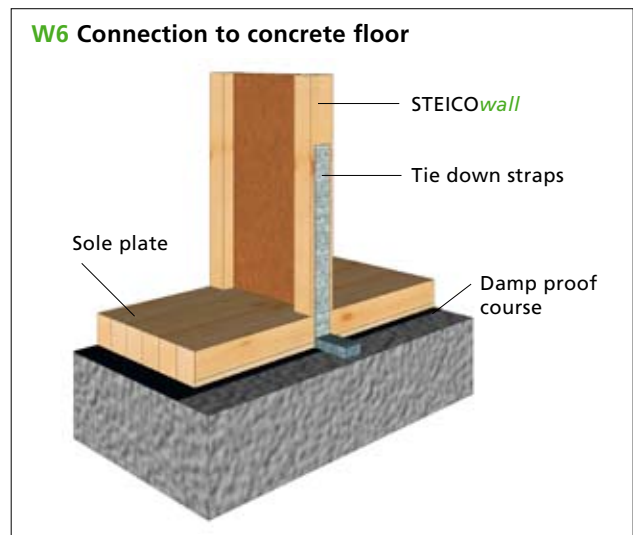
W4 Window opening



W5 Exterior wall and floor connection



W6 Connection to concrete floor

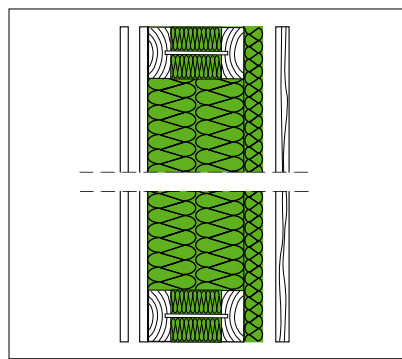
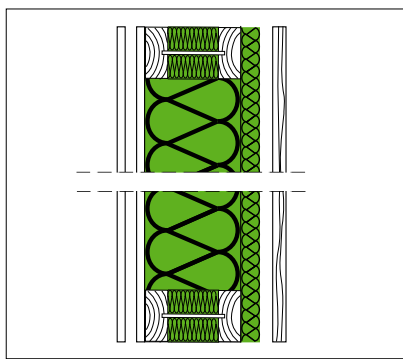


THERMAL INSULATION

With its I-section profile, the STEICOWall is ideally suited for wall constructions with high thermal requirements. Low energy buildings may be efficiently constructed.

The factory-made flange filler insulation and bespoke insulation widths of the STEICOWall allow energy efficient design and the easy installation of the STEICO flexible insulation products.

Wall construction with STEICOWall



- 8 Timber frame panel
- 7 Boarding battens
- 6 Cross battens
- 5 STEICOuniversal
- 4 STEICOflex/STEICOjoist
- 3 OSB/vapour check
- 2 Battens for a service void
- 1 Plasterboard

STEICOflex wall insulation in combination with STEICOuniversal and STEICOWall

Insulation thickness from inside to outside [mm]	U-Value insulation only W/(m ² *K)	U-Value I-joist only W/(m ² *K)	Overall U-Value W/(m ² *K)	Amplitude damping (1/TAV)	Phase shift in hours
160+35	0.190	0.453	0.21	21	12.2
160+52	0.179	0.394	0.19	28	13.7
200+35	0.159	0.409	0.17	31	13.7
200+52	0.151	0.361	0.16	42	15.2
240+35	0.137	0.373	0.15	45	15.2
240+52	0.131	0.333	0.14	62	16.7
300+35	0.113	0.330	0.13	82	17.5
300+52	0.109	0.298	0.12	112	19.0
360+35	0.096	0.295	0.11	149	19.8
360+52	0.093	0.269	0.10	204	21.2
400+35	0.088	0.276	0.10	221	21.3
400+52	0.085	0.253	0.10	303	22.8

Calculations according to DIN 4108



FIRE PROTECTION

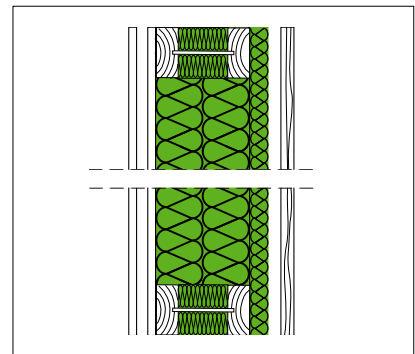
STEICO products are suitable for use in wall constructions requiring fire protection. Wood and wood based products in conjunction with fire resistant materials provide positive fire protection properties with a measurable char rating.

Wall construction F30-B

According to the general building code test certificate "AbP P-SAC 02/III-201" from STEICO AG.

A) Wall construction with timber cladding

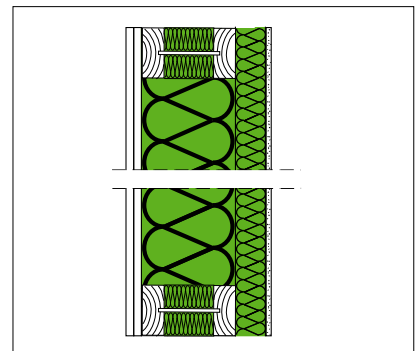
- Timber cladding $d \geq 20$ mm 1
- Battens and cross battens ≥ 50 mm 2
- STEICO*universal* 35 or 52 mm 3
- STEICO*wall* SW60/160-360 or
STEICO*wall* SW90/160-360
- Stud centers 400-600 mm 4
- STEICO*flex* ≥ 160 mm 5
- Wood based panel ≥ 15 mm 6
- Plasterboard 12.5 mm 7



Please note: As an alternative the inner sheeting of construction B) can be used.

B) Wall construction with rendered finish

- Render system $d \geq 4$ mm 1
- INTHERMO render board $d \geq 40$ mm 2
- STEICO*wall* SW60/160-360 or
STEICO*wall* SW90/160-360
- Stud centers 400-600 mm
- STEICO*flex* ≥ 160 mm 4
- Wood based panel ≥ 15 mm 5
- Fermacell gypsumboard $d \geq 15$ mm 6



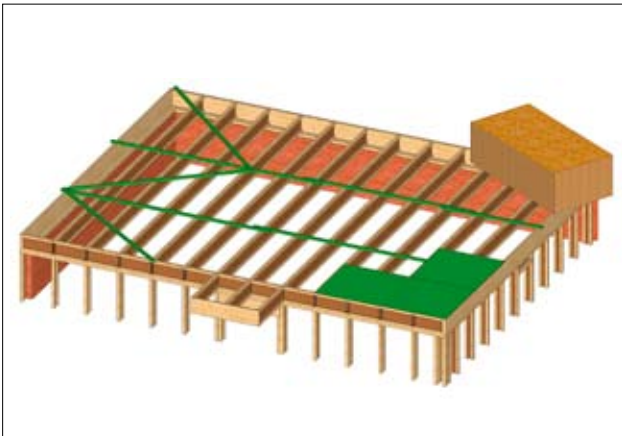
Please note: As an alternative the inner sheeting of construction A) can be used.

Additional construction alternatives are possible. Please contact your STEICO partner for more information.

General information

Proper erection procedures and the installation of bracing are essential to safe construction when using I-joists. The following notes may assist builders when preparing safety assessments under the CDM regulations 1994.

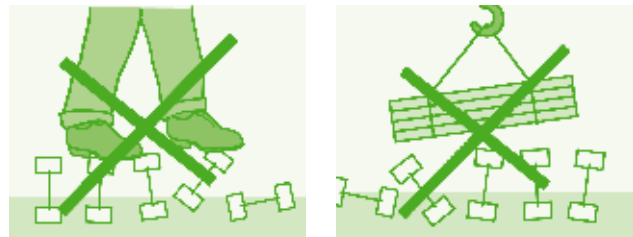
INSTALLATION NOTES



- Under no circumstances walk on joists until they are fully braced.
- Do not store building materials on unbraced joists.
- I-joists are unstable until fully braced. This includes temporary and permanent longitudinal and diagonal bracing, rim boards/joists, stability blocking.
- Temporary longitudinal bracing must be provided at maximum 2.4m centres across the span. Temporary diagonal bracing should be provided perpendicular to the longitudinal braces fixed to at least the first 1.2m of joists. Provide temporary bracing at maximum 12m centres. All bracing to be 22 * 97 softwood, nailed to each joist with two 3.35 * 65 nails.

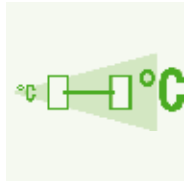
STORAGE NOTES

- STEICO Joists must be stored straight and vertical.
- STEICO joists should be stored vertically, on level bearers, at least 150mm high and spaced at approx 3.0m centres.
- Leave banding in place until the joists are ready for use.
- When stored, protect joists at all times from direct weather exposure with an appropriate covering.
- Always lift the joists using the bottom flange.

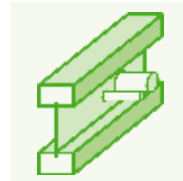


- Temporary bracing may be progressively removed as decking proceeds, leaving bracing in place on un-decked areas.
- Construction materials may only be placed on joists when all bracing is in place. Materials should be positioned so they are spread over at least 4 joists and no more than 1.5m from a support. Floor/ceiling boards may only be stacked up to a height of 250 mm (150 kg per joist at 600 centres, 100 kg per joist at 400 centres).
- Flooring should be fully fixed to the joists in accordance with manufacturers recommendations before additional loads are placed on the system.
- STEICO AG do not currently recommend any use of "no-nails" decking solutions to be used in conjunction with their products.
- Under no circumstances use damaged joists or attempt to repair them.





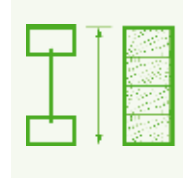
Reduction of thermal bridging



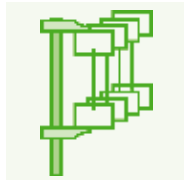
Easy installation of services



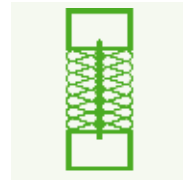
Lightweight. Easy to handle and install



Manufactured to standard depths and to match standard connectors



High dimensional stability through controlled moisture content



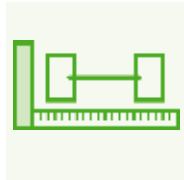
Available pre insulated to form a solid cross section



High load bearing capacity



Easy to machine



Strict manufacturing tolerances

ABOUT STEICO

STEICO AG operates worldwide with approx. 750 employees. The headquarters is in Feldkirchen close to Munich (Germany).

A huge product range of insulation materials made from wood fibres and hemp is being manufactured at two modern production facilities next to the I-Joist line. Ongoing Quality control in our own laboratories as well as independent Quality Control by recognised European institutions, guarantees a high quality level for the products.

The STEICO production is certified according to ISO 9001:2000.



Operating site certified accor. ISO 9001:2000



Your STEICO Partner

www.steico.com

Mavotex[®] 600

Productomschrijving

Mavotex[®] 600 is een zelfklevende en geïmpregneerd schuimstofband voor het blijvend afdichten van voegen, kieren en naden in de woning-, utiliteits-, weg- en waterbouw. Mavotex[®] 600 werkt zowel slagregendicht, geluidsisolerend als thermisch isolerend.

Technische gegevens

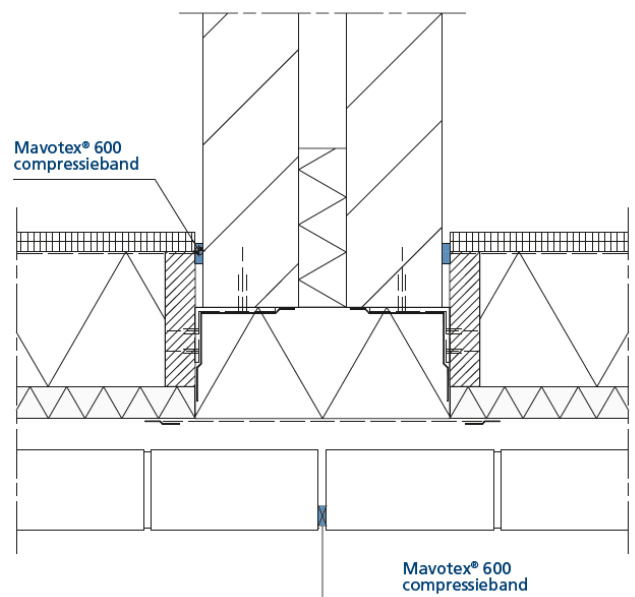
- **Materiaal** : opencellig polyurethaan schuimstofband geïmpregneerd met een brandvertragende en milieuvriendelijke kunsthars
- **Kleur** : zwart en grijs; op aanvraag in vele RAL kleuren leverbaar
- **Uitvoering** : op rollen, voorgecomprimeerd met aan één zijde zelfkleving
- **Brandklasse** : B1, moeilijk ontvlambaar volgens DIN 4102
- **Temperatuurbestendigheid** : -30°C tot +90°C volgens DIN 18542
- **Opslagtijd** : 2 jaar in droge omgeving en in originele verpakking max. +20°C
- **Slagregendichtheid** : ≥ 600 Pa volgens DIN EN 1027 (binnen de in de tabel aangegeven voegbreedte)
- **Luchtgeluidsisolatie** : met een enkelvoudige afdichting wordt een RW tot 44 dB bereikt. Met een tweevoudige afdichting wordt een RW tot 58 dB bereikt. (rapport aanwezig)
- **Luchtdoorlatendheid**: $a \leq 1,0 \text{ m}^3 \cdot \text{h}^{-1} \cdot \text{m}^{-1} \cdot (10 \text{ Pa})^n$ volgens DIN EN 12114
- **Dampdiffusieweerstandgetal** : $\mu \leq 100$ volgens DIN EN ISO 12572
- **UV-bestendigheid** : volledig
- **Weerbestendigheid** : bestendig volgens DIN 53387
- **Wortelpenetratie** : geen penetratie volgens DIN 4062
- **Aantasting/vlekvorming andere materialen**: geen roest bij ijzer, staal, verzinkt staal, aluminium en koper; geen schadelijke wisselwerking bij beton, gasbeton, baksteen, kalkzandsteen, hard PVC, plexiglas en hout; andere materialen opvragen volgens DIN 52453

Toepassingen

- Dilatievoegen in metselwerk en prefab gevelelementen
- Aansluitingen tussen gebouwoonderdelen
- Aansluitdetails bij kunststof, aluminium en houten kozijnen
- Aansluiting binnenspouwblad op bouwmuur
- IFD projecten

Aan deze documentatie kunnen geen rechten worden ontleend.
 Wijzigingen voorbehouden.

Uitgave: nr.2, d.d.: 23-03-2017



Garantie

- 15 jaar fabrieksgarantie; voorwaarden zenden wij u op aanvraag

Kwaliteitscertificaten en testrapporten

- KOMO-productcertificaat
- Testrapport slagregendichtheid
- Testrapport brandgedrag
- Testrapport geluidwerendheid

Toebehoren

Versteckschaar



bestelnr. 916201

Bepaal met onderstaande tabel het juiste type Mavotex® 600

voegbreedte in mm	af te dichten voegbreedte in mm																																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42							
1-2																																																	
1-4																																																	
2-6																																																	
4-9																																																	
5-12																																																	
6-15																																																	
9-20																																																	
11-25																																																	
18-34																																																	
24-42																																																	

Houd rekening met gebouw bewegingen en temperatuurafhankelijke lengte veranderingen ten opzichte van de voegbreedte

1. Bepaal de voegbreedte (bijv. 12 mm)
2. Ga bij 12 mm verticaal naar beneden tot de gemarkeerde velden
3. Controleer of er sprake is van optredende voegbeweging, door gebouw beweging of temperatuurafhankelijke lengte verandering
4. Lees in de linker kolom de bandafmeting af
5. Kijk in de bestel tabel voor het corresponderende nummer

Bestel tabel

bestelnr. zwart	bestelnr. grijs	band-/voegbreedte mm	gemiddelde voegbreedte	rollengte m	verpakking m
620500	620600	8/1-2	1	20	740
620501	620601	10/1-2	1	20	600
620502	620602	15/1-2	1	20	400
620503	620603	20/1-2	1	20	300
620510	620610	10/1-4	2	13	390
620511	620611	15/1-4	2	13	260
620512	620612	20/1-4	2	13	195
620513	620613	30/1-4	2	13	130
620520	620620	12/2-6	4	12	300
620521	620621	15/2-6	4	12	240
620522	620622	20/2-6	4	12	180
620523	620623	30/2-6	4	12	120
620530	620630	15/4-9	6	8	160
620531	620631	20/4-9	6	8	120
620532	620632	30/4-9	6	8	80
620533	620633	40/4-9	6	8	56
620540	620640	15/5-12	8	5,6	112
620541	620641	20/5-12	8	5,6	84
620542	620642	30/5-12	8	5,6	56
620543	620643	40/5-12	8	5,6	39,2
620550	620650	15/6-15	10	4,3	86
620551	620651	20/6-15	10	4,3	64,5
620552	620652	30/6-15	10	4,3	43
620553	620653	40/6-15	10	4,3	30,1
620560	620660	20/9-20	14	3,3	49,5
620561	620661	25/9-20	14	3,3	39,6
620562	620662	30/9-20	14	3,3	33
620563	620663	40/9-20	14	3,3	23,1
620570	620670	25/11-25	18	2,6	31,2
620571	620671	30/11-25	18	2,6	26
620572	620672	40/11-25	18	2,6	18,2
620580	620680	30/18-34	26	3,3	33
620581	620681	35/18-34	26	3,3	26,4
620582	620682	40/18-34	26	3,3	23,1
620590	620690	35/24-42	33	2,6	20,8
620591	620691	40/24-42	33	2,6	18,2
620592	620692	50/24-42	33	2,6	15,6

Aan deze documentatie kunnen geen rechten worden ontleend. Wijzigingen voorbehouden.

Uitgave: nr.2, d.d.: 23-03-2017



Declaration of Performance

DoP-No.: 4026639137296-000308

① SOLITEX FRONTA QUATTRO

② 13729

(batch number see imprint on membrane)

House wrap

④ MOLL bauökologische Produkte GmbH
Rheintalstraße 35 - 43
68723 Schwetzingen

System 3

The notified body "Gesellschaft für Materialforschung und Prüfungsanstalt für Bauwesen mbH" - NB 0800 - carried out the initial tests of the material properties according to system 3.

⑨ Performance declared according to DIN EN 13859-2

Characteristic	Norm	Value
Length ¹		50 m
Width ²		300 cm
Surface weight	DIN EN 1849-2:2001	180 ±5 g/m ²
Thickness	DIN EN 1849-2:2001	0.60 ±0.10 mm
g-value	DIN EN ISO 12572:2001	0.25 ±0.10 MNs/g
Fire class	DIN EN 13501-1:2010	E
Water resistance un-/aged*	DIN EN 1928:2000	W1 / W1
Tensile strength MD/CD	DIN EN 12311-1:1999	290 ±20 N/5 cm / 220 ±20 N/5 cm
Tensile strength MD/CD aged*	DIN EN 12311-1:1999	275 ±20 N/5 cm / 205 ±20 N/5 cm
Elongation MD/CD	DIN EN 12311-1:1999	50 ±20 % / 70 ±20 %
Elongation MD/CD aged*	DIN EN 12311-1:1999	35 ±20 % / 45 ±20 %
Nail tear resistance MD/CD	DIN EN 12310-1:1999	250 ±30 N / 240 ±30 N
*) Artificial ageing by long term	DIN EN 1297 :2004 / DIN EN 1296:2001	passed
Flexibility at low temperature	DIN EN 1109:1999	-40 °C

dimensional tolerances: ¹: +0.5 m; ²: +0.01 m

The performance of the product according to numbers 1 and 2 correspond to the performance declared according to number 9. According to number 4, the manufacturer is solely responsible for issuing this Declaration of Performance. Signed for the manufacturer and on behalf of the manufacturer by:

Handwritten signature of Lothar Moll in blue ink.

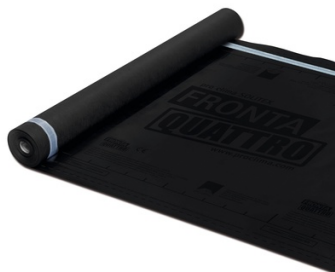
Lothar Moll, CEO

Handwritten signature of Michael Förster in blue ink.

Michael Förster, technical manager
Schwetzingen, 31/07/2013

SOLITEX FRONTA QUATTRO connect

3-laagse wandbetimmeringsbaan met monolithisch TEEE-membraan, geschikt voor gevelbetimmeringen met open voegen en voor gesloten gevels, bevat 2 geïntegreerde zelfkleeftzones



Technische gegevens

Stof	
Bescherm- en afdekvlies	Polypropyleen-microvezel
Membraan	TEEE, monolithisch

Eigenschap	Normering	Waarde
Kleur		zwart, Opdruk: zwart
Oppervlaktegewicht	NBN EN 1849-2	180 ±5 g/m ²
Dikte	NBN EN 1849-2	0,60 ±0,10 mm
Dampdiffusieweerstandsgetal μ	NBN EN ISO 12572	80
sd-waarde	NBN EN ISO 12572	0,05 ±0,02 m
Brandgedrag	NBN EN 13501-1	E
Blootgesteld aan weersinvloeden		6 maanden
Waterkolom	NBN EN 20811	10.000 mm
Waterdichtheid niet-/verouderd*	NBN EN 1928	W1 / W1
Max. trekkracht lengte/dwars	NBN EN 12311-1	290 ±20 N/5 cm / 220 ±20 N/5 cm
Max. trekkracht lengte/dwars verouderd*	NBN EN 12311-1	200 ±20 N/5 cm / 135 ±20 N/5 cm
Rek lengte/dwars	NBN EN 12311-1	50 ±20 % / 70 ±20 %
Rek lengte/dwars verouderd*	NBN EN 12311-1	30 ±20 % / 40 ±20 %
Doorscheurweerstand lengte/dwars	NBN EN 12310-1	250 ±30 N / 240 ±30 N
*) Duurzaamheid na kunstmatige veroudering	NBN EN 1297 / NBN EN 1296	doorstaan (voor wanden met open voegen)
Koudbuiggedrag	NBN EN 1109	-40 °C
Temperatuurbestendigheid		-40 °C tot +100 °C
Warmtegeleidingscoëfficiënt		0,17 W/m·K
CE-markering	NBN EN 13859-2	aanwezig

Toepassingsgebied

SOLITEX FRONTA QUATTRO connect beschermt het isolatiemateriaal langdurig tegen wind en regen.

Toepassing bij gesloten en open gevels (betimmeringen met open voegen, voegbreedte tot 35 mm, breedte betimmering = min. 3x voegbreedte) overeenkomstig de verwerkingsinstructies.

Leveringsvormen

GTIN	Lengte	Breedte	Inhoud	Colli	Verpakkingseenheid
15042 4026639150424	50 m	1,5 m	0	14,5 kg	1 20

Voordelen

- ✓ Hoog diffusieopen en gelijktijdig maximaal slagregendicht
- ✓ Ook voor afwerkingen met open voegen tot 35mm voegbreedte.
- ✓ Optimale droogcondities voor dakconstructies: poriënvrije TEEE-functiemembraan transporteert vocht actief naar buiten toe weg
- ✓ Zwart vlies met een zwarte opdruk die onzichtbaar is achter de open voegen
- ✓ Zeer hoge verouderingsbestendigheid en thermische stabiliteit dankzij TEEE-membraan
- ✓ 6 maanden volledig weerbestendig
- ✓ Snelle en veilige verlijming door geïntegreerde connect-zelfkleeftzones in de langsrichting van de baan

De getoonde informatie heeft betrekking op de huidige stand van onderzoek en ervaringen uit de praktijk. Eventuele wijzigingen aan aanbevolen constructies, verwerking en doorontwikkeling en de daarmee gepaard gaande kwaliteitswijzigingen van de afzonderlijke producten worden voorbehouden. Wij informeren u graag over de actuele technische kennisstand ten tijde van de installatie.

Verdere informatie over de verwerking en de constructiedetails vindt u in de pro clima plannings- en toepassingaanbevelingen. Voor vragen kunt u contact opnemen met de technische hotline van pro clima op +49 (0) 62 02 - 27 82.45.

MOLL
bauökologische Produkte GmbH
Rheinalstraße 35 - 43
D-68723 Schwetzingen
Fon: +49 (0) 62 02 - 27 82.0
Fax: +49 (0) 62 02 - 27 82.21
eMail: info@proclima.de



Randvoorwaarden

SOLITEX FRONTA QUATTRO banen moeten met de bedrukte zijde naar buiten wijzend worden aangebracht. De banen kunnen strak en zonder doorhangen overlangs en dwars op de draagconstructie worden geplaatst. De horizontale plaatsing geniet de voorkeur gezien de watergeleiding in de bouwfase.

Bij gebruik achter betimmeringen met open voegen mag de voeg max. 35 mm breed zijn. Breedte van de betimmering: min. 3x voegbreedte. De afstand tussen de betimmering met open voeg en de baan moet min. 20 mm bedragen.

Er mogen geen bevestigingen worden aangebracht in gebieden waar verzameld water wordt afgevoerd.

Er dienen aanvullende maatregelen te worden genomen tijdens de bouwfase (bijv. afdekken) bij bewoonde of of andere objecten die speciale bescherming vereisen. Afdekken dient ook bij langdurige werkonderbrekingen te worden overwogen.



De getoonde informatie heeft betrekking op de huidige stand van onderzoek en ervaringen uit de praktijk. Eventuele wijzigingen aan aanbevolen constructies, verwerking en doorontwikkeling en de daarmee gepaard gaande kwaliteitswijzigingen van de afzonderlijke producten worden voorbehouden. Wij informeren u graag over de actuele technische kennisstand ten tijde van de installatie.

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eMail: info@proclima.de



OVERZICHT TECHNISCHE GEGEVENS:

Goedkeuring	EU	Europese Technische Goedkeuring ETA-05/0226
	D	Duitse Nationale Technische Goedkeuring Z-23.11-280
Samenstelling		Vezels van krantenpapier, additieven < 10 %
Toepassing		Cellulose-isolatiemateriaal voor de machinale verwerking, zowel droog in-/opblazen als vochtig opspoeien, in constructies voor warmte- en geluidsisolatie.
Houtbescherming	D	Bruikbaar in alle constructies cf. DIN 68800-2
Externe controle		MPA NRW
Warmtegeleidbaarheid λ	EU	0,039 W/(m · K) bij 30-60 kg/m ³ Nominale waarde λ_D cf. ETA-05/0226
	D	0,040 W/(m · K) bij 30-50 kg/m ³ 0,042 W/(m · K) bij 50-60 kg/m ³ Berekeningswaarde
Specifieke warmtecapaciteit c		2150 J/(kg · K)
Brandgedrag	EU	B-s2,d0 cf. DIN EN 13501-1 en ETA-05/0226
	D	E cf. DIN EN 13501-1 beantwoordt aan B2 cf. DIN 4102
Ontbindingstemperatuur		ca. 280 °C
Waterdampdiffusieweerstand μ		1 - 2
Schimmelwerendheid		geen ontwikkeling cf. prEN 15101-1:2010
Lengtespecifieke stromingsweerstand r		≥ 5 kPa · s/m ² bij 30 kg/m ³ cf. DIN EN 29053
Evenwichtsvochtigheid		ca. 8 % bij 23 °C en 50% rel. luchtvochtigheid
Energieverbruik fabrikant		ca. 0,16 kWh/kg
Recyclage		Homogene en droge isofloc-isolatiematerialen kunnen opnieuw verwerkt worden.
Leveringsvorm		Zakken van 12,5 kg, los of op pallets


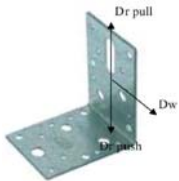
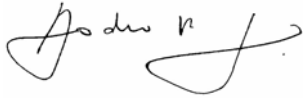


Uw voordelen met isofloc®:

- uitstekende waarden voor warmte- en koude-isolatie en geluidsisolatie
- absorberend en vochtregulerend
- geteste brandveiligheid
- met één materiaal kunnen alle isolatiediktes en -vormen worden gerealiseerd, zonder voegen en zonder snijverliezen
- uitstekende rendabiliteit
- laagste productie-energieverbruik van alle industrieel gefabriceerde isolatiematerialen
- hoogwaardige opleiding van de vakbedrijven

Wij beantwoorden graag uw vragen over isofloc® L:

Warmteplan B.V.
 Mercuriusweg 5
 NL 6971 GV BRUMMEN
 Telefoon: +31 (0)575-564805
 Fax: +31 (0)575-564815
 E-mail: info@warmteplan.nl
 Internet: www.warmteplan.nl

PRESTATIEVERKLARING Hoekanker zonder ril		
No: DOP-GB-07225-CS-NL		Date: 05-12-2016 Version: NL
1. Unieke identificatie producttype	07225	
2. Aanduiding	Hoekanker 125x125 46x2,5 SV	
3. Toepassing	Houtverbinder voor het haaks koppelen van balken, vernageld met GB-gripanker nagels	
4. Naam en contactadres fabrikant	Gebr. Bodegraven BV Atoomweg 2, 2421 LZ Nieuwkoop 0031 (0)172 520110	
5. Naam gemachtigde	J.A. Bodegraven, Directeur	
6. Systeem voor de beoordeling en verificatie van de prestatie bestendigheid	2+	
7. Activiteit van de aangemelde certificatie-instantie volgens: ETA 11-0347	De aangemelde instantie nr. 0620, Kiwa Nederland BV heeft op basis van: <ul style="list-style-type: none"> • De initiële inspectie van de productie-installatie en van de productiecontrole in de fabriek • Permanente bewaking, beoordeling en evaluatie van de productiecontrole in de fabriek Het conformiteitscertificaat van de productiecontrole in de fabriek verstrekt met het unieke nummer: 55692/01	
8. Aangegeven prestatie volgens	ETA 11-0347	
Essentiële kenmerken	Prestaties	Bepaald volgens norm
Mechanische sterkte: Treksterkte capaciteit (Dr pull): Druksterkte capaciteit (Dr pusch): Afschuifsterkte capaciteit (Dw): 	0,78 kN 5,43 kN 2,86 kN	ETAG 015 ETAG 015 ETAG 015
Duurzaamheid / Materiaal referentie	17	NEN-EN 846-7
<p>9. De prestaties van het in punt 1 en 2 omschreven product zijn conform de in punt 8 aangegeven prestaties. Deze prestatieverklaring wordt verstrekt onder de exclusieve verantwoordelijkheid van de in punt 4 vermelde fabrikant.</p> <p>Nieuwkoop, 12-2016</p> <p>Getekend,  J.A. Bodegraven, Director</p>		

TOGLER® ANCHOR SYSTEM**Technical Bulletin****SNAPTOGGLE® HEAVY-DUTY HOLLOW-WALL ANCHORS****The latest generation of the ever-evolving TOGLER hollow-wall anchor technology...**

The SNAPTOGGLE anchor is a heavy-duty hollow-wall anchor for use in walls, ceilings, or floors of materials such as gypsum board, drywall with a steel stud, concrete block, tile over drywall, etc.

The anchor is pre-assembled and ready for immediate use. The ratcheting strap / locking cap assembly positions the one-piece zinc-plated (or stainless) steel anchoring channel flush against the rear of the wall. The cap slides down the straps to lock flush against the front of the wall. The straps on the outside of the wall are then easily and quickly snapped off by hand flush with the surface of the wall (no extra tools required). Holding is dependent only on a metal bolt to metal channel connection.

The SNAPTOGGLE anchor complies with all existing fire codes for critical applications.

Benefits compared to wing toggles:

- Holds up to 2x the load
- Solid metal channel resists vibration & shock
- Pre-assembled and ready for immediate use
- Pre-installs without fixture or bolt
- Installs in a significantly smaller hole
- Automatically adjusts to thickness of wall, ceiling, or floor
- Does NOT spin—bolt installs with a screw gun
- Uses a shorter bolt—no need to carry a wing
- New plating is 7 times more corrosion-resistant
- Does NOT fall behind wall when bolt is removed; fixture can be removed and reinstalled as often as desired

ULTIMATE TENSILE PULL-OUT VALUES [lb]

Anchor	UNC thread	Drill dia.	1/2" Drywall	5/8" Drywall	*1/2" with 25 gauge stud	*5/8" with 25 gauge stud	Concrete block	1/2" steel plate	Stainless in 1/2" steel ³
BA	3/16"-24	1/2"	238	356	412	462	802	918 ¹	1,193 ¹
BB	1/4"-20	1/2"	265	356	425	464	1,080	1,288 ²	1,735 ¹
BE	5/16"-18	3/4"	270	480	439	477	1,400	1,680	2,118
BC	3/8"-16	3/4"	275	576	466	488	1,745	1,692	2,523 ¹
BD	1/2"-13	3/4"	275	576	468	513	**2,038 ²	2,605	3,150

ULTIMATE SHEAR [lb]

Anchor	UNC thread	Drill dia.	1/2" Drywall	5/8" Drywall
BA	3/16"-24	1/2"	247	298
BB	1/4"-20	1/2"	241	324
BC	3/8"-16	3/4"	292	406

* Failure measured as breakage of drywall portion

** Failure of block

¹ Stainless steel bolts used

² Hardened bolts used

³ Stainless steel channel tested with stainless bolts in 1/2" steel plate

• Industry standards recommend 1/4 of ultimate test load.

• Holding strength for a SNAPTOGGLE heavy-duty hollow-wall anchor varies directly with the strength and condition of the substrate and the bolt size—and inversely with variations in hole diameter and the distance of the load from the wall.

• All figures in pounds. Pull-out values based on independent laboratory tests done according to U.S. Government standards. They should be used as guides only and cannot be guaranteed. The age, condition, and capacity of the substrate must be considered.

SNAPTOGGLE® HEAVY-DUTY HOLLOW-WALL ANCHORS

Specifications

Description — SNAPTOGGLE Heavy-Duty Hollow-Wall Anchors (Toggle Bolts)

Material — zinc-plated 1010 cold rolled steel (or 300 series stainless steel) metal channel, high-impact polystyrene straps and handle, translucent polypropylene copolymer cap

Screw specification — UNC-thread machine screw (bolt) to match thread in metal channel

Minimum screw length — thickness of wall or ceiling + thickness of item being fastened + 1/2"

Minimum clearance behind wall — 1 7/8"

Minimum drywall thickness — 3/8"

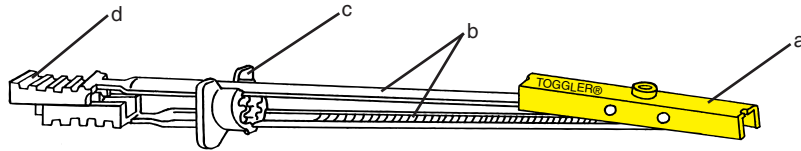
Maximum drywall thickness — 3 5/8" for BA & BB anchors
 2 1/2" for BC, BD & BE anchors
 9 1/2" for BAL & BBL anchors

Also available:

- metric-threaded channels [M5, M6, M8 & M10]
- RoHS-compliant channels
- stainless steel channels

The plastic straps and cap washer are positioning and retention elements only. They do not otherwise function as anchoring elements. Holding is dependent only on a metal bolt to metal channel connection. The SNAPTOGGLE anchor complies with all existing fire codes for critical applications.

- a = anchoring channel / zinc-plated cold rolled steel or 300 series stainless steel
 b = straps / high-impact polystyrene / locking ratchet
 c = cap / translucent polypropylene copolymer
 d = ergonomic handle / same as straps



Code	Bolt thread	Drill Diameter	Grip Range
BA	3/16"-24 (#10-24)	1/2"	3/8" - 3 5/8"
BB	1/4"-20	1/2"	3/8" - 3 5/8"
BE	5/16"-18	3/4"	3/8" - 2 1/2"
BC	3/8"-16	3/4"	3/8" - 2 1/2"
BD	1/2"-13	3/4"	3/8" - 2 1/2"
BAL*	3/16"-24 (#10-24)	1/2"	2" - 9 1/2"
BBL*	1/4"-20	1/2"	2" - 9 1/2"

The same product codes with an "S" at the end indicate stainless steel, e.g.,

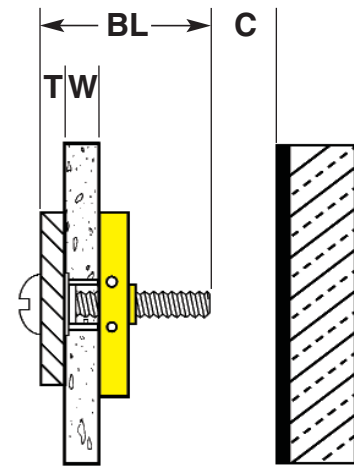
BB = 1/4"-20 thread in the zinc-plated channel

BBS = 1/4"-20 thread in a stainless steel channel

* Long straps (L) for roofing and for very thick walls or ceilings

$$BL = T + W + 1/2"$$

[For min. W & max. W., see "Grip Range" at left]



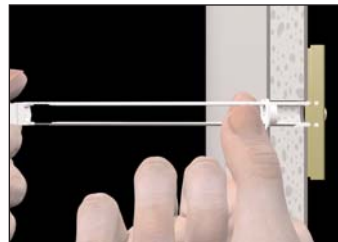
$$C = 1 7/8"$$

- Gently hand engage at least one thread of bolt with channel before using screw gun to avoid cross threading the bolt.
- For maximum shear holding, orient channels vertically to floor.
- Use hardened or stainless bolts for maximum weight load.
- Enlargement of specified insertion holes size will reduce anchor effectiveness.
- Remove anchor by removing bolt, inserting screwdriver and popping channel behind wall off plastic straps with a sharp blow.
- All SNAPTOGGLE anchors meet the requirements of Type V anchors in Federal Specification FF-B-588-D (superseded).
- All bolts and threaded rods used with SNAPTOGGLE anchors must meet ANSI or HR 3000 standards to ensure safety and effectiveness.

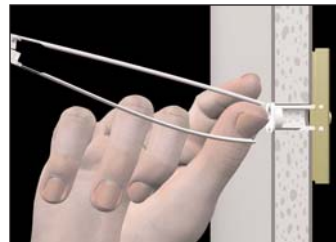
Installation Instructions



Drill appropriate size hole. Hold metal channel flat alongside plastic straps & slide channel through the hole. Minimum clearance behind wall: only 1 7/8".



Hold ends of straps together between thumb & forefinger and pull toward you until channel rests behind wall. Ratchet cap along straps with other hand until flange of cap is flush with wall.



Place thumb between straps at wall. Push thumb side to side, snapping off straps level with flange of cap.



Place item over flange. Insert bolt and tighten until snug against item, then stop. Use machine screw or bolt to match thread in metal channel.

SNAPTOGGLE® HEAVY-DUTY HOLLOW-WALL ANCHORS

Applications

- Flat panel TV's
- TV mounts
- Lighting fixtures
- Window treatments
- Marine applications
- Hand rails
- Grab bars
- ADA hardware
- Office furniture
- Heavy machinery
- Partitions
- Cabinets
- Shelving
- Solar panels
- Garage doors
- Sinks
- Heavy fans
- DSS antennas
- Reinstallations
- Roofs & decking

For maximum holding in

- Cinder block
- Concrete block
- Gypsum board
- Drywall
- Tile over drywall
- Plasterboard
- Composite panels
- Cement board
- Greenboard
- Plaster
- Stucco
- Fiberglass
- Plywood
- Steel plate
- Plastic
- Wood studs / beams

Benefits

- **Strong**—up to **2x the load** of an old-fashioned wing toggle
- Solid metal channel **resists vibration and shock**
 - bolt is centered in channel and positioned for precise installation
 - bolt threads never touch interior surface of hole and so can't saw through substrate
- **Save time**—at least **6 minutes** per anchor versus wing toggles
- Can use a screw gun—anchor does not spin
- **Save money**—turn a 2-person job into a 1-person job
- Use a **shorter bolt**—no need to carry a wing through the wall
- New, patented strap design with sturdier straps and smaller ratchet interval:
 - adjusts more precisely and **snaps off flush** to wall, ceiling, or floor
 - does **not break** prematurely
 - pushes aside insulation
- **Smallest installation hole** for each bolt size—
 - maintains integrity of wall, ceiling, or floor, **strengthening the anchoring**
 - ends the need to patch an oversized hole
[a 1/4" wing toggle requires a 3/4" diameter hole: **50% larger** than the 1/2" diameter hole used by the 1/4" SNAPTOGGLE anchor]
- New plating is **7x more corrosion-resistant** than B633-85 Type III/SC 1 government spec high quality zinc plating [350 hours to red rust in salt spray test versus only 48 hours for government spec]
- **Pre-installs without the bolt** to make handling of fixture easier
- **Reusable** in the same hole—remove the bolt without losing the anchor
- New **ergonomic design**—fingers grip straps more naturally and more easily with **no slipping**



TOGGLER Anchor System
Div. of Mechanical Plastics Corp.
110 Richards Avenue
Norwalk, CT 06854
USA

888.864.4537 Toll-Free
203.857.2200 Phone
203.857.2201 Fax
info@toggler.com
www.toggler.com





Norbord

make it better

 **SterlingOSB-Zero**[®]

www.norbord.com

De natuurlijke keuze

SterlingOSB-Zero[®]



OSB bouwplaat zonder toegevoegde formaldehyde

Supersterk, praktisch en met aandacht voor het milieu. Houtspecialist Norbord is erin geslaagd een OSB bouwplaat te ontwikkelen zonder toegevoegde formaldehyde. Maak kennis met de unieke, duurzame en veelzijdige **SterlingOSB-Zero®**.

Duurzaam

SterlingOSB-Zero® is een zeer sterke, duurzame en ecologische constructiebouwplaat voor tal van toepassingen. Niet alleen is de plaat milieuvriendelijk, ook het productieproces verloopt op een verantwoorde manier. Een belangrijk deel van de benodigde energie tijdens de productie wordt aangeleverd via onze eigen Norbord Biomassacentrale.



FSC Mixed Sources

Het hout dat voor SterlingOSB-Zero® gebruikt wordt, komt van bossen die goed beheerd worden. Steeds meer bos-eigenaren in onze streek laten zich FSC certificeren. Hierdoor kunnen we een deel van onze SterlingOSB-Zero® onder het FSC-label aanbieden.

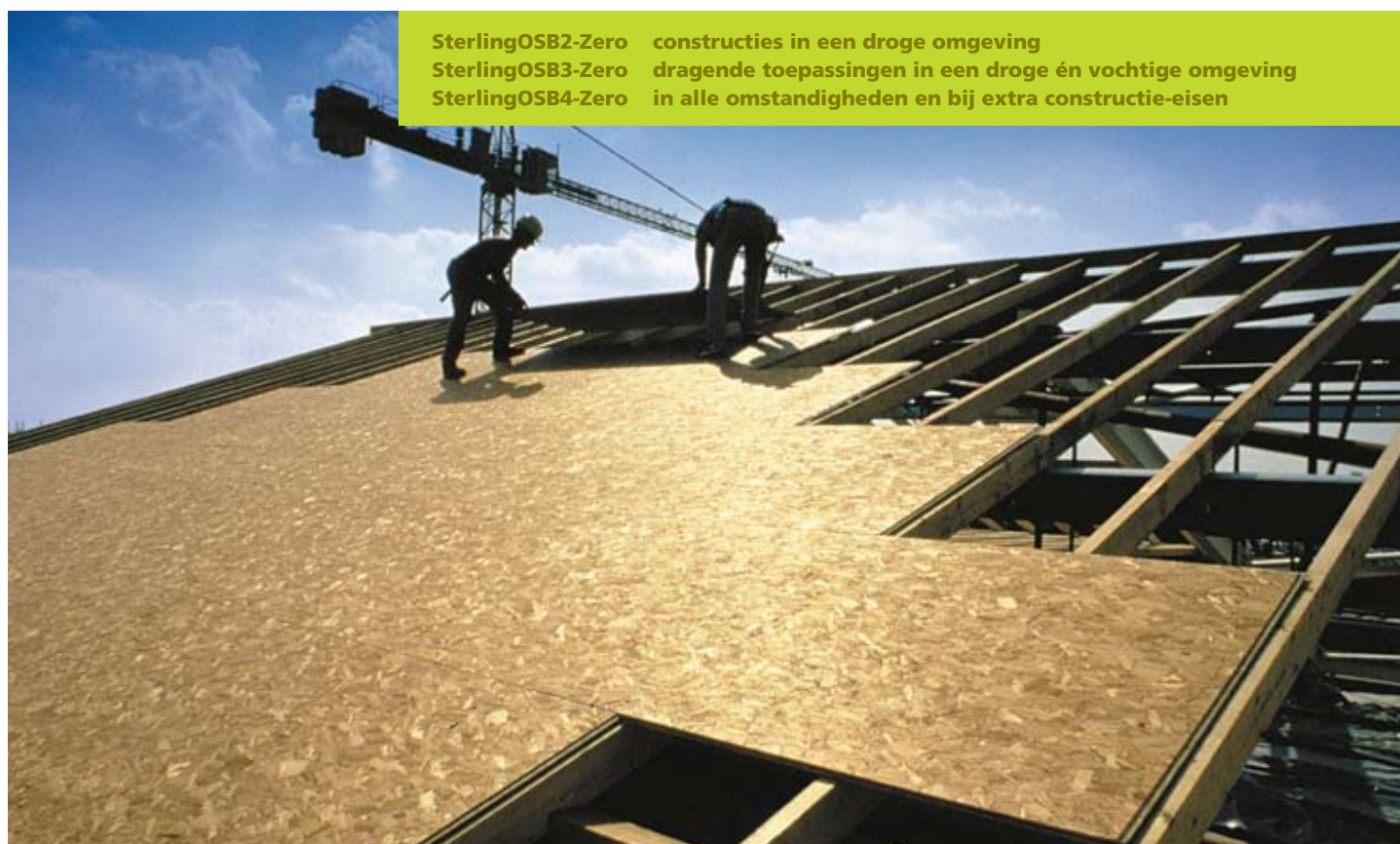
Oneindig veel toepassingen

SterlingOSB-Zero® kan gebruikt worden voor tal van constructies. Bovendien zijn de bouwplaten eenvoudig te verwerken. Zagen, frezen, boren ... **SterlingOSB-Zero®** kunnen we aanbieden met tand en groef of rechte boord.

SterlingOSB-Zero®

De SterlingOSB3-Zero is de perfecte plaat voor algemeen gebruik en dragende constructies in zowel droge als vochtige omgevingen. Denk aan vloeren, houtskeletbouw, wandbetimmering, De SterlingOSB2-Zero is ideaal voor algemene constructietoepassingen in een droge omgeving.

Wie het beste van het beste wil, in alle omstandigheden en voor alle toepassingen, kiest voor SterlingOSB4-Zero. Deze uniforme bouwplaat met hogere densiteit is de oplossing voor dragende toepassingen met grotere constructie-eisen.



SterlingOSB2-Zero constructies in een droge omgeving
SterlingOSB3-Zero dragende toepassingen in een droge én vochtige omgeving
SterlingOSB4-Zero in alle omstandigheden en bij extra constructie-eisen

Materiaalgegevens en technische gegevens

Dikte	mm	OSB2-Zero *			OSB3-Zero *			OSB4-Zero *		
		6 - 10	>10<18	18-25	6 - 10	>10<18	18-25	6 - 10	>10<18	18-25
Dichtheid	Kg/m ³	600 +/-10%			600 +/-10%			620		
Diktetolerantie ongeschuurd	EN 324-1 mm	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8	+/- 0,8
Diktetolerantie geschuurd	EN 324-1 mm	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3	+/- 0,3
Lengtetolerantie	EN 324-1 mm	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0
Breedtetolerantie	EN 324-1 mm	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0	+/- 3,0
Haaksheid	EN 324-2 mm/m	2	2	2	2	2	2	2	2	2
Tolerantie op de rechtheid van de hoeken	EN 324-2 mm/m	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5	1,5
Elasticiteitsmodulus hoofdrichting	EN 310 N/mm ²	3500	3500	3500	3500	3500	3500	4800	4800	4800
Elasticiteitsmodulus breedterichting	EN 310 N/mm ²	1400	1400	1400	1400	1400	1400	1900	1900	1900
Buigsterkte hoofdrichting	EN 310 N/mm ²	22	20	18	22	20	18	30	28	26
Buigsterkte breedterichting	EN 310 N/mm ²	11	10	9	11	10	9	16	15	14
Treksterkte loodrecht op het vlak	EN 319 N/mm ²	0,34	0,32	0,3	0,34	0,32	0,3	0,5	0,45	0,4
Diktezwelling na 24 h	EN 317 %	20	20	20	15	15	15	12	12	12
Fomaldehyde Klasse E1**	EN 120 mg/100g	<2	<2	<2	<2	<2	<2	<2	<2	<2

* Eigenschap volgens EN 300.

** Norbord gebruikt bindmiddel zonder formaldehyde.

OSB - Standaardgamma Genk

Type	Dikte	Afmetingen					
		590 x 2440	675 x 2500	900 x 2000	1196 x 2800	1220 x 2440	1250 x 2500
OSB2-Zero	9					• (RB)	
	11					• (RB)	
	12					• (RB)	
	15					• (RB)	
	18	• (TG4)				• (RB+TG2)	
OSB3-Zero	9				• (RB)	• (RB)	• (RB)
	12	• (TG4+TG4S)	• (TG4)		• (RB)	• (RB)	• (RB)
	15	• (TG4+ TG4S)	• (TG4)			• (RB)	• (RB)
	16			• (TG4)			
	18	• (TG4+TG4S)	• (TG4)			• (RB+TG2)	• (RB)
	22	• (TG4+TG4S)	• (TG4)				• (RB)
OSB4-Zero	25		• (TG4)				• (RB)
	12						• (RB)
	15						• (RB+TG4)
	18						• (RB+TG4)
	22						• (RB+TG4)
	25						• (TG4)

• RB= Rechte Boord • TG2= Tand en Groef 2 zijden • TG4= Tand en Groef 4 zijden
• TG4S= Tand en Groef 4 zijden geschuurd (Sanded)

Opslagvoorschriften

Sla de SterlingOSB-Zero® bouwplaten droog en vlak op. Dat geldt ook als u de platen vervoert. Gaat u de platen lange tijd opslaan, doe dat dan onder een zeil en zorg voor voldoende ventilatie. Zo vermijdt u dat condensatievocht in de SterlingOSB-Zero® kan trekken. De opslag van de SterlingOSB-Zero® moet gebeuren volgens de ENV 12872-norm.

Verwerking

Monteer de SterlingOSB-Zero® enkel op een schone en droge ondergrond. Laat de bouwplaten minstens 48 uur wennen aan de omgevingsomstandigheden. Dit voorkomt dat de platen gaan uitzetten of krimpen. Bescherm ook de plaatranden en dan vooral de tand en groef.

Richtlijnen betreffende opslag en algemene verwerking kan u vinden op onze website www.norbord.com



De Norbord Groep, met hoofdkantoor in Toronto, Canada, is één van de grootste producenten van OSB in de wereld. Deze ervaring en expertise draagt het bedrijf wereldwijd uit naar 15 productie-eenheden. Norbord staat beursgenoteerd aan de Toronto Stock Exchange (TSX).

In België heeft Norbord een vestiging in Genk met een productiecapaciteit van 300.000 m³. Norbord Genk produceert SterlingOSB-Zero® en verdeelt ze over Europa. Norbord produceert volgens de strenge Europese EN 300-norm. Al onze platen zijn gekeurd volgens het Europese CE-label en dragen ook het KOMO-certificaat.



Plaka® DS folie - dampopen

Productomschrijving

Plaka® DS folie - dampopen is een dampopen en slagregendichte polypropyleenvlies. Voorzien van een butylstrook en een zelfklevende strook van 20 mm. De folie zorgt voor een gecontroleerde vochtafvoer van binnengedrongen vocht en/of vocht vanuit het gebouw naar buiten. De dampopen en slagregendichte Plaka DS folie zorgt voor een gecontroleerde vochtafvoer van binnengedrongen vocht en/of vocht vanuit het gebouw naar buiten. Door de combinatie van de dampdoorlatendheid en slagregendichtheid uitermate geschikt voor de afdichting van gevels.

Toepassingen

- Gevelisolatie, rondom kozijnen, aan de koude kant
- In spouwmuurconstructie boven metselwerkdragers
- Naadafdichting van geïsoleerde binnenspouwbladen
- Uitermate geschikt voor passief en luchtdicht bouwen

Technische gegevens

- Materiaal : polypropyleenvlies
- Kleur : bovenzijde lichtgrijs
onderzijde wit
(kleur onder voorbehoud)
- Dikte : ca. 0,6 mm
- Gewicht : ca. 125 gr/mm²
- Slagregendichtheid : 600 Pa
- Dampdichtheid : $\mu = 55$ m
- Waterdampdiffusieweerstand : $\mu d = \text{ca. } 0,04$ m
- Waterdampdoorlaatbaarheid : $> 1.000 \text{ gr/m}^2/24 \text{ u}$
- UV-bestendigheid : ca. 8 maanden
- Brandklasse : B2, normaal
ontvlambaar
- Temperatuurbestendigheid : -40°C tot +80°C
- Verwerkingstemperatuur : +10°C tot +40°C
- Opslagtijd : 1 jaar

Besteltabel

bestelnr.	breedte mm	rollengte m	verpakking m
632410	100	25	75
632430	300	25	25
632450	500	25	25
632475	750	25	25

Andere breedten tot 1.500 mm of zonder zelfkleving op aanvraag leverbaar

Verwerkingsrichtlijnen vindt u op de achterzijde

Aan deze documentatie kunnen geen rechten worden ontleend.
Wijzigingen voorbehouden.

Uitgave: nr.4, d.d.: 21-11-2016



Toebehoren

Butyltape primer

- Hechtmiddel en grondlaag als voorbehandeling van poreuze ondergronden

bestelnr.	omschrijving	verpakking liters
631399	blik butyltape primer	5

bestelnr.	omschrijving	verpakking stuks
916301	aandrukvals siliconen	1
916320	bokkepoot	1
916321	platte kwast	1

Mavoplast DS tape

- Vastzetten van DS folie aan uitkragingen zoals betonnen consoles, aan doorstekende dwarschotten van metselwerkondersteuning, etc.
- Voor onderlinge verbindingen of bij reparaties
- Hoogwaardige tape, vocht- en UV-bestendig, duurzaam, sterk, transparant

bestelnr.	type	breedte mm	rollengte m	verpakking klein/groot
400323	enkelzijdig klevend	60	25	1/40
400325	dubbelzijdig klevend	50	50	1/27

Naast DS folie - dampopen bieden wij u tevens:

Plaka® DS folie - dampopen UV



Plakseal folie – dampdicht



Verwerkingsrichtlijnen met butyltape-primer

Plaka® DS folie hecht zonder primer op vele ondergronden. Bij sterk poreuze ondergronden raden wij aan eerst een laag **Butyltape primer** te zetten. Zo ook op de overlapping van de Plaka® DS folie zelf. Bij sterk absorberende ondergronden kan het nodig zijn om de primer twee keer aan te brengen.

Butyltape-primer is aan te bevelen bij:

- Ruwe beton, gasbeton, gips, kalkzandsteen, stucwerk, blank staal, grof hout

Butyltape-primer is niet vereist bij:

- Beton met een vaste bovenlaag
- Aluminium
- Koper of zink
- Acrylglas
- Glas met glad oppervlak
- Roestvast staal
- Kunststof profielen
- Alkydharlakken, opencellig hout
- Alkydharlakken, geslotencellig hout
- Dakbedekking op basis van ECB , EPDM, PIB, CR

De primer verhoogt in alle gevallen wel de aanvangs-hechting. Bij twijfel over de ondergrond kunt u contact met ons opnemen.

Controleer vooraf de ondergrond

- De ondergrond moet vast, droog, schoon en stofvrij zijn (stofsluier verwijderen)
- De ondergrond moet olie- en vetvrij zijn
- De ondergrond dient vrij te zijn van overige adhesiemiddelen (bv. ontkistingsolie) en andere vervuilingsresten

Zoek bij een natte ondergrond de oorzaak

- Regenwater van bovenliggend vloer:
 - Dit water dient men te keren
- Direct regenwater:
 - Wordt bij een betonnen ondergrond vrij direct opgezogen door beton
 - Plaats bij langdurige regenval voor de steiger een doorwerkvoorziening
 - Bij kalkzandsteen moet men bij langdurige regenval ondergrond met water oppassen voor door en door Verzadiging van de ondergrond met water

Let op veiligheid tijdens de verwerking

- De primer bevat toluen en is brandbaar
- Primerdampen niet inademen
- Voorkom spatten en lekken van primer
- Uitsluitend verwerken in goed geventileerde ruimten en niet roken
- Uit de buurt houden van ontstekingsbronnen

Aanbrengen primer

- Raadpleeg het veiligheidsinformatieblad van butyltape-primer (op aanvraag verkrijgbaar)
- Butyltape-primer voor gebruik goed roeren
- De primer met kwast of roller aanbrengen
- Bepaal van tevoren de primerbreedte
- Het verbruik van de primer is ca. 6 tot 10 m² per liter

Het drogen/uitwasemen van de primer

- De primer is eerst nat en glimt. In deze fase geeft de primer af. Na ca. 5 à 10 minuten (afhankelijk van zon en wind) is de primer dof geworden. Nu plakt de primer, maar geeft niet meer af
- De primer niet te lang laten drogen
- De droogtijd bij 23°C ca. 5 minuten
- Wanneer de primer niet meer plakkerig aanvoelt, moet de primer opnieuw worden aangebracht
- De uitwasemtijd van de primer is 20-30 min

Verwerking van Plaka® DS folie

- 1) De grijze folie-zijde dient naar de koude zijde gericht te zijn
- 2) De folie tegen het binnenspouwblad plakken d.m.v. de butylstrook
- 3) De folie over de isolatie en de metselwerkdrager plaatsen
- 4) De folie op de metselwerkdrager vastplakken met de zelfkleving
- 5) Overlapping van Plaka® DS folie of doorstekende dwarsschotten van de metselwerkondersteuning afplakken met Mavoplast DS tape



Het juiste hout op de juiste plaats

Hybride kozijnhout met de voordelen voor eindgebruiker en timmerindustrie in één uniek product.

IBRID[®]

IBRID® kozijnhout is specifiek ontworpen voor Nederlandse kozijnen. De speciale manier van lamineren maakt maximaal gebruik van de verschillende eigenschappen van hout. Kozijnen gemaakt van IBRID® kozijnhout leveren daarom topprestaties op alle fronten.



Accoya® buiten

Waar het kozijn directe zon- en regenbelasting heeft, is het belangrijk een zeer weersbestendige houtsoort te gebruiken. Alleen hout van absolute topkwaliteit scoort tijdens de levensduur van het kozijn optimaal op esthetica en "total cost of ownership". Daarom wordt Accoya® hout aan de buitenzijde toegepast.

- ✓ **ZEER VORMSTABIEL EN DAARDOOR STERK GEREDUCEERD ONDERHOUD**
- ✓ **LANGE LEVENSDUUR**
- ✓ **HOGERE NATUURLIJKE ISOLATIE TEN OPZICHTE VAN MEESTE ANDERE KOZIJNHOUTSOORTEN**
- ✓ **VIT AANTOONBAAR DUURZAAM BEHEERDE BOSSEN**



Grenen binnen

Aan de binnenzijde van het kozijn is hoogwaardig grenenhout uit Europese bossen toegepast. Dit heeft meerdere redenen. De beschikbaarheid is uitstekend, door duurzaam bosbeheer groeit het Noord-Europees bosareaal. Het hout groeit relatief dicht bij dus lagere milieudruk door transport en grenen laat zich door zijn fijne houtstructuur zeer mooi aflakken.

- ✓ **ZEER GOEDE BESCHIKBAARHEID**
- ✓ **HOGERE ISOLATIE TEN OPZICHTE VAN MEESTE ANDERE KOZIJNHOUTSOORTEN**
- ✓ **ZEER MOOI AF TE LAKKEN DOOR FIJNE HOUTSTRUCTUUR**
- ✓ **VIT AANTOONBAAR DUURZAAM BEHEERDE BOSSEN**

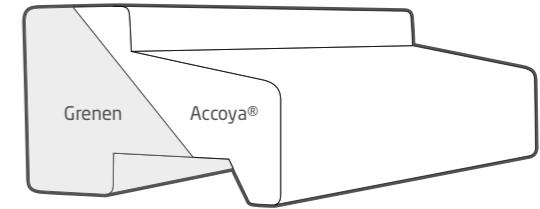
ACCOYA® HOUT AAN DE BUITENZIJDE

EUROPEES GRENHOUT AAN DE BINNENZIJDE

ACCOYA® HOUT VOOR LAGE ONDERHOUDS-INTERVALLEN

Optimale verdeling

De helft van het IBRID® kozijnhout bestaat uit Accoya® hout en de andere helft uit Europees grenenhout



De verlijming onder een hoek van 45 graden voorkomt lijmnaden aan de buitenkant



Voor iedereen een interessante keuze

Voor de eindgebruiker

De marktvraag naar kozijnen verschuift. Denk aan de "total cost of ownership" in de gebruiksfase, betere isolatie van gevels (waar kozijnen een belangrijke rol in spelen), esthetica en milieuscores van een gebouw. Het IBRID® kozijnhout biedt op al deze aspecten een passende oplossing

Voor de timmerindustrie

De timmerfabriek hoeft geen speciale voorzieningen te treffen om IBRID® kozijnhout te verwerken. Het hang- en sluitwerk van draaikiep-beslag komt door de samenstelling van het kozijn- en raamhout niet in contact met het Accoya® hout. Voordeel is dat in de meeste gevallen speciaal gecoat hang- en sluitwerk achterwege kan blijven.

Voor de aannemer

De prijsfluctuaties als gevolg van wisselende beschikbaarheid, valutakoersen en transportkosten spelen de timmerindustrie, en uiteindelijk de klant, parten. Door veelal gebruik te maken van "lokaal" hout uit productiebossen zullen de prijsfluctuaties aanzienlijk minder zijn dan bij veel andere kozijnhoutsoorten. Bij de keuze voor houtsoorten in het IBRID® kozijnhout is rekening gehouden met de toekomstige beschikbaarheid van hout.

IBRID®

Accoya®

Accoya® hout is het resultaat van decennia aan Nederlands onderzoek en ontwikkeling. Dankzij een milieuvriendelijke, op azijn gebaseerde, houtmodificatie technologie - acetylatie - krijgt snelgroeiend naaldhout de eigenschappen van het allerbeste tropische hardhout. Accoya® is het meest toonaangevende gemodificeerde hout ter wereld. Krachtig, mooi, duurzaam en zeer geschikt voor gebruik buitenshuis. Lees meer op www.accoya.com.



Nederlandse productie

HYBRID FRAME kiest bewust voor productie in Nederland. Door de korte communicatielijnen wordt met alle ketenpartners nauw samengewerkt om tot een optimaal resultaat te komen voor de eindgebruiker. Snel en adequaat, van klantwens tot productie.

Al het kozijnhout wordt geproduceerd volgens strenge kwaliteitsrichtlijnen. Periodiek worden er externe controles uitgevoerd. Stichting Keuringsbureau Hout (SKH) toetst de kwaliteit van productieproces en product. Het IBRID® kozijnhout kan worden verwerkt tot kozijnen met een KOMO-kwaliteitskeurmerk.

Al het hout dat HYBRID FRAME inkoopt komt uit aantoonbaar duurzaam beheerde bossen en voldoet aan de standaarden van PEFC en FSC voor duurzaam bosbeheer. De klant krijgt zo altijd aantoonbaar duurzaam geproduceerd hout.

www.ibrid.nl

Heeft u vragen over de mogelijkheden van IBRID® kozijnhout, neem dan gerust contact met ons op:

IBRID®

HYBRID
FRAME

Powered by
 MEVO HOUTINDUSTRIE

**HET JUISTE HOUT
OP DE JUISTE PLAATS**

HYBRID FRAME BV
T: +31 (492) 53 19 19
E: info@ibrid.nl

Accoya® en het tramarque-logo zijn gedeponeerde handelsmerken van Titan Wood Limited, een volledige dochteronderneming van Accsys Technologies PLC, die niet gebruikt of gereproduceerd mogen worden zonder schriftelijke toestemming.

INFORMATIEBLAD ACCOYA® RADIATA

Meer dan 80 jaar aan onderzoek en ontwikkeling hebben geleid tot een alom erkende houtmodificatietechniek en toonaangevende, bedrijfseigen acetylatiseringstechniek voor de productie van kwalitatief hoogwaardig Accoya® hout.

BELANGRIJKSTE KENMERKEN



DIMENSIE-
STABIEL



LANGE
LEVENSDUUR



PERFECT
TE COATEN

Accoya® hout is gemaakt van duurzaam geproduceerd, snelgroeiend hout en vervaardigd via het bedrijfseigen modificatieproces van Accsys van het oppervlak tot de kern.



ZACHT VOOR
BLOTE VOETEN



NATUURLIJK
ISOLEREND*



UITSTEKEND
TE VERWERKEN



INSECTEN
BESTENDIGHEID



CONSTANTE
KWALITEIT DOOR
EN DOOR



NATUURLIJKE
SCHOONHEID
VAN HOUT



UIT DUURZAAM
BEHEERDE
BOSSEN



BLIJVENDE
STERKTE
EN VERBETERDE
HARDHEID



NIET
TOXISCH

* voordeel in U-waarde t.o.v. niet geacetyleerd hout

STANDAARD LENGTES

2,4 m, 3,0 m, 3,6 m, 4,2 m, 4,8 m.

Neem contact op met uw Accoya® distributeur voor beschikbaarheid en leveringstijden.

- Alle afmetingen gelden voor bezaagd hout.
- Accoya® hout is bij partners ook beschikbaar in veel andere standaardmaten voor terrasplanken en profileringen voor gevelbekleding.
 - A1 : Vrijwel foutloos aan 4 zijden
 - A2 : Vrijwel foutloos aan 3 zijden
 - FJ : Gevingerlast

Overige kwaliteiten en afmetingen kunnen gemaakt worden. Neem contact op met uw Accoya® verkoopmanager voor meer informatie. Raadpleeg de Accoya® Structural Design Guide to Eurocode 5 voor constructieve ontwerpen en voor meer informatie over het Accoya® Structural C24 equivalent, bezoek www.accoya.com.

STANDAARD AFMETINGEN & KWALITEITEN

DIKTE	BREEDTE				KWALITEIT
	100	125	150	200	
25	✓	✓	✓	✓	A1, A2
32	✓		✓	✓	A1, A2
38	✓	✓	✓	✓	A1, A2
50	✓	✓	✓*	✓	A1, A2, FJ
63	✓*	✓*	✓*		A1, A2, FJ
75	✓*	✓*	✓*		A1, A2, FJ
100		✓**	✓**		FJ

* Ook verkrijgbaar als gevingerlaste planken (46 x 95/121/145 mm) L = 6 m
** Alleen gevingerlast en gelamineerd (95 x 121/145 mm) L = 6 m

MATERIAAL	
100% massief Accoya® hout	
DUURZAAMHEID	
EN 113 Klasse 1 (de hoogste waardering). Accoya vormt een effectieve barrière tegen een breed spectrum aan schimmels, waaronder: kelderzwam, natrot, droogrot, zachtrot, witrot, bruinrot en poriezwam.	
EVENWICHTSVOCHTGEHALTE	
3 - 5 % bij 65% relatieve vochtigheid, 20°C	
DICHTHEID EN SPREIDING	
65% RV, 20°C, gemiddeld 512 kg/m ³ , van 432 tot 592 kg/m ³	
KRIMP	
NAT - 65% RV, 20°C	NAT - OVENDROOG
Radiaal 0,4%	Radiaal 0,7%
Tangentiaal 0,8%	Tangentiaal 1,5%
BRANDWERENDHEIDSWAARDE	
Klasse C (ASTM E84) en D (EN14915). Na brandvertragende behandeling voldoet Accoya® hout aan hogere eisen.	
WARMTEGELEIDINGSCOEFFICIENT	
EN 12667, $\lambda = 0,12$ W/m·K	
BUIGSTERKTE	
EN 408, 40 N/mm ²	
BUIGSTIJFHEID	
EN 408, 8800 N/mm ²	
JANKA-HARDHEID	
ASTM D143, zijkant 4100 N, kopshout 6600 N	

AANTASTING DOOR INSECTEN

Accoya® hout is onverteerbaar voor verschillende soorten ongedierte en vormt hiertegen een effectieve barrière. Bij de termietentest conform de AWPA E1 teststandaard bijvoorbeeld scoorde Accoya altijd ≥ 9 (Lichte aantasting) in tegenstelling tot de onbehandelde controlemonsters met een gemiddelde van 3,5 (ernstiger dan Zwarte aantasting). Bij Accoya® hout werd slechts een gewichtsafname van 1,43% vastgesteld tegen 32,06% bij de controlemonsters.

BEWERKBAARHEID

Machinale bewerkingen beïnvloeden de unieke eigenschappen van Accoya® hout niet aangezien het tot in de kern gemodificeerd is en de behandeling niet uitloogbaar is. Accoya is relatief gemakkelijk te verwerken, vergelijkbaar met het verwerken van zachte houtsoorten. U hebt geen speciaal gereedschap nodig voor bewerkingen als afkorten, schulpen, schaven, frezen of boren. Schuren voor afwerking is zelden nodig.

LIJMEN

Zowel dragende als niet-dragende toepassingen zijn getest met lijmsystemen voor lamineren, vingerlassen en hoekverbindingen. Hoewel goede resultaten kunnen worden bereikt met de meeste gangbare lijmsystemen, geven lijmen op basis van PU, epoxy en PRF de beste resultaten. De resultaten van het lijmen met lijm op basis van polyvinylacetaat (PVAc) en melamineureumformaldehyde (MUF) kunnen sterk variëren. Aanbevelingen voor een specifiek project zijn op aanvraag verkrijgbaar.

AFWERKING

U kunt alle gangbare verfsystemen gebruiken voor Accoya® hout. Accoya is getest met een hele reeks verfsystemen op oliebasis en waterbasis. Toonaangevende verffabrikanten constateren dat hun producten zeker drie keer duurzamer zijn indien aangebracht op Accoya® hout. Neem contact op met uw coatingleverancier voor een specifiek project.

BEVESTIGEN

Het wordt aanbevolen om roestwerende stalen bevestigingsmiddelen conform EN 10088-1 te gebruiken, bijvoorbeeld bevestigingsmiddelen van A2 of A4 roestvast staal. Het gebruik van andere metalen en legeringen wordt besproken in de Accoya® houtinformatiegids.

Merk op dat alle waarden gemiddelden zijn, tenzij anders vermeld. Gebruik deze waarden niet voor berekeningen voor constructietoepassingen. Neem rechtstreeks contact op met Accsys voor hulp bij het plannen van constructieprojecten.

SPECIFICATIES HOUTKWALITEIT



Kwaliteitscategorieën en definities
van Accoya® Radiata Pine
Version 9.1

INHOUDSOPGAVE

- 03 Bezaagd Accoya® hout
- 04 A1 kwaliteit
- 06 FJ (gevingerlast)
- 08 A2 kwaliteit
- 10 B kwaliteit
- 12 Algemene specificaties
- 13 Overwegingen voor het oppervlak
- 14 Aanvaardbare mate van buigen
- 15 Aanvaardbare mate van kromtrekken
- 16 Aanvaardbare mate van scheluw trekken
- 17 Aanvaardbare mate van hol trekken



BEZAAGD ACCOYA® HOUT



A1 DEFINITIE VAN MINIMUMKWALITEIT

4 zijden vrijwel vlak met de volgende totale tolerantie (combinatie van alle zijden):

MINDER DAN 50 MM DIK:

Maximaal 3 van de volgende defecten of vergelijkbare gebreken:

- Knoest (kwast): 8 mm of kleiner
- Bast- of harszakken: 8 mm breed, 50 mm lang of vergelijkbare afmeting.

50 MM EN DIKKER:

Maximaal 6 van de volgende defecten of vergelijkbare gebreken:

- Knoest (vergroeid, gedeeltelijk vergroeid, vastzittende losse kwast): 15 mm
- Bast- of harszakken: 10 mm breed, 100 mm lang of vergelijkbare maat.

HARSSTREPEN

Driemaal van maximaal 8 mm breed, 100 mm lang of vergelijkbare afmeting, iets langer is toegestaan.

OPPERVLAK-SCHEUREN

- Driemaal van maximaal 1 mm breed, 250 mm lang of vergelijkbare maat, iets langer is toegestaan.
- Bij planken van 200-300 mm breed geldt de volgende extra tolerantie: Maximaal 1 oppervlakscheur per 50 mm breedte, niet breder dan 1 mm, 250 mm lang of vergelijkbare afmeting, iets langer is toegestaan.

SPLIJTSCHEUREN

Korte scheur, tot breedte van plank en maximaal 200 mm.

BIRDS EYE PATROON

Gematigd patroon.

VERVORMINGEN

Volgens tabel 1, 2, 3, 4.

WANKANT

Maximaal 8 mm diep, ¼ van lengte van plank of vergelijkbare afmeting, iets langer is toegestaan. Voor transportschade gelden dezelfde afmetingen.

OPPERVLAK-AFWERKING

Bezaagd.

A1

VOORZIJD
GESCHAAF

ACHTERZIJDE
GESCHAAF

FJ DEFINITIE VAN MINIMUMKWALITEIT

LEVERBARE MATEN

48 x 100	62 x 100	74 x 100
48 x 125	62 x 125	74 x 125
48 x 150	62 x 150	74 x 150
48 x 200	62 x 200	74 x 200

LENGTES

4200	4800	6000
------	------	------

Speciale lengtes (3500 tot 7100 mm - minimaal 10 m³)

TOLERANTIE

BREEDTE	DIKTE
-1 mm / +3 mm	+/- 1 mm

AFSTAND VERBINDINGSPUNT

MINIMUM	GEMIDDELD	MAXIMUM
250 mm	500 mm	1000 mm

Accoya® gevingerlast hout is verlijmd met EPI lijm. Dit geeft u hout met een vaste breedte voor timmerwerk conform het KOMO-certificaat voor vingerlaskwaliteit. Accoya® wordt sinds 2007 succesvol gevingerlast conform de KOMO-certificering, hoofdzakelijk voor de Nederlandse markt.

OPMERKING: Gevingerlast hout is bedoeld voor timmerwerk, niet voor ondergronds gebruik.

GECERTIFICEERDE
VINGERLASKWALITEIT,
VOOR DEKKEND TIMMERWERK:



Cert. no. 33058/07
BRL 0605 Modified Timber
Accoya® is suitable for in use
class 1, 2, 3 and 4 (EN 335-1)

GEEN DEFECTEN TOEGESTAAN MET UITZONDERING VAN:

- Gave, volgroeide knoesten van maximaal 5 mm in de nabijheid van de vingerlas worden niet beschouwd als defect
- Gave, volgroeide knoesten van max. 15 mm zijn slechts aanvaardbaar als de afstand van knoest tot vingerlas ten minste 3 maal de diameter van de knoest bedraagt, met een maximum van 2 knoesten per blok.
- Maximumafmeting (diameter) van de knoesten:
Bij hout met een maximumbreedte van 150 mm - 15 mm
- Knoestscheuren zijn aanvaardbaar tot een maximum van 5%
- Interne harszakken zijn aanvaardbaar tot een maximum van 5%
- Barsten, scheuren of doorlopende scheuren in het oppervlak zijn onaanvaardbaar
- Collaps, kopvlakscheuren, hartscheuren, valbreuk of ringscheuren zijn onaanvaardbaar
- Ten minste aan 2 zijden afgepast (één rechte hoek)
- Aanvaardbare afwijking (volledige balk)
 - Dikte: +/- 0,5 mm
 - Breedte: +/- 1,5 mm
- Oppervlakverkleuring

NIET TOEGESTAAN:

- Onvolgroeide knoest
- Gave, volgroeide gebarsten knoest
- Gave, onvolgroeide schietkwast
- Algemene defecten
- Bast- en harszakjes
- Niet afgepast
- Kleine delen (niet breed genoeg op de vingerlas)
- Wan

GEVINGERLAST



GEVINGERLAST
VOORZIJDE

A2 DEFINITIE VAN MINIMUMKwaliteit

A2 afmetingen < 50 mm

TOTAAL VAN MOOISTE ZIJDE EN KOPSE KANT:

Maximaal 4 van de volgende defecten of vergelijkbare gebreken:

- Knoest (vergroeid, gedeeltelijk vergroeid, vastzittende losse knoest): 15 mm of vergelijkbaar gebrek met kleinere diameter.
- Bast- of harszakken: 10 mm breed, 100 mm lang of vergelijkbare afmeting.

TOTAAL ACHTER-ZIJDE EN KOPSE KANT:

Maximaal 6 van de volgende defecten of vergelijkbare gebreken:

- Knoest (vergroeid, gedeeltelijk vergroeid, vastzittende losse knoest): 30 mm of vergelijkbaar gebrek met kleinere diameter.
- Bast- of harszakken: 10 mm breed, 100 mm lang of vergelijkbare afmeting.

COLLAPS

Onvoldoende om de droge zaagmaat te beïnvloeden.

HARSSTREPEN

Een, 1/5 breedte, 1/3 lengte van plank of vergelijkbare afmeting, iets meer is toegestaan.

OPPERVLAK-SCHEUREN

- Drie van maximaal 1 mm breed, 250 mm lang of vergelijkbare afmeting, iets meer is toegestaan.
- Bij planken van 200-300 mm geldt de volgende extra tolerantie: Maximaal 1 oppervlakscheur per 50 mm breedte, niet breder dan 1 mm, 250 mm lang of vergelijkbare afmeting, iets meer is toegestaan.

SPLIJTSCHEUREN

Korte scheur, tot breedte van plank en maximaal 200 mm.

BIRDS EYE PATROON

Gematigd patroon.

WANKANT

Maximaal 8 mm diep, ¼ van lengte van plank of vergelijkbare afmeting, iets meer is toegestaan. Voor transportschade gelden dezelfde afmetingen.

OPPERVLAK-AFWERKING

Bezaagd.

A2 afmetingen ≥ 50 mm

MOOISTE ZIJDE ALS A1:

KNOESTEN EN HARSZAKKEN

Maximaal 6 van de volgende defecten of vergelijkbare gebreken:

- Knoest (vergroeid, gedeeltelijk vergroeid, vastzittende losse knoest) 15 mm of kleiner.
- Bast- of harszakken: 10 mm breed, 100 mm lang of vergelijkbare afmeting.
- Harsstrepen, driemaal van maximaal 8 mm breed, 100 mm lang of vergelijkbare afmeting, iets meer is toegestaan.

SPLIJTSCHEUREN

Korte scheur, tot breedte van plank en maximaal 200 mm.

OPPERVLAK-SCHEUREN

- Driemaal van maximaal 1 mm breed, 250 mm lang of vergelijkbare afmeting, iets meer is toegestaan.
- Bij planken van 200-300 mm geldt de volgende extra tolerantie: maximaal 1 oppervlakscheur per 50 mm breedte, niet breder dan 1 mm, 250 mm lang of vergelijkbare afmeting, iets meer is toegestaan.

BIRDS EYE PATROON

Gematigd patroon.

ACHTER-ZIJDE + ZIJKANTEN:

KNOESTEN EN HARSZAKKEN

Eén groot defect of defectgebied van ieder type, mits het gebied niet groter is dan 500 mm is toegestaan. Of, een maximum van 2 grote defecten (25 mm breedte).

SPLIJTSCHEUREN

Korte scheur, tot breedte van plank en maximaal 200 mm.

OPPERVLAK-SCHEUREN

Scheuren in knoesten zijn aanvaardbaar.

WANKANT

Maximaal 12 mm diep, 1/2 lengte van plank of vergelijkbare afmeting, iets meer is toegestaan. Voor transportschade gelden dezelfde afmetingen.

VERVORMINGEN

Volgens tabel 1, 2, 3, 4.

A2

VOORZIJD
GESCHA
AFD

ACHTERZ
GESCHA
AFD

B HOOFDZAKELIJK VOOR VINGERLASSEN

Beide zijden bevatten knoesten, bast- of harszakken met de volgende totale tolerantie:

50 MM EN DIKKER:

BAST- OF HARSZAKKEN

20 mm breed, 100 mm lang of vergelijkbare afmeting, iets meer is toegestaan.

SCHEUREN

Knoestscheuren en oppervlakscheuren van maximaal 150 mm.

SPLIJTSCHEUREN

Tot tweemaal de breedte van de plank en maximaal 300 mm.

COLLAPS

Onvoldoende om de droge zaagmaten meer dan 1 mm te beïnvloeden per zijde.

GATEN, LOSSE KNOESTEN EN ROTTE KNOESTEN

20 mm (40 mm bij planken van meer dan 150 mm breed of 50 mm in dikte, 4 per lengtemeter).

KNOESTEN (VERGROEID, GEDEELTELIJK VERGROEID, VASTE LOSSE KNOEST)

100 mm (afzonderlijk), som van de afmetingen bij combinaties, helft van de breedte van de plank.

GEZONDE, ENKELE EN DUBBELE LANGWERPIGE KNOESTEN, VERGROEID OF GEDEELTELIJK VERGROEID

50 mm breed, zichtbare lengte van twee derde van breedte van plank.

MERG

maximaal 12 mm breed, 50% van lengte of vergelijkbare afmeting, iets meer is toegestaan.

HARSSTREPEN

1/5 breedte, 1/3 lengte van plank of vergelijkbare afmeting, iets meer is toegestaan.

SCHEUREN ANDERS DAN DOORGAANDE SCHEUREN

1/5 van lengte.

BIRDS EYE PATROON

geen beperking.

VERVORMINGEN

Volgens tabel 1, 2, 3, 4.

WANKANT

Maximaal 18 mm breed, 50% van lengte van plank of vergelijkbare afmeting, iets meer is toegestaan. Voor transportschade gelden dezelfde afmetingen.

OPPERVLAK-AFWERKING

Bezaagd.

B

VOORZIJD
GESCHA
FD

ACHTER
ZIJD
GESCHA
FD

ALGEMENE SPECIFICATIES

EIGENSCHAP

SPECIFICATIE

Dikte	Maximaal 1 mm onder de opgegeven maat.
Breedte	Maximaal 1 mm onder de opgegeven maat.
Lengte	Maximaal 20 mm onder de nominale lengte.
Vochtgehalte	Minder dan 10%.

OPPERVLAK- AFWERKING EN AFMETINGEN

Accoya® planken zijn verkrijgbaar in standaardmaten en kunnen tot kleinere maten verzaagd worden. De zaagmaten zijn gekozen om productie van gelijke eindproducten mogelijk te maken. Planken worden verkocht en geclassificeerd op basis van de originele zaagmaten (nominale maten). Bij planken van 25 en 32 mm is de kwaliteit van de achterzijde onzeker, maar de voorzijde is gaaf. De achterzijde heeft doorgaans meer procesverkleuring. Behoud deze oriëntatie bij de vervaardiging van het eindproduct.

AANVULLENDE KWALITEITS- SPECIFICATIES

Interne defecten die niet zichtbaar zijn aan het oppervlak: Accoya® hout wordt vervaardigd uit natuurlijke bronnen. Hout verschilt altijd van boom tot boom en van plank tot plank. Deze natuurlijke variatie kan leiden tot defecten in het hout. Bij het zaag- en droogproces kunnen ook defecten ontstaan zoals scheuren en barsten. Accsys controleert visueel of het hout voldoet aan de kwaliteitsspecificaties voor Accoya® hout. Gedurende de verwerking kunt u echter interne defecten ontdekken.

ONVOLKOMEN- HEDEN DOOR PRODUCTIE

Het hout kan lichte onvolkomenheden oplopen tijdens het productieproces.

ALGEHELE AFWIJKING VAN SPECIFICATIES

Maximaal 5% van de planken mag buiten de specificatie vallen.

OVERWEGINGEN VOOR HET OPPERVLAK

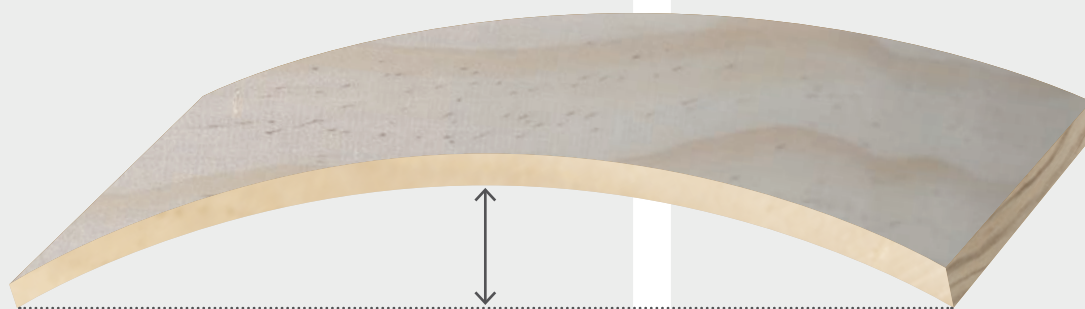
VERKLEUREN

Door het acetylatieproces kan Accoya® hout verkleuren met lataftekeningen tot 6 mm diep, en door de variatie van het natuurlijke hout soms nog iets dieper. Dit kunt u bij terrasvloeren doorgaans oplossen door 1 mm van de achterzijde af te schaven en een groter deel aan de voorzijde. Bij ondoorzichtig gelakte delen hoeft u verkleuring niet te verwijderen.



TABEL 1: AANVAARDBARE
MATE VAN BUIGEN

LENGTE [M]	DIKTE [MM]					
	22 & 25	32	38	50	63	75
1,8	15	15	10	10	10	5
2,1	25	20	15	10	10	10
2,4	30	25	20	15	15	10
2,7	40	30	25	20	20	15
3,0	45	40	30	25	25	15
3,3	55	45	35	30	30	20
3,6	65	55	40	35	35	25
3,9	80	65	50	40	40	25
4,2	90	75	55	45	45	30
4,5	105	90	65	55	55	35
4,8	120	100	75	60	60	40



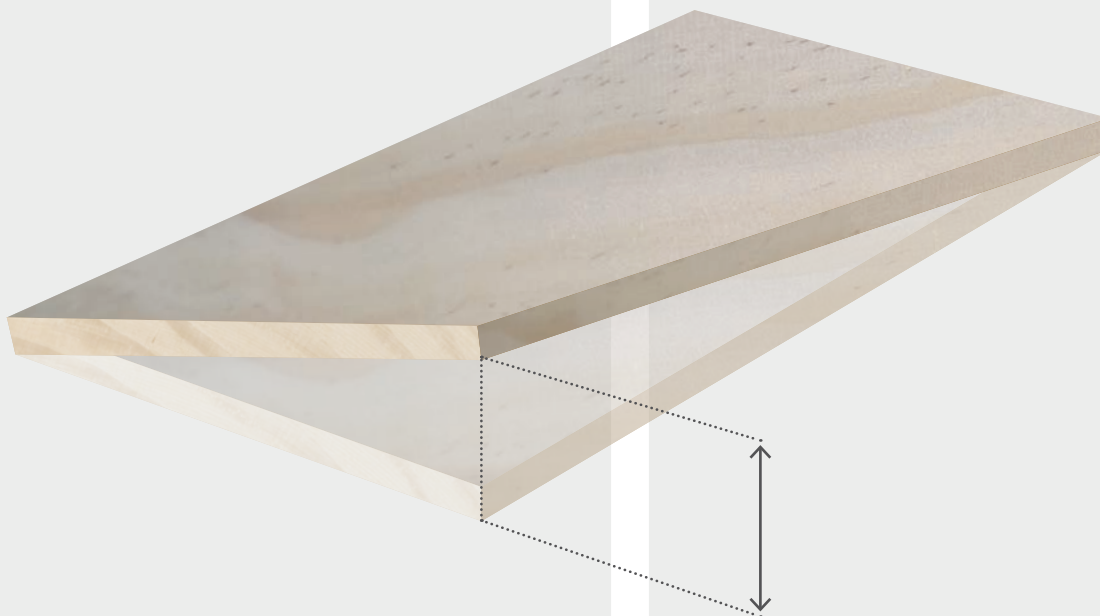
TABEL 2: AANVAARDBARE MATE VAN KROMTREKKEN

LENGTE [M]	BREEDTE [MM]					
	75	100	125	150	200	>200
1,8	5	4	3	3	2	2
2,1	10	5	5	4	3	2
2,4	10	10	5	5	4	3
2,7	15	10	10	5	5	4
3,0	15	10	10	10	5	5
3,3	20	15	10	10	5	5
3,6	25	15	15	10	10	5
3,9	25	20	15	15	10	10
4,2	30	25	20	15	10	10
4,5	35	25	20	20	15	10
4,8	40	30	25	20	15	10



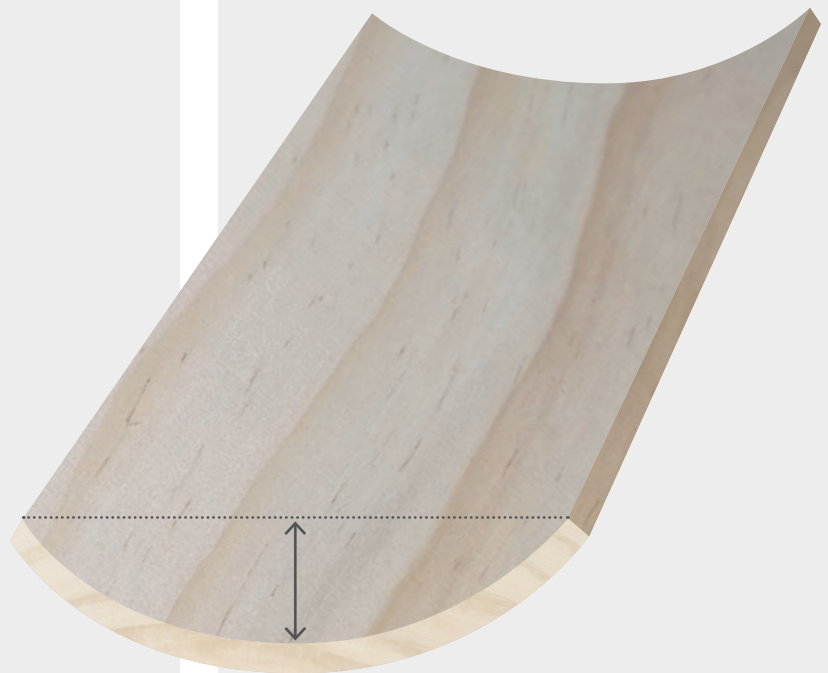
TABEL 3: AANVAARDBARE MATE VAN SCHELUW TREKKEN PER 100 MM BREEDTE

LENGTE [M]	DIKTE [MM]					
	22 & 25	32	38	50	63	75
1,8	10	10	5	5	5	3
2,4	10	10	10	5	5	4
3,0	15	15	10	10	10	5
3,6	20	15	10	10	10	5
4,2	20	20	15	10	10	5
4,8	25	20	15	10	10	10



TABEL 4: AANVAARDBARE MATE VAN HOL TREKKEN

BREEDTE [MM]	AANVAARDBARE MATE VAN HOL TREKKEN [MM]
75	1
100	1
125	2
150	2
200	3
225	4
250	5
300	6



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The mark of responsible forestry



ACCSYS
GROUP



Van de Vin ramen en kozijnen b.v.
De Geestakkers 8
Heeze, NL
0031 (0)40-224 19 99



10

Prestaties volgens
EN 14351-1

Houten Ramen*

Eigenschap	Prestatie	(R20)	(R40)	(R50)	(R80)	(R90)	(D50-1)	(D50-2)	(D90-1)	(D90-2)	(R80v)	(R200)	(R500)	(R900)	(D500-1)	(D500-2)	(D900-1)	(D900-2)	(R30)	(R60)	(R70)	(R300)	(R600)	(R700)	(R60)	(R60v)	(HS3/HS4)	(K410)	(K310)	
		binnendraaiend raam	draai-val- / draai- / valraam	draai-val- / draai- / valraam	draai-val- / draai- / valraam	draai-val- / draai- / valraam	draai-val- / draai- / valraam	draai-val- / draai- / valdeur	draai-val- / draai- / valdeur	draai-val- / draai- / valdeur	draai-val- / draai- / valdeur	vast raam binnen	binnendraaiend stolpraam	binnendraaiend draai-val stolpraam	binnendraaiend draai-val stolpraam	binnendraaiend draai-val stoldeur	binnendraaiend draai-val stoldeur	binnendraaiend draai-val stoldeur	binnendraaiend draai-val stoldeur	binnendraaiend draai-val stoldeur	buitendraaiend raam	buitendraaiend raam	buitendraaiend raam	buitendraaiend stolpraam	buitendraaiend stolpraam	buitendraaiend stolpraam	uitetraam	vast raam buiten	hefschuifdeur	vastglas binnen beglazing
Weerstand tegen windbelasting (vervorming)	klasse	C	C	C	C	C	C	C	C	C	C	C	B	B	C	C	C	C	C	C	C	C	B	B	B	C	C	B	B	
Weerstand tegen windbelasting (sterkte)**	klasse	4	4	4	4	E3000	E2400	3	E2400	3	4	2	3	3	E2400	3	E2400	3	4	4	4	3	3	3	3	4	4	4	4	
Waterdichtheid**	klasse	6A	E650	E1200	E650	E1200	E900	8A	E900	8A	7A	2A	npd	npd	E900	8A	E900	8A	6A	6A	6A	4A	5A	5A	4A	6A	E700	8A	8A	
Gevaarlijke stoffen**		Voldoet aan Nederlandse regelgeving																												
Weerstand tegen stootbelasting	npd																													
Draagvermogen van veiligheidsvoorzieningen	npd																													
Breedte	max (mm)	KVT	KVT	KVT	935	898	KVT	KVT	880	KVT	KVT	KVT	KVT	880	KVT	880	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	1433	KVT	KVT
Hoogte	max (mm)	KVT	KVT	KVT	1806	1798	KVT	KVT	2798	KVT	KVT	KVT	KVT	2798	KVT	2798	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	KVT	2098	KVT	KVT
Bedieningskrachten (bij automatische sluitingen)	npd																													
Geluidsisolatie	npd																													
Thermische isolatie	npd																													
Luchtdoorlatendheid	in Pa	npd	650	650	650	650	650	npd	650	npd	npd	npd	npd	650	npd	650	npd	npd	npd	npd	npd	npd	npd	npd	npd	npd	650	npd	npd	
Inbraakwerendheid**	klasse	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	0/2 ¹	

dikte (mm)	56x80	87x92	87x92	67x80	67x80	87x114/139	87x114/139	67x114/139	67x114/139	67x80	56x80	87x92	67x80	87x114/139	87x114/139	67x114/139	67x114/139	56x80	67x80	67x80	56x80	67x80	67x80	67x80	67x80	67x92/114	67x114	67x114
afwateringsgoot (mm)	12	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
profilering en/of dichting	EK	EK	DK	EK	DK	DK	DK	DK	DK	DK	EK	DK	DK	DK	DK	DK	DK	EK	EK	DK	EK	EK	DK	DK	DK	DK	DK	DK
uitvoering	stomp	opdek	opdek	opdek	opdek	opdek	opdek	opdek	opdek	opdek	stomp	opdek	opdek	opdek	opdek	opdek	opdek	stomp	stomp	stomp	stomp	stomp	stomp	stomp	stomp	stomp	schuif	
aantal onderdorpels	1	1	1	1	1	1	2	1	2	1	1	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1	2	
sluitwerk	D	DV	DV	DV	DV	DV	DV	DV	DV	D	DV	DV	DV	DV	DV	DV	DV	D	D	D	D	D	D	D	D	SCHUIF		
hangwerk																												

volgens KVT

* Binnen- of buitenramen te plaatsen in kozijnen incl. glas, hang- en sluitwerk, dichtingen e.d. volgens specificaties KVT

niet in vluchtroutes
niet elektronisch aangedreven/bediend
niet met veiligheidsvoorzieningen (drangers e.d.)
zonder brand- of rookwerende eigenschappen
volgens definities EN 12519: 2004

Afkortingen:

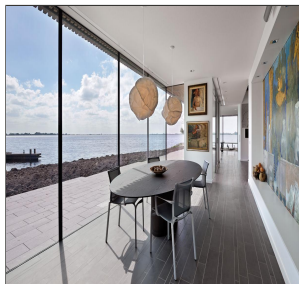
npd = no performance determined
EK = enkele kierdichting, 4 zijdig kader
DK = dubbele kierdichting, 4 zijdig kader 2x
D = draai beslag
DV = draai-val beslag

** bouwbesluiten

¹Inbraakwerende ramen* volgens klasse 2 voor NEN 5096 met isolatieglas, voor ENV 1627 met gelaagd veiligheidsglas P2A en gedetailleerd volgens SKH-publicatie 98-08

SGG CLIMATOP® XN

Drievoudige beglazing



Beschrijving

Drievoudige beglazing SGG CLIMATOP XN bestaat uit drie blanke SGG PLANICLEAR glasbladen met:

- op zijden 2 en 5 een SGG PLANITHERM XN coating met lage emissiviteit;
- twee spouwen, gevuld met argon.

Verwerking en prestaties

Prestaties				
Waarden volgens de EN 410 en EN 673				
Buitenblad	sgg PLANITHERM XN 4mm	sgg PLANICLEAR 4mm	sgg PLANITHERM XN 4mm	sgg PLANICLEAR 4mm
Spouw	Argon > 90% 15 mm	Argon > 90% 15 mm	Krypton > 90% 12 mm	Krypton > 90% 12 mm
Middenblad	sgg PLANICLEAR 4mm	sgg PLANITHERM XN 4mm (*)	sgg PLANICLEAR 4mm	sgg PLANITHERM XN 4mm (*)
Spouw	Argon > 90% 15 mm	Argon > 90% 15 mm	Krypton > 90% 12 mm	Krypton > 90% 12 mm
Binnenblad	sgg PLANITHERM XN 4mm	sgg PLANITHERM XN 4mm	sgg PLANITHERM XN 4mm	sgg PLANITHERM XN 4mm
Lichtfactoren				
Transmissie Lj %	74	74	74	74
Reflectie buiten RIE %	16	16	16	16
Zontoetredingsfactor				
g	0,54	0,56	0,54	0,56
Thermische transmissie				
Ug W/m²K	0,6	0,6	0,5	0,5

* er bestaat geen verhoogd risico tot thermische breuk door de coating te positioneren op het middelste glasblad

Toepassingen

Residentieel:

- vensters;
- patio-deuren, schuifdeuren;
- andere buitendeuren.

Niet-residentieel:

- gevels, vensters;
- gordijngevels;
- structurele beglazing.

Voordelen

- Reductie van de verwarmingskost dankzij hoge thermische isolatie en toetreding van zonnearmte.
- Minder energie nodig voor verwarming en dus ook minder CO₂- emissie.
- Grotere glaspartijen zijn mogelijk terwijl maximaal energie wordt bespaard.
- Natuurlijke zonnearmte is voordelig voor het comfort én de portemonnee!
- Conventionele verwarmingsapparatuur kan worden gereduceerd of kan zelfs overbodig worden.

Transparantie

Geniet van natuurlijk daglicht in elke ruimte, ook tijdens bewolkte winterdagen.

Comfort

Binnenzijde van de beglaasde oppervlakken is warmer, zodat het aangenamer is vlakbij het raam te zitten.

Vrijheid

Deze beglazing beantwoordt aan de noden van architecten voor een brede waaier van toepassingen die een neutrale esthetiek, transparantie en optische helderheid vereisen.

[Climaplus Climatop XN](#)

Lineair systeem

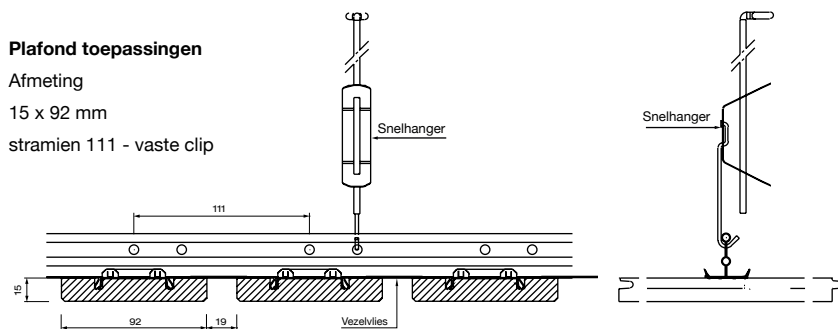


Lineair plafond/wand systeem

Het DERAKO lineair systeem bestaat uit massief houten lamellen die volgens een vast stramien op een speciaal daarvoor ontwikkelde metalen afhangsysteem van rails en clips worden bevestigd. Deze bevestiging is zichtloos. Binnen het lineair systeem zijn er 3 types te onderscheiden. Het systeem kan demontabel uitgevoerd worden en indien voorgeschreven brandvertragend behandeld.

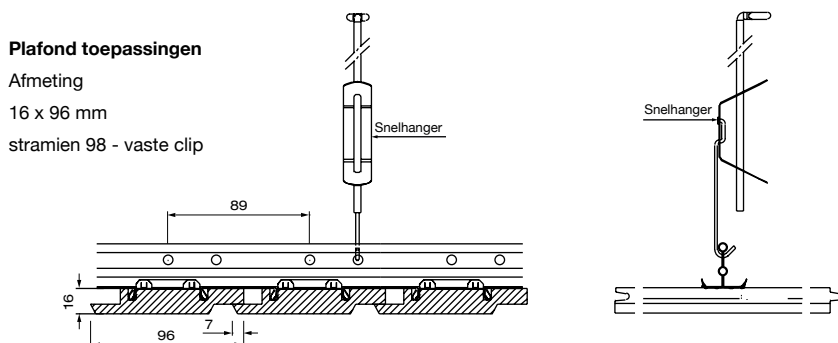
Lineair Open Systeem

Dit unieke systeem bestaat uit rails met clips. De clips worden op een vaste afstand van elkaar op de rails gefixeerd (stramienmaat), het systeem wordt zo prefab aangeleverd. Aan de houten lamellen is fabrieksmatig akoestisch vezelvlies gelijmd, waardoor het open systeem bij uitstek geschikt is voor toepassingen waar akoestische eisen aan worden gesteld. Het gehele afhangsysteem bevindt zich aan de achterzijde van de houten delen, de zijkant van de lamel blijft zodoende geheel zichtbaar. De houten lamellen worden met een montagetang aan het systeem gemonteerd.



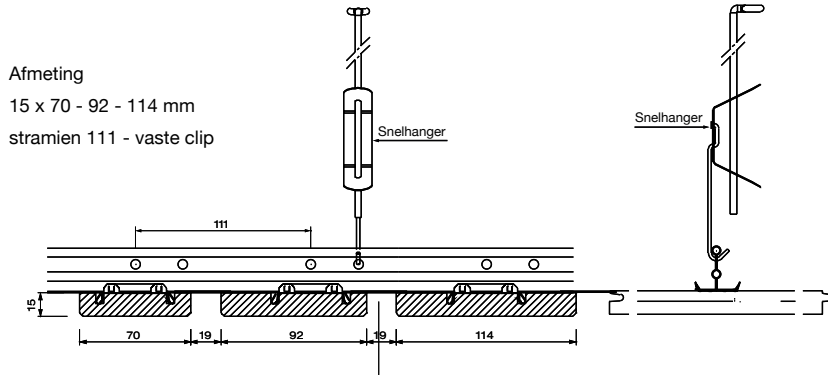
Lineair Gesloten Systeem

Bij het lineair gesloten systeem heeft elke lamel een houten overlap met de volgende lamel. Het is ook mogelijk om de delen als kraaldeel te profileren.



Multi paneel systeem

Het is tevens mogelijk om wisselende houtbreedtes op één stramienmaat toe te passen. De groef aan de achterzijde van de lamellen wordt variabel ingesteld. Een brede maat (vanaf 150 mm) wordt aan 2 clips gefixeerd.



Wand

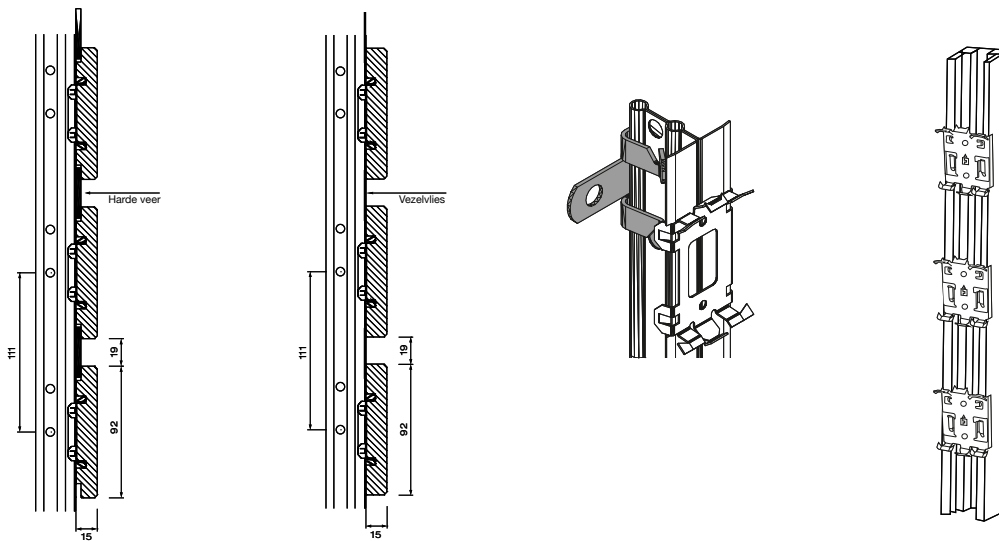
Het systeem in zowel open, gesloten als multi paneel kan ook als wandbekleding toegepast worden. Rails met clips wordt met een flenskleem of SLR profiel direct op de achterliggende constructie vastgezet. Afhankelijk van de toepassing wordt het vezelvlies vervangen door een harde veer. De harde veer wordt toegepast bij wanden lager dan 2000 mm en vezelvlies hoger dan 2000 mm.

Afmeting 15 x 92 mm
stramien 111 - vaste clip

Afmeting 15 x 92 mm
stramien 111 - vaste clip

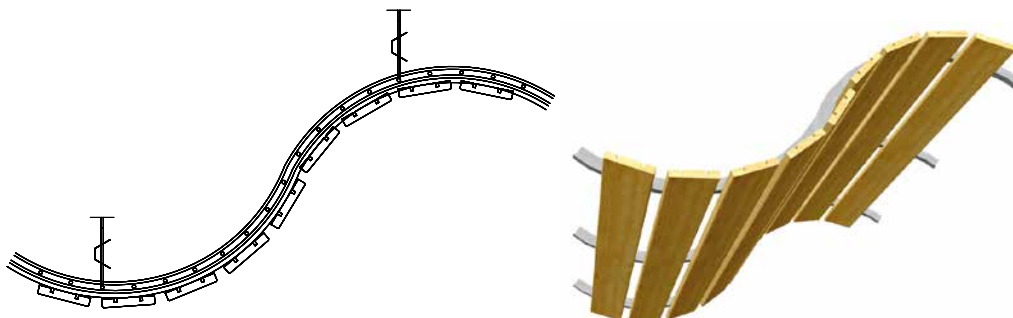
Detail flenskleem
(montage op wand)

SLR profiel



Gebogen

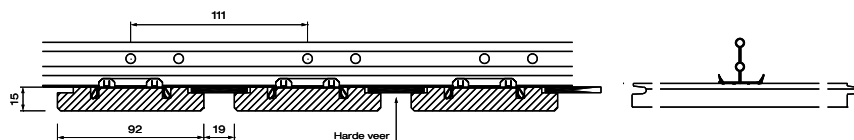
Het DERA KO plafondsysteem leent zich bij uitstek om in gebogen of gewelfde vorm toe te passen. De creativiteit van de architect is de leidraad. De rail wordt prefab in de gewenste radius gebogen en gefixeerd, net als bij een vlak plafond worden clips op de rails prefab gemonteerd.



Buittentoepassing

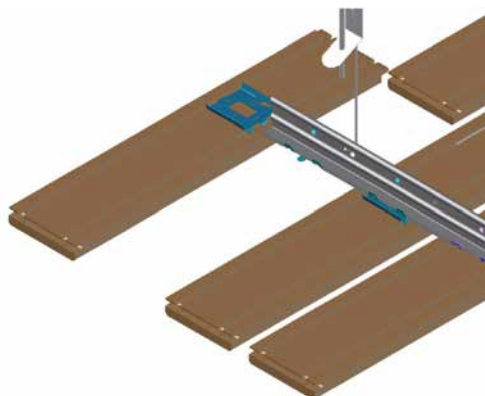
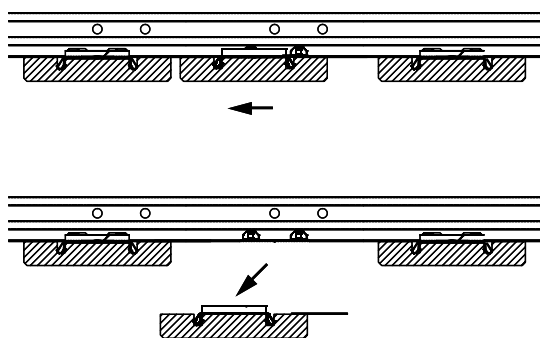
Het DERA KO systeem is buiten onder een luifel in alle varianten toe te passen. De houten lamellen worden aan 4 zijden gelakt, het vezelvlies van het open systeem wordt vervangen door een hardeveer. Het systeem wordt met star afhankelijk materiaal aan het bouwkundig plafond gemonteerd.

Afmeting 15 x 92 mm stramien 111 - vaste clip



Eenvoudig te demonteren

Door het ingenieuze clipsysteem kan 50% van de lamellen ook uitneembaar geleverd worden. Door het toepassen van een demontabel systeem kunnen incidentele reparaties en onderhoudswerkzaamheden aan bovenliggende technische installaties uitgevoerd worden. Voor het demontabele systeem is een tussenliggende lamelvoeg van minimaal 12 mm vereist. De demo clips zijn eenvoudig met een demontagetang te demonteren.



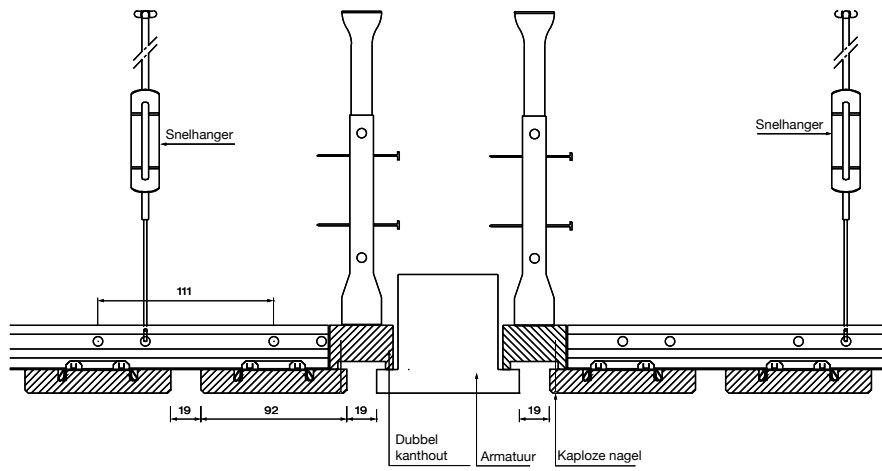
Constructie

Wat betreft montage voldoet het DERA KO systeem aan alle eisen van architecten en installateurs.

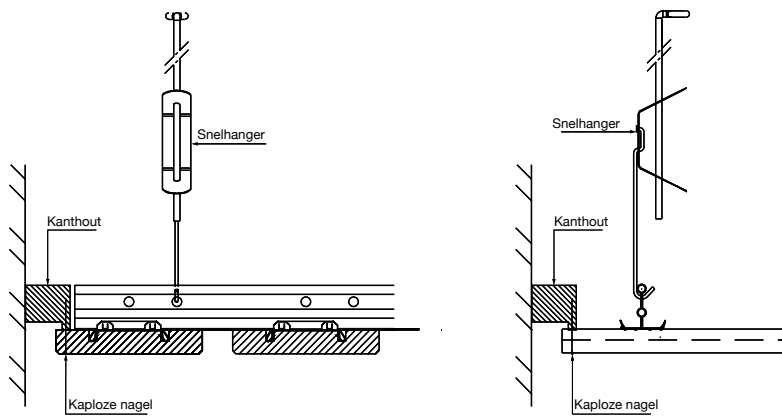
Door speciale DERA KO rails- clip combinatie worden de lamellen op eenvoudige wijze exact parallel gemonteerd.

- Montage met DERA KO montagetang;
- Variabele lengte van de houten lamellen;
- Voorzien van mes - en groef verbinding;
- Fixeerpen voor de verbinding van de kopse mes en groef, dit garandeert een duurzame en strakke stuiknaad;
- Breedte: min. 63 mm tot max. 180 mm, dikte: min. 15 mm;
- Geen bevestigingsmateriaal in het zicht.

Details



Armatuur



Kantaansluiting

Korte omschrijving

Het DERA KO lineair systeem bestaat uit massief houten lamellen die volgens een vast stramien op een speciaal daarvoor ontwikkelde metalen afhangsysteem van rails en clips worden bevestigd. Binnen het DERA KO lineair systeem zijn er 3 types te onderscheiden: open, gesloten en multi paneel systeem. Akoestisch, ventilerend, demontabel, voor interieur en exterieur toepassingen en wandbekleding.

Systeemopbouw

Fabrieksmatig wordt de lamel voorzien van een vezelvliesstrip en worden de DERA KO clips op de rails bevestigd. De lamellen worden d.m.v. een montagetaag aan de DERA KO clips gemonteerd.

Balvast plafond	Star -afhangen naar bouwkundig plafond. Geen demontabele clips toepassen.
Buiten plafond	4-zijdig gelakt. Gesloten systeem, open systeem zonder vezelvlies of open systeem met harde veer.
Zwembad	4-zijdig gelakt, open systeem vezelvlies gelijmd & geniet, open systeem zonder vezelvlies, open systeem met harde veer.

Materiaal

Houten lamellen	Iedere houtsoort die kwalitatief geschikt is voor het DERA KO productieproces.
Vochtgehalte Bij aflevering	8-12%.
Ophangsysteem	Sendzimir verzinkt staal.
Vezelvlies	Akoestische strip.
Clips	RVS

Houtsoorten

Europees Grenen	Licht gestoomd Beuken
Siberisch Lariks	Sipo Mahogany
Oregon Pine	Sapeli Mahogany
Western red Cedar	Merbau
African Ayous	Meranti
Europees Eiken	Asian Teak
Amerikaans Essen	Jatoba
White Hard Maple	Cambara
American Yellow Poplar	Azelaia
Kersen	Wengé
Amerikaans Noten	

Fabricagemethoden

De lamellen kunnen worden uitgevoerd in geschaafd of fijnbezaagd oppervlak.

Rails & Clips

Rails	Sendzimir verzinkt, voorzien van inkeping t.b.v. de clips.
Gebogen	Wanneer een radius gewenst is, wordt rails vorgebogen en gefixeerd in de gewenste radius.
Stramien	Afhankelijk van ontwerp wordt er een stramien gekozen.
Stramien maten	75, 82.5, 85, 89, 101.6, 105, 111, 125, 135.
Clips	Uitvoering vast, demontabel. Maximale toepassing demontabele clips is 50% van het oppervlak.

Lengteverbinding lamellen

De lamellen worden bij vallende lengtes voorzien van een kopse mes en groef verbinding. Tijdens montage wordt deze verbinding voorzien van een lamel fixeerven.

Oppervlaktebehandeling

De lamellen kunnen worden voorzien van transparante afwerking. Eventueel is het aflakken in een kleur ook mogelijk.

Brandvertragend

De lamellen worden door middel van de vacuümdruk methode voorzien van een brandvertragend impregneermiddel of de houten delen wordt gelakt met brandvertragende lak. DERA KO voldoet aan de Europese norm voor brandvertraging.

Vorm

DERA KO speelt in op de ontwerpvens van de architect/opdrachtgever. De lamellen kunnen in verschillende profileringen worden gemaakt.

Afmetingen

Stramien.ma	Lamel breedte	Voeg breedte
75	63	12
82.5	68/63,5	14.5/19
85	70	15
89	70	19
101.6	82.6	19
105	90/92	15/13
111	92	19
125	110	15
135	116	19
Dikte	minimale 15.	
Voeg	minimale 2. Demontabel: minimale voeg 12 mm.	
Dubbele breedte	145 - 180 mm. (in overleg met DERA KO).	
Op aanvraag andere profileren en maatvoering.		

Optische eigenschappen

De lamel wordt zichtloos bevestigd. De bevestiging van de DERA KO clip en de technische eigenschappen bieden een duurzaam parallel lopende lamel bij zowel binnen- als buitentoepassingen. Door de combinatie van DERA KO rails en clips is het mogelijk om een smalle voeg toe te passen.

Akoestische eigenschappen

Lamellen met een afmeting van 15 mm x 92 mm en stramienmaat 111, voorzien van vezelvlies en eventueel 20 mm steenwol. (wat door de installateur wordt aangebracht).

Frequentie(hz)	125	250	500	1000	2000	4000
Absorptiecoëfficiënt	0.57	0.83	0.76	0.65	0.47	0.33

Geluidsabsorptie

Plafond afgedekt met steenwol 20mm, NRC waarde 70.

Treksterkte clips	Frequentie
Europees Grenen	91.4
Oregon Pine	32.2
Western red Cedar	30.0
Am. Yellow Poplar	45.4

Balvast

Balvast certificaat getest volgens DIN 18 032 Teil 3.

Bruikbaarheid, functioneel

Akoestisch, ventilerend, open of gesloten systeem, lineair vast of wisselend breed, golvende, bolle/holle uitvoering of verticaal toegepast. Utiliteitsbouw: interieur en exterieur.

Bestektekst

Stabu, www.derako.com of op aanvraag.

Verpakking

Gebundeld verpakt in krimpfolie en daarna in een kist.

Opslag

De lamellen en toebehoren dienen in een geconditioneerde ruimte te worden opgeslagen. Hierbij moet de relatieve vochtigheid tussen de 55 en 65% liggen. Dek de lamellen af om ze tegen verkleuring door UV licht te beschermen.

Montage

Op de bouwplaats moet het kanthout geplaatst worden en afhangpunten bepaald worden. Afhangmateriaal bevestigen, rails ophangen en de lamellen met een montagetaag aan de clip monteren. De ruimtes dienen wind en waterdicht te zijn.

Bewerkbaarheid

Handgereedschap, DERA KO montagetaag.

Onderhoud

Indien schoonmaken noodzakelijk is adviseren wij om het plafond te reinigen met een vochtige, niet pluizende en niet krassende doek en eventueel een eenvoudig, niet bijtend (pH=7) schoonmaakmiddel te gebruiken. Het is schadelijk het plafond bloot te stellen aan agressieve schoonmaakmiddelen. Probeer het schoonmaakmiddel uit op een niet zichtbaar deel van de panelen.

Reparatie

Het demontabele systeem biedt incidenteel toegang boven de delen. Reparatie aan het plafond en werkzaamheden boven het plafond zijn eenvoudig uit te voeren.

Referenties

www.derako.com of op aanvraag.

Prijzen

Op aanvraag projectmatig.

Leveringsvoorwaarden

Algemene uitvoerings- en leveringsvoorwaarden, gedeponeerd bij de Arrondissementsrechtbank te Alkmaar.

Levering

Franco Nederland (1e 500m²).

Levertijd

6 tot 8 werkweken afhankelijk van houtsoort en bewerkingen.

Monsters

Op aanvraag.

Technisch service

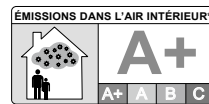
Technische adviezen, werktekeningen, demonstraties, projectbegeleiding, montagebegeleiding op aanvraag.

Montagehandleiding

www.derako.com of op aanvraag.

Garanties

10 jaar op plafonds gemonteerd volgens de DERA KO voorschriften.



 **DERAKO**[®]
Solid Wood Systems

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NOBELWOOD® Innovatief van Foreco, met **DUBOKEUR®**

Een geniaal alternatief voor tropisch hardhout

Grondstof naaldhout



- Hernieuwbare grondstof
- Snelgroeiend dennenhout
- Uit duurzaam beheerd bos

Eco friendly



- 100% organisch
- Toepasbaar zonder coating
- Gelijkmatische vergrijzing en onderhoudsvrij

Bio modificatie



- Tot in de kern gemodificeerd
- Op basis van biopolymeren
- Versterkt door cross-linking

Bio based



- Biopolymeren uit rietsuikerstengels
- Volledig recyclebaar
- 100% hernieuwbaar

Lange levensduur



- Getest op duurzaamheidsklasse I
- Minder scheurvorming
- Toepasbaar in damp-open constructies



NOBELWOOD® toegepast bij Brede School in Amsterdam



Brede school Fiep Westendorp

Voor dit project in Amsterdam is gekozen voor een 'groene levende gevel' omdat het een positief effect heeft op de leefomgeving. In het gebouw zijn 71 woningen en de school met gymzaal opgenomen. De gevels van de school zijn gemetseld en voorzien van NobelWood® frames die door klimplanten worden bedekt.

Een combinatie van SafeWood® Select en NobelWood® brengt de state-of-the-art op het gebied van houtmodificatie en brandvertraging samen in een uniek onderhoudsvrij en veilig product.

Architect: Architectenbureau Paul de Ruiter
Fotografie: John Lewis Marshall

Alternatief voor tropisch hardhout

NobelWood® is een volwaardig alternatief voor tropisch hardhout vervaardigd uit snel groeiend dennenhout. Op basis van een nieuwe technologie wordt snelgroeiend dennenhout tot in de kern gemodificeerd. Het zachte dennenhout wordt door-en-door geïmpregneerd met in water oplosbare biopolymeren afkomstig van suikerrietstengels uit de rietsuikerindustrie. In aanloop naar productie is het product jarenlang getest, ook onder extreme omstandigheden. Op basis van duurzaamheidstests is vastgesteld dat NobelWood® voldoet aan de eisen van duurzaamheidsklasse I. Tevens is op basis van toxiciteitstesten vastgesteld dat het materiaal minder effecten heeft dan bijvoorbeeld alternatieven zoals meranti. Hierdoor kan het zonder risico worden toegepast met oog op duurzaamheid en veiligheid.



Onbehandeld snelgroeiend dennenhout

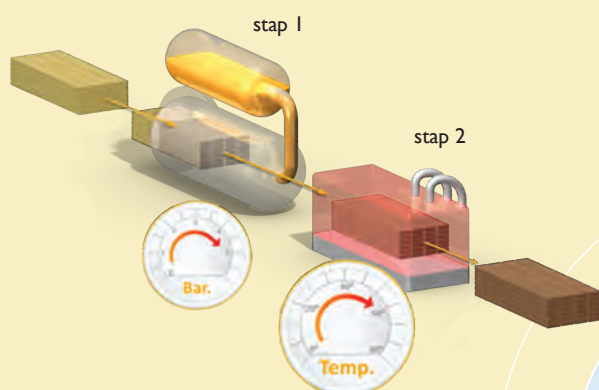


Behandeld tot NobelWood



Tot in de kern behandeld

Het hout wordt door-en-door geïmpregneerd met in water oplosbare biopolymeren, afkomstig van de afvalbiomassa van rietsuikerstengels. Na droging versterken en verduurzamen de biopolymeren de houtcelwanden. In het hout vindt een reactie plaats waardoor de kwaliteitseigenschappen van het hout sterk verbeteren. Naast de duurzaamheid krijgt het hout door het modificatie proces ook uitstekende bewerkingseigenschappen. De behandeling van het hout gaat door tot in de kern van het hout waardoor er geen beperkingen zijn voor bewerkingen. Corrosie-eigenschappen van het hout zijn vergelijkbaar met naaldhoutproducten waardoor er geen hogere eisen nodig zijn voor het staal van montage materialen of hang- en sluitwerk.



Aanbouw woning

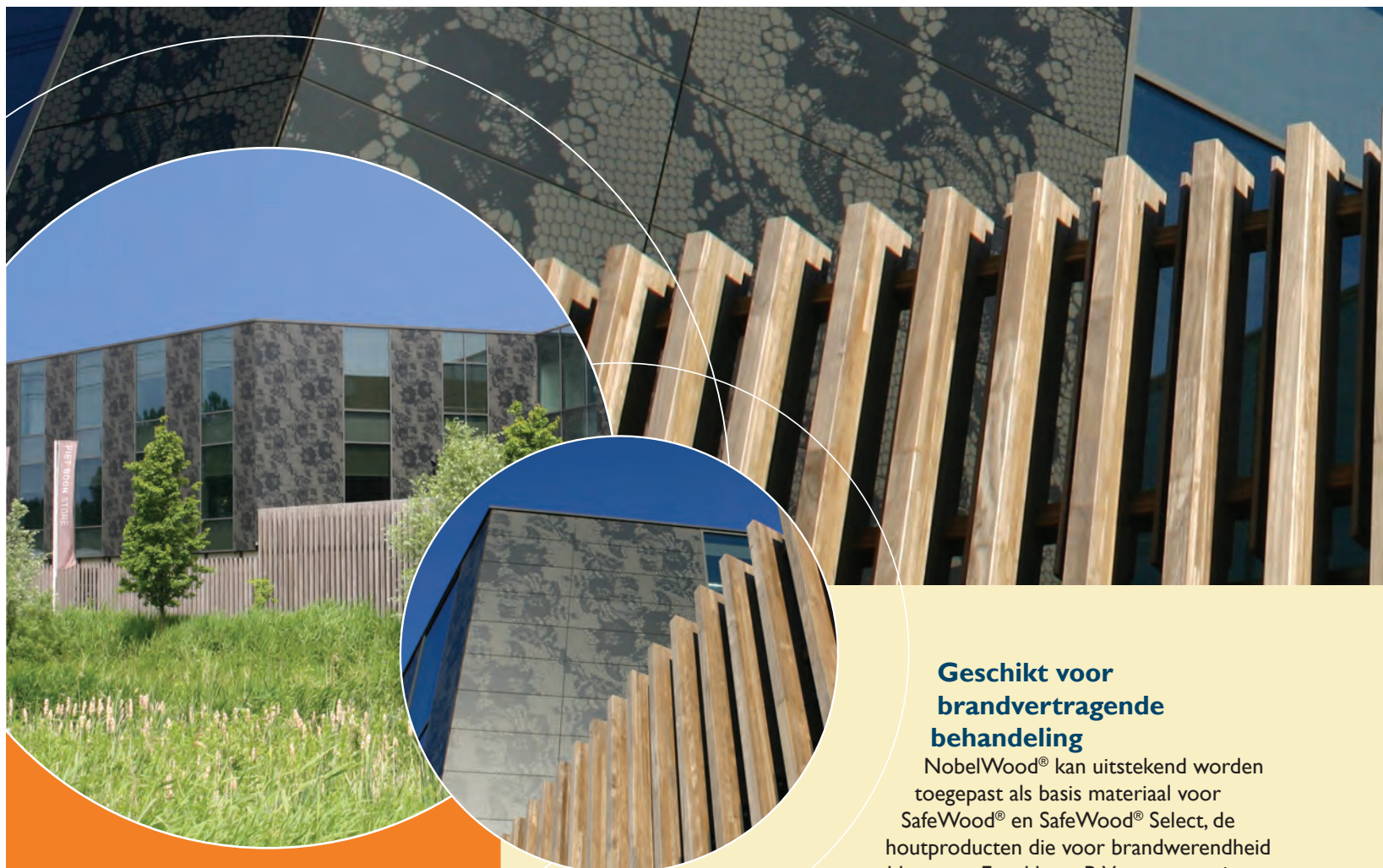
De bewoners van deze woning in Amersfoort wilden hun woonoppervlak vergroten door een nieuwe aanbouw. Gekozen werd voor een ander materiaal dan baksteen.

De houten latten van de aanbouw en de latten in de schuiframes zijn van fijn bezaagd NobelWood® gecoat met Woodstain zodat het niet vergrijsd.

Architect: LOT Architectuur
Fotografie: LOT Architectuur



NOBELWOOD® toegepast bij Probuild in Oostzaan



Piet Boon

Voor de lamellen van de parkeergarage van zijn eigen kantoor heeft Piet Boon gekozen voor NobelWood®. Het prestigieuze kantoor in Oostzaan is deels bekleed met gelamineerde delen die een afscheiding vormen aan de voorzijde van het pand.

De gelamineerde delen hebben een afmeting van 7 bij 24 centimeter; met een lengte variërend tot ruim 5 meter.

Aan de bovenzijde doen de lamellen dienst als balustrade voor het terras boven de parkeergarage.

Architect: Piet Boon
Fotografie: Peter Swager

Geschikt voor brandvertragende behandeling

NobelWood® kan uitstekend worden toegepast als basis materiaal voor SafeWood® en SafeWood® Select, de houtproducten die voor brandwerendheid voldoen aan Euroklasse B. Voor toepassingen in binnenruimten in een vochtig klimaat kan het waterdampbestendige product SafeWood® worden toegepast. Voor buitentoepassingen kan NobelWood® in de vorm van SafeWood® Select worden toegepast. Met

SafeWood® Select wordt onderhoudsvrij product aangeboden zonder afwerking met een verfsysteem. De brandvertraging reageert bij blootstelling aan vuur door een isolerende koollaag te vormen die de brand remt.

Verkrijgbaar in diverse maten en FHC-profiel

NobelWood® kan geleverd worden in diverse profielen en verschillende maten. Het exclusieve FHC-profiel biedt de meest optimale oplossing voor houten bergingen, schuren en gevels. Doordat de zichtzijde van het materiaal fijn bezaagd is uitgevoerd, wordt de spanning in het oppervlak van het hout beperkt. Dit zorgt voor verminderde kans op haarscheurtjes in het oppervlak en een mooie gelijkmatige vergrijzing. Indien hout wordt toegepast met een coating kan bij dit licht ruwe product de onderhoudscyclus tot 20% worden verlengd door betere hechting op hout.



Karakteristiek bruin en gelijkmatige vergrijzing

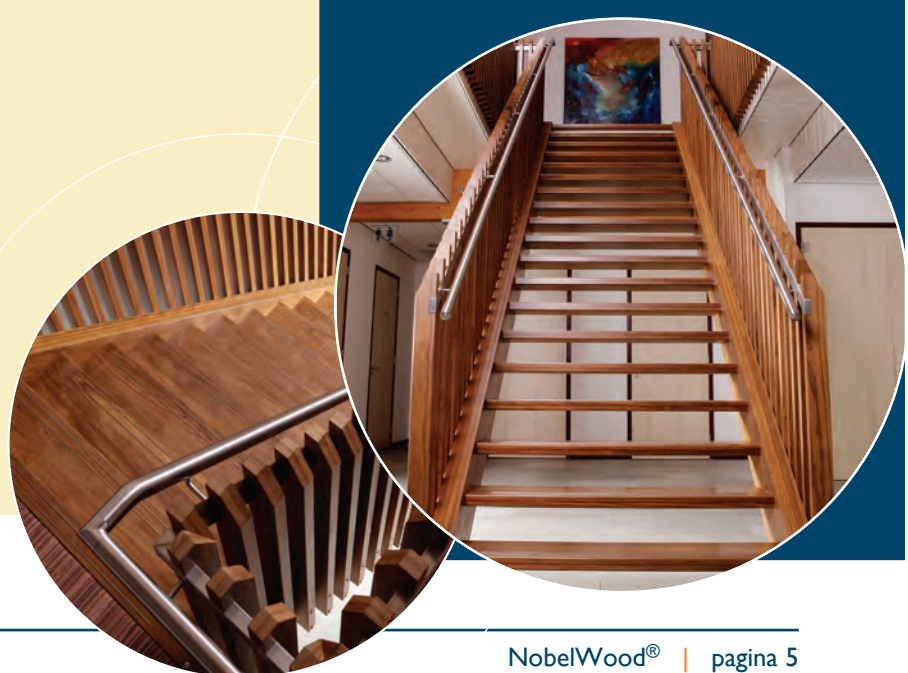
Naast de technische en ecologische eigenschappen van het materiaal, onderscheidt NobelWood® zich ook door de uitstraling en esthetische eigenschappen. De bio-modificatie zorgt voor een warme bruine kleur, die lijkt op de kleur van hoogwaardig teak. Door de homogene structuur van het hout dat wordt geselecteerd voor NobelWood® is er sprake van een zeer gelijkmatige vergrijzing bij buitentoepassingen zoals gevels. Na het aanbrengen zal het hout, net als diverse hardhoutsoorten, vergrijzen tot het een zilvergrijze kleur aanneemt. Met behulp van hout olie of andere vergelijkbare producten kan dit desgewenst worden beperkt en is er een bescherming tegen vuil. Dan is wel onderhoud noodzakelijk.



Trap Foreco

In de centrale hal van het kantoor van Foreco is een prominente plek voor NobelWood® gereserveerd. De houten trap is één van de eerste projecten die is uitgevoerd in het nieuwe materiaal. Het toont de mogelijkheden voor binnen gebruik en laat zien dat het zich uitstekend laat verlijmen. Vele bezoekers hebben de uitstraling inmiddels kunnen ervaren en gezien hoe goed het materiaal bewerkt kan worden.

Architect: Architectenbureau Huls Staphorst
Fotografie: Marieke Vogelzang



NOBELWOOD® toegepast in woning in Amsterdam IJburg



Villa S2 IJburg

Op het Oostelijk Rieteland van IJburg is een prachtige villa gerealiseerd. De woning heeft een technisch hoogstaande detaillering en een afwerking die in dienst staat van het ruimtelijk ontwerp. Voor de houten geveldelen is gebruik gemaakt van NobelWood® met een warme en natuurlijke uitstraling. Doordat er alleen foutvrij snelgroeiend dennenhout wordt toegepast bij de productie van NobelWood® is er sprake van een gelijkmatige vergrijzing van het materiaal. Dit sluit goed aan bij het strakke moderne ontwerp met de kubus als basisvorm.

Architect: MARC architects
Fotografie: Raphael Drent

DUBOkeur® voor houten gevelproducten

Het duurzaamheidskeurmerk DUBOkeur® wordt afgegeven door het Nederlands Instituut voor Bouwbiologie en Ecologie (NIBE). Voor de beoordeling in de toepassing houten gevelbekleding wordt gekeken naar het specifieke toepassingsgebied van een product. Binnen iedere productgroep komen alleen de beste producten in aanmerking voor het keurmerk. NobelWood® komt in de toepassing van buitengevelbekleding in aanmerking voor het DUBOkeur®, omdat het betreffende de milieueffectcategoriën broeikas effect en humane toxiciteit goed scoort in vergelijking met alternatieve gevelbekledingen. In vergelijking met andere houten gevelbekleding scoort NobelWood® ook goed binnen de milieueffectcategorie landgebruik en biotische uitputting.



DUBOKEUR®



NobelWood® Color met hoogwaardige verfafwerking

Architecten die hun ideeën kleur willen geven, kunnen kiezen uit tal van mogelijkheden. Het NobelWood® Color programma biedt een gevarieerd geheel van tientallen natuurlijke kleuren en onder andere RAL-kleuren. In een moderne spuitery wordt een coating aangebracht. Dit is een watergedragen, niet filmvormend, houtbeschermingsproduct op basis van oliegemodificeerde acrylaat hars. Bij de transparante coatings wordt de houtnerf geaccentueerd. Voor het behoud van de kleur van NobelWood® Color is een onderhoudsschema voor handen. De hechting van de kleurlaag is extra duurzaam omdat op NobelWood® geen schimmelvorming ontstaat.



Dennenhout met FSC-certificaat

De basis voor NobelWood® is het dennenhout dat afkomstig is uit duurzaam beheerde bossen met FSC-certificaat. Kortom, van duurzaam verbouwd laagwaardig dennenhout wordt met biobased materiaal een hoogwaardige, 100% biologische alternatief

voor hardhout gecreëerd. Andere milieuvordelen zijn: geen verdere bedreiging van het tropisch regenwoud en duurzaam hout voor duurzaam bouwen.



Tafel Librije

In opdracht van Jonnie en Thérèse Boer ontwierp Dries van Wagenberg een unieke Chef's Table voor het driesterren restaurant in Zwolle. Het robuuste houten frame bestaat uit gelamineerd NobelWood® en deze toepassing sprak het bekende culinaire echtpaar aan door de natuurlijke basisproducten van deze houtsoort.

Ontwerper: Dries van Wagenberg
Fotografie: Gijs Ooms

NOBELWOOD® Innovatief van Foreco



WaxedWood®



TwinWood®



SafeWood®



SafeWood® Select



Foreco Houtconstructies



Ijreka speeltoestellen

Werken met hout, duurzaam bouwen!

Hout past in de gedachte van Duurzaam Bouwen. Het door ons ontwikkelde NobelWood is er een voorbeeld van. Hout uit duurzaam beheerde bossen met een FSC- of PEFC-certificaat, gekoppeld aan innovatieve technologie om de toepassing van hout te verbreden. Zo leveren wij eveneens SafeWood, een reeks van houtproducten die brandvertragend zijn gemaakt. Meer toepassingen voor hout dus. WaxedWood is ook een lijn in duurzaam en onderhoudsvrij hout met naaldhout als basis. Foreco produceert duurzaam en schoon, met waarborging voor de kwaliteit. Dat bewijst zich middels certificaten, maar projectgarantie is ook mogelijk. Wij trachten voor elke specifieke houttoepassing een goed aanbod te doen, van oeverbescherming tot duurzame en veilige gevelbekleding. De natuur zorgt voor vernieuwbare grondstof, wij verstaan het vak!

www.foreco.nl



FORECO®

REGELGEVING EN NIEUWE AANDUIDINGEN

CE-MARKERING PLAATMATERIAAL



SAMENVATTING

- CE-markering wordt wettelijk verplicht voor producten die blijvend worden toegepast in bouwwerken
- CE geeft informatie over producteigenschappen en toepassingsmogelijkheden, maar geeft geen uitsluitsel of het product in zijn toepassing voldoet aan het Bouwbesluit
- De technische klasse van een plaat geeft inzicht in de toegestane omgevingscondities en de geschiktheid voor een dragende functie. De website www.houtinfo.nl geeft per klasse uitgebreide technische gegevens
- Bij iedere verkoop moet de CE-markering worden meegeleverd. Meestal is dit een stempel op de plaat
- Voor oppervlakken van bouwdelen geldt in Nederland als minimumeis brandklasse D-s2
- Volgens de Warenwet moet spaanplaat minimaal voldoen aan formaldehyde-emissieklasse E1
- De fabrikant stelt een conformiteitsverklaring voor het product op. Hiervoor gelden afhankelijk van de veiligheidsrisico's voor plaatmaterialen de volgende conformiteitsniveaus: decoratief gebruik (= niet-constructief): 4; constructieplaten: 2+; brandvertragend behandelde platen: 1
- De niveaus 1 en 2+ zijn herkenbaar aan de identificatiecodes voor product en controlerende instantie op het stempel van de CE-markering, meestal in combinatie met de letters CPD
- Zorg voor goede prestaties van de platen door een juiste opslag, verwerking en afwerking

In deze Houtwijzer bieden wij u informatie over de nieuwe aanduidingen voor plaatmaterialen en de nieuwe Europese regelgeving. Door de invoering van CE-markering op bouwproducten hebben houtachtige plaatmaterialen voor toepassing in bouwwerken een andere etikettering gekregen. Nieuwe coderingen vragen om uitleg. Hetzelfde geldt voor de consequenties van Europese regelgeving, productprestaties en kwaliteit, regelgeving en testmethoden.

Verplicht paspoort

CE-markering is geen initiatief vanuit de handel of industrie, maar vanuit de Europese politiek. De markering voor bouwproducten is een voortvloeisel uit een Europese wet: de *Richtlijn Bouwproducten*. CE-markering wordt op termijn verplicht voor alle bouwproducten die blijvend worden toegepast in bouwwerken. De invoering verloopt geleidelijk. Het zal naar verwachting nog ongeveer tien jaar in beslag nemen, voordat alle bouwproducten van CE-markering zijn voorzien. Wat dat betreft behoort *Houtachtig plaatmateriaal* tot de koplopers.

Plaatmaterialen, toegepast in bijvoorbeeld meubels, verpakkingen of als hulpmiddel tijdens de bouw (bekistingen, afscheidingen), zijn geen 'blijvende' bouwproducten en hoeven dus geen CE-markering te dragen. Een product zonder CE-markering mag binnen Europa niet als bouwproduct worden verhandeld. CE-markering wordt hierdoor vaak gezien als een verplicht paspoort op bouwproducten. Het belangrijkste doel van CE-markering is het wegnemen van handelsbelemmeringen. Dubbele controles op producteigenschappen worden voorkomen en de productprestaties overal op een zelfde manier gemeten en gepresenteerd.

Samen verantwoordelijk voor veilige bouwwerken

Naast het wegnemen van handelsbelemmeringen mag men ervan uitgaan dat met CE-gemarkeerde producten veilige en gezonde bouwwerken te maken zijn. De CE-markering geeft daarvoor productinformatie over de toepassingsmogelijkheden en de belangrijkste eigenschappen op het gebied van constructieve, brand- en gebruiksveiligheid, beperking geluidshinder, energiebesparing en hygiëne, gezondheid en milieu. De hele bouwketen is verantwoordelijk voor de juiste keuzes en verwerking om veilige en gezonde bouwwerken te realiseren: de architect moet een geschikt product voor de toepassing kiezen, de constructeur en bouwfysicus moeten met de juiste gegevens rekenen, de aannemer moet het goede materiaal bestellen, de handel moet het juiste materiaal leveren en de fabrikant moet garant staan voor de gegeven toepassingsmogelijkheden en technische gegevens.

Technische informatie

De technische specificatie van platen voor toepassingen in de bouw moeten worden omschreven, gemeten en gepresenteerd volgens de nieuwe Europese norm NEN-EN 13986. Dit document geeft een opsomming van de geldende eisen

voor triplex, spaanplaat, de diverse vezelplaten (zoals zachtboard, hardboard en MDF), OSB, timmerpanelen en cementgebonden spaanplaat. Elk type plaatmateriaal kent vervolgens z'n eigen productnorm. De eigenschappen van het plaatmateriaal worden gegeven als absolute getalswaarden of worden ingedeeld in klassen.

De fabrikant, en waar nodig een daartoe erkend testinstituut, onderwerpt het product aan een reeks verplicht voorgeschreven testen voor vaststelling van de sterkte-eigenschappen, kwaliteit van de lijmverbinding, duurzaamheid, formaldehyde-emissie en brandklasse. Moet de fabrikant voor een specifieke producttoepassing nog een aantal relevante producteigenschappen vermelden, dan worden die ook bepaald (bijv. het geluidsisolerend vermogen, de dampdiffusieweerstand en de thermische isolatiewaarde). Het plaatmateriaal wordt vervolgens ingedeeld in een *technische klasse* die duidelijk maakt voor welke toepassing het materiaal geschikt is en inzicht geeft in de technische eigenschappen.

EN 13986 geeft de eisen met betrekking tot:

- De technische klasse van het product
- De specifieke eisen die voor een technische klasse gelden
- De brandklasse en rookklasse
- De formaldehydeklaas
- De grenswaarde voor eventueel aanwezig PCP
- Het aanbrengen van de CE-markering
- Het systeem van conformiteitsverklaring

Informatie op het CE-stempel

Het CE-merk op zich is alleen maar een symbool. Het is echter verplicht specifieke informatie mee te leveren bij iedere levering door de handelsketen heen, tot aan de eindverwerker van het product toe. In de meeste gevallen zal de informatie terug te vinden zijn op het CE-stempel op de plaat. Het kan echter ook zijn dat informatie wordt gegeven op documenten bij het product, zoals afleverbonnen. Door verwijzing naar EN 13986 en een technische klasse wordt gesteld dat de platen eigenschappen bezitten overeenkomstig de gegeven waarden in de normen. Indien een bepaalde eigenschap daarvan afwijkt, dient de fabrikant dat expliciet op het stempel te vermelden. Dit is met name van belang bij de brandeigenschappen.

Voorbeeld van CE-markering op een etiket van een triplexplaat. De aanduiding S 636-3 geeft aan dat de plaat geschikt is voor buitentoepassing en voor constructieve toepassingen.

CE S 0380 CPD 0443 OKOUPLEX 04 EN 13986 EN 636-3 E1

Collage / Marquage de qualité

NE EVTEDIID CTDV

Conformiteitsverklaring

De fabrikant moet een conformiteitsverklaring voor het bouwproduct opstellen. Niveau 4 is een volledig fabrikanteigen verklaring die van toepassing is op platen voor algemeen gebruik (zonder dragende functie). Bij constructieplaten en brandvertragend behandelde platen moet controle op de gegeven eigenschappen plaatsvinden door een erkende onafhankelijke instantie. Het niveau van de conformiteitsverklaring is respectievelijk 1 en 2+. Bij deze platen moet de fabrikant de identificatiecodes voor het product en de controlerende instantie op de CE-markering vermelden. Wanneer deze gegevens bijvoorbeeld ontbreken op de CE-markering van een plaat die u wilt gebruiken voor het maken van een dragende vloerconstructie, mag dat niet volgens het Bouwbesluit! De conformiteitsverklaring is op verzoek opvraagbaar bij de fabrikant of importeur.

Informatie op het CE-stempel

Platen voor algemeen gebruik (conformiteitsniveau 4)

- CE symbool
- Fabrikantnaam of -code
- Jaar van aanbrengen
- CE-markering
- Referentie naar EN 13986
- De technische klasse
- De formaldehyde-klasse

Constructieplaten (conformiteitsniveau 2+)

- CE symbool
- Identificatienummer controlerende instantie
- Identificatienummer product
- Fabrikantnaam of -code
- Jaar van aanbrengen
- CE-markering
- Referentie naar EN 13986
- De technische klasse
- De formaldehyde-klasse

Brandvertragend behandelde platen (conformiteitsniveau 1)

- CE symbool
- Identificatienummer controlerende instantie
- Identificatienummer product
- Fabrikantnaam of -code
- Jaar van aanbrengen
- CE-markering
- Referentie naar EN 13986
- De technische klasse
- De formaldehyde-klasse
- De brandklasse

Voorwaarden voor gebruik in Nederland

CE-markering geeft uitsluitend informatie over de producteigenschappen. Of een plaat met die eigenschappen voldoet aan de eisen van de nationale regelgeving moet nog worden gecontroleerd. Met uitzondering van spaanplaat mogen plaatmaterialen met formaldehyde-emissieklasse E2 worden toegepast. Het Bouwbesluit stelt namelijk eisen op ruimteniveau en niet aan materialen. Het spreekt voor zich dat met E1-platen eenvoudig aan de 'ruimte-eis' kan worden voldaan en dat je met E2-platen moet oppassen. Volgens de Warenwet moet spaanplaat minimaal voldoen aan klasse E1. Volgens het Bouwbesluit moeten oppervlakken van bouwdeelen minimaal voldoen aan brand-/rookklasse D-s2 (platen voor wanden en plafonds) of aan D_{FL}-s1 in geval van vloeren. Met uitzondering van zachtboard voldoen de meeste platen aan deze eisen. Toegepast in vluchtwegen gelden respectievelijk de klassen B-s1 en D_{FL}-s1 en kunt u gebruikmaken van cementgebonden spaanplaat of brandvertragend behandelde platen.

Aan te houden Brandklassen indien de platen voldoen aan de randvoorwaarden van EN 13986

	Toepassing excl. vloeren	Vloeren
OSB	D-s2, do	D _{FL} -s1
Spaanplaat	D-s2, do	D _{FL} -s1
Hardboard	D-s2, do	D _{FL} -s1
Zachtboard	E	E _{FL}
MDF	D-s2, do	D _{FL} -s1
Cementgebonden spaanplaat	B-s1, do	B _{FL} -s1
Triplex	D-s2, do	D _{FL} -s1
Timmerpanelen	D-s2, do	D _{FL} -s1

Klimaatcondities

Een zeer belangrijk criterium bij de keuze van het juiste plaatmateriaal is het klimaat waarin de plaat zal worden toegepast. De houtsoort waaruit deze bestaat, de opbouw en de gebruikte lijmsort bepalen hierbij in belangrijke mate de geschiktheid. Er worden drie klimaatcondities onderscheiden:

- **Klimaatklasse 1:** Binnen, bijvoorbeeld toepassing in wanden, plafonds en meubelen. De relatieve vochtigheid komt maximaal enkele weken per jaar boven de 65%.
- **Klimaatklasse 2:** Beschut buiten of vochtig binnen, zoals toegepast aan de onderzijde van luifels, dakplaten, toepassing in badkamers, vochtige bergingen en agrarische gebouwen. De relatieve vochtigheid komt maximaal enkele weken per jaar boven de 85%.
- **Klimaatklasse 3:** Buiten, bijvoorbeeld in gevelpanelen en boeiborden. De vochtcondities zijn ongunstiger dan bij klasse 2. Het materiaal moet voldoende bestand zijn tegen blootstelling aan weersomstandigheden, regenwater en waterdamp.

Technische klassen

De technische klasse geeft aan voor welke toepassing het product geschikt is. Wanneer plaatmaterialen tot een zelfde technische klasse behoren, wil dat nog niet zeggen dat ze volledig gelijkwaardig zijn. De platen voldoen aan de gestelde minimumeisen van die klasse, maar er zijn er uiteraard die ver boven die eisen uitkomen. U moet dus niet verwachten dat een merantitriplex en een mahonie-garantietriplex, die beide voldoen aan de technische klasse EN 636-3, hetzelfde scoren op het gebied van uitstraling, duurzaamheid en onderhoud. Een juiste opslag, verwerking en afwerking is van groot belang voor het juist presteren van de plaat. Voor informatie hierover verwijzen wij u naar de informatiebladen *Plaatmateriaal, gebruikerswenken* en *Plaatmateriaal, afwerking binnen en buiten*, te vinden op www.houtinfo.nl.

De hierna volgende tabel geeft een overzicht van de gangbaarste technische klassen en hun toepassingsmogelijkheden. Eerst bepaalt u het klimaat waaraan de plaat wordt blootgesteld en vervolgens of deze al dan niet een dragende functie heeft. Op de website www.houtinfo.nl vindt u onder 'Plaatmaterialen' en vervolgens het kopje 'CE technische klassen' een totaaloverzicht van de bestaande technische klassen. Daar kunt u per klasse alle beschikbare technische gegevens in PDF-formaat downloaden. De rekenwaarden voor de sterkte-eigenschappen van triplex dienen in de regel nog door de fabrikant te worden geleverd. Uw leverancier kan u daarbij helpen.

Overzichtstabel toepassingsmogelijkheden Technische Klassen								
Technische klasse	Klimaat			Functie			Conform Niveau verklaring	Voorbeeld Mogelijke toepassing
	1 Droog	2 Vochtig	3 Buiten	Niet dragend	Dragend	*Heavy duty		
<i>Triplex</i>								
EN 636-1 S	●				●		2+	Underlayment
EN 636-2 S		●			●		2+	Dakplaat
EN 636-3 S			●		●		2+	Buittentoepassing met dragende functie
EN 636-1 G	●			●			4	Binnenwand-afwerking
EN 636-2 G		●		●			4	Onderzijde luifel
EN 636-3 G			●	●			4	Boeibord
<i>Oriented Strand Board (OSB)</i>								
OSB/1	●			●			4	Binnenwand-afwerking
OSB/2		●			●		2+	Dragende wand
OSB/3		●			●		2+	Hsb-vloerelement
OSB/4		●				●	2+	Dakplaat
<i>Spaanplaat</i>								
P1	●			●			4	Aftimmering
P2	●			●			4	Binnenbetimmering
P3		●		●			4	Betimmering badkamer
P4	●				●		2+	Dragende wand binnen
P5		●			●		2+	Dakplaat
P6	●					●	2+	Dragende vloer binnen
P7		●				●	2+	Hsb-vloerelement
<i>Cementgebonden spaanplaat</i>								
1			●		●		2+	Wand vluchtweg
2			●			●	2+	Vloer vluchtweg
<i>MDF</i>								
MDF	●			●			4	Binnenaftimmering
MDF.LA	●				●		2+	Binnen met dragende functie
MDF.H		●		●			4	Afwerking in badkamer
MDF.HLS		●				●	2+	Onderzijde luifel, dragende functie
L-MDF	●			●			4	Licht MDF
L-MDF.H		●		●			4	Licht MDF vochtig klimaat
UL-MDF	●			●			4	Extra licht MDF
MDF.RWH		●		●			4	Onderplaat wanden en daken

*Heavy duty - in vergelijking met andere types van hetzelfde plaatmateriaal bezit de plaat hogere sterkte waarden en een hogere weerstand tegen vocht.

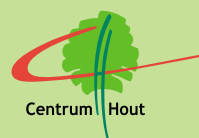
Meer informatie

Voor meer informatie over hout en houttoepassingen wordt verwezen naar de website www.houtinfo.nl en publicaties en andere artikelen die bij Centrum Hout verkrijgbaar zijn. Vraag het Publicatieoverzicht aan voor een overzicht van het totale aanbod dat varieert van eigen brochures en prospectussen tot uitvoerige brochures en boekwerken die niet alleen door Centrum Hout, maar ook door andere instellingen worden uitgegeven.

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GEËXPANDEERDE KURKPLATEN

Geëxpandeerde kurk wordt vervaardigd uit vermalen, blanke kurkkorrels. Blanke kurkkorrels zijn een 100% natuurlijk product afkomstig van de schors van de kurkeik.

Het ontschorsen van de kurkeik gebeurt om de 9 jaar en heeft geen nadelige gevolgen voor de boom. Het oogsten van de schors kan daarom niet als een natuur verslindende activiteit of natuurroof beschouwd worden.

De schors wordt eerst ontdaan van hout partikels en nadien vermalen tot korrels. De vermalen korrels worden in een autoclave onder druk en hoge temperatuur (360°C) geëxpandeerd door toevoeging van stoom (steambaked procedé).

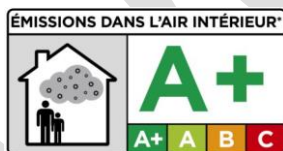
Onder invloed van de vrijgekomen hitte gaan de kurkcellen vergroten en verdonkeren. De eigen, natuurlijke harsen (suberine) zorgen ervoor dat de granulaten tot één blok gaan samenkleven. Nadien worden de blokken geëxpandeerde kurk afgekoeld en in verschillende diktes verzaagd of weer tot korrelvorm van verschillende grootte vermalen.



Naar aanleiding van de VN conferentie inzake Milieu en Ontwikkeling in Rio de Janeiro van juni 1992 werd besloten de druk op nog resterende grondstoffen te verlichten.

In 2002 werd door ARGE kdR een logo ontworpen dat verhoudingsgewijs met drie kleuren ingekleurd wordt. Het groene deel staat voor hernieuwbaar, geel voor mineraal en rood voor fossiel. Voor geëxpandeerde kurk kleurt het logo volledig groen.

Tijdens het 'steambaked procedé' worden er geen vreemde stoffen aan de kurkkorrels toegevoegd. Men start en eindigt met een 100% natuurlijk product.



QualyCork geëxpandeerde kurkplaten werden getest volgens de norm ISO 16000-9. Doel van deze test is de emissie van de verschillende VOC's (volatile organic compounds) in het binnenklimaat op te meten.

QualyCork geëxpandeerde kurk bezit het A+ label. Dit is de meest gunstige waardering die verzekert dat het materiaal geen nadelige effecten heeft op de luchtkwaliteit in het gebouw.

Geëxpandeerde kurkplaten isoleren zowel thermisch als akoestisch, zijn goed bestand tegen vocht en worden door de aanwezigheid van natuurlijke harsen niet aangetast muizen of termieten.



Geëxpandeerde kurk is een natuurproduct. Er wordt aangeraden de pakken enkele dagen voor de installatie te openen zodat ze (beschut) kunnen acclimatiseren.



QualyCork kurkplaten beantwoorden aan CE normering EN 13170:2012.

De lambda waarde van QualyCork geëxpandeerde kurk (bij 10°C) bedraagt 0,040 W/(m.K).

De thermische isolatiewaarde van een materiaal wordt uitgedrukt in λ (lambda). Deze waarde drukt uit hoeveel energie door een vlak van 1 m² gaat bij een dikte van 1 meter, per graad temperatuurverschil tussen beide zijden van het vlak. Hoe kleiner de waarde, hoe beter het isolerend vermogen.



QualyCork geëxpandeerde kurkplaten bezitten bovendien het Acermi certificaat uitgaande van het CSTB (Frankrijk).

Dit certificaat bevestigt niet enkel de lambda waarde van geëxpandeerde kurk, ze stelt zelfs beter vast, voor zover de densiteit zich tussen **95 en 110 kg/m³** bevindt. Het CSTB voorziet eveneens in een periodieke controle van de productie.

Het Acermi certificaat is het enige certificaat dat een dergelijke periodieke controle van de normale productie via onaangekondigde monsternamen voorziet.



QualyCork geëxpandeerde kurkplaten werden eveneens door het MPA van het Otto-Graf-Institut te Stuttgart onderzocht.

Ook hier wordt de vooropgestelde isolatiewaarde probleemloos bereikt. Volgens het MPA is de lambda waarde van het materiaal zelfs beter dan 0,040 W/(m.K).



Geëxpandeerde kurk heeft een zeer gunstige verouderingscoëfficiënt. Hiermee wordt bedoeld dat de isolatiewaarde niet significant afneemt in de tijd, in tegenstelling tot verschillende (chemische) alternatieven.

Hiertoe voerde het LNEC vergelijkende tests uit op nieuw geproduceerde geëxpandeerde kurkplaten en geëxpandeerde kurkplaten die gerecupereerd uit een 45 jaar oud gebouw.

Kurk is waterafstotend en niet capillair. Hierdoor kan de isolatiewaarde moeilijk afnemen doordat het isolatiemateriaal nat wordt en beter gaat geleiden.



Geëxpandeerde kurkplaten bezitten volgende hygrothermische eigenschappen:

Thermische geleidbaarheid (λ) ¹	0,038 tot 0,040 W/(m.K)
Specifieke warmte	1,67 Kj/Kg °C
Thermische weerstand (R) ²	2,5 m ² K/W bij 100 mm (zie tabel onder)
Temperatuur bestendigheid	- 180 °C tot + 120 °C
Waterdampdiffusiecoëfficiënt (μ) ³	5 - 30
Warmte uitzettingscoëfficiënt	25 tot 50 x 10 ⁻⁶
Ontbinding in kokend water	doorstaat de test van 3 uur
Brandklasse materiaal	E
Brandklasse bedekt	B2

De warmteweerstand of R (m²K/W) geeft het thermisch isolerend vermogen van een materiaallaag aan. De materiaaldikte (in meter) wordt gedeeld door de λ -waarde. Hoe hoger de R-waarde, hoe groter het isolerend vermogen.

Dikte	platen per pak	m ² per pak	R (m ² K/W)
10 mm	30	15	0,250
15 mm	20	10	0,375
20 mm	15	7,5	0,500
25 mm	12	6	0,625
30 mm	10	5	0,750
40 mm	8	4	1,000
50 mm	6	3	1,250
60 mm	5	2,5	1,500
80 mm	4	2	2,000
100 mm	3	1,5	2,500
120 mm	2	1	3,000
140 mm	2	1	3,500
160 mm	2	1	4,000
180 mm	2	1	4,500
200 mm	1	0,5	5,000

Geëxpandeerde kurk heeft een brandklasse E volgens EN 15301-1. Omdat kurk een natuurproduct is komen er bij de verbranding geen chloriden, cyaniden of andere toxische gassen vrij.

¹ De lambda waarde van 0,038 W/(m.K) geldt enkel voor Acermi gecertificeerde geëxpandeerde kurkplaten (na verwijdering houtpartikels en met een van densiteit 95 tot 110 kg per m³).

² Uitgaande van een lambda waarde van 0,040 W/(m.K).

³ Varieert naargelang de dikte van het materiaal.



Geëxpandeerde kurkplaten bezitten volgende mechanische eigenschappen:

Buigvastheid / buigsterkte	1,80 kg/cm ²
Drukvastheid / druksterkte	0,20 kg/cm ²
Trekweerstand	0,94 kg/cm ²
Druksterkte bij 10% vervorming	100 kPA
Elasticiteitsmodulus	5 N/mm ²
Elasticiteitslimiet	1 kg/cm ²
Dynamische stijfheid (bij 50 mm dikte)	126 N/cm ³

Geëxpandeerde kurkplaten isoleren ook akoestisch.

De snelheid van het geluid vertraagt aanzienlijk in kurk, wat de heersende geluiden afzwakt. De snelheid van het geluid in kurk bedraagt 500 m/sec., in gewapend beton is deze 2500-2800 m/sec.

Onderstaande tabel geeft het absorptiepercentage van verschillende materialen weer bij verschillende frequenties:

	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
Beton	2%	4%	5%	5%	10%	7%
Bakstenen muur	3%	3%	4%	4%	5%	7%
Bepleistering	2%	3%	3%	4%	5%	4%
Gewoon glas	35%	25%	18%	12%	7%	4%
Houten plankenvloer	4%	5%	6%	7%	6%	7%
Tapijt op parket	20%	25%	30%	30%	40%	45%
Zeer zwaar behang	14%	35%	55%	72%	70%	6%
Multiplex 5 mm met holle ruimte 50 mm	12%	20%	8%	8%	7%	2%
Multiplex 5 mm met 50 mm glaswol	25%	40%	30%	15%	16%	8%
Volwassen persoon (absorptie-eenheden)	20%	43%	50%	50%	55%	50%
Kurk 25mm	10%	10%	33%	60%	34%	49%

Voor specifieke geluidsisolatie wordt aangeraden combinaties te maken tussen verschillende materialen en op een weloverwogen manier te verlijmen en/of te verankeren.

Er bestaat geen enkel materiaal dat alle frequenties gelijkmatig isoleert (zie kurkcocos en rubberkurk).



Geëxpandeerde kurkplaten kunnen vanaf een dikte van 40 mm met sponning geproduceerd worden. Een sponning rondom vermijdt warmteverliezen aan de naden.

De nuttige oppervlakte van de platen neemt hierdoor echter licht af:

Dikte	platen per pak	m ² per pak	Nuttige oppervlakte m ²
40 mm	8	4	3,7632
50 mm	6	3	2,7786
60 mm	5	2,5	2,2795
80 mm	4	2	1,7664
100 mm	3	1,5	1,3248
120 mm	2	1	0,8832
140 mm	2	1	0,8832
160 mm	2	1	0,8832
180 mm	2	1	0,8832
200 mm	1	0	0,4416

Kurkplaten kunnen in hogere densiteiten geproduceerd worden:

Densiteit 140/160 kg/m³	
Thermische geleidbaarheid (λ) ⁴	0,042 W/(m.K)
Drukvastheid / druksterkte	0,50 kg/cm ²
Druksterkte bij 10% vervorming	180 kPA

Densiteit 170/190 kg/m³	
Thermische geleidbaarheid (λ)	0,044 W/(m.K)
Drukvastheid / druksterkte	1,00 kg/cm ²

Kurkplaten voor zichtbare gevelisolatie (niet noodzakelijk voorzien van een buitenpleister):

Densiteit 140/160 kg/m³ SPECIAL FACADE	
Thermische geleidbaarheid (λ)	0,043 W/(m.K)
Druksterkte bij 10% vervorming	220 kPA
Temperatuur bestendigheid	- 180 °C tot + 120 °C
Waterabsorptie bij gedeeltelijke onderdompeling	0,17 kg/m ²

⁴ De lambda waarde van een isolatiemateriaal neemt af als de densiteit verhoogd wordt.



De kurkplaten voor zichtbare gevelisolatie zijn bestand tegen de invloed van weer en wind. Ze worden gemaakt uit kleinere granulaten dan de standaard platen met een densiteit van 140/160 kg/m³.

Uitgave september 2014. Hiermee vervallen alle voorgaande technische fiches. Wijzigingen voorbehouden. Alle gegevens zijn bedoeld als algemene informatie over onze producten en hun toepassingsmogelijkheden.

QualyCork kan geen aansprakelijkheid aanvaarden voor de eventuele aanwezigheid van (tik)fouten of onvolledige informatie in deze technische fiche.

Aan de inhoud van deze uitgave kunnen geen rechten worden ontleend.

Standaard HPL deuren

Deze deur is voorzien van een tubespaanvulling. Tubespaan is spaanplaat voorzien van verticale boringen waardoor het gewicht van de deur gereduceerd wordt, maar de deur toch een specifieke stevigheid en een redelijke geluidwerendheid (ca. 28 dB) krijgt. De deur is voorzien van een standaard HPL toplaag van Polyrey, Fornica of Duropal naar keuze en wordt uitgevoerd met rood kanthout.

Specificaties	
Breedte	53 - 123 cm*
Hoogte	201.5 / 211.5 / 231.5 cm*
Deurvulling	Tubespaan
Kantafwerking	Stomp / opdek
Toepassing	Als binnendeur in renovatie en nieuwbouw in met name de utiliteitsbouw waar de gebruiksintensiteit hoog is, bijvoorbeeld scholen en zorginstellingen. * de deurmatten zijn altijd in de breedte met 5 cm oplopend, andere deurenmaten op aanvraag leverbaar



Voordelen / eigenschappen

- De deuren zijn krasbestendig
- In zeer veel kleuren leverbaar
- Goed toepasbaar bij hoge gebruiksintensiteit
- Goedkoper dan schilderwerkdeuren
- Na afhangen direct gebruiksklaar

Leveranciers

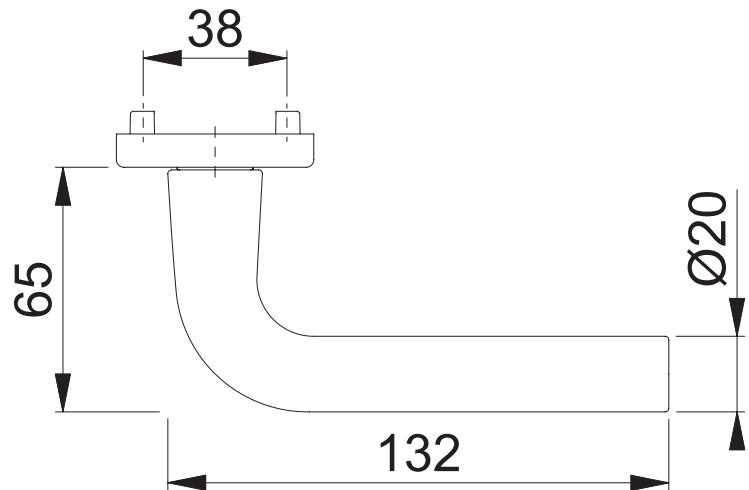
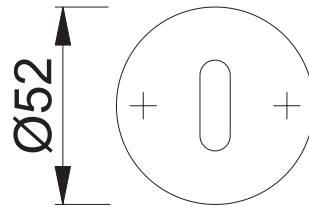
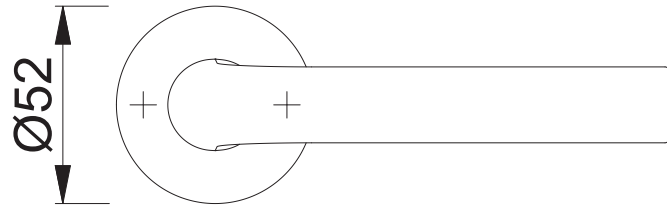
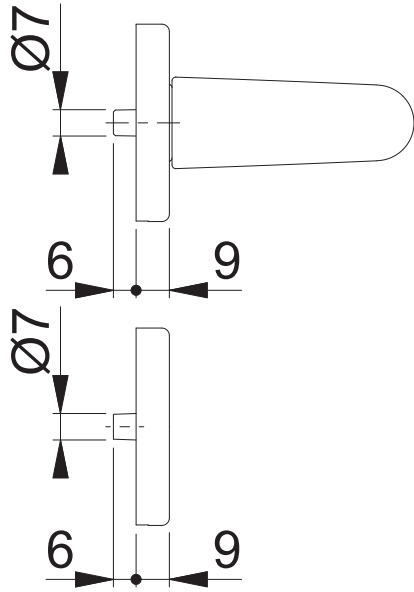
- Berkvens
- Theuma
- Van Vuuren

02.07.2200 - Door fittings bathroom

150/42KV/42KVS OB

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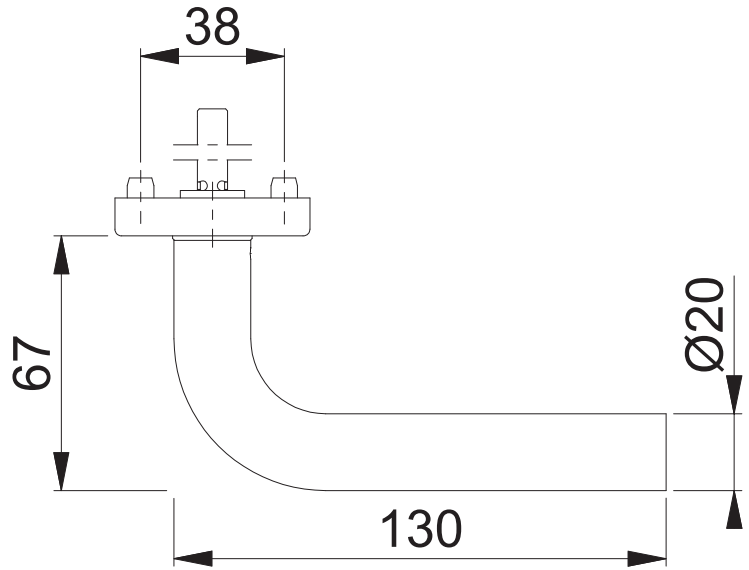
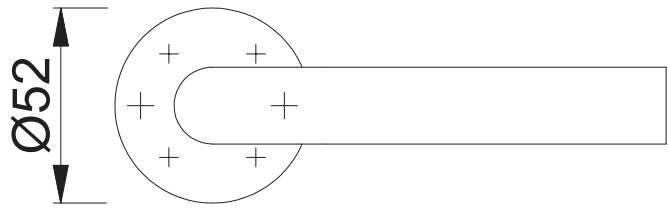
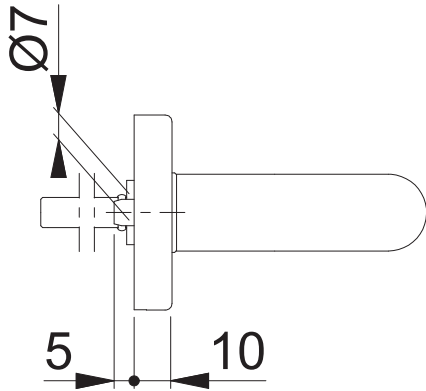
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STEINFÖRT
inspirerend glas

KRISTALCOLOR

Geëmailleerd glas voor interieur en exterieur



KRISTALCOLOR BY STEINFORT

KRISTALCOLOR

Kristalcolor is glas met een volvlakbedrukking in bijna iedere gewenste kleur. De kleur is slijtvast, UV- en weerbestendig waardoor dit product uitermate geschikt is voor exterieur en interieur. Kristalcolor kan bijvoorbeeld gebruikt worden voor gevelbekleding, balustrades, scheidingswanden, keukenachterwanden, aanrechtbladen, tafelbladen en badkamers.

PROCES

Bij volvlakbedrukking van glas wordt er gewerkt met keramische lakken. Deze lakken bevatten micro glasdeeltjes en worden door middel van een rollercoatmachine op het glas aangebracht. De kleur wordt gefixeerd door het glas op hoge temperatuur te brengen in een hardingsoven. Doordat de lak met dermate hoge temperaturen in aanraking komt, smelten de glasdeeltjes en worden de pigmenten in het glasoppervlak gefixeerd.

KLEUREN

Het succes van de Kristalcolor productlijn heeft erin geresulteerd dat er inmiddels meer dan 150 kleuren zijn ontwikkeld. Voor het gebruiksgemak hebben wij hiervoor een speciale kleurenwaaier ontwikkeld, deze is via onze website te bestellen. Naast de kleuren die in de waaier zijn opgenomen is er nog een breed scala aan kleuren. Kleurmonsters zijn op aanvraag beschikbaar.

CODERINGSSYSTEEM

Om logistieke en kwalitatieve redenen heeft Steinfort Glas voor Kristalcolor een eigen coderingssysteem opgezet. Door middel van de unieke Steinfort Glas Kristalcolor (KC) kleurcode worden productiviteit en kwaliteit gezekerd, aan iedere kleurcode hangt een uniek kleurrecept.

RICHTLIJNEN

Een Kristalcolor kleur is ontwikkeld op 6 mm floatglas, andere glassoorten geven kleurafwijkingen. Een kleurbemonstering of kleurenwaaier is altijd een benadering.

SAMENVATTING

- Volvlak bedrukt glas
- Méér dan 150 kleuren
- Krasvast
- UV- en weerbestendig

MOGELIJKHEDEN

- Kleurontwikkeling
- Diverse glassoorten en dikten
- Bedrukking op modellen
- Combinaties (zeefdruk, print en lamineren)
- Heatsoaken
- Enkele stuks en series





binderholz **NATUR IN ARCHITEKTUR**

HOLZ, EIN INTELLIGENTER ROHSTOFF

Holz ist ein faszinierender, vielseitig einsetzbarer und zugleich intelligenter Werkstoff, der für uns Menschen in vielerlei Hinsicht eine wichtige Rolle spielt. Der junge Baum im Wald erfüllt bereits eine wertvolle Aufgabe neben seiner so wichtigen Funktionen für Wohlfahrt, Schutz und als Nutzprodukt Holz. Er entzieht der Luft schädliches Kohlendioxid CO_2 , bindet Kohlenstoff C und gibt Sauerstoff O_2 an die Atmosphäre ab.

Faszinierend sind die vielen Einsatzmöglichkeiten von Holz. Ob als einfacher Kochlöffel, als Musikinstrument, Kunstobjekt, Möbel, Wärme- und Energielieferant oder als Hightech Produkt für den massiven Holzbau. Täglich kommen wir mit diesem einzigartigen Rohstoff in Berührung. Die Eigenschaften dieses intelligenten Werkstoffes spiegeln sich in Tragfähigkeit, Langlebigkeit, Stabilität und Feuerwiderstand wider. Holz wirkt sich zudem positiv auf das Wohlbefinden der Menschen und damit auf ihre Gesundheit aus.

VORTEILE VON BRETTSCHICHTHOLZ BSH

unkompliziert | schnell | leicht | stabil

Tragfähigkeit • Formstabilität • kurze Bauzeiten • geringes Gewicht
hochwertige Oberflächenqualität • hoher Vorfertigungsgrad
Formenvielfalt • geringe Bauteilabmaße bei hohen Festigkeiten
architektonische und konstruktive Vielseitigkeit





Fotos Wood Beton s.p.a., Roland Halbe Fotografie

BINDERHOLZ BRETTSCHICHTHOLZ BSH

Als Brettschichtholz-Komplettanbieter liegen die Kernkompetenzen von binderholz sowohl in der Produktion von Standard- und Kommissionsware als auch in der Herstellung von Sonderbauteilen.

Brettschichtholz besteht aus mindestens 3 parallel zur Faser verleimten Brettlamellen. Durch Festigkeitssortierung und Homogenisierung der Brettlamellen wird ein hohes Maß an Tragfähigkeit gegenüber dem üblichem Bauholz erzielt. Hohe Tragfähigkeit, Formstabilität, Produktvielfalt sowie beste Oberflächenqualität ermöglichen vielfältige Einsatzmöglichkeiten im konstruktiven Bereich.

BRETTSCHICHTHOLZ BSH QUALITÄTEN

Qualitätsmerkmale - Brettschichtholz unter Berücksichtigung der DIN 4074, EN 14080 und der ÖNORM B 7215		
Merkmale	Sicht-Qualität	Nichtsicht-Qualität
Oberfläche	4-seitig gehobelt mit Fase	4-seitig gehobelt mit Fase, vereinzelt Raustellen zulässig
Insektenbefall	nicht zulässig	in geringem Ausmaß zulässig
Markröhre	zulässig	zulässig
Verfärbung Bläue / Rotstreif	im Prinzip frei von Farbfehlern bis zu 5 % der Oberfläche zulässig	zulässig
Harzgallen	bis 5 x 50 mm zulässig keine Ansammlung	zulässig
Äste festverwachsen	zulässig	zulässig
Äste schwarz	zulässig bis 30 mm	zulässig
Äste ausgefallen	zulässig bis 10 mm	zulässig bis 20 mm
Punktäste	zulässig	zulässig

BRETTSCHICHTHOLZ BSH NUTZUNGSKLASSEN NACH EN 1995-1-1 / DIN 1052:2008 / EN 386

NKL 1: Gekennzeichnet durch einen Feuchtegehalt in den Baustoffen, der einer Temperatur von 20° C und einer relativen Luftfeuchte der umgebenden Luft entspricht, die nur für einige Wochen im Jahr einen Wert von 65 % übersteigt (beheizter Innenraum).

NKL 2: Gekennzeichnet durch einen Feuchtegehalt in den Baustoffen, der einer Temperatur von 20° C und einer relativen Luftfeuchte der umgebenden Luft entspricht, die nur für einige Wochen im Jahr einen Wert von 85 % übersteigt (geschützter Außenbereich).

NKL 3: Gekennzeichnet durch Klimabedingungen die zu höheren Feuchtegehalten als in Nutzungsklasse 2 führen (ungeschützter Außenbereich) Melaminharz erlaubt / 33 mm Lamelle erforderlich.

BRETTSCHICHTHOLZ BSH TECHNISCHE DATEN

	GL 24	GL 28	GL 32
Aufbau	kombiniert(c) / homogen (h) auf Anfrage		
Holzart	Fichte		
Herstellung	gemäß ÖNORM EN 386 bzw. EN 14080		
Keilzinkung	gemäß EN 385		
Holzfeuchte	12 ± 2 %		
Maschinelle Sortierung	gemäß EN 14081-3 bzw. DIN 4074-4		
Sortierklassen nach EN 14081	L25	L30	L36
Lamellenstärke	40 mm		
Verleimung	modifiziertes Melaminharz, helle nicht nachdunkelnde Fuge		
Oberflächenqualität	4-seitig gehobelt, Kanten gefast, Sicht-Qualität, Nichtsicht-Qualität		
Verpackung	paketweise, auf Wunsch Einzelfolierung möglich		
Fremdüberwachung	durch unabhängige Prüfinstitute - Holzforschung Austria, MPA Stuttgart (2 x jährlich)		
Rechnerische Abbrandrate	0,7 mm / min		
Emissionsklasse	E1		
Baustoffklasse	nach DIN 4102: B2 (normalentflammbar)		
Brandverhalten	D-S2, d0		
Maßtoleranz	Breite ± 2 mm Höhe ± 2 mm Länge ± 0,1 %		
Formveränderung	axial: 0,01 - 0,02 % je % Holzfeuchteänderung radial: 0,19 % je % Holzfeuchteänderung tangential: 0,34 % je % Holzfeuchteänderung		
Wärmeleitfähigkeit	0,13 W/mk		
Wasserdampfdiffusionswiderstand	μ = 40		

BRETTSCHICHTHOLZ BSH KENNWERTE FÜR DIE BEMESSUNG EN 1995-1-1:2010-12, DIN 1052:2008

Baustoff	kombiniertes Brettschichtholz			homogenes Brettschichtholz		
	GL 24c	GL 28c	GL 32c	GL 24h	GL 28h *	GL 32h *
Festigkeitsklasse	GL 24c	GL 28c	GL 32c	GL 24h	GL 28h *	GL 32h *
Festigkeitswerte (N/mm²)						
Biegung ($f_{m,k}$)	24	28	32	24	28	32
Zug: parallel ($f_{t,0,k}$)	14	16,5	19,5	16,5	19,5	22,5
Zug: rechtwinkelig ($f_{t,90,k}$)	0,35	0,4	0,45	0,4	0,45	0,5
Druck: parallel ($f_{c,0,k}$)	21	24	26,5	24	26,5	29
Steifigkeitswerte (N/mm²)						
Elastizitätsmodul: parallel ($E_{0,mean}$)	11.600	12.600	13.700	11.600	12.600	13.700
Elastizitätsmodul: rechtwinkelig ($E_{90,mean}$)	320	390	420	390	420	460
Schubmodul: G_{mean}	590	720	780	720	780	850
Rohdichtekennwerte (kg/m³)						
Rohdichte ρ_k	350	380	410	380	410	430

* auf Anfrage

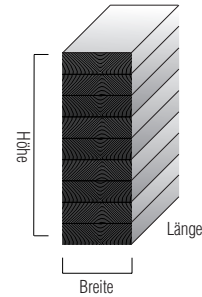
BRETTSCHICHTHOLZ BSH STANDARD

Brettschichtholz wird als Standardware oder nach Liste in jeder gewünschten Länge, Dimension Festigkeitsklasse und Oberflächenqualität hergestellt.



Holzart	Fichte
Festigkeitsklassen*	GL 24c, GL 28c, GL 32c, GL 24h, GL 28h, GL 32h
Qualität	Sicht-Qualität, Nichtsicht-Qualität
Flächen- und Keilzinkverleimung	modifiziertes Melaminharz, für NKL 1-3, uv- und witterungsbeständig, hell
Breite	60 - 260 mm (in 20 mm Schritten)
Höhe	bis 1.280 mm (in 40 mm Schritten)
Längen	6 - 18 m

* GL28h und GL32h auf Anfrage
Die Breiten 220 mm bis 260 mm in den Festigkeiten GL28 und GL32 auf Anfrage
Die Breite 60 mm ist Spaltware und daher nur paarweise in GL24 lieferbar



BRETTSCHICHTHOLZELEMENTE

Brettschichtholzelemente finden Anwendung als Wand-, Decken- oder Dachelement.

Holzart	Fichte
Festigkeitsklassen	GL 24c, GL 28c, GL 32c, GL 24h, GL 28h*, GL 32h*
Flächen- und Keilzinkverleimung	modifiziertes Melaminharz, für NKL 1-3, uv- und witterungsbeständig, hell
Längen	6 - 18 m

* auf Anfrage

Standardbreite	640 mm (625 mm Deckmaß)	Standardbreite 1.280 mm
Qualität	Sicht-Qualität, Nichtsicht-Qualität	Nichtsicht-Qualität
Höhe	100 - 240 mm (in 20 mm Schritten) 80 mm auf Anfrage	
Sonderbreiten	240 - 600 mm auf Anfrage	600 - 1.200 mm auf Anfrage
Profilvarianten	Profil 01 Profil 02 Profil 03 Profil 04 Profil 05	Profil 03 Profil 04 Profil 05

Profilvarianten				
Profil 01 Nut und Feder	Profil 02 Nut und Feder mit Falz	Profil 03 Falz	Profil 04 Nut	Profil 05 Nut und Falz
Profiltiefe 15 mm	Falztiefe 45 mm Falzbreite 20 mm	Falztiefe 45 mm Falzbreite 20 mm	Nuttiefe 20 mm Nutbreite 20 mm	Nuttiefe 20 mm Nutbreite 20 mm Falztiefe 45 mm Falzbreite 20 mm

Mindestbestellmenge 60 m² pro Profil und Stärke!
Alle Profile nur in beidseitiger Ausführung!

BRETTSCHICHTHOLZ BSH BEMESSUNG

Einfeldträger

Maximale Spannweite (m)

Unter Einhaltung der zulässigen Biegespannungen und der Durchbiegungsbeschränkung L/300 sowie der maximalen Querkraft am Auflager.

Höhe (mm)	Breite (mm)	Belastung (kN/m)																	
		2,00	2,50	3,00	3,50	4,00	4,50	5,00	6,00	7,00	8,00	9,00	10,00	11,00	12,00	15,00	20,00	25,00	30,00
120	60	2,29	2,12	2,00	1,89	1,77	1,67	1,59	1,45	1,34	1,26	1,18	1,12	1,04	0,96	0,77	0,57	0,46	0,38
	80	2,51	2,34	2,20	2,09	2,00	1,92	1,83	1,67	1,55	1,45	1,37	1,30	1,24	1,18	1,02	0,77	0,61	0,51
	100	2,70	2,51	2,37	2,25	2,15	2,07	2,00	1,87	1,73	1,62	1,53	1,45	1,38	1,32	1,18	0,96	0,77	0,64
	120	2,86	2,66	2,51	2,39	2,29	2,20	2,12	2,00	1,89	1,77	1,67	1,59	1,51	1,45	1,30	1,12	0,92	0,77
140	80	2,93	2,72	2,56	2,44	2,33	2,24	2,13	1,95	1,81	1,69	1,59	1,51	1,44	1,38	1,19	0,89	0,72	0,60
	100	3,15	2,93	2,76	2,62	2,51	2,42	2,33	2,18	2,02	1,89	1,78	1,69	1,61	1,54	1,38	1,12	0,89	0,74
	140	3,50	3,26	3,08	2,93	2,80	2,70	2,61	2,45	2,33	2,23	2,10	2,00	1,90	1,82	1,63	1,42	1,25	1,04
160	60	3,04	2,83	2,66	2,52	2,36	2,23	2,11	1,93	1,79	1,67	1,58	1,50	1,39	1,27	1,02	0,77	0,61	0,51
	80	3,34	3,11	2,93	2,78	2,66	2,56	2,44	2,23	2,06	1,93	1,82	1,73	1,65	1,58	1,36	1,02	0,82	0,68
	100	3,59	3,34	3,15	2,99	2,87	2,76	2,66	2,49	2,30	2,16	2,03	1,93	1,84	1,76	1,58	1,27	1,02	0,85
	120	3,80	3,54	3,34	3,18	3,04	2,93	2,83	2,66	2,52	2,36	2,23	2,11	2,02	1,93	1,73	1,50	1,22	1,02
	160	4,17	3,88	3,66	3,49	3,34	3,21	3,11	2,93	2,78	2,66	2,56	2,44	2,32	2,23	1,99	1,73	1,55	1,36
180	80	3,75	3,49	3,29	3,13	3,00	2,88	2,74	2,50	2,32	2,17	2,05	1,94	1,85	1,77	1,53	1,15	0,92	0,77
	180	4,85	4,52	4,27	4,07	3,90	3,75	3,63	3,42	3,25	3,11	3,00	2,89	2,77	2,65	2,38	2,06	1,84	1,68
200	80	4,16	3,88	3,65	3,47	3,33	3,20	3,04	2,78	2,57	2,41	2,27	2,16	2,06	1,97	1,70	1,27	1,02	0,85
	100	4,47	4,16	3,93	3,74	3,58	3,44	3,33	3,10	2,87	2,69	2,54	2,41	2,30	2,20	1,97	1,59	1,27	1,06
	120	4,74	4,41	4,16	3,96	3,80	3,65	3,53	3,33	3,14	2,94	2,78	2,64	2,52	2,41	2,16	1,87	1,53	1,27
	140	4,97	4,63	4,37	4,16	3,99	3,84	3,71	3,50	3,33	3,18	3,00	2,85	2,72	2,60	2,33	2,02	1,78	1,49
	160	5,18	4,83	4,56	4,35	4,16	4,01	3,88	3,65	3,47	3,33	3,20	3,04	2,90	2,78	2,49	2,16	1,93	1,70
	200	5,55	5,18	4,90	4,66	4,47	4,31	4,16	3,93	3,74	3,58	3,44	3,33	3,22	3,10	2,78	2,41	2,16	1,97
240	80	4,98	4,64	4,38	4,16	3,99	3,83	3,64	3,33	3,09	2,89	2,73	2,59	2,47	2,36	2,03	1,53	1,22	1,02
	100	5,35	4,98	4,70	4,47	4,29	4,13	3,99	3,72	3,44	3,23	3,04	2,89	2,76	2,64	2,36	1,91	1,53	1,27
	120	5,66	5,28	4,98	4,74	4,55	4,38	4,23	3,99	3,77	3,53	3,33	3,16	3,02	2,89	2,59	2,24	1,83	1,53
	140	5,94	5,54	5,23	4,98	4,78	4,60	4,45	4,19	3,99	3,81	3,59	3,41	3,25	3,12	2,79	2,42	2,14	1,78
	160	6,19	5,78	5,46	5,20	4,98	4,80	4,64	4,38	4,16	3,99	3,83	3,64	3,48	3,33	2,98	2,59	2,32	2,03
	200	6,41	5,99	5,66	5,40	5,17	4,98	4,82	4,55	4,33	4,14	3,99	3,85	3,68	3,53	3,16	2,74	2,46	2,24
280	100	6,22	5,80	5,47	5,21	4,99	4,81	4,65	4,33	4,01	3,76	3,55	3,37	3,21	3,08	2,76	2,22	1,78	1,49
	120	6,58	6,14	5,80	5,52	5,29	5,10	4,93	4,65	4,39	4,11	3,88	3,68	3,52	3,37	3,02	2,62	2,14	1,78
	140	6,90	6,44	6,09	5,80	5,56	5,36	5,18	4,88	4,65	4,43	4,18	3,97	3,79	3,63	3,25	2,82	2,49	2,08
	160	7,18	6,71	6,35	6,05	5,80	5,59	5,40	5,10	4,85	4,65	4,47	4,24	4,05	3,88	3,48	3,02	2,70	2,37
	180	7,44	6,96	6,58	6,28	6,02	5,80	5,61	5,29	5,04	4,83	4,65	4,49	4,29	4,11	3,68	3,20	2,86	2,62
	200	7,67	7,18	6,80	6,48	6,22	6,00	5,80	5,47	5,21	4,99	4,81	4,65	4,50	4,33	3,88	3,37	3,02	2,76
320	120	7,49	7,00	6,61	6,30	6,04	5,82	5,62	5,30	5,01	4,69	4,43	4,21	4,01	3,84	3,44	2,99	2,44	2,03
	140	7,85	7,34	6,94	6,61	6,34	6,11	5,91	5,57	5,30	5,06	4,77	4,53	4,33	4,15	3,72	3,22	2,84	2,37
	160	8,17	7,64	7,23	6,89	6,61	6,37	6,16	5,82	5,53	5,30	5,10	4,84	4,62	4,43	3,97	3,44	3,08	2,71
	180	8,46	7,92	7,49	7,15	6,86	6,61	6,40	6,04	5,75	5,51	5,30	5,12	4,89	4,69	4,21	3,65	3,27	2,99
360	200	8,72	8,17	7,74	7,38	7,09	6,83	6,61	6,24	5,94	5,70	5,48	5,30	5,14	4,94	4,43	3,84	3,44	3,15
	120	8,40	7,85	7,42	7,07	6,78	6,53	6,32	5,96	5,62	5,27	4,97	4,73	4,51	4,32	3,87	3,36	2,74	2,29
	140	8,80	8,23	7,78	7,42	7,12	6,86	6,63	6,26	5,96	5,68	5,36	5,09	4,86	4,66	4,18	3,62	3,19	2,67
	160	9,15	8,57	8,11	7,73	7,42	7,15	6,92	6,53	6,22	5,96	5,72	5,44	5,19	4,97	4,46	3,87	3,47	3,04
400	180	9,47	8,87	8,40	8,02	7,70	7,42	7,18	6,78	6,46	6,19	5,96	5,76	5,50	5,27	4,73	4,10	3,68	3,36
	200	9,75	9,15	8,67	8,28	7,95	7,67	7,42	7,01	6,68	6,40	6,16	5,96	5,78	5,55	7,97	4,32	3,87	3,54
	120	9,30	8,70	8,22	7,84	7,52	7,24	7,01	6,61	6,24	5,85	5,52	5,24	5,01	4,80	4,30	3,73	3,04	2,54
	140	9,73	9,11	8,62	8,22	7,89	7,61	7,36	6,94	6,61	6,30	5,95	5,65	5,40	5,17	4,64	4,02	3,54	2,96
440	160	10,12	9,48	8,98	8,57	8,22	7,93	7,67	7,24	6,90	6,61	6,35	6,03	5,76	5,52	4,95	4,30	3,85	3,38
	180	10,46	9,81	9,30	8,88	8,53	8,22	7,96	7,52	7,16	6,86	6,61	6,39	6,10	5,85	5,24	4,55	4,08	3,73
	200	10,78	10,12	9,60	9,17	8,81	8,49	8,22	7,77	7,40	7,10	6,84	6,61	6,41	6,15	5,52	4,80	4,30	3,93
	120	10,19	9,54	9,02	8,61	8,26	7,96	7,70	7,26	6,85	6,42	6,06	5,76	5,50	5,27	4,72	4,10	3,34	2,79
480	140	10,66	9,99	9,46	9,02	8,66	8,35	8,08	7,63	7,26	6,92	6,54	6,21	5,93	5,68	5,10	4,42	3,89	3,25
	160	11,08	10,39	9,84	9,40	9,02	8,70	8,42	7,96	7,58	7,26	6,97	6,62	6,33	6,06	5,44	4,72	4,23	3,71
	180	11,45	10,75	10,19	9,74	9,35	9,02	8,74	8,26	7,86	7,54	7,26	7,01	6,70	6,42	5,76	5,01	4,49	4,10
	200	11,79	11,08	10,51	10,05	9,66	9,32	9,02	8,53	8,13	7,80	7,51	7,26	7,04	6,76	6,06	5,27	4,72	4,32
600	120	11,08	10,38	9,82	9,37	8,99	8,66	8,38	7,91	7,46	6,99	6,61	6,28	5,99	5,74	5,15	4,47	3,64	3,04
	140	11,59	10,86	10,29	9,82	9,43	9,09	8,80	8,31	7,91	7,53	7,12	6,77	6,46	6,19	5,55	4,82	4,24	3,54
	160	12,03	11,29	10,71	10,23	9,82	9,47	9,17	8,66	8,25	7,91	7,59	7,22	6,89	6,61	5,93	5,15	4,62	4,04
	180	12,43	11,68	11,08	10,59	10,18	9,82	9,51	8,99	8,57	8,21	7,91	7,64	7,29	6,99	6,28	5,46	4,89	4,47
600	200	12,79	12,03	11,43	10,93	10,50	10,14	9,82	9,29	8,85	8,49	8,18	7,91	7,67	7,36	6,61	5,74	5,15	4,71
	120	13,71	12,86	12,19	11,64	11,17	10,78	10,43	9,85	9,28	8,71	8,23	7,82	7,47	7,16	6,42	5,58	4,54	3,79
	140	14,31	13,44	12,75	12,19	11,71	11,30	10,94	10,34	9,85	9,37	8,86	8,42	8,05	7,71	6,92	6,02	5,29	4,42
	160	14,84	13,96	13,26	12,68	12,19	11,77	11,40	10,78	10,27	9,85	9,44	8,98	8,58	8,23	7,39	6,42	5,76	5,04
600	180	15,31	14,42	13,71	13,12	12,62	12,19	11,81	11,17	10,66	10,22	9,85	9,50	9,08	8,71	7,82	6,80	6,10	5,58
	200	15,74	14,84	14,12	13,52	13,01	12,57	12,19	11,54	11,01	10,56	10,18	9,85	9,54	9,15	8,23	7,16	6,42	5,87

Querkraft beim Auflager ist maßgebend.
 Die zulässige Biegespannung ist maßgebend für die Bemessung.
 Durchbiegung ist maßgebend.

BRETTSCHICHTHOLZ BSH BEMESSUNG

Stützen und Säulen (quadratisch)

Maximale Last (KN) für quadratische Stützen

Breite/Höhe (mm)	Knicklänge (m)																		
	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00	4,25	4,50	4,75	5,00	5,50	6,00	6,50	7,00	8,00	9,00
60	8,3	6,6	5,3	4,4	3,7	3,2	2,8	2,4	2,1	1,9	1,7	1,5	1,4	1,1	-	-	-	-	-
80	25,3	20,3	16,6	13,8	11,7	10,0	8,6	7,5	6,6	5,9	5,3	4,7	4,3	3,5	3,0	2,5	2,2	1,7	1,3
100	58,0	47,8	39,5	33,1	28,1	24,1	20,9	18,2	16,1	14,3	12,8	11,5	10,4	8,6	7,3	6,2	5,3	4,1	3,3
120	104	91,7	78,4	66,6	56,9	49,1	42,6	37,4	33,0	29,4	26,3	23,6	21,4	17,7	15,0	12,8	11,0	8,5	6,7
140	155	146	133	117	102	88,6	77,5	68,2	60,4	53,8	48,2	43,4	39,3	32,7	27,5	23,5	20,4	15,7	12,4
160	209	203	194	180	163	145	128	114	101	90,5	81,2	73,3	66,4	55,3	46,7	39,9	34,6	26,6	21,1
180	270	265	258	249	234	216	196	176	158	142	128	116	105	87,8	74,3	63,6	55,1	42,4	33,7
200	337	333	327	320	310	295	276	255	232	211	191	174	158	132	112	96,3	83,4	64,3	51,1

Deckenelemente

Maximale Spannweite (m) für Deckenelemente unter Einhaltung der zulässigen Biegespannung und der Durchbiegungsbeschränkung L/300 und der maximalen Querkraft am Auflager, ohne Schwingungsnachweis von Holzdecken

Höhe (mm)	Belastung (kN/m²)																	
	1,00	1,50	2,00	2,50	3,00	3,50	4,00	4,50	5,00	5,50	6,00	6,50	7,00	7,50	8,00	8,50	9,00	
100	5,39	4,90	4,54	4,28	4,06	3,89	3,74	3,61	3,49	3,39	3,31	3,22	3,15	3,08	3,02	2,97	2,91	
120	6,33	5,78	5,38	5,08	4,83	4,62	4,45	4,30	4,17	4,05	3,95	3,85	3,76	3,69	3,61	3,55	3,84	
140	7,24	6,64	6,20	5,86	5,58	5,35	5,16	4,98	4,83	4,70	4,58	4,47	4,37	4,28	4,20	4,12	4,05	
160	8,11	7,48	7,00	6,63	6,23	6,07	5,85	5,66	5,49	5,34	5,21	5,09	4,98	4,87	4,78	4,69	4,61	
180	8,96	8,29	7,79	7,38	7,05	6,78	6,54	6,33	6,14	5,98	5,83	5,70	5,57	5,46	5,36	5,26	5,17	
200	9,79	9,09	8,55	8,13	7,77	7,47	7,21	6,99	6,79	6,61	6,45	6,30	6,17	6,04	5,93	5,82	5,73	
220	10,60	9,87	9,31	8,85	8,48	8,16	7,88	7,64	7,43	7,23	7,06	6,90	6,76	6,62	6,50	6,38	6,28	
240	11,38	10,63	10,05	9,57	9,18	8,84	8,54	8,29	8,06	7,85	7,67	7,50	7,34	7,20	7,06	6,94	6,83	

Wandelemente

Maximale Last (KN) für Wandelemente (Breite 1.000 mm)

Höhe (mm)	Knicklänge (m)																		
	2,00	2,25	2,50	2,75	3,00	3,25	3,50	3,75	4,00	4,25	4,50	4,75	5,00	5,50	6,00	6,50	7,00	8,00	9,00
100	580	478	395	331	281	241	209	182	161	143	128	115	104	86,1	72,5	61,9	53,5	41,1	32,5
120	868	764	653	555	475	409	355	311	275	245	219	197	178	148	125	106	92	70,1	56
140	1106	1042	947	835	727	633	554	487	431	384	344	310	281	233	197	168	145	112	88,6
160	1309	1271	1212	1126	1019	907	803	711	633	565	508	458	415	346	292	250	216	166	132
180	1500	1473	1435	1381	1303	1202	1090	980	879	790	712	644	585	488	413	353	306	236	187
200	1685	1664	1636	1600	1548	1476	1382	1273	1161	1054	956	868	791	662	561	481	417	322	255
220	1867	1849	1827	1800	1764	1715	1648	1561	1456	1344	1233	1128	1033	870	740	636	552	426	339
240	2048	2032	2014	1991	1964	1928	1881	1818	1737	1638	1528	1415	1306	1110	949	818	711	550	439

Maximale Lasten für andere Wandelementbreiten können aus dem Breitenverhältnis berechnet werden (z.B. bei einer Breite von 640 mm wird der Tabellenwert mit 0,64 multipliziert)

Hinweis: alle Bemessungstabellen dienen ausschließlich als Dimensionierungshilfe und ersetzen keine statische Berechnung, die nur von befugten Personen durchgeführt werden darf.

KONSTRUKTIONSVOLLHOLZ KVH®

Konstruktionsvollholz KVH® ist ein speziell für die hohen Anforderungen des modernen Holzbaus entwickelter Baustoff mit exakt definierten Produkteigenschaften. KVH® ist ein technisch getrocknetes, festigkeitssortiertes und keilgezinktes Vollholzprodukt aus Fichte. KVH® unterliegt zusätzlichen, über die allgemeinen bauaufsichtlichen Anforderungen hinausgehenden Kontrollen. Die zusätzliche betriebliche Qualitätskontrolle und die zusätzliche Fremdüberwachung erfolgt dabei gemäß der Kriterien der Vereinbarungen über Konstruktionsvollholz KVH®.



Holzart	Fichte
Sortierklasse	S10, C24
Qualität	Nichtsicht-Qualität, gehobelt und gefast
Keilzinkenverleimung	Polyurethan (PUR)
Längen	Standardlänge 13 m (paketweise, weitere Längen auf Anfrage)



Lagerquerschnitte 13 m

Breite (mm)	Höhe (mm)												
	80	100	120	140	145	160	180	200	220	240	260	280	
45			80 10 x 8		64 8 x 8				40 5 x 8				
60	90 15 x 6	72 12 x 6	60 10 x 6	48 8 x 6		42 7 x 6	36 6 x 6	36 6 x 6	30 5 x 6	30 5 x 6	24 4 x 6	24 4 x 6	
80	75 15 x 5	60 12 x 5	50 10 x 5	40 8 x 5		35 7 x 5	30 6 x 5	30 6 x 5	25 5 x 5	25 5 x 5	20 4 x 5	20 4 x 5	
100		48 12 x 4	40 10 x 4	32 8 x 4		28 7 x 4	24 6 x 4	24 6 x 4	20 5 x 4	20 5 x 4	16 4 x 4	16 4 x 4	
120			30 10 x 3	24 8 x 3		21 7 x 3	18 6 x 3	18 6 x 3	15 5 x 3	15 5 x 3			

Angaben in Stück / Paket und Stück / Lage x Lagen

nicht ständig lagernd

KONSTRUKTIONSHOLZ BKH in 5 m nicht keilgezinkt

Konstruktionsholz BKH in 5m ist nicht keilgezinkt und ebenso wie KVH® visuell nach Festigkeit sortiert, technisch getrocknet und gehobelt.

Holzart	Fichte
Sortierklasse	S10, C24
Qualität	Nichtsicht-Qualität, egalisiert und gefast
Längen	Standardlänge 5 m

Lagerquerschnitte

Breite (mm)	Höhe (mm)							
	60	80	100	120	140	160	180	200
40	180 20 x 9	135 15 x 9						
60	120 20 x 6	90 15 x 6	72 12 x 6	60 10 x 6	48 8 x 6	42 7 x 6	36 6 x 6	36 6 x 6
80		75 15 x 5	60 12 x 5	50 10 x 5	40 8 x 5			

Angaben in Stück / Paket und Stück / Lage x Lagen

KONSTRUKTIONSVOLLHOLZ KVH® BELASTUNGSTABELLE

Belastung (KN/m)	Einfeldträger												Zweifeldträger											
	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7	1,5	2	2,5	3	3,5	4	4,5	5	5,5	6	6,5	7
Querschnitt (mm)	max. Feldlänge (m)												max. Feldlänge (m)											
60/80	1,63	1,48	-	-	-	-	-	-	-	-	-	-	1,94	1,68	1,5	-	-	-	-	-	-	-	-	-
60/100	2,04	1,85	1,72	1,61	1,54	-	-	-	-	-	-	-	2,42	2,10	1,87	1,70	1,58	-	-	-	-	-	-	-
60/120	2,45	2,22	2,07	1,93	1,84	1,70	1,60	1,51	-	-	-	-	2,90	2,52	2,24	2,04	1,90	1,78	1,68	1,58	-	-	-	-
60/140	2,86	2,59	2,41	2,26	2,14	1,98	1,87	1,76	1,68	1,61	1,55	1,49	3,38	2,94	2,61	2,38	2,21	2,08	1,96	1,85	1,76	1,69	1,63	1,57
60/160	3,27	2,97	2,76	2,58	2,44	2,27	2,13	2,02	1,92	1,84	1,77	1,70	3,87	3,36	2,99	2,72	2,53	2,37	2,24	2,11	2,01	1,93	1,86	1,79
60/180	3,67	3,34	3,10	2,91	2,73	2,55	2,40	2,27	2,17	2,07	1,99	1,91	4,35	3,78	3,36	3,06	2,85	2,67	2,52	2,38	2,26	2,17	2,09	2,01
60/200	4,08	3,71	3,45	3,23	3,03	2,83	2,67	2,52	2,41	2,31	2,22	2,13	4,83	4,20	3,73	3,40	3,17	2,96	2,79	2,64	2,52	2,42	2,32	2,24
60/220	4,49	4,08	3,79	3,56	3,33	3,12	2,93	2,78	2,66	2,54	2,44	2,34	5,31	4,62	4,10	3,74	3,48	3,26	3,07	2,91	2,77	2,66	2,55	2,46
60/240	4,90	4,45	4,14	3,88	3,63	3,40	3,20	3,03	2,9	2,77	2,66	2,55	5,79	5,04	4,47	4,08	3,80	3,55	3,35	3,17	3,02	2,9	2,78	2,68
80/100	2,25	2,04	1,90	1,78	1,69	1,62	1,54	-	-	-	-	-	2,79	2,42	2,16	1,98	1,82	1,70	1,61	1,53	-	-	-	-
80/120	2,70	2,45	2,28	2,14	2,03	1,94	1,85	1,75	1,67	1,60	1,53	1,46	3,35	2,91	2,59	2,37	2,19	2,05	1,93	1,84	1,75	1,68	1,61	-
80/140	3,14	2,86	2,65	2,49	2,37	2,27	2,16	2,04	1,95	1,87	1,79	1,71	3,90	3,39	3,03	2,76	2,56	2,39	2,26	2,14	2,04	1,96	1,88	1,80
80/160	3,59	3,27	3,03	2,85	2,71	2,59	2,47	2,34	2,22	2,13	2,05	1,96	4,46	3,88	3,46	3,15	2,93	2,74	2,58	2,45	2,33	2,24	2,15	2,06
80/180	4,04	3,68	3,40	3,21	3,04	2,91	2,77	2,63	2,50	2,40	2,31	2,21	5,01	4,36	3,90	3,55	3,29	3,08	2,91	2,76	2,63	2,52	2,42	2,32
80/200	4,49	4,09	3,78	3,57	3,38	3,23	3,08	2,92	2,77	2,67	2,56	2,46	5,57	4,85	4,33	3,94	3,66	3,43	3,23	3,07	2,92	2,79	2,68	2,58
80/220	4,93	4,50	4,15	3,92	3,72	3,56	3,39	3,22	3,05	2,93	2,82	2,71	6,12	5,33	4,77	4,33	4,03	3,77	3,56	3,37	3,21	3,07	2,95	2,84
80/240	5,38	4,91	4,53	4,28	4,06	3,88	3,7	3,51	3,32	3,20	3,08	2,96	6,68	5,82	5,2	4,72	4,4	4,12	3,88	3,68	3,5	3,35	3,22	3,1
100/100	2,42	2,20	2,04	1,92	1,82	1,75	1,68	1,61	1,56	1,49	-	-	3,12	2,70	2,42	2,20	2,05	1,91	1,80	1,71	1,63	1,56	1,50	-
100/120	2,90	2,64	2,45	2,30	2,19	2,10	2,02	1,94	1,87	1,79	1,72	1,65	3,74	3,24	2,91	2,64	2,46	2,29	2,16	2,05	1,96	1,88	1,80	1,73
100/140	3,39	3,08	2,86	2,69	2,55	2,45	2,35	2,26	2,18	2,09	2,06	1,98	4,36	3,79	3,39	3,09	2,87	2,68	2,52	2,39	2,28	2,19	2,10	2,02
100/160	3,87	3,52	3,27	3,07	2,92	2,80	2,69	2,59	2,49	2,39	2,41	2,31	4,98	4,33	3,88	3,53	3,28	3,06	2,88	2,73	2,61	2,51	2,40	2,30
100/180	4,35	3,96	3,68	3,45	3,28	3,14	3,02	2,91	2,81	2,68	2,75	2,65	5,59	4,87	4,36	3,97	3,69	3,45	3,25	3,08	2,94	2,82	2,70	2,59
100/200	4,83	4,40	4,09	3,83	3,65	3,49	3,36	3,24	3,12	2,98	3,10	2,98	6,21	5,41	4,85	4,41	4,10	3,83	3,61	3,42	3,27	3,14	3,00	2,88
100/220	5,32	4,84	4,50	4,22	4,01	3,84	3,69	3,56	3,43	3,28	3,44	3,31	6,83	5,96	5,33	4,86	4,51	4,22	3,97	3,76	3,59	3,45	3,30	3,16
100/240	5,80	5,28	4,91	4,6	4,38	4,19	4,03	3,89	3,74	3,58	3,44	3,31	7,45	6,50	5,82	5,30	4,92	4,60	4,33	4,10	3,92	3,77	3,60	3,45
120/120	3,08	2,80	2,6	2,44	2,33	2,22	2,14	2,07	2,00	1,94	1,88	1,81	4,08	3,55	3,17	2,9	2,68	2,5	2,37	2,25	2,15	2,06	1,97	1,9
120/140	3,60	3,27	3,03	2,85	2,72	2,59	2,50	2,41	2,33	2,27	2,20	2,11	4,77	4,15	3,70	3,39	3,13	2,92	2,77	2,63	2,51	2,40	2,30	2,21
120/160	4,11	3,73	3,46	3,26	3,10	2,96	2,85	2,75	2,67	2,59	2,51	2,42	5,45	4,74	4,24	3,87	3,58	3,33	3,16	3,00	2,87	2,74	2,62	2,53
120/180	4,63	4,20	3,90	3,67	3,49	3,34	3,21	3,10	3,00	2,92	2,83	2,72	6,14	5,34	4,77	4,36	4,03	3,75	3,56	3,38	3,23	3,08	2,95	2,84
120/200	5,15	4,67	4,33	4,08	3,88	3,71	3,57	3,44	3,33	3,24	3,14	3,02	6,83	5,93	5,30	4,85	4,48	4,17	3,95	3,75	3,58	3,42	3,28	3,15
120/220	5,66	5,13	4,76	4,49	4,26	4,08	3,92	3,78	3,67	3,57	3,46	3,33	7,51	6,53	5,84	5,33	4,93	4,58	4,35	4,13	3,94	3,76	3,60	3,47
120/240	6,18	5,60	5,19	4,90	4,65	4,45	4,28	4,12	4,00	3,89	3,77	3,63	8,20	7,12	6,37	5,82	5,38	5,00	4,74	4,50	4,30	4,10	3,93	3,78

Hinweis: alle Bemessungstabellen dienen ausschließlich als Dimensionierungshilfe und ersetzen keine statische Berechnung, die nur von befugten Personen durchgeführt werden darf.



BRETTSCHICHTHOLZ BSH SONDERBAU

Unter Brettschichtholz Sonderbauteilen versteht man Dimensionen, welche über die Standardmaße hinausgehen, aber auch Formen wie z.B. überhöhte Träger, Pultdachträger, Bogenbinder und freie Formen. Diese sind ausschließlich auf Anfrage erhältlich.



Abundleistung und Sonderbearbeitung

Von einfachen Zuschnitten bis hin zu montagefertigen Konstruktionen kann eine Vielzahl von Abundleistungen angeboten werden. Durch die CNC Bearbeitung können komplexe Holzverbindungen von unseren Abbundmaschinen effizient und kostengünstig gefertigt werden.

Vorbereitung für Abundleistungen:

Mit folgenden Dateien können wir eine schnellere Abwicklung gewährleisten: Cadwork (.3d), Dietrich (.zbw), ACIS (.sat), Hundegger (.bvn), Krüsi (.btl). Es empfiehlt sich, zusätzliche Einzelstabzeichnung (Cadwork .2d oder PDF) beizulegen.

Sonderverleimungen wie Schraub-Press-Verleimungen.

Verbindungsmittel können auf Wunsch vormontiert oder mitgeliefert werden.

Traditionelle Verbindungsmittel z.B. Schwalbenschwanzverbindung

Moderne Verbindungsmittel z.B. Sherpa-Verbindungen

Imprägnierungen

Leimbinderschutz - farbloses, nicht schichtbildendes Holzbeschichtungsmittel zum Transport- und Montageschutz

Imprägnierungen - farblose, wässrige Imprägnierungen zum Schutz vor Fäulnis, Bläue, Insekten und Termiten

Farbanstriche auf Anfrage möglich! Die Farbe muss vom Kunden bereitgestellt werden.

Zusätzliche Dienstleistungen

Technische Beratung

Transport Organisation von Sondertransporten, erforderlichen Genehmigungen und Begleitfahrzeugen.

Ausführungsplanung kann von unserem technischen Team gefertigt werden.




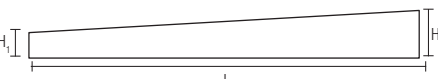
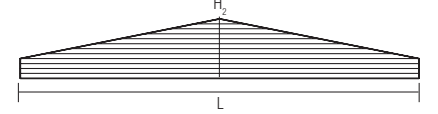
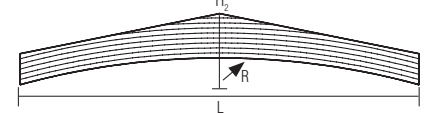
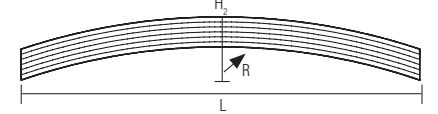
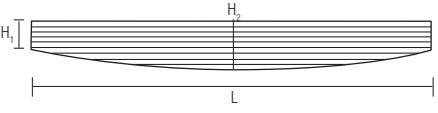
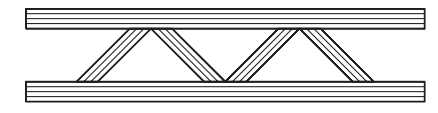

Wichtig! Sonderbauteile gehen erst nach Planrückbestätigung seitens des Kunden in Produktion. Erst danach kann das Lieferdatum bekannt gegeben werden.



BRETTSCHICHTHOLZ SONDERBAUTEILE

Holzart	Fichte
Festigkeitsklassen	GL 24c, GL 28c, GL 32c, I GL 24h, GL 28h, GL 32h
Qualität	Sicht-Qualität, Nichtsicht-Qualität
Flächen- und Keilzinkverleimung	modifiziertes Melaminharz, für NKL 1-3, uv- und witterungsbeständig, hell
Breite	100 - 480 mm (in 20 mm Schritten - ab 260 mm Blockverleimung)
Höhe	bis 2.000 mm (in 40 mm Schritten)
Längen	6 - 32,5 m *

* bei gebogenen Brettschichtholzelementen zählt das äußere Bogenmaß

Brettschichtholz - Sonderbauteile		Spannweiten (m)	Breite (mm)	Höhe (mm)
Parallelträger		6 - 32,5	100 - 260	max. 2.000
Blockverleimung		6 - 32,5	280 - 480	max. 2.000
Überhöhter Träger		6 - 32,5	100 - 260	1.000 - 1.840 L/300
Pultdachträger		6 - 32,5	100 - 260	H ₂ max. 2.000
Satteldachbinder mit geradem Untergurt		6 - 32,5	100 - 260	H ₂ max. 2.000
Satteldachbinder mit gebogenem Untergurt		6 - 32,5	100 - 260	H ₂ max. 4.500 R ≥ 8 m D* = 4.000
Bogenbinder		6 - 32,5	100 - 260	H ₂ max. 4.500 R ≥ 8 m D* = 4.000
Fischbauchträger		6 - 32,5	100 - 260	H ₂ max. 2.000
Fachwerkträger		15 - 50	100 - 260	1.000 - 1.840 L/300
Freie Formen		6 - 32,5	100 - 260	R ≥ 8 m D* = 400

D* = Lamellenstärke

Weitere Formen können zusammen mit unserem technischen Team erarbeitet werden.

WICHTIGE HINWEISE ZUR HANDHABUNG UND LAGERUNG VON BRETTSCHICHTHOLZ

Verpackung, Lagerung und Klimatisierung

BSH wird immer in Wickelfolie verpackt geliefert (ausgenommen spezielle Kundenwünsche). Bei Brettschichtholzelementen wird zum Schutz vor Staplergabeln das unterste Element im Paket immer nach oben, alle weiteren mit der Sichtseite nach unten liegend verpackt. Bei Lagerung von Brettschichtholz empfiehlt es sich, die Ware ausreichend vor Witterungseinflüssen zu schützen. Die Wickel- bzw. Abdeckfolie ist nur ein kurzfristiger Transportschutz und kann keinen dauerhaften Schutz vor UV-Strahlung und Niederschläge bieten. Generell ist bei der Lagerung sicher zu stellen, dass sich der Feuchtegehalt der Brettschichthölzer durch nachteilige Einflüsse, wie z.B. aus Bodenfeuchte, Niederschlägen sowie infolge Austrocknung, nicht unzutraglich verändert. Grundsätzlich sollte eine lange Baustellenlagerung vermieden werden. Die Träger sind liegend auf planen Auflagern und/oder Unterlagshölzern zu stapeln. Die Träger müssen vollflächig aufliegen, um lokale Einpressungen zu vermeiden.

Eine unsachgemäße Lagerung kann zu bleibenden optischen und sogar statischen Schäden der Brettschichtholz Elementen führen.

Manipulation und Montage

Um eine Beschädigung von BSH im Bereich der Kanten und Flächen zu vermeiden, ist mit Sorgfalt zu hantieren. Es ist darauf zu achten, dass geeignete Hebewerkzeuge und Hebemittel (Gurte, Schlaufen mit Kantenschutz, keine Ketten zum Umreifen) verwendet werden. Besonders beim Einsatz der Sichtelemente sollte eine unnötige Verschmutzung und Beschädigung der Oberfläche und Kanten vermieden werden. Die Sichtoberflächen sollten im Bauzustand beständig gegen Verschmutzungen und/oder Beschädigungen sowie Feuchtigkeits- und Nässeeinwirkungen geschützt werden (z.B. durch Bedecken der Sichtoberfläche mit Folie, Karton und ähnliches).

Grundsätzlich können leichte Beschädigungen und Verschmutzungen durch Verladung, Transport und Montage nicht 100%ig vermieden werden. Dies ist kein Reklamationsgrund. Nacharbeiten wie Schleifen und sonstige Nachbesserungen sind bereits in der Angebotskalkulation zu berücksichtigen!

Risse / Schwindrisse

Das BSH wird mit einer Holzfeuchte von max. 15 % geliefert. Die Tatsache, dass Holz im hygroskopischen Bereich (von 0 bis 30 % Holzfeuchte) infolge von Quell- und Schwindvorgängen sein Volumen ändert, hat zur Folge, dass im Holz Schwindrisse auftreten können. Dies ist kein Reklamationsgrund.

Die Beanspruchung von Holz, vor allem im Freien, ist durch Temperatur- und Feuchtigkeitsschwankungen sehr groß. Auch bei Brettschichtholz können Schwindrisse auftreten, wenn auch in wesentlich geringerem Umfang als bei Vollholz. Bedingt durch das unterschiedliche Materialverhalten zwischen Klebstoff und Holz der verleimten Lamellen verlaufen die Schwindrisse häufig auch entlang der Leimfugen. Dabei handelt es sich dabei nicht um Fehlverklebungen, sondern um werkstoffbedingte Eigenschaften.

Abwitterung, Vergrauung

Bei freier Bewitterung vom BSH werden Abbauprodukte des durch UV-Strahlen zerstörten Lignins durch Regenwasser ausgewaschen. Diese natürliche Abwitterung des Holzes beträgt im Mittel ca. 1 mm in 10 Jahren und führt zu einer Reliefbildung der Elementoberfläche. Bei Verwendung von BSH im Außenbereich ist es grundsätzlich möglich, auf chemischen Holzschutz zu verzichten. Teilweise gibt es dazu aber bauaufsichtliche Bestimmungen, die einen konstruktiven oder chemischen Holzschutz verlangen. Wird unbehandeltes Holz der Witterung ausgesetzt, so beginnt nach wenigen Monaten der Vergrauungsprozess. Die graue Verfärbung und die nachfolgende Verwitterung der wetterbeanspruchten Elementoberfläche stellen keinen technischen Mangel dar.



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Product en systeem overzicht | Product overview

Vanaf Oktober 2016 | Status oktober 2016



Berekening aantallen systeem onderdelen vloerverwarming / -koeling

Determining the quantities of floor heating / cooling

De opgegeven aantallen dienen als richt hoeveelheden > 100 m². bij kleinere oppervlaktes kunnen er grotere afwijkingen ontstaan.

The quantities indicated are given as estimates for buildings > 100 m². For smaller areas, the accuracy of the results are slightly reduced.

Systeem Ideaal EPS 30 Systeem Ideaal NEO 20 Systeem Ideaal NEO TS 32/30		Legpatroon MIX	Legpatroon AZ	Legpatroon RZ	Systeem Ideaal OKO 30		Legpatroon MIX	Legpatroon AZ	Legpatroon RZ
		(HoH 125 + 250)	(HoH 250)	(HoH 125)			(HoH 125 + 250)	(HoH 250)	(HoH 125)
		Laying method MIX (VA 125 + 250)	Laying method AZ (VA 250)	Laying method RZ (VA 125)			Laying method MIX (VA 125 + 250)	Laying method AZ (VA 250)	Laying method RZ (VA 125)
Artikel Article	Materiaal gebruik per m ² Material requirements per m ²			Artikel Article	Materiaal gebruik per m ² Material requirements per m ²				
Algemeen zone AZ (HoH = 250 mm) Central zone AZ (VA = 250 mm)	1,26 st. 1.26 pcs.	1,46 st. 1.46 pcs.	–	Algemeen zone AZ (HoH = 250 mm) Central zone AZ (VA = 250 mm)	1,26 st. 1.26 pcs.	1,46 st. 1.46 pcs.	–		
Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	0,30 st. 0.30 pc.	–	1,46 st. 1.46 pcs.	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	0,30 st. 0.30 pc.	–	1,46 st. 1.46 pcs.		
Kopelement met aluminium K/AZ Alu (4 bochten) Head element with aluminium K/AZ ALU (four-fold)	0,19 st. 0.19 pc.	0,24 st. 0.24 pc.	–	Kopelement met aluminium K/AZ Alu (4 bochten) Head element with aluminium K/AZ ALU (four-fold)	0,76 st. 0.76 pc.	0,96 st. 0.96 pc.	–		
Kopelement met aluminium K/RZ Alu (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	0,05 st. 0.05 pc.	–	0,24 st. 0.24 pc.	Kopelement met aluminium K/RZ Alu (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	0,20 st. 0.20 pc.	–	0,96 st. 0.96 pc.		
Kopelement K/BG (1 bocht) Head element K/BG (single)	= Aantal te gebruiken groepen = Number of combined heating circuits	–	–	Kopelement K/BG (1 bocht) Head element K/BG (single)	= Aantal te gebruiken groepen = Number of combined heating circuits	–	–		
Blanco element RA Blank element RA	0,15 st. 0.15 pc.	0,25 st. 0.25 pc.	0,25 st. 0.25 pc.	Blanco element RA Blank element RA	0,12 st. 0.12 pc.	0,22 st. 0.22 pc.	0,22 st. 0.22 pc.		
Randsolisatie Ideaal EPS ¹ Edge insulation strip IDEAL EPS ¹	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	Aanvoer element ZL Supply and return element ZL	0,20 st. 0.20 pc.	0,20 st. 0.20 pc.	0,10 st. 0.10 pc.		
MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	5,00 Mtr. 5.00 per m	4,00 Mtr. 4.00 per m	8,00 Mtr. 8.00 per m	Bocht 90° 90° Curve element	0,40 st. 0.40 pc.	0,20 st. 0.20 pc.	0,30 st. 0.30 pc.		
Randhout RH 30 / RH 20 ¹ Support batten RH 30 / RH 20 ¹	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	Randsolisatie Ideaal OKO Edge insulation strip IDEAL ÖKO	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m		
Randhout RD 30 / RD 20 ¹ Threshold batten RD 30 / RD 20 ¹	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit			MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	5,00 Mtr. 5.00 per m	4,00 Mtr. 4.00 per m	8,00 Mtr. 8.00 per m		
Verdeler element VE 30 ^{1,2} Manifold element VE 30 ^{1,2}	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit			Randhout RH 30 Support batten RH 30	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.		
	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit			Randhout RD 30 Threshold batten RD 30	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit				
	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit			Verdeler element VE 30 Manifold element VE 30	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit				

















¹ voor systeem Ideaal NEO TS 32/30 dient de randsolisatie Ideaal NEO TS (zie pag. 13) gebruikt te worden. De rand hout delen RH 30 en RD 30 evenals het verdeler element VE 30 vervallen.

¹ For the material selection of System IDEAL NEO TS 32/30, the edge insulation strip IDEAL NEO TS 32/30 (p. 13) has to be used. Support batten RH 30, Threshold batten RD 30 and Manifold element VE 30 are not needed.

² Bij systeem IDEAL NEO 20 het stalen lasten verdeel lamel gebruiken.

² With system IDEAL NEO 20, use load bearing sheets (steel).



Systeem Ideaal TOP 15		Legpatroon 150 mm Installation gap 150 mm	Systeem BASIC EPS 30		Legpatroon 166 mm Installation gap 166 mm
Artikel Article		Materiaal gebruik per m ² Material requirements per m ²	Artikel Article		Materiaal gebruik per m ² Material requirements per m ²
	Verwarmingselement (HoH = 150 mm) Heating element (VA = 150 mm)	1,00 st. 1.00 pcs.		Verwarmingselement (HoH = 166 mm) Heating element (VA = 166 mm)	1,45 st. 1.45 pcs.
	Combi element (blanco en bocht element) (HoH = 150mm) Combined element (head and blank element) (VA = 150 mm)	0,17 st. 0.17 pc.		Kopfelement ohne Aluminium (6 Bögen) Head element without aluminium (6 arcs)	0,25 st. 0.25 pc.
	Randisolatie Ideaal EPS Edge insulation strip IDEAL EPS	1,00 Mtr. 1.00 per m		Randelement Blank element	0,30 st. 0.30 pc.
	MFH Systeembuis, PE-RT/AL/PE-RT, 12 mm MFH composite pipe, PE-RT/AL/PE-RT, 12 mm	6,66 Mtr. 6.66 per m		Randisolatie Ideaal EPS Edge insulation strip IDEAL EPS	1,00 Mtr. 1.00 per m
	Randhout RH 15 Support batten RH 15	1,20 st. 1.20 pcs.		MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	6,00 Mtr. 6.00 per m
	Randhout RD 15 Threshold batten RD 15	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit		Randhout RH Support batten RH	1,20 st. 1.20 pcs.
	Warmte verdeel lamel aluminium TOP 15 Heat distribution sheet TOP 15 (aluminium)	0,77 st. 0.77 pc.		Warmte verdeel lamel aluminium BASIC Heat distribution sheet (aluminium)	0,96 st. 0.96 pc.
	Lastverteilblech Stahl Load bearing sheet (steel)	0,5 Stk. pro Heizkreis 0.5 pc. per heating circuit		Lasten verdeel lamel staal Load bearing sheet (steel)	0,5 st. per groep 0.5 pc. per heating circuit

Montage tijden | Installation Time

De genoemde montage tijden zijn praktisch waarden en dienen als calculatie hulp. De waardes gelden als richtlijn bij 1 man montage incl. buis verleggen. Indien er sprake is van verlijmen van EPS elementen en/of strongboard verhogen de tijden zich met 3 min/m² per laag.

The installation times mentioned are based on experience and serve as calculation aid. The information on the heating system relate to a fitter (1-man assembly) including the piping. If the System EPS or STRONGBOARD needs to be adhered (fixation), the times increase by about 3 min / m² per adhesive layer.

Systeem Ideaal EPS 30	Legpatroon MIX Laying method MIX	10 min / m ²	Systeem Ideaal NEO 20	Legpatroon MIX Laying method MIX	10 min / m ²	Lasten verdeel laag Thermal Conductive Layer	CompactFloor PRO	12 min / m ²
	Legpatroon AZ Laying method AZ	8 min / m ²		Legpatroon AZ Laying method AZ	8 min / m ²		CompactFloor EXPERT	20 min / m ²
	Legpatroon RZ Laying method RZ	12 min / m ²		Legpatroon RZ Laying method RZ	12 min / m ²		CompactFloor LIQUID	30 min / m ²
	Wand montage RZ Wall assembly RZ	18 min / m ²		Systeem Ideaal TOP 15	12 min / m ²		CompactFloor DIRECT	2 min / m ²
	Plafond montage Ceiling assembly	25 min / m ²		Legpatroon MIX Laying method MIX	11 min / m ²	FERMACELL droogbouw element FERMACELL dry screeds element	16 min / m ²	
Systeem Ideaal OKO 30	Legpatroon MIX Laying method MIX	14 min / m ²	Systeem Ideaal NEO TS 32/30	Legpatroon AZ Laying method AZ	9 min / m ²	Extra isolatie laag zonder rand isolatie Additional insulation without edge insulation strip		2,5 min / m ²
	Legpatroon AZ Laying method AZ	12 min / m ²		Legpatroon RZ Laying method RZ	13 min / m ²			
	Legpatroon RZ Laying method RZ	16 min / m ²		Systeem BASIC EPS 30	11 min / m ²	ESTRICHZIEGEL®	CREAPUR® zichtbaar CREAPUR® visibly	60 min / m ²
	Wand montage RZ Wall assembly RZ	22 min / m ²		STRONGBOARD FL lasten verdeel laag STRONGBOARD FL Load distribution layer	8 min / m ²		CREAPUR® onzichtbaar CREAPUR® invisibly	30 min / m ²
						KERATOP®	60 min / m ²	

Aantallen wand verwarming / -koeling | Determining the quantities wall heating / cooling

Afbeelding A | Figure A **System Ideaal EPS 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

Deze tabel dient als calculatie hulp en richtlijn voor plafondhoogtes van 2,55 M. Voor hoeveelheden materiaal vult u volgende tabel in.

This table serves as calculation aid and applies to a room height of 2.55 m. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	4,5 st. x (b - 0,5 m) 4.5 pcs. x (b - 0.5 m)	=		
	Kopelement met aluminium K/RZ ALU (4 bochten) Head element with aluminium K/RZ ALU (four-fold)		=	1,625 st. 1.625 pcs.	
	Blanco element RA Blank element RA	0,15 st. x b = 0.15 pc. x b =	=	+ 0,625 st. + 0.625 pc.	=
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	18 m x b 18 m x b	=		=
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	6 m x b 6 m x b	=		=
			=		=
			=		=

Afbeelding B | Figure B **System Ideaal OKO 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

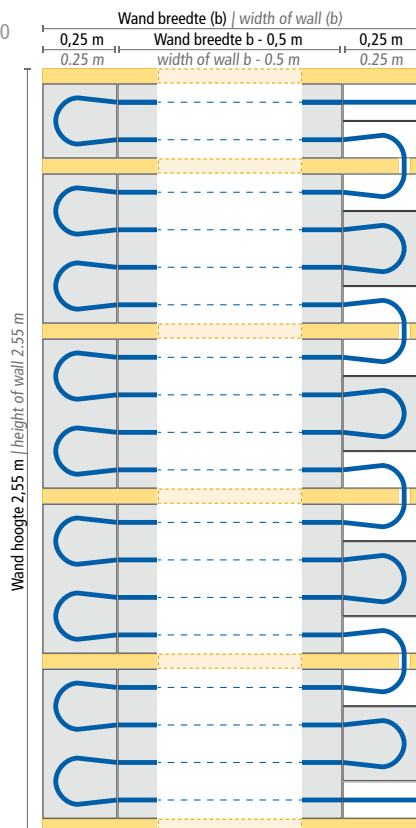
Deze tabel dient als calculatie hulp en richtlijn voor plafondhoogtes van 2,55 M. Voor hoeveelheden materiaal vult u volgende tabel in.

This table serves as calculation aid and applies to a room height of 2.55 m. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	4,5 st. x (b - 0,5 m) 4.5 pcs. x (b - 0.5 m)	=		
	Kopelement met aluminium K/RZ ALU (1 bocht) Head element with aluminium K/RZ ALU (single)		=	6,5 st. 6.5 pcs.	
	Kopelement zonder aluminium K/RZ (1 bocht) Head element without aluminium K/RZ (single)		=	2 st. 2 pcs.	
	Blanco element RA Blank element RA	0,15 st. x b 0.15 pc. x b	=		=
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	18 m x b 18 m x b	=		=
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	6 m x b 6 m x b	=		=
			=		=

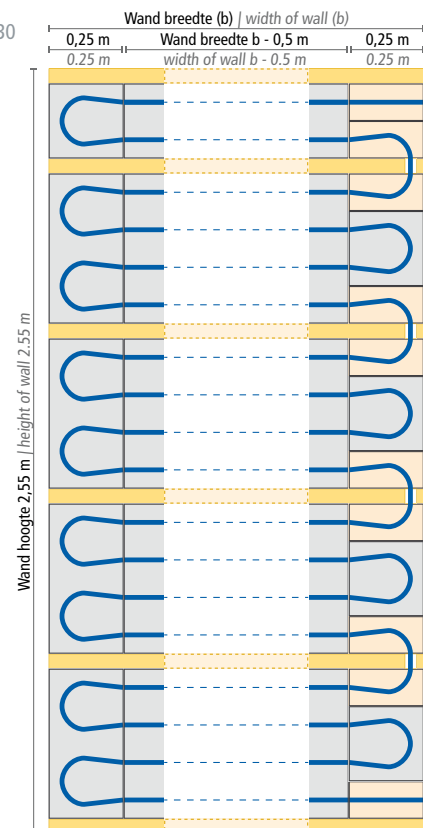
Systeme Ideaal EPS 30

Afbeelding A
Figure A



Systeme Ideaal OKO 30

Afbeelding B
Figure B











Aantallen wand/plafond verwarming / -koeling | Determining the quantities ceiling heating / cooling

Afbeelding C | Figure C **Systeem Ideaal EPS 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

Deze tabel dient als calculatie hulp en richtlijn. Voor hoeveelheden materiaal vult u volgende tabel in.

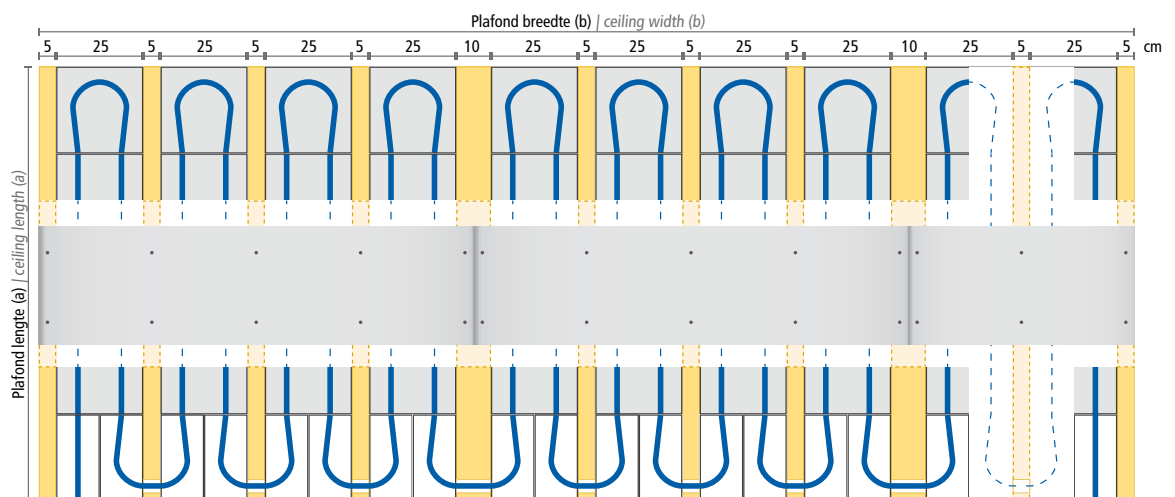
This table serves as calculation aid. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	$1,6 \text{ st.} \times b \times (a - 0,5 \text{ m}) =$ $1,6 \text{ pcs.} \times b \times (a - 0,5 \text{ m}) =$	
	Kopelement met aluminium K/RZ ALU (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	$0,4 \text{ st.} \times b =$ $0,4 \text{ pc.} \times b =$	
	Blanco element RA Blank element RA	$0,4 \text{ st.} \times b =$ $0,4 \text{ pc.} \times b =$	$+ 0,625 \text{ st.} =$ $+ 0,625 \text{ pc.} =$
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	$6,4 \text{ m} \times \text{totaal oppervlak m}^2 =$ $6,4 \text{ m} \times \text{Gesamtläche m}^2 =$	
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	$(b / 1,25 \text{ m}) \times 4 \text{ st.} \times a =$ $(b / 1,25 \text{ m}) \times 4 \text{ pcs.} \times a =$! Resultaat afronden ! ! Round up the result !
	Randhout 100 x 30 mm Counter battens, planed squared timber 100 x 30 mm	$(b / 1,25 \text{ m}) \times a =$ $(b / 1,25 \text{ m}) \times a =$! Resultaat afronden ! ! Round off the result !

Systeem Ideaal EPS 30

Afbeelding C

Figure C



Aantal berekening lasten verdeel lagen voor vloerverwarming

Determining the quantities load distribution layers for underfloor heating

Artikel	Article	Materiaal gebruik per m ²	Material requirements per m ²
	STRONGBOARD FL voor tegels en laminaat STRONGBOARD FL for tiles + laminate		1,45 st. 1.45 pcs.
	Voegen plakband STRONGBOARD FL Joint tape for STRONGBOARD FL		2,5 Mtr. 2.5 per m
	Ultrabond ECO FIX	Verlijmen van elementen Fixation of heating elements	0,1 kg 0.1 kg
		Verlijmen van STRONGBOARD FL elementen Fixation of STRONGBOARD FL elements	0,15 kg 0.15 kg

Vermogens tabel | Thermal Output

Vermogens conform DIN EN Normering 1264

$\theta_m = 35^\circ\text{C}$ $\theta_i = 20^\circ\text{C}$ $\sigma = 5 \text{ K}$ $R_{a,B} = 0,00 \text{ m}^2\text{K/W}$

Systeem Ideaal EPS 30 Systeem Ideaal OKO 30 Systeem Ideaal NEO 20	Legpatroon Algemene zone AZ (HoH = 250 mm) Laying method central zone AZ (VA = 250 mm)	Legpatroon Randzone RZ (HoH = 125 mm) Laying method edge zone RZ (VA = 125 mm)	Legpatroon Mix (AZ & RZ) (HoH = 200 mm, gemittelt) Laying method mix (AZ & RZ) (VA = 200 mm, averaged)
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>	80,4 W/m ² 80.4 W/m ²	106,7 W/m ² 106.7 W/m ²	90,9 W/m ² 90.9 W/m ²
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>	77,0 W/m ² 77.0 W/m ²	101,9 W/m ² 101.9 W/m ²	86,9 W/m ² 86.9 W/m ²
Tegels op zand-cement laag <i>Tiles on flow screed</i>	83,0 W/m ² 83.0 W/m ²	106,6 W/m ² 106.6 W/m ²	92,8 W/m ² 92.8 W/m ²
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>	56,9 W/m ² 56.9 W/m ²	73,7 W/m ² 73.7 W/m ²	63,7 W/m ² 63.7 W/m ²
Systeem Ideaal TOP 15	Legpatroon = 150 mm Installation gap = 150 mm		
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>		93,3 W/m ² 93.3 W/m ²	
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>		88,7 W/m ² 88.7 W/m ²	
Tegels op zand-cement laag <i>Tiles on flow screed</i>		97,8 W/m ² 97.8 W/m ²	
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>		64,8 W/m ² 64.8 W/m ²	
Systeem Ideaal NEO TS 32/30	Legpatroon Algemene zone AZ (HoH = 250 mm) Laying method central zone AZ (VA = 250 mm)	Legpatroon Randzone RZ (HoH = 125 mm) Laying method edge zone RZ (VA = 125 mm)	Legpatroon Mix (AZ & RZ) (HoH = 200 mm, gemittelt) Laying method mix (AZ & RZ) (VA = 200 mm, averaged)
Tegels op dunne vloei vloeren (bijv.: weber.floor 4310) <i>Tiles on thin screed (weber.floor 4310)</i>	74,3 W/m ² 74.3 W/m ²	98,1 W/m ² 98.1 W/m ²	84,0 W/m ² 84.0 W/m ²
Tegels op vloei vloeren CAF-F5 <i>Tiles on flow screed CAF-F5</i>	83,0 W/m ² 83.0 W/m ²	106,6 W/m ² 106.6 W/m ²	92,8 W/m ² 92.8 W/m ²
Tegels op zand-cement CT <i>Tiles on cement screed CT</i>	73,4 W/m ² 73.4 W/m ²	93,9 W/m ² 93.9 W/m ²	82,1 W/m ² 82.1 W/m ²
Systeem BASIC EPS 30	Legpatroon = 166 mm Installation gap = 166 mm		
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>		95,1 W/m ² 95.1 W/m ²	
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>		90,8 W/m ² 90.8 W/m ²	
Tegels op zand-cement laag <i>Tiles on flow screed</i>		97,5 W/m ² 97.5 W/m ²	
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>		66,2 W/m ² 66.2 W/m ²	



Ontwikkeling | Productie | Documentatie

De hoogste eisen binnen Jupiter hebben de ontwikkeling van moderne en innovatieve systemen voor de inzet als oppervlakte verwarming en / of koeling mogelijk gemaakt. Alle systeem elementen worden hier ontwikkeld en geoptimaliseerd.

Sinds 1998 worden de producten in onze productielokatie te Vechta gemaakt. Gedurende deze periode werden meer dan 8,5 miljoen elementen geproduceerd.

De nieuwe geautomatiseerde productielijn zorgt voor een hoge productie en leverantie zekerheid. Met onze professionele foto en film uitrusting kunnen wij op locatie foto en film materiaal maken voor documentatie en andere instructie doeleinden. Voor onze klanten staat volledige commerciële en technische documentatie ter beschikking.

Development | Production | Documentation

The company's highest priority is the development of advanced and innovative systems around surface heating and surface cooling. All system components are internally developed and continuously optimized.

Since 1998, the products are manufactured at the production site in Vechta. During this time, over 8.5 million items have been manufactured. The high level of automation ensures customers a high degree of supply and production safety.

Due to our professional photo equipment, we can provide matching images to document the possible applications. This can be done on-site or in one of our studios. For our customers, the complete technical documentation is available for free.

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www.jupiter-ideal.com

JUPITER
moderne vloerverwarming



02.11.1769 (under laminate)

MASTERPLAST
GROUP-INTERNATIONAL
w w w . m a s t e r p l a s t g r o u p . c o m

GENERAL CATALOGUE



**SUCCESSFUL BUSINESS SERVICE
PARTNER PROVIDING INSULATION
SOLUTIONS**



PERSONAL BUSINESS RELATIONS



**SALES SUPPORT FOR
OUR MAIN PARTNERS**



LOGISTICS SERVICES







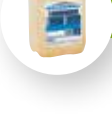


**CONTINUOUS QUALITY CONTROL
AND PRODUCT DEVELOPMENT**






PRODUCTION WITH PRIVATE LABEL

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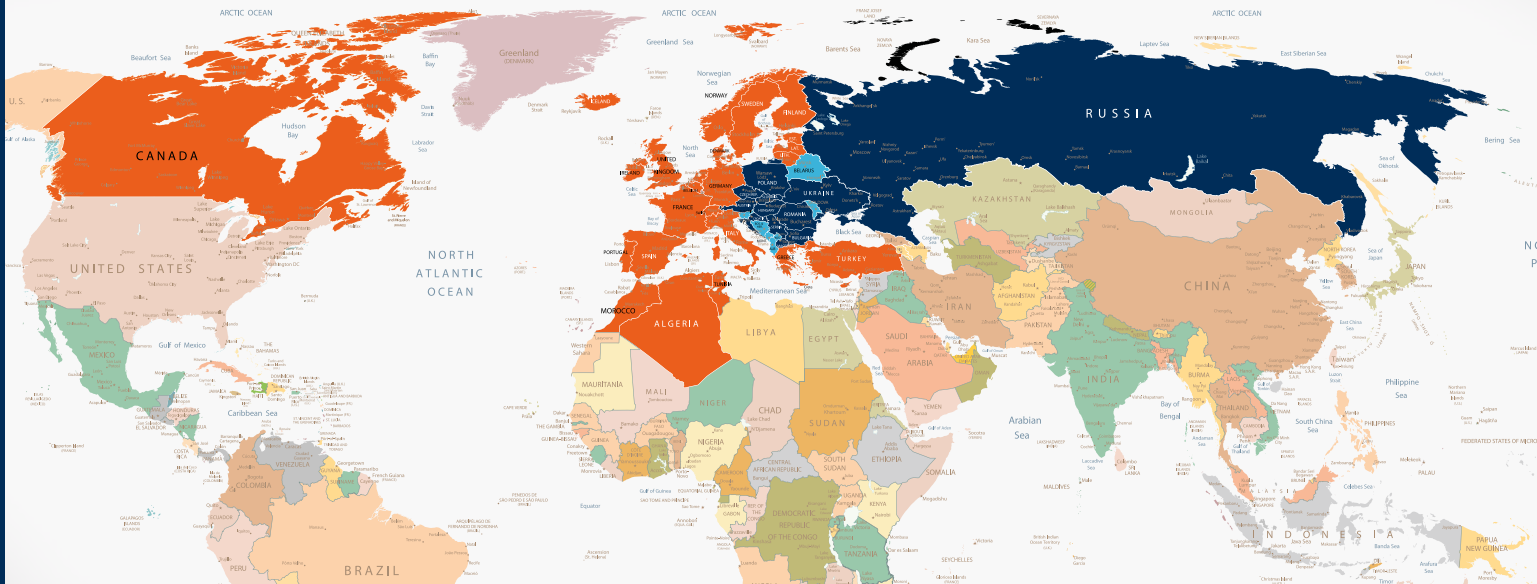
	THERMOMASTER EIFS THERMAL INSULATION SYSTEM	page 6
	ROOF MEMBRANES AND ROOF ACCESSORIES	page 10
	ASPHALT ROOF COVERING PRODUCTS	page 13
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	WATER INSULATION MATERIALS	page 18
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EXPLANATION OF THE CATALOGUE SIGNS

	Store protected against rain		Read the technical		Temperature resistance
	CE mark		Read the instruction		Resistance to water penetration or water-tightness (Class W1)
	Store protected against atmospheric exposure, especially sun-radiation and other heat sources		Fragile		Resistance to water penetration or water-tightness (Class W2)
	Available in different colours		Store vertically		
	Logo and private label option		UV resistance		

COMPANY INTRODUCTION

Masterplast was established in 1997 in Hungary for the production and wholesales of construction materials and by today the company group has its own subsidiaries in 12 countries and exports to other 30 countries in Europe and world-wide.



 **Subsidiaries**  **Strategical partners**  **Export countries**

PRODUCTS

The main product groups produced and traded by Masterplast are: thermal insulation system elements, roof accessories and roof covering articles, heat-, sound and water insulation materials, dry construction items and other construction products. The Hungarian Stock Exchange listed company Masterplast has an annual turnover of 80-85 million euro and over 650 employees.



PRODUCTION SITES IN PICTURES

Masterplast pays special attention on the product development, offers customized solutions and aims at becoming an internationally acknowledged business service provider of insulation solutions throughout its partners.

Sárszentmihály – Hungary



Kál – Hungary



Subotica – Serbia



Sfantu Gheorghe – Romania



THERMOMASTER THERMAL INSULATION SYSTEMS

SYSTEM SETUP AND GENERAL RULES OF INSTALLATION



- 1 ISOMASTER EPS H80 G Silver insulation board
- 2 THERMOMASTER FIX PREMIUM adhesive and base coat
- 3 MASTERNET PREMIUM 160 fiberglass mesh
- 4 THERMOMASTER primer (key coat)
- 5 THERMOMASTER acrylic or silicone render (finishing coat)

Socle insulation system

- 6 XPS insulation board
- 2 THERMOMASTER FIX THERMOMASTER FIX adhesive and base coat
- 7 MASTERNET PREMIUM 160 fiberglass mesh
- 17 MASTERBIT 1K thick bitumen coating
- 8 THERMOMASTER MOSAIC marble plaster

THERMOMASTER insulation system accessories

- 9 THERMOMASTER dowels
- 10 THERMOMASTER corner bead with mesh
- 11 THERMOMASTER PUR adhesive foam
- 12 THERMOMASTER W-PROF window connection profile
- 13 Hammer fix dowel
- 14 EJOT spiral anchor
- 15 EJOT profile connector
- 16 EJOT plastic spacer for socle profile
- 17 MASTERBIT 1K thick bitumen coating

MASTERNET FIBERGLASS MESH



MASTERNET PREMIUM 145 5×5 FIBERGLASS MESH (1×50 m)
MASTERNET PREMIUM 160 4×4 or 5×5 FIBERGLASS MESH (1×50 m)



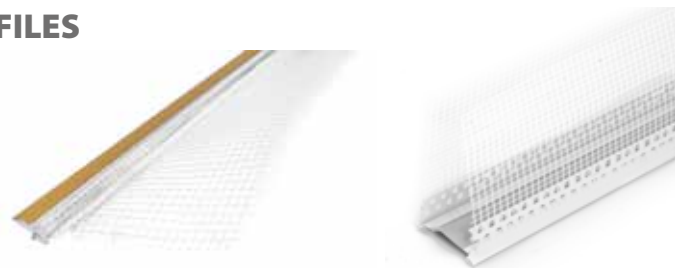
MASTERNET A-75 5×5 FIBERGLASS MESH (1×50 m)
MASTERNET A-125 5×5 FIBERGLASS MESH (1×50 m) AND TAPES
MASTERNET A-145 5×5 FIBERGLASS MESH (1×50 m)
MASTERNET A-160 5×5 FIBERGLASS MESH (1×50 m)
MASTERNET A-200 5×5 FIBERGLASS MESH (1×50 m)
MASTERNET A-90 10×10 MESH (1×50 m)
MASTERNET A-110 10×10 MESH (1×50 m)
MASTERNET PREMIUM 110 10×10 MESH (1×50 m)



THERMOMASTER CORNER BEADS AND PROFILES



THERMOMASTER PVC PROFILE (2.5 m)
THERMOMASTER ALU PROFILES 24×24, OR 12×24 (2.5 m)
THERMOMASTER PVC PROFILE WITH 7+7 MESH (125 m)
THERMOMASTER PVC PROFILE WITH 8+12 MESH (125 m)
THERMOMASTER PVC PROFILE WITH 10+10 MESH (125 m)
THERMOMASTER PVC PROFILE WITH 10+15 MESH (125 m)
THERMOMASTER ALU PROFILE WITH 7+7 MESH (125 m)
THERMOMASTER ALU PROFILE WITH 8+12 MESH (125 m)
THERMOMASTER ALU PROFILE WITH 10+10 MESH (125 m)
THERMOMASTER ALU PROFILE WITH 10+15 MESH (125 m)
THERMOMASTER PVC-B BALCONY PROFILE 2.5 m (50 m)
THERMOMASTER WINDOW CONNECTION PROFILE 6 mm 2.4 m (144 m)
THERMOMASTER WINDOW CONNECTION PROFILE 6 mm WITH MESH 2.4 m (48 m)
THERMOMASTER WINDOW CONNECTION PROFILE 9 mm 2.5 m (50 m)
THERMOMASTER WINDOW CONNECTION PROFILE 9 mm WITH MESH 2.5 m (50 m)
THERMOMASTER WALL DILLATATION PROFILE 2.5 m
THERMOMASTER PVC-FLEX ARCH FORM PROFILE 2.5 m (50 m)
THERMOMASTER UL SOCLE PROFILES 2.5 m (62.5 m)
THERMOMASTER UZ SOCLE PROFILES 2 m (50 m)
THERMOMASTER US SOCLE PROFILES 2 m (20 m)



SOCLE PROFILE ACCESSORIES

EJOT®

EJOT PLASTIC SPACERS 3 mm, 5 mm, 10 mm (100 pcs)
EJOT SOCLE PROFILE CONNECTOR 30 mm (100 pcs)

HAMMER FIX DOWELS FOR SOCLE PROFILE FIXING

6×40 mm (200 pcs), 6×60 mm (200 pcs), 6×80 mm (100 pcs)



ISOMASTER EPS INSULATION PANELS

ISOMASTER

ISOMASTER EPS

70, 80, 100, 150, 200 kPa boards (10-1250 mm THICKNESSES, 0.5 × 1 m BOARD SIZE)

ISOMASTER GRAPHITE

80, 100 kPa boards (10-1250 mm THICKNESSES, 0.5 × 1 m BOARD SIZE)

* OTHER SIZES ON DEMAND



NOBASIL ROCKWOOL INSULATION PANEL

NOBASIL FKD-S ROCKWOOL INSULATION

60-120 mm (600 × 1000 mm BOARD SIZE)



INSULATION MADE OF XPS

ISOMASTER

ISOMASTER XPS INSULATION

SVR (ROUGH SURFACE) 20-120 mm,
SVW (WAFFEL SURFACE) 20-120 mm (600 × 1000 m BOARD SIZE)

fibran^{xps}

FIBRAN XPS INSULATION

GF-I 20-160 mm (600 × 1000 m BOARD SIZE)

Styrodur®

STYRODUR XPS 2800C INSULATION

20-120 mm (600 × 1000 m BOARD SIZE)



INSULATION DOWELS

THERMOMASTER

THERMOMASTER D DOWELS 70-90-110-120-140-160 mm (250 pcs)

THERMOMASTER D-PLUS DOWELS

70-90-120-140-160-180-200-220-240-260 mm (200 pcs)

THERMOMASTER D-H DOWELS 90-110-130-150-170-190 mm (200 pcs),

215-235-255-275-295 mm (100 pcs)

THERMOMASTER D-WM DOWEL FLANGE (100 pcs)

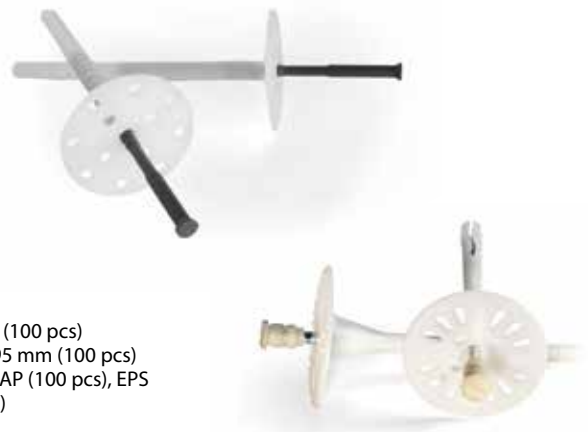
EJOT®

EJOT IDK-T 75-95-115-135,155-175 mm (200 pcs)

EJOT TID-T DOWELS 75-95-115-135,155 mm (200 pcs), 175-195,215-235-255-275-295 mm (100 pcs)

EJOT STR-U 2G DOWELS 115-135-155-175-195,215-235-255-275-295-315-335-355-375-395 mm (100 pcs)

EJOT STR ACCESSORIES: INSTALLATION TOOL, EPS CAP (100 pcs), MW (MINERAL WOOL) CAP (100 pcs), EPS PLUG (100 pcs), DRIVING BIT TX30, SDS-PLUS ADAPTER, EJOT SPIRAL ANCHOR (100 pcs)



THERMOMASTER PRIMER



THERMOMASTER PRIMER (1 L OR 5 L)



THERMOMASTER ADHESIVE AND BASE COATS



THERMOMASTER FIX ADHESIVE AND BASE COAT (25 kg/bag)
 THERMOMASTER FIX PREMIUM GREY ADHESIVE AND BASE COAT (25 kg/bag)
 THERMOMASTER FIX PREMIUM WHITE ADHESIVE AND BASE COAT (25 kg/bag)
 THERMOMASTER ROCK ADHESIVE AND BASE COAT (25 kg/bag)
 THERMOMASTER PUR ADHESIVE FOAM 750 ml (12 pcs/box)
 THERMOMASTER PUR ACCESSORIES: PUR FILLING GUN, CLEANING LIQUID (500 ml)



THERMOMASTER UNIVERSAL PRIMERS (KEY COATS)



THERMOMASTER UNIVERSAL PRIMER ACRYLIC COLOURED (5l or 16 l/bucket)
 THERMOMASTER UNIVERSAL PRIMER SILICONE COLOURED (10 kg/bucket)



THERMOMASTER ACRYLIC / SILICONE RENDERS (FINISHING COATS)



THERMOMASTER ACRYLIC RENDERS
 1.5 mm SMOOTH or 2 mm TROWELLED – COLOURED (25 kg/bucket)
 THERMOMASTER SILICONE RENDERS
 1.5 mm SMOOTH or 2 mm TROWELLED – COLOURED (25 kg/bucket)
 THERMOMASTER MOSAIC MARBLE PLASTERS
 101-112 COLOURS (15 kg/bucket)



THERMOMASTER SCAFFOLDING NET

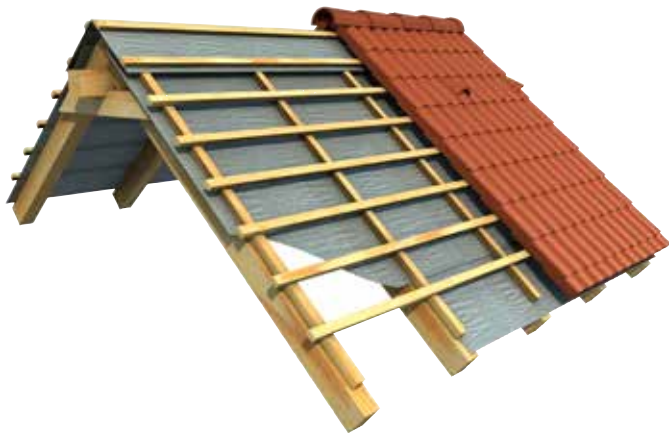


WHITE COLOUR THERMOMASTER SCAFFOLDING NET
 WITH BLUE THERMOMASTER LOGO PRINT (2.5x50 m)

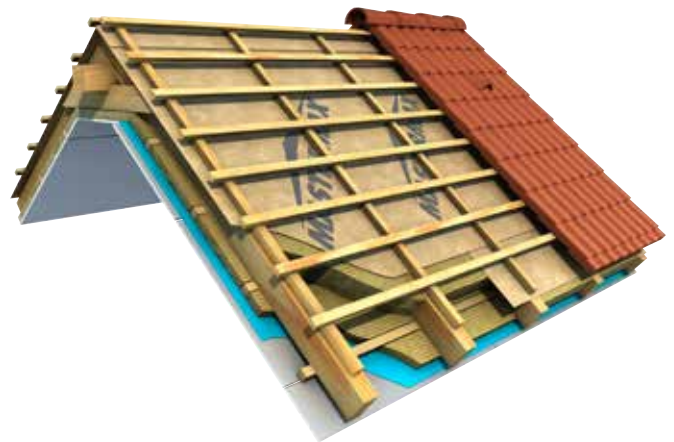


ROOF ACCESSORIES

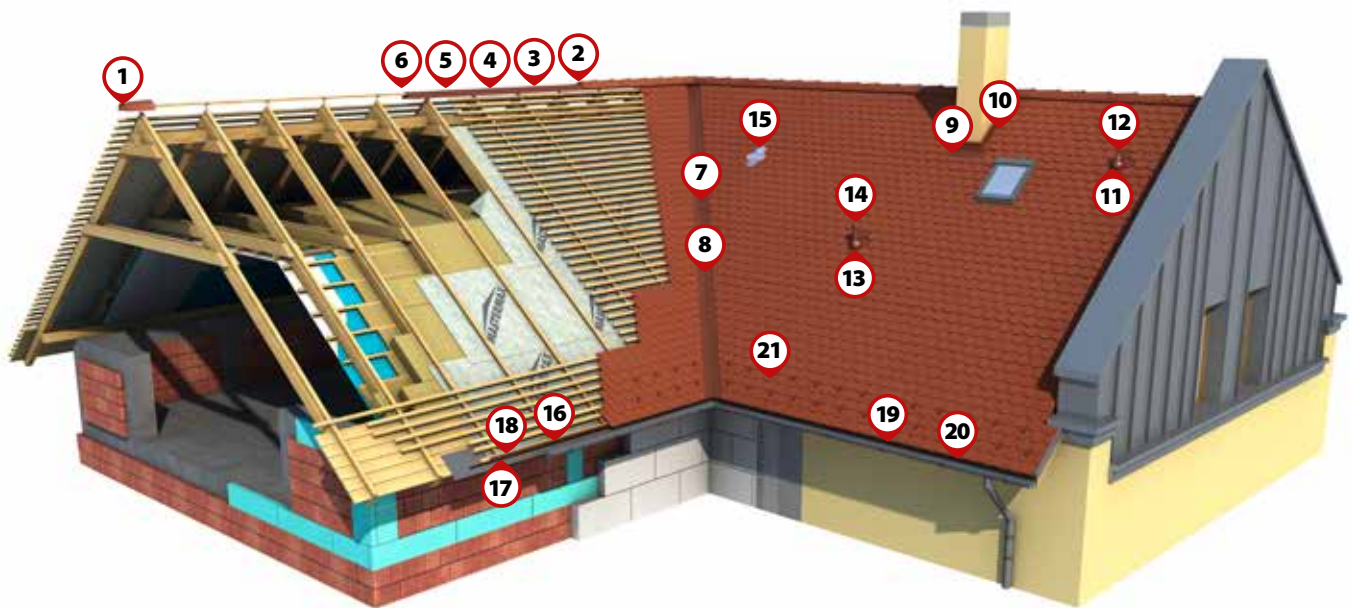
APPLICATION OF NON-VAPOUR PERMEABLE UNDERLAYS



APPLICATION OF VAPOUR PERMEABLE (BREATHABLE) UNDERLAYS



ROOFBOND VENTILATION ELEMENTS AND ROOF ACCESSORIES



- | | |
|--------------------------------|--|
| 1 end cap | 12 aerial adapter |
| 2 crest tile fastener | 13 ventilation chimney |
| 3 ridge ventilation element | 14 ventilation adapter |
| 4 AIR-VENT roll | 15 transparent roof tile |
| 5 ROLL-O-MAT | 16 perforated ventilation band |
| 6 ALU-ROLL | 17 perforated PVC ventilation profile |
| 7 sealing PUR foam for valley | 18 ventilation element |
| 8 valley plate plastic/alu | 19 eaves comb with ventilation element |
| 9 chimney roll | 20 eaves comb |
| 10 closing profile for chimney | 21 snow guard |
| 11 base tile | |

MASTERMAX BREATHABLE ROOF UNDERLAYS

MASTERMAX

- MASTERMAX 3 ECO BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 3 CLASSIC BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 3 TOP BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 3 EXTRA BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 3 SUPER BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 3 HYPER BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX PRO BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX 4 PLUS BREATHABLE ROOF UNDERLAY (1.5×50 m)
 - MASTERMAX ALU BREATHABLE METALIZED ROOF UNDERLAY (1.5×50 m)
- * WITH SELF-ADHESIVE TAPE(S), CUSTOMIZED LOGO OR PACKAGING ON DEMAND



PERFORATED AND NON-PERFORATED ROOF UNDERLAYS

MASTERFOL

- MASTERFOL SOFT W/Y (MP) ROOF UNDERLAY (1.5×50 m)



ISOFLEX

- ISOFLEX SOFT (MP) ROOF UNDERLAY (1.5×50 m)



- ISOCON ROOF UNDERLAY WITH ANTI-CONDENSATE LAYER (1.5×50 m)
- ISOCON PRO ROOF UNDERLAY WITH ANTI-CONDENSATE LAYER (1.5×50 m)
- ISOCON EXTRA ROOF UNDERLAY WITH ANTI-CONDENSATE LAYER (1.5×40 m)



METALIZED ROOF UNDERLAYS

MASTERFOL

- MASTERFOL SOFT ALU - E METALIZED ROOF UNDERLAY (1.5×50 m)

ISOFLEX

- ISOFLEX ALU - METALIZED ROOF UNDERLAY (1.5×50 m)



SELF-ADHESIVE TAPES

- ISOFLEX TAPE 50, 75, 100 mm (50 m)
- MASTERFOL TAPE 1 (50 mm×25 m), MASTERFOL TAPE 2 (20 mm×25 m)
- MASTERMAX TAPES 50, 75 mm (25 m)



ROOFBOND VENTILATION ELEMENTS AND ROOF ACCESSORIES

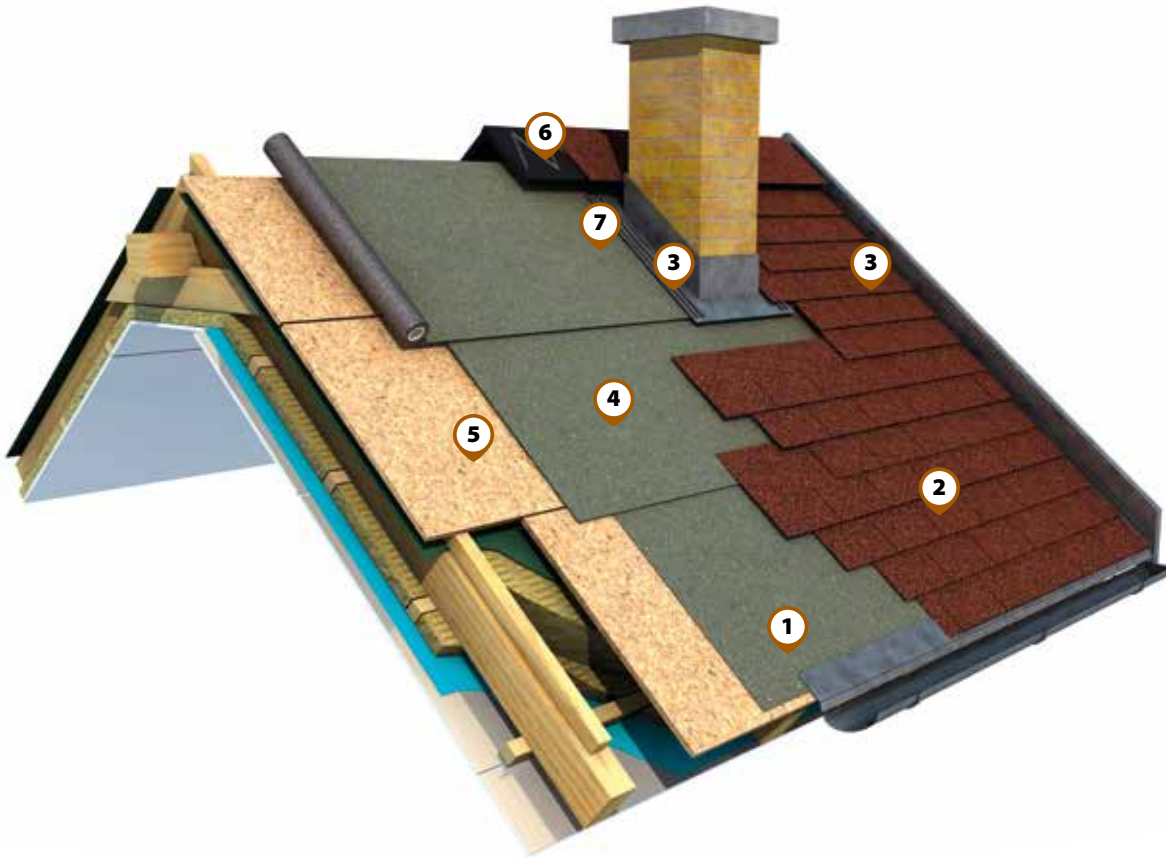
ROOFBOND

ROOFBOND AC PP EAVES COMB – RED, BROWN, BLACK (1 m)
ROOFBOND AC VENTILATION ELEMENT – RED, BLACK (1 m)
ROOFBOND AC PP EAVES COMB WITH VENTILATION ELEMENT – RED, BROWN, BLACK (1 m)
ROOFBOND AC PERFORATED VENTILATION BAND – 50 mm OR 100 mm RED, BROWN, BLACK (5 m)
ROOFBOND AC VENTILATION PROFILE (2.5 m)
ROOFBOND AC RIDGE VENTILATION ELEMENT FOR SHINGLES (1 m)
LÜFTOMAT UNI 60 RIDGE VENTILATION ELEMENT – RED, BROWN, BLACK (1 m)
ROOFBOND AC POINT VENTILATION ELEMENT FOR SHINGLES (500×300 mm)
ROOFBOND AC VENTILATION PLASTIC ROOF TILE (VARIOUS TYPES)
ROOFBOND AC TRANSPARENT ROOF TILE (VARIOUS TYPES)
ROOFBOND AC END CAP PVC OR METAL – RED, BROWN, BLACK
ROOFBOND AC VENTILATION CHIMNEY
ROOFBOND AC VENTILATION ADAPTER – RED, BROWN, BLACK
ROOFBOND AC FLEXIBLE VENTILATION PIPE
ROOFBOND AC CREST TILE FASTENERS – RED, BROWN, BLACK (VARIOUS SIZES)
ROOFBOND AC SNOW GUARDS – RED, BROWN, BLACK (VARIOUS LENGTHS)
ROOFBOND AC UNIVERSAL SEALING PUR FOAM FOR RIDGE 50-60-75 mm – RED, BROWN, BLACK (1 m)
ROOFBOND AC SEALING PUR FOAM FOR VALLEY – RED, BROWN, BLACK (1 m)
ROOFBOND AC RIDGE BATTEN STRUT (100 pcs)
ROOFBOND AC VALLEY PLATE RED, BROWN, BLACK PLASTIC (500 mm×1700 mm) OR ALU (500 mm×2000 mm)
ROOFBOND AC ALU CLOSING PROFILE FOR CHIMNEY ROLLS – RED, BROWN, BLACK (1 m)
ROOFBOND AC CHIMNEY ROLL ALU OR LEAD – RED, BROWN, BLACK (300 mm×5 m)
ROOFBOND AC AIR-VENT ROLL – RED, BROWN, BLACK (300 mm×5 m)
ROLLOMAT – RED, BROWN, BLACK (190-280-330 mm×5 m)
ROOFBOND AC SHINGLE NAILS (3×16 mm (5 kg), 3×20 mm (2.5 kg), 2.5×25 mm (5kg), 3.5×25 mm (2.5 or 5 kg), 3.5×35 mm (2.5 kg))
ROOFBOND AC SHINGLE SIL sealing and bonding bitumen for shingles (315 ml)



BITUMINOUS ROOF COVERING PRODUCTS

PRODUCTS FOR PITCH ROOFS



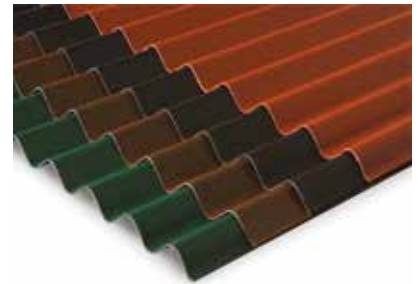
- | | | | |
|---|--|---|---|
| 1 | ROOFBOND SHINGLE V13 (Oxidized bitumen underlay) | 4 | Shingle nail |
| 2 | ROOFBOND SHINGLE / SELECT SHINGLE / ECO SHINGLE | 5 | OSB board |
| 3 | ROOFBOND AC SHINGLE SIL sealing and bonding bitumen for shingles | 6 | ROOFBOND AC Shingle ridge ventilation element |
| | | 7 | ROOFBOND AC Shingle ventilation element |

BITUMINOUS ROOF COVERING PRODUCTS FOR PITCH ROOFS

AQUAWELL CORRUGATED SHEETS



AQUAWELL CORRUGATED SHEETS 950 × 2000M – RED, GREEN, BROWN, BLACK (200 pcs/pallet)



AQUAWELL ACCESSORIES



AQUAWELL RIDGE CAPS – RED, GREEN, BROWN, BLACK (200 pcs/pallet)
AQUAWELL BARGE BOARDS – RED, GREEN, BROWN, BLACK (200 pcs/pallet)
AQUAWELL AC FASTENING NAILS – RED, GREEN, BROWN, BLACK (100 pcs)
AQUAWELL LINE AC SEALING FOAM FOR CORRUGATED PLATES



ASPHALT SHINGLES



ROOFBOND SHINGLES (BEAVER, RECTANGLE, HEXAGON) – RED, GREEN, BROWN, ATHRACITE (3 m²/bag)

ECO SHINGLES (BEAVER, RECTANGLE, HEXAGON) – RED, GREEN, BROWN, ATHRACITE (3 m²/bag)



BITUMINOUS SHINGLE UNDERLAY V-13



BITUMINOUS SHINGLE UNDERLAY V-13 (10 m²/roll)



BITUMINOUS ROOF COVERING PRODUCTS FOR FLAT ROOFS

MASTERBIT SBS MODIFIED ASPHALT MEMBRANES



MASTERBIT PRO PM4 SBS MODIFIED BITUMEN MEMBRANE with slate flake (7.5 m²)
MASTERBIT PRO PV4 SBS MODIFIED BITUMEN MEMBRANE (7.5 m²)



HEAT AND SOUND INSULATION MATERIALS



- 1 ISOMASTER EPS 30 insulation boards
- 2 ISOMASTER EPS 70 insulation boards
- 3 ISOMASTER EPS 100 (150) (200) insulation boards
- 4 ISOMASTER EPS A 23/20, 34/30, 45/40 impact sound insulation board
- 5 ISOMASTER XPS insulation boards
- 6 WOODWOOL C / WOODWOOL EPS / WOODWOOL ROCK insulation boards
- 7 ISOFOAM IF PE foam underlay
- 8 ISOFOAM CF PE foam border strip
- 9 ISOFOAM LF-ALUPET metalized PE foam
- 10 ISOFOAM XPS underlay
- 11 THERMOBETON – light-weight concrete insulation layer

ISOFOAM IF IMPACT SOUND INSULATION PE FOAMS

ISOFOAM

ISOFOAM IF 2 mm PE FOAM (1 m OR 1.1 m×50 m)
 ISOFOAM IF 3 mm PE FOAM (1 m OR 1.1 m×50 m)
 ISOFOAM IF 5 mm PE FOAM (1 m OR 1.1 m×50 m)
 ISOFOAM IF 8 mm PE FOAM (1 m OR 1.1 m×50 m)
 ISOFOAM IF 10 mm PE FOAM (1 m OR 1.1 m×50 m)
 *SPECIALITY FOAMS ON DEMAND



ISOFOAM LF METALIZED PE FOAMS FOR HEAT-REFLECTION

ISOFOAM

ISOFOAM LF 2 mm PE FOAM WITH HEAT-REFLECTION SURFACE (1×50 m)
 ISOFOAM LF 3 mm PE FOAM WITH HEAT-REFLECTION SURFACE (1×50 m)
 ISOFOAM LF 5 mm PE FOAM WITH HEAT-REFLECTION SURFACE (1×50 m)



ISOFOAM CF IMPACT SOUND INSULATION BORDER STRIPES

ISOFOAM

ISOFOAM CF 5 mm PE FOAM BORDER STRIPES (10-25 cm×25 m or 50 m)
 ISOFOAM CF 8 mm PE FOAM BORDER STRIPES (10-25 cm×25 m or 50 m)
 ISOFOAM CF 10 mm PE FOAM BORDER STRIPES (10-25 cm×25 m or 50 m)



ISOFOAM XPS IMPACT SOUND INSULATION FOAMS

ISOFOAM

ISOFOAM XPS 2 mm FOAM (1.1×15 m)
 ISOFOAM XPS 4 mm FOAM 1.2×0.5 m SHEET SIZE (6 m²)
 ISOFOAM XPS THERMO 1.6 mm PERFORATED FOAM FOR FLOOR HEATING (1.1×15 m)



ISOMASTER EPS-A IMPACT SOUND INSULATION EPS BOARDS

ISOMASTER

ISOMASTER EPS-A (23/20, 34/30, 45/40) SOUND INSULATION EPS BOARDS



ISOFOAM ALU-LP METALIZED AIR BUBBLE FILM



ISOFLEX ALU LP METALIZED AIR-BUBBLE FILM (1.2×50 m)
 ISOFLEX ALU LP-2, 2-SIDE METALIZED AIR-BUBBLE FILM (1.2×50 m)



GLASSWOOL INSULATION MATERIALS



KNAUF GLASSWOOL (EKOROLL, CLASSIC 039, etc.)



ISOVER GLASSWOOL (RIO, DOMO, etc.)
 * ONLY FOR ORDER



ROCKWOOL INSULATION MATERIALS



KNAUF ROCKWOOL (EKOBOARD, MPE, MPN, MPS, etc.)
 * ONLY FOR ORDER



WOODWOOL WOOD FIBER BOARDS AND ACCESSORIES



WOODWOOL C BOARDS 25-35-50 mm (1 m²)
 WOODWOOL EPS BOARDS 25-35-50-75-100 mm (1 m²)
 WOODWOOL ROCK BOARDS 50-75-100 mm (1 m²)
 WOODWOOL AC R FASTENING NAIL (100-125-150 mm)



THERMOBETON LIGHT-WEIGHT CONCRETE



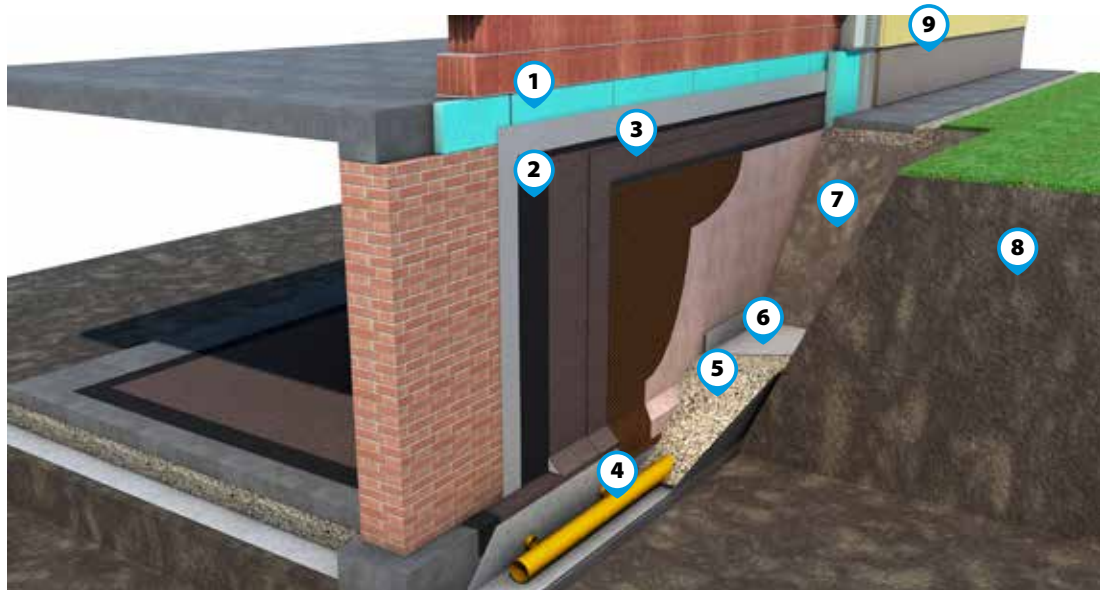
THERMOBETON LIGHT-WEIGHT CONCRETE (0.2 m³/bag)



WATER INSULATION AND WATER DRAINAGE MATERIALS

TERRAPLAST VERTICAL/HORIZONTAL APPLICATIONS

DRAINAGE SYSTEM ALONG BASEMENT WALL



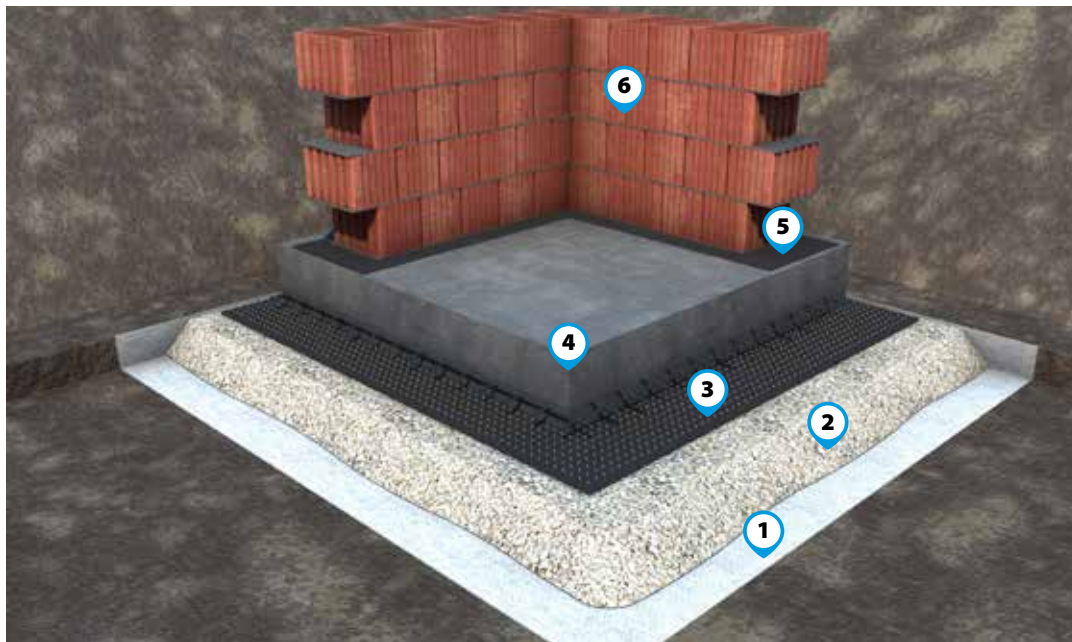
- | | |
|--|--|
| 1 MASTERBIT bitumen primer | 6 TERRAPLAST GEOTEX filter and separating geotextile |
| 2 MASTERBIT 04GV bitumen sheet | 7 Soil backfill |
| 3 TERRAPLAST PLUS GEO dimpled membrane with geotextile | 8 Original soil |
| 4 TERRAPLAST DRAIN AC perforated drain pipe | 9 THERMOMASTER A-02 thermal insulation system |
| 5 Filtering graded gravel | |

SHUTTERING AND SURFACE DRAINAGE LAYER IN CIVIL-ENGINEERING AND TUNNEL CONSTRUCTIONS



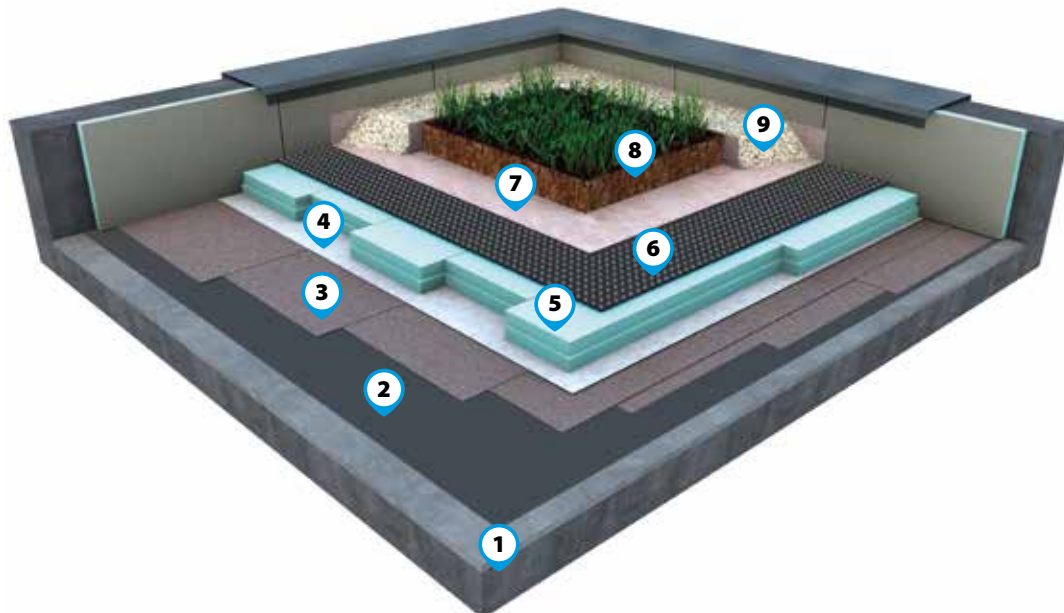
- | | |
|---|-----------------------------|
| 1 Consolidated layer of gravel | 4 Reinforced concrete slab |
| 2 TERRAPLAST PLUS S20 | 5 Retaining wall |
| 3 TERRAPLAST DRAIN AC perforated drain pipe | 6 Shotcrete or curtain wall |

SUB-BASE COURSE UNDER CONCRETE SLAB



- 1 TERRAPLAST GEOTEX filter and separating geotextile
- 2 Consolidated layer of gravel
- 3 TERRAPLAST PLUS S8/L8
- 4 Reinforced concrete slab
- 5 Damp-proof course
- 6 Load-bearing wall structure

EXTENSIVE GREEN ROOF



- 1 Load-bearing slab + breeze concrete
- 2 MASTERBIT bitumen primer
- 3 Root-resistant waterproofing
- 4 Separating layer (optional)
- 5 XPS thermal insulation
- 6 TERRAPLAST PLUS S20P perforated dimpled membrane
- 7 TERRAPLAST GEOTEX separating and filter layer (min. 130 g/m²)
- 8 Soilmix with vegetation
- 9 Gravel layer

SICOFOL DPC DAMP PROOF COURSE

SICOFOL DPC 0.5 mm, 1.0 mm, SICOFOL DPC 1.2 mm, SICOFOL DPC 1.5 mm (DIFFERENT SIZES)



TERRAPLAST PLUS DIMPLED MEMBRANES

TERRAPLAST

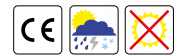
- TERRAPLAST PLUS L8 BLACK DIMPLED MEMBRANE (0.5-4 m×20 m)
- TERRAPLAST PLUS S8 DIAGONAL DIMPLED MEMBRANE (0.5-4 m×20 m)
- TERRAPLAST PLUS S20 DIMPLED MEMBRANE (2×20 m)
- TERRAPLAST PLUS S20P PERFORATED DIMPLED MEMBRANE (2×20 m)
- TERRAPLAST PLUS 8 GEO DIMPLED MEMBRANE WITH GEOTEXTILE (2×20 m)



TERRAPLAST ACCESSORIES

TERRAPLAST

- TERRAPLAST AC FIXING NAIL WITH PLASTIC PART – BROWN (100 pcs/bag)
- TERRAPLAST AC CLOSING PLASTIC PROFILE (2 m/pc)
- TERRAPLAST PLUS AC BITUBAND BUTYL TAPE (30 m/roll)
- TERRAPLAST PVC OR LPE DRAIN PIPES 50-80-100 mm
WITH OR WITHOUT PERFORATION (50 OR 100 m roll lengths)
- TERRAPLAST TOP DRAINAGE CHANNEL WITH GALVANIZED GRID (1 m)
- TERRAPLAST TOP AC ACCESSORIE SET



PP NON-WOVEN GEOTEXTILES

TERRAPLAST

- TERRAPLAST GEOTEX 100 (1.5×50 m OR 1×10 m)
- TERRAPLAST GEOTEX 150 (5×100 m)
- TERRAPLAST GEOTEX 200 (5×100 m)
- TERRAPLAST GEOTEX 300 (5×100 m)
- TERRAPLAST GEOTEX 400 (5×100 m)
- TERRAPLAST GEOTEX 500 (5×100 m)

- TYPAR SF-40 GEOTEXTILE (4.5×150 m)
- TYPAR SF-56 GEOTEXTILE (4.5×100 m)



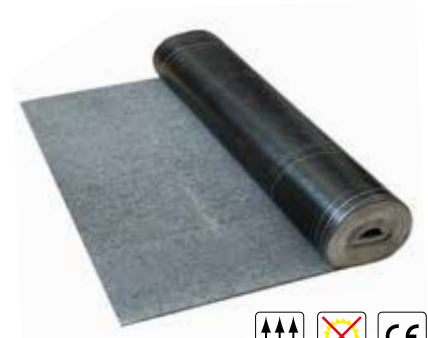
MASTERBIT OXIDIZED BITUMEN MEMBRANES

MASTERBIT

- MASTERBIT 03 GV OXIDIZED BITUMEN MEMBRANE (10 m²)
- MASTERBIT 04 GV OXIDIZED BITUMEN MEMBRANE (10 m²)

- ECOBIT 03 GV OXIDIZED BITUMEN MEMBRANE (10 m²)
- ECOBIT 04 GV OXIDIZED BITUMEN MEMBRANE (10 m²)

- MASTERBIT VM40 OXIDIZED BITUMEN MEMBRANE (10 m²)



MASTERBIT MODIFIED BITUMEN MEMBRANES



MASTERBIT PRO PM4 SBS MODIFIED BITUMEN MEMBRANE with slate flake (7.5 m²)
MASTERBIT PRO PV4 SBS MODIFIED BITUMEN MEMBRANE (7.5 m²)



MASTERBIT BITUMINOUS PRIMERS



MASTERBIT WBP WATER BASED PRIMER (10 kg)
MASTERBIT SP SOLVENT BASED PRIMER (10 kg)



MASTERBIT BITUMINOUS COATINGS



MASTERBIT LF SOLVENT FREE COATING (5 l OR 25 l)
MASTERBIT 1K THICK BITUMEN COATING (32 l)



DRY CONSTRUCTION MATERIALS AND ACCESSORIES

CLADDING



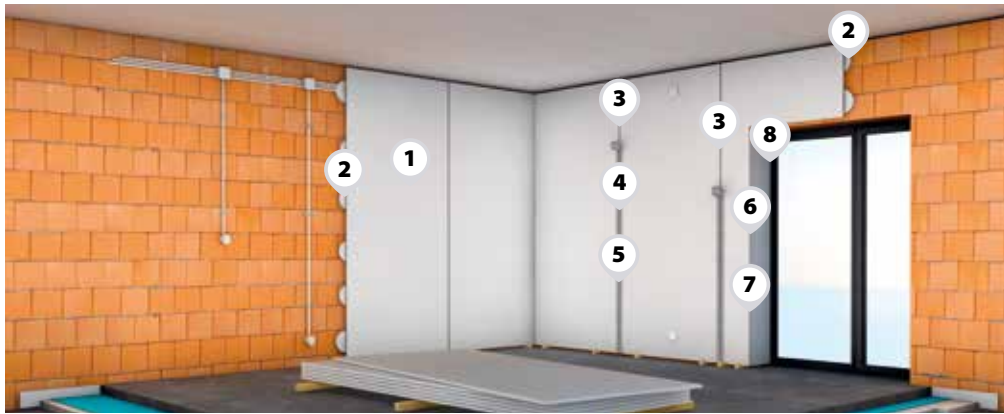
- 1 direct suspension hanger
- 2 felt strip
- 3 hammer fixed expansion plug
- 4 UD profile
- 5 CD profile
- 6 vapour control layer
- 7 gypsum plaster-board
- 8 drywall screw
- 9 joint filler gypsum
- 10 glassveil tape
- 11 self-adhesive fiberglass tape
- 12 "U" or "J" profile
- 13 UW profile
- 14 CW profile

SUSPENDED CEILING



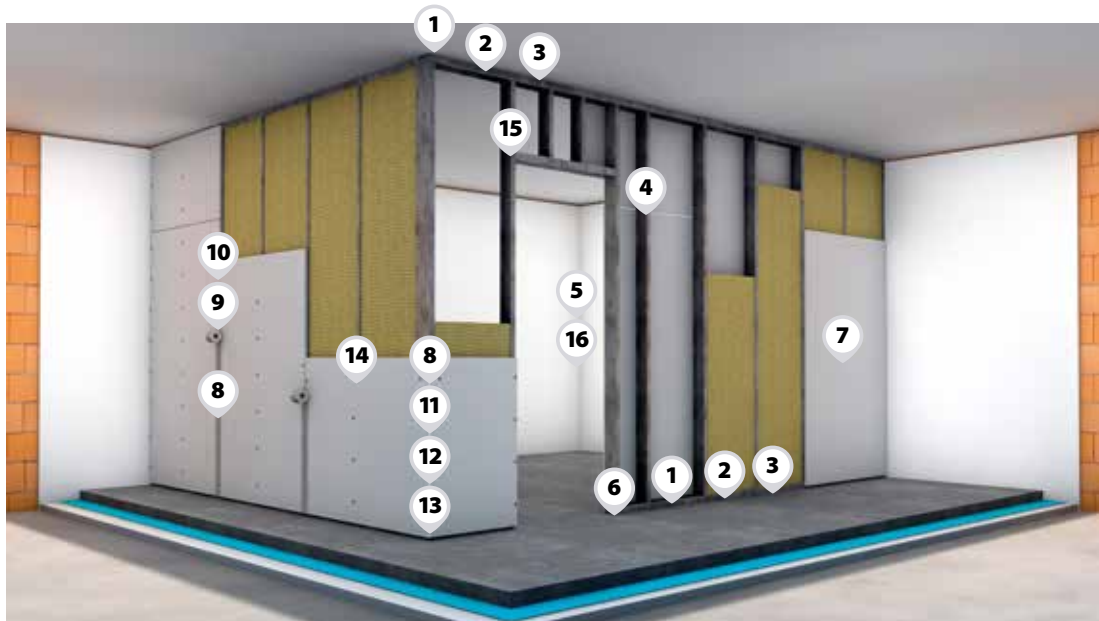
- 1 Suspension wire with eye
- 2 Anchor hanger with tension spring
- 3 CD profile
- 4 CD quick cross-connector
- 5 CD profile connector
- 6 UD profile
- 7 gypsum plaster-board
- 8 hammer fixed expansion plug
- 9 felt strip



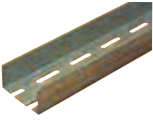
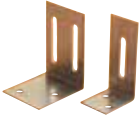
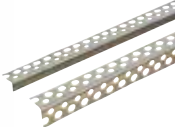





DRY-LINING FINISHING FOR WALLS



- 1 gypsum plasterboard 
- 2 adhesive gypsum 
- 3 joint filler gypsum 
- 4 glassveil tape 
- 5 self-adhesive fiberglass tape 
- 6 ALU or PVC corner profile 
- 7 ALUX edge protective strip 
- 8 "U" or "J" profile 

PARTITION WALLS



- 1 felt strip 
- 2 UW profile 
- 3 hammer fixed expansion plug 
- 4 CW profile 
- 5 UA profile 
- 6 L connecting bracket 
- 7 gypsum plasterboard 
- 8 joint filler gypsum 
- 9 glassveil tape 
- 10 self-adhesive fiberglass tape 
- 11 ALU corner profile 
- 12 PVC corner profile 
- 13 ALUX edge protective strip 
- 14 drywall screw for metal 
- 15 Serf-drilling screw for metal frame 
- 16 self-drilling screw for profile 

NORGIPS GYPSUM PLASTER BOARDS

NORGIPS

NORGIPS GYPSUM PLASTER BOARDS GKB NORMAL 9.5 or 12.5 mm (1.2×2 m or 1.25×2 m)
NORGIPS GYPSUM PLASTER BOARDS GKBI IMPREGNATED 12.5 mm (1.2×2 m or 1.25×2 m)
NORGIPS GYPSUM PLASTER BOARDS GKF FIRE-PROOF 15 mm (1.2×2 m or 1.25×2 m)
NORGIPS GYPSUM PLASTER BOARDS GKFI IMPREGNATED AND FIRE-PROOF
 12.5 mm (1.2×2 m or 1.25×2 m)



MASTERPROFIL PROFILES (CE05, CE06)

MASTERPROFIL

MASTERPROFIL UW-50, 75, 100 mm 4 m (20 pcs/bundle)
MASTERPROFIL CW-50 mm (20 pcs/bundle), **75 mm** (16 pcs/bundle) **and 100 mm 4 m** (12 pcs/bundle)
MASTERPROFIL UD-27 4 m (20 pcs/bundle)
MASTERPROFIL CD-27/60 4 m (16 pcs/bundle)
MASTERPROFIL UA-50, 75, 100 mm 4 m (4 pcs/bundle)



DRYWALL SCREWS

DRYWALL SCREWS FOR WOOD (3.5×35 mm, 3.5×45 mm, 3.5×55 mm, 4.2×75 mm, 4.2×90 mm)
DRYWALL SCREWS FOR METAL (3.5×25 mm, 3.5×35 mm, 3.5×45 mm, 3.5×55 mm)
SELF-DRILLING SCREWS (3.5×25 mm, 3.5×35 mm)
SELF-DRILLING SCREWS FOR PROFILE CONNECTION (4.2×14 mm, 3.9×9.5 mm)



VAPOUR BARRIERS

MASTERFOL

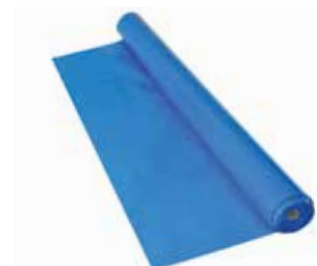
MASTERFOL BLUE VAPOUR BARRIER (1.5×50 m)

ISOFLEX

ISOFLEX ALU-PZ VAPOUR BARRIER (1.5×50 m)

ALUKRAFT VAPOUR BARRIER (1.2×50 m)

ALUKRAFT PRO VAPOUR BARRIER (1.2×50 m)



SELF-ADHESIVE FIBERGLASS MESH TAPES

- SELF-ADHESIVE FIBERGLASS MESH TAPE 5 cm × 20 m (72 pcs/box)
- SELF-ADHESIVE FIBERGLASS MESH TAPE 5 cm × 45 m (54 pcs/box)
- SELF-ADHESIVE FIBERGLASS MESH TAPE 5 cm × 90 m (24 pcs/box)



GLASSVEIL TAPE AND MAT

- GLASSVEIL TAPE 5 cm × 25 m (40 pcs/box)
- MASTERMAT GLASSVEIL MAT (1 × 50 m)



GYPSUM PRODUCTS

NORGIPS

- NORGIPS ADHESIVE GYPSUM (30 kg)
- NORGIPS JOINT FILLING GYPSUM (5 kg)

- UNI INDOOR PLASTERING GYPSUM 0-10 mm (25 kg)
- FINE INDOOR PLASTERING GYPSUM 0-3 mm (25 kg)
- STUCCO GYPSUM (2 kg or 20 kg)

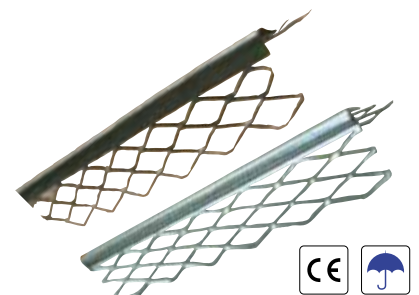


PLASTER PROFILES

MASTERPROFIL

- MASTERPROFIL GALVANIZED ANGLE BEAD 3 m (75 m)
- MASTERPROFIL PLUS GALVANIZED ANGLE BEAD 3 m (75 m)
- MASTERPROFIL DEPTH GAUGE BEAD 6 mm 3 m (150 m)
- MASTERPROFIL DEPTH GAUGE BEAD 10 mm 3 m (150 m)

- PROTEKTOR 1041 PROFILE 2.5 m (37.5 m)
- PROTEKTOR 9011 PROFILE 2.5 m (50 m)

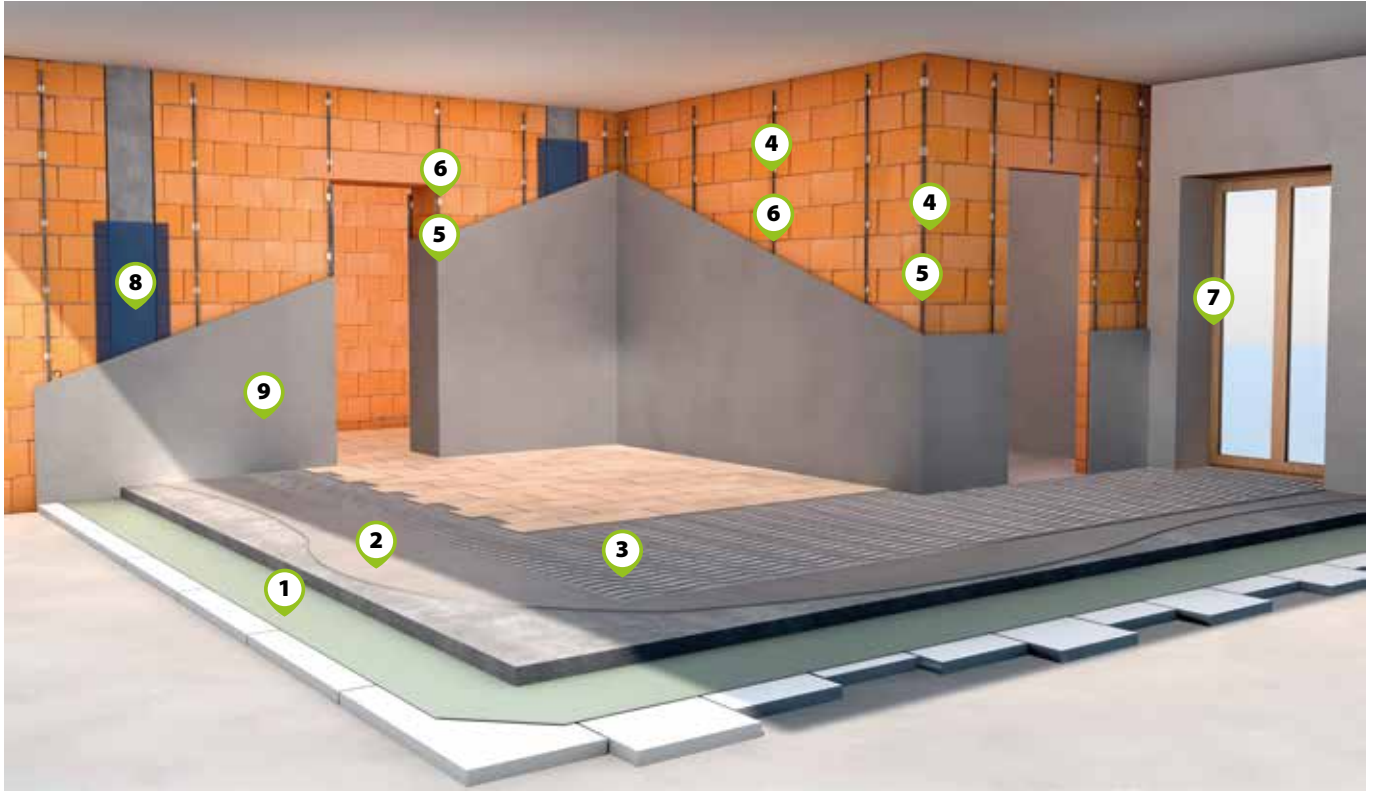


GYPSUM PLASTERBOARD ACCESSORIES

- DIRECT HANGER 50/75 mm, 50/125 mm, 60/75 mm, 60/125 mm (100 pcs)
- ADJUSTABLE PIVOT BRACKET 30-60 mm, 60-90 mm, 90-120 mm (100 pcs)
- SUSPENSION WIRES 125-250-375-500-750-1000-1500-2000 mm (100 pcs)
- CD PROFILE CONNECTOR (100 pcs)
- CD ANCHOR HANGER WITH TENSION SPRING (100 pcs)
- CD HANGER WITH TENSION SPRING (100 pcs)
- TIMBER CONNECTOR (100 pcs)
- SUSPENSION BANDS H4 or H6 (10 m/roll)
- CD HANGER (100 pcs)
- CD HANGER WITH TENSION SPRING (100 pcs)
- HANGER WITH TENSION SPRING FOR 'T' SUPPORT RAIL (100 pcs)
- CD HANGER WITH SPECIAL SPRING (100 pcs)
- DOUBLE SPRING SECURING CLIP (100 pcs)
- CONNECTING BRACKET FOR UA PROFILE 100 × 50 × 45 mm and 100 × 75 × 65 mm (100 pcs)
- ALUX EDGE TAPE PAPER WITH GALVANIZED STEEL (30 m/roll)
- HOLDING PVC "U" PROFILE 9.5 mm × 3 m (20 pcs) and 12.5 mm × 3 m (20 pcs)
- FELT STRIP 30-50-70-95 mm (30 m/roll)



OTHER ACCESSORIES FOR CONSTRUCTION



- | | | | |
|---|----------------------------------|---|---|
| 1 | LDPE film | 6 | Depth gauge bead |
| 2 | Self-levelling compound | 7 | window connection profile |
| 3 | Flex tile adhesive | 8 | steel wire mesh |
| 4 | Adhesive mortar for corner beads | 9 | MASTERPOL air-entraining agent (mixed to the plaster) |
| 5 | Galvanized steel corner bead | | |

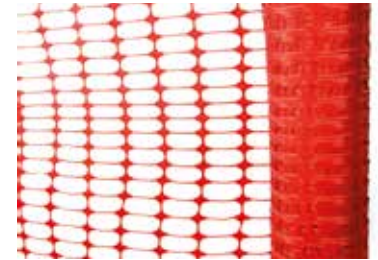
ELECTRO GALVANIZED STEEL WIRE MESH

STEEL WIRE MESH 25×25 mm (1×50 m)
STEEL WIRE MESH SMALL 12.5×12.5 mm (0.914×50 m)



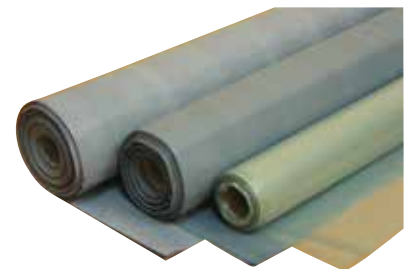
ORANGE PLASTIC MESH FOR CONSTRUCTION SITES

ORANGE PLASTIC MESH FOR CONSTRUCTION SITES (1.8×50 m)



PE FILMS - RECYCLED /VIRGIN

RECYCLED LDPE FILMS 0.05 mm, 0.09 mm, 0.15 mm, 0.2 mm (100m²)
VIRGIN LDPE FILMS 0.05 mm, 0.09 mm (100 m²)
STRETCH FOIL (2.5 kg/roll)



PE BAGS FOR WASTE MATERIAL

RECYCLED PE BAGS (550×900 mm or 550×1150 mm)



PLASTIC BUCKETS AND BASINS

PLASTIC BUCKETS (12 l or 20 l)
PLASTIC BASINS (60 l or 90 l)



PP FIBER ADDITIVE

PP FIBER reinforcement for concrete (9-12-18 mm)



GLASS BLOCKS AND ACCESSORIES

GLASS BLOCKS CLOUDY (10 pcs)

GLASS BLOCKS WATER BUBBLE (10 pcs)

PLASTIC SPACER FOR GLASS BLOCKS (10 pcs)



MASTERPOL LIME SUBSTITUTE ADDITIVE

MASTERPOL LIME SUBSTITUTE ADDITIV (1l or 5l)



MASTERFROST SET ACCELERATING ADMIXTURE

MASTERFROST SET ACCELERATING ADMIXTURE (5 l or 50 l)



SELF-LEVELLING CONCRETE

SELF-LEVELLING CONCRETE (25 kg)



TILE ADHESIVES

STANDARD TILE ADHESIVE – C1T (25 kg)

FLEXIBLE TILE ADHESIVE – C2TE (25 kg)





C U S T O M E R
S U P P O R T
T I M E L Y
P R O D U C E
F R I E N D L Y
S O L U T I O N
P R E C I S E
L O G I S T I C S
Q U A L I T Y
P O S I T I V E
S E R V I C E

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E-mail: office@masterplastgroup.ru



Ethylene Propylene Diene Monomer (EPDM) :

EPDM is the abbreviated name for Ethylene Propylene Diene Monomer. In general industry, one may see other abbreviations or trade names such as EPT, Nordel[®], ECD, or EPR. All of these are the same material as EPDM.

EPDM is the standard seat material offered in the resilient seated DelTech butterfly valves. It is the most universal and economical of seat materials.

General characteristics :

- Temperature ranges from -13⁰F (- 25⁰C) to 250⁰F (120⁰C).
- Excellent abrasion resistance.
- Good resistance to tearing.
- Generally resistant to the following media :
 - Alcohols, Acidic salts, Alkaline salts, Alkaline solutions, Beverages, Bleach, Inorganic acids (dilute)
 - Neutral salts, Water (cooling, brackish, salt), Hot Water, Steam.
- Generally not resistant to the following media :
 - Chlorinated hydrocarbons, hydrocarbon solvents & oils, petroleum-based oils, turpentine.

Mechanical Properties : (At ambient temperature)

Specific Gravity (g/cm ³)	1.1 ± 0.05
Tensile Strength (Mpa), min.	12
Elongation break (%), min.	300
Hardness (Shore A)	70 ± 5
Compression Set (%) max. (24hr / 70°C / 25% def.)	20
Curing	Peroxide Curing

Nordel[®] Registered trademark of Dupont.





Wood Fibreboard

Product Applications



GUTEX[®]

NATURALLY MADE FROM WOOD

Contents

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- P. 11* Flat Roofs
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- P. 13* GUTEX Thermowall® ETICS
- P. 14* Interior Insulation of Exterior Walls
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- P. 16* Concrete Ceilings and Floors
- P. 17* Floors Over Wood Joist Ceilings
- P. 18* Technical Information





Experience...

For over 85 years, the Black Forest family-owned and -operated company GUTEX Holzfaserplattenwerk GmbH + Co KG has produced insulating board from wood at its plant in Waldshut-Tiengen, Germany. Now in its fourth generation, the company, headquartered in Waldshut-Tiengen Germany, employs 140 people and manufactures 12 million square metres of wood fibreboard insulation annually.

Innovation...

Besides experience, the key reason for GUTEX's market leadership is its commitment to providing superior quality, service, and stock availability, which has led to a great deal of product and manufacturing innovation. In 2006, GUTEX introduced the world's first dry manufactured single-ply homogeneous insulation fibreboard.

Diversity...

GUTEX insulation products are the ideal ecological choice for a host of applications, including external thermal insulation composite systems, wall insulation for vented facades, insulation above rafters and/or between frame members with sheathing, insulation of ceilings, interior insulation of exterior walls, insulation of service cavities, acoustic underlay in various floor assemblies and under many floor coverings.

Performance...

Whether old or new building, GUTEX insulation products are up to the task, delivering more than structural and environmental requirements demand. Some of their most distinct qualities are:

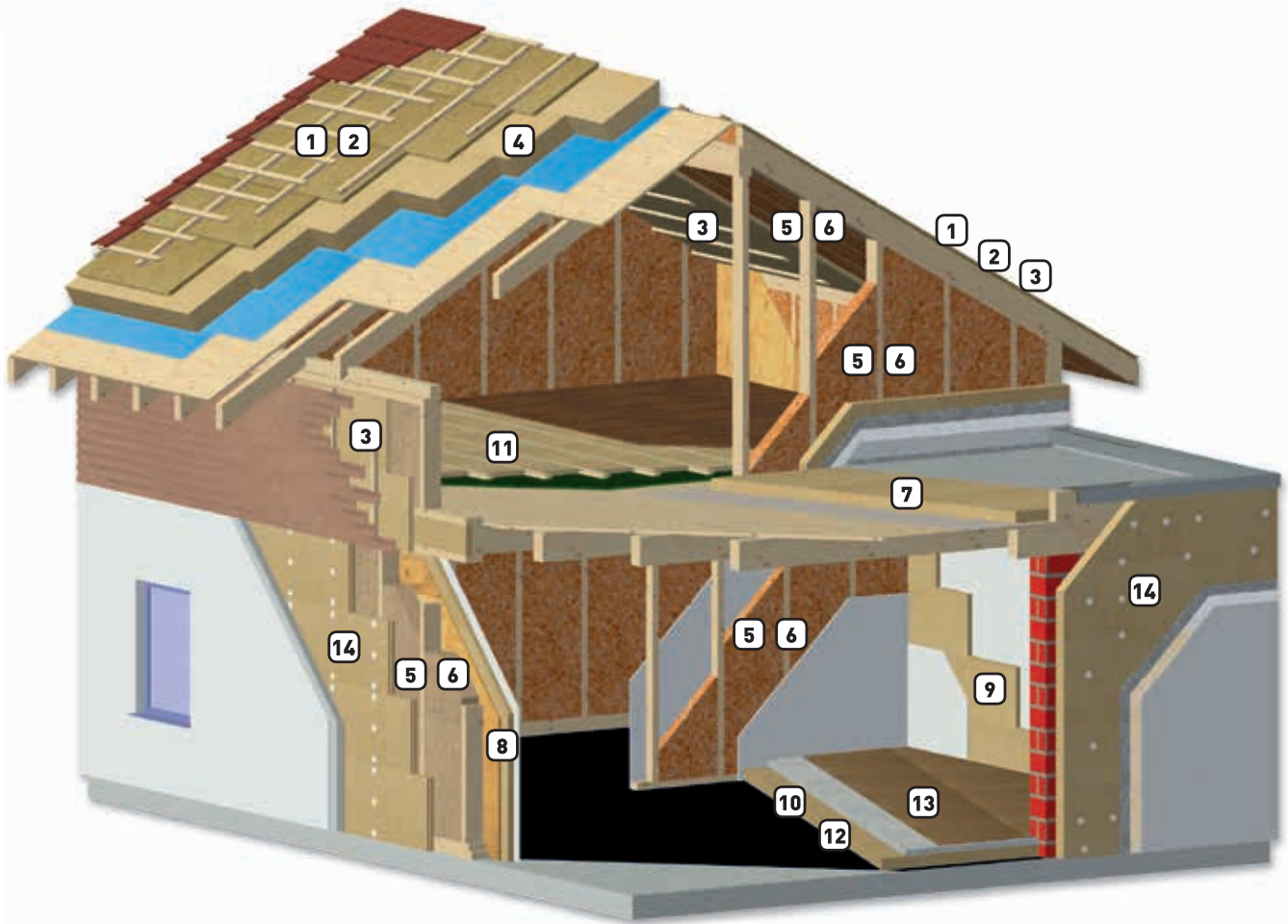
- Low thermal conductivity, which guarantees excellent protection in winter against cold
- Highest possible volumetric heat capacity for the best protection against heat in summer
- Superior airborne and impact sound insulation thanks to open-pore fibrous construction and higher bulk density
- GUTEX wood fibre products are completely recyclable and, provided wood preservatives have not contaminated them, can be disposed of at the nearest recovery centre.
- Unsurpassed environmental compatibility and biological safety. The raw material for all GUTEX insulation products comes from wood that is locally harvested and grown using sustainable forestry management practices. GUTEX insulation products are natureplus®-certified.

Certified Quality...

All GUTEX products undergo stringent quality control tests by GUTEX and are subject to approval by an independent, authorised test and certification agency (FMPA, Stuttgart).

GUTEX's external thermal insulation composite system has the approval of the German building materials and physics-testing agency. And GUTEX's quality and environmental protection management system, certified according to DIN EN ISO 9001, ISO 14001 and EMAS II (EU Eco Audit Ordinance), guarantees the environmental compatibility and consistent high quality of GUTEX products.





GUTEX Multiplex-top®
A rain-tight sarking board with single-ply construction and homogenous cross-section.



GUTEX Ultratherm®
A strong rain-tight sarking board with a single-ply construction and a homogenous cross-section, this product's high U-value makes it very suitable for new roofs and roof refurbishment.



GUTEX Multitherm®
A moisture-resistant insulation board with single-ply construction and homogenous cross-section that is an ideal sarking board for exterior walls under facade facing, above rafters and the undersides of rafters.



GUTEX Thermosafe-homogen®
A universal insulating board with single-ply construction and homogenous cross-section, it provides superb protection against the influx of heat in summer and loss of heat in winter.



GUTEX Thermosafe®
Universal insulating board with multiply construction that provides superb protection against the influx of heat in summer and loss of heat in winter.



GUTEX Thermofibre®
A loose-fill wood fibre insulation for blow-in installation in vertical or horizontal cavities and horizontal unenclosed spaces.



GUTEX Thermoflex®
A flexible wood fibreboard that is designed for use between rafters and in timber-framed walls.



GUTEX Thermoflat®
This single-ply insulating board features a homogeneous wood fibre cross-section and a compression-proof construction, which make it ideal for flat wood, concrete and sheet metal roofs.



Properly applied and installed, GUTEX products exceed all your expectations

GUTEX's range of wood fibreboard insulation products is as diversified as are the specific insulation requirements of the different areas of buildings. Whether you're looking for a solution for a new or an existing building, you're sure to find the suitable product for your roof, wall, floor or ceiling in GUTEX's product portfolio. If used properly, the products perform beyond all expectations. GUTEX provides a wealth of information at www.gutex.de and in its brochures, offering guidelines for using its insulation products, so that you can enjoy all the benefits they offer.



GUTEX Thermoinstal®
A compression resistant insulation board with single-ply construction and homogenous cross-section, this product is your choice for the thermal insulation of installation cavities, electrical and plumbing lines.



GUTEX Thermoroom®
An insulation board with single-ply construction and homogenous cross-section that is ideal for the retrofit insulating of interior walls.



GUTEX Thermosafe-wd®
An insulating board with single-ply construction and homogenous cross-section, this product features exceptionally high compression resistance, making it ideal for any wall or floor structure.



GUTEX Thermosafe-nf®
A superior impact insulation board with tongue and groove joints, this product comes with spruce joint strips for easy installation of long and short plank flooring, which screws to the strips.



GUTEX Thermofloor®
A very versatile impact insulation board for all floor applications, including wet and dry screed.



GUTEX Happy Step®
The ideal underlay for high-quality, interior floor coverings.



GUTEX Thermowall®/-gf
A single-ply plaster baseboard with homogenous cross-section, this product is the perfect choice for use with GUTEX's ecological composite thermal insulation system.

Above-Rafter Insulation

GUTEX Multiplex-top®, GUTEX Ultratherm®, GUTEX Thermosafe-homogen®, GUTEX Thermosafe®, GUTEX Multitherm®

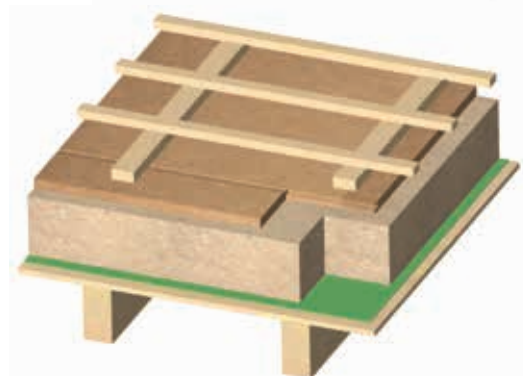
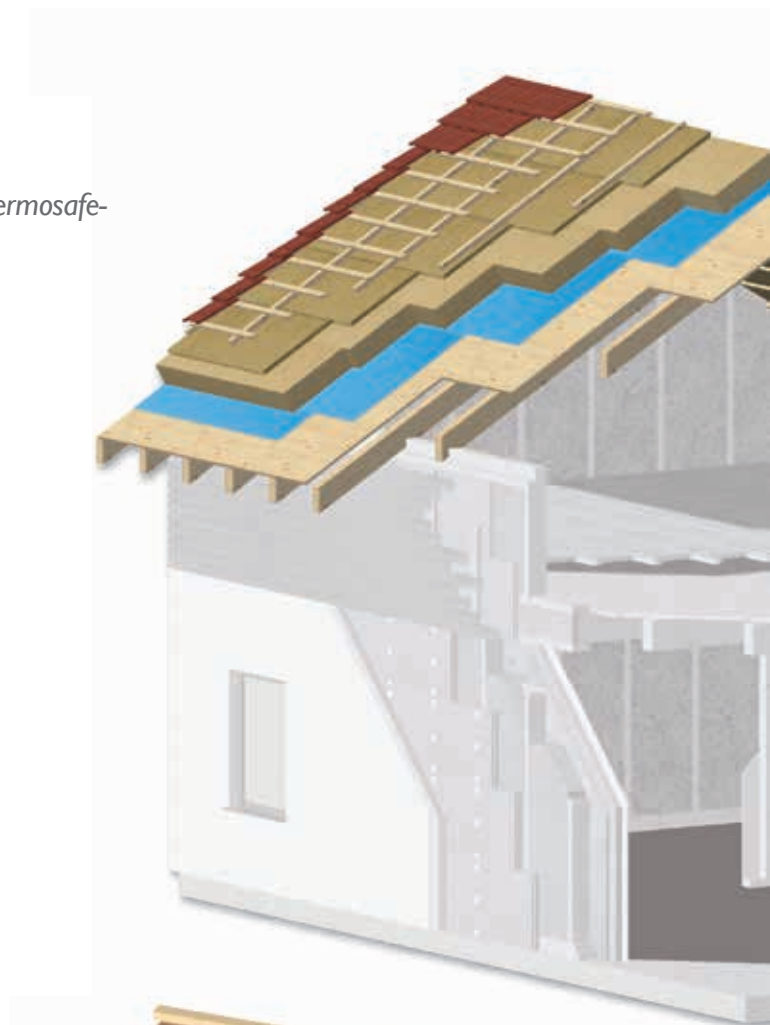


When most people think of insulation, they think of insulation against the cold. However, if the area of a building involved is the roof, insulation against heat in summer is also extremely important. To avoid unpleasant heat in areas directly under roofs, insulation materials with higher volumetric heat storage capacity and lower thermal conductivity are required. GUTEX insulation boards are specifically engineered to provide the optimum combination of these two properties. Another decisive characteristic for roof insulation is soundproofing. GUTEX insulation's open-pore construction and high bulk density provide excellent acoustic insulation. In addition, the products feature superb vapour permeability ($\mu=3$) and moisture regulation. In fact, the boards are capable of absorbing and later releasing up to 15% of their weight in moisture without sacrificing insulation performance. All these attributes ensure you will have the pleasant and healthy indoor environment you envision.

Fastening with special screws



A vapour retarding membrane is laid over the exposed sheathing. The membrane is then covered with GUTEX Thermosafe-homogen®, which is subsequently covered with GUTEX Multiplex-top®, a rain-tight sarking board.



GUTEX above-rafter insulation assembly with GUTEX Thermosafe-homogen® and GUTEX Multiplex-top®

Between-Rafter Insulation

GUTEX Multiplex-top®, *GUTEX Ultratherm®*,
GUTEX Thermosafe-homogen®, *GUTEX Multitherm®*,
GUTEX Thermofibre®, *GUTEX Thermoflex®*

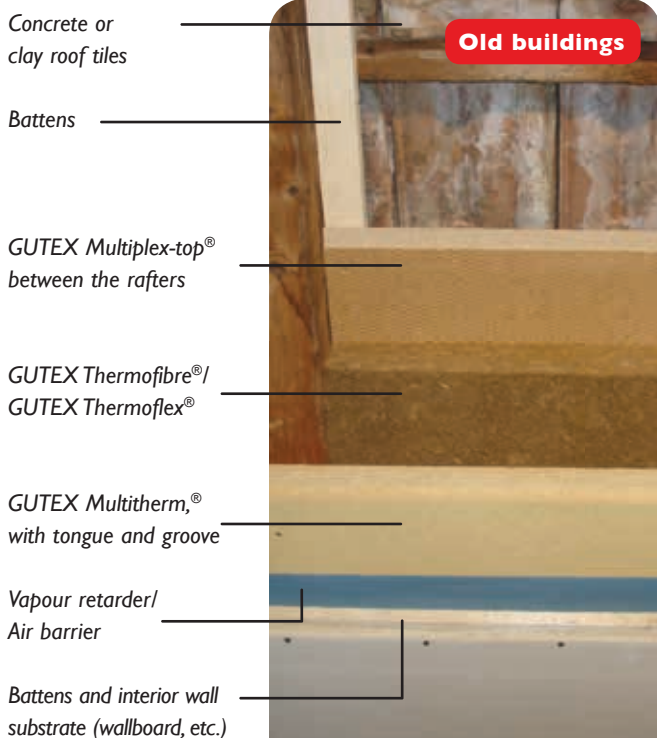


Tightness and installation ease are essential to achieving effective between-rafter insulation. GUTEX Thermofibre®, a highly flexible and form-adaptable wood fibre blow-in insulation is especially suited for use in between-rafter applications. Another excellent alternative is GUTEX Thermoflex®, which has the flexibility and resilience needed to bend, return to original form, join, and fit tightly between rafters.

The combined features of insulation against heat and cold, soundproofing, fire protection, vapour permeability and humidity control offered by these products - like all GUTEX insulation products - provide a much higher level of living comfort.



Interior view



Exterior view

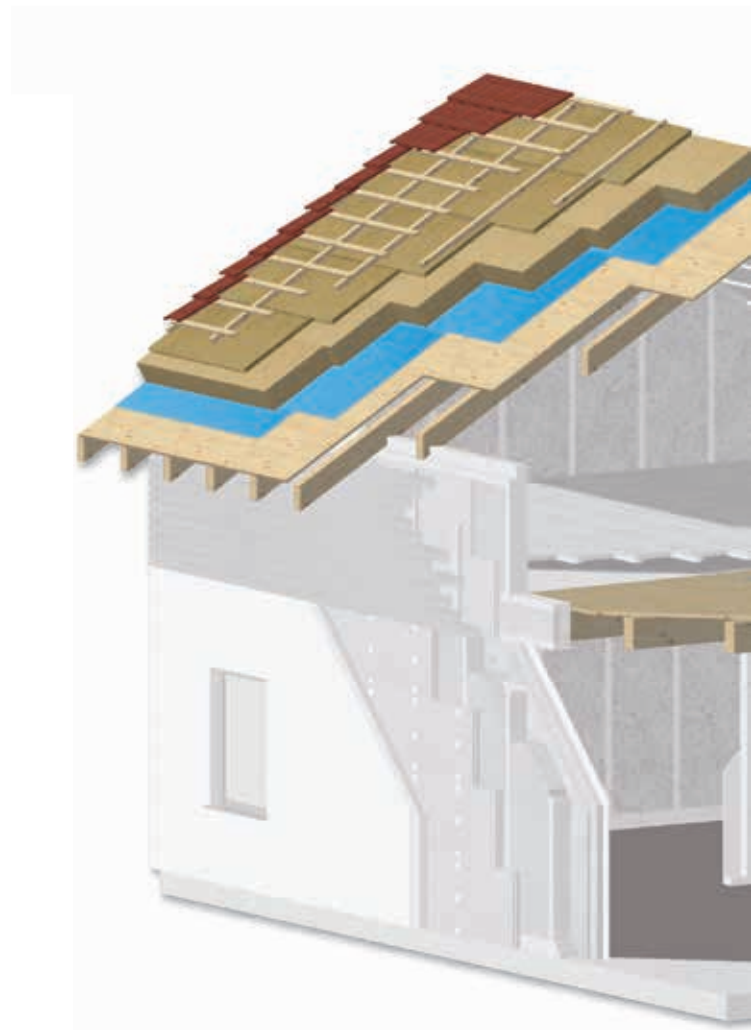


Rain-Tight Sarking

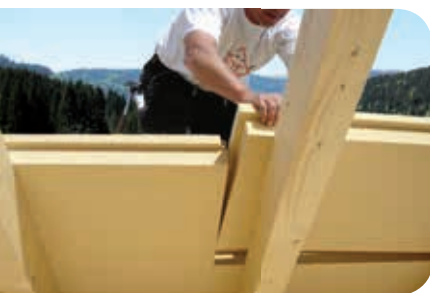
GUTEX Multiplex-top®, GUTEX Ultratherm®



GUTEX Multiplex-top® (22 to 35 mm thick) and GUTEX Ultratherm® (50 to 160 mm thick), single-ply sarking boards, install over above-rafter insulation, adding insulation while making the roof structure rain-tight. Their homogeneous structure offers many outstanding insulation qualities, which owe their uniqueness to the ultra-modern dry manufacturing technique used to produce the boards. Amongst these properties are a low U-value ($\lambda_D = 0.044$, respectively 0.042 W/mK) with increased stiffness and compressive strength (up to 200 kPa). The sarking boards' singular tongue and groove joints as well as their high dimensional consistency are distinct GUTEX quality attributes, which translate into significant timesavings and reliable rain-tightness, benefiting both homeowners and tradesmen. Along the fact that the boards easily join without requiring a hammer and woodblock, saves, according to qualified estimates, up to 15 % on installation time. And the joints are so tight that joint tape is unnecessary. The roof is reliably rain-tight for up to 12 weeks, which means you have three months to turn your attention to work inside the house during winter, etc. before installing the roofing material.



Installs directly over the rafters



Joint-free at the ridge



Suitable as temporary roof covering (max. 3 months)

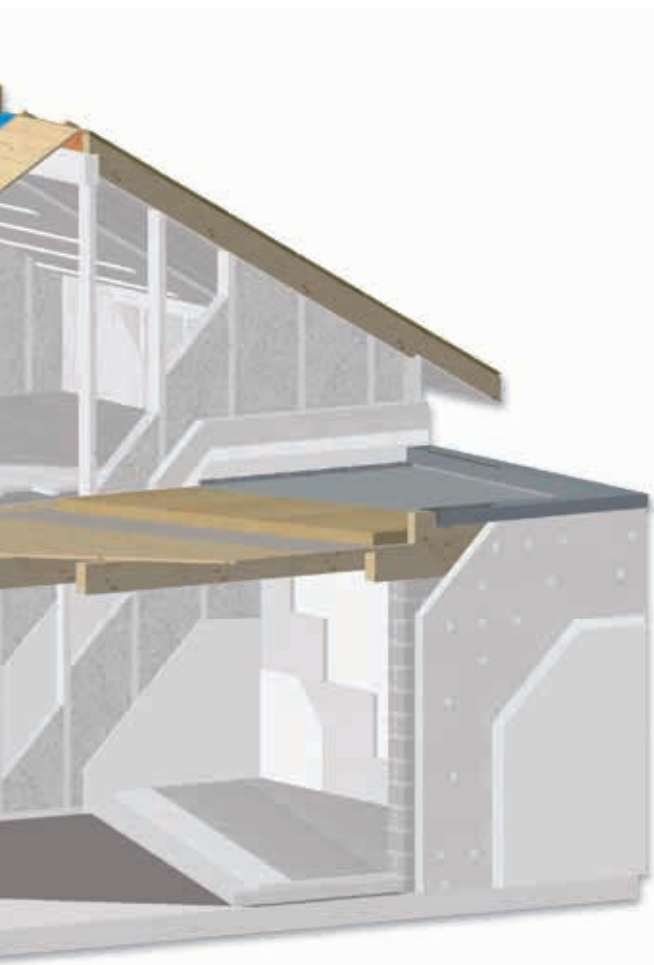


*GUTEX Multiplex-top®
Tongue and groove
along the width*



*GUTEX Multiplex-top®
Tongue and groove
along the length*



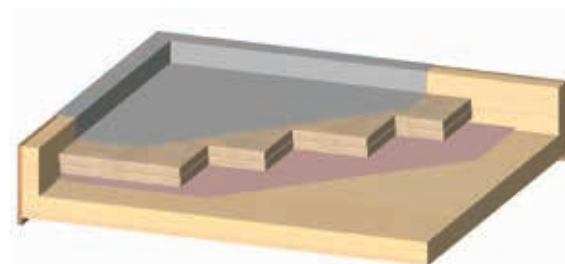


Flat Roofs

GUTEX Thermoflat®

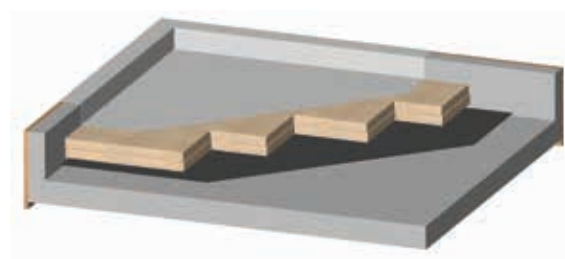


GUTEX Thermoflat® is ideal for use on all flat roofs and is virtually unlimited in its range of application. Roofing material installs directly over it and may be left exposed or covered with gravel. It is also durable and strong enough to support the roof's use as a roof terrace. GUTEX Thermoflat® is equally suitable for new or old wood, metal or masonry substrates and offers buildings all the advantages of GUTEX insulation boards.



GUTEX Thermoflat® over a wood substrate

GUTEX Thermoflat® installs easily



GUTEX Thermoflat® over a concrete substrate

Vented Facades

GUTEX Multitherm[®], GUTEX Thermosafe-homogen[®],
GUTEX Thermosafe[®], GUTEX Thermofibre[®],
GUTEX Thermoflex[®]



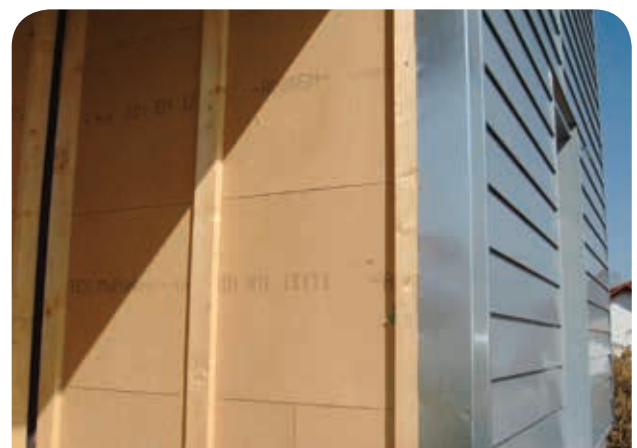
Still another variation of exterior wall is the vented facade. Here as well, GUTEX wood fibreboards offer many key advantages, whether for solid masonry and wood substrate or for timber frame construction.



Vented facade assembly over framed construction with GUTEX Thermofibre[®], GUTEX Thermoflex[®] and GUTEX Multitherm[®] behind a wooden facade



Vented construction over masonry with GUTEX Multitherm[®] behind a wooden facade

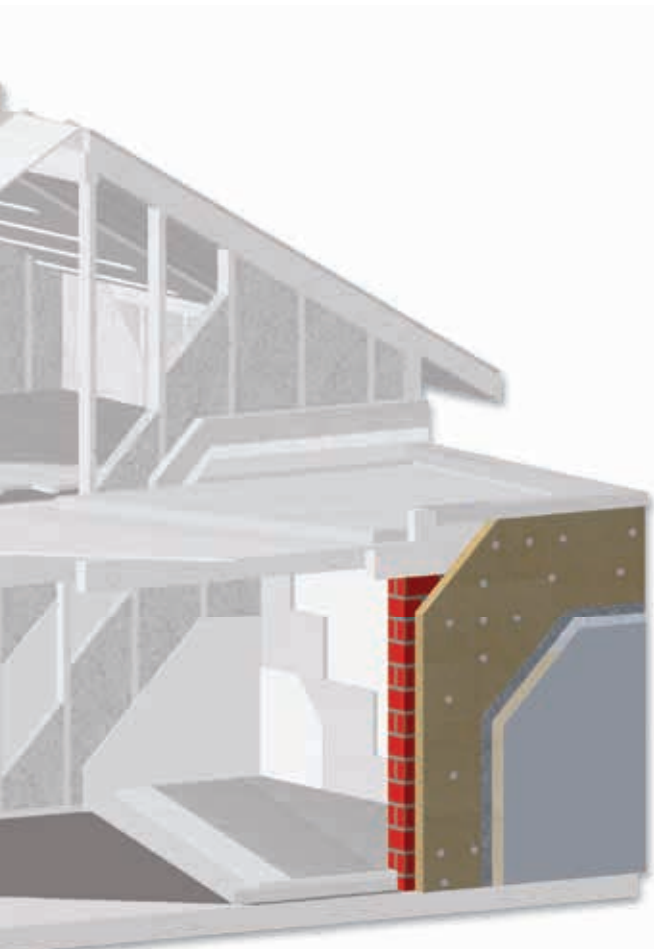


GUTEX Thermowall® ETICS

GUTEX Thermowall®, GUTEX Thermowall®-gf

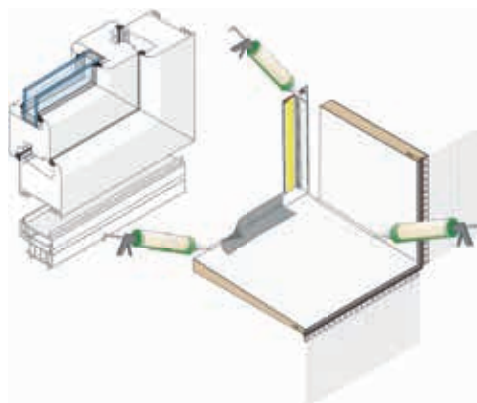


The GUTEX Thermowall® external thermal insulation composite system uses GUTEX Thermowall® boards. Precisely engineered and code-compliant, the system is suitable for non-vented wood or masonry applications and provides a very noticeable improvement in indoor environments. Thanks to their single-ply construction, homogenous cross-section and consistently precise dimensions, the plaster baseboards are remarkably easy to install. The GUTEX Thermowall® composite system is extremely impact resistant and satisfies the highest sound and thermal insulation performance requirements. GUTEX Thermowall® is also suitable for attaining REI 30 to REI 90 fire-protection compliant structures.



Installing GUTEX Thermowall® plaster baseboard over masonry

Installing GUTEX Thermowall® plaster baseboard with tongue and groove joints over timber frames



GUTEX Implio® – The Window Integration System for GUTEX Thermowall® ETICS.

For installation details, refer to the GUTEX Thermowall® ETICS brochure.



Interior Insulation of Exterior Walls

GUTEX Thermoroom®



For several reasons, exterior walls often can be retrofit with insulation only on their interior sides. GUTEX Thermoroom®, an insulation board made from wood fibre with a single-ply, homogeneous construction, was designed specifically with this in mind. Thanks to its construction, the board installs without mechanical fixation. All that's needed to fasten the insulation board to the existing substrate is a suitable adhesive. Excellent insulation against the cold, outstanding protection against the heat and astoundingly effective acoustic insulation are amongst the many features offered by this ecological wood fibre insulation board, which are a guarantee for a healthy and pleasant indoor environment.

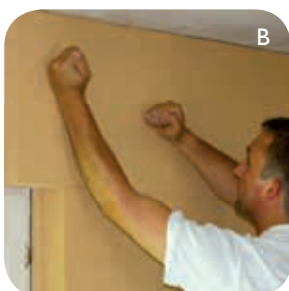
Discerning homeowners and builders request biologically harmless, healthy building products that provide lasting, effective thermal insulation of outer walls. GUTEX Thermoroom® bears the natureplus® seal of quality, an international designation that certifies the sustainability of building products and furnishings.

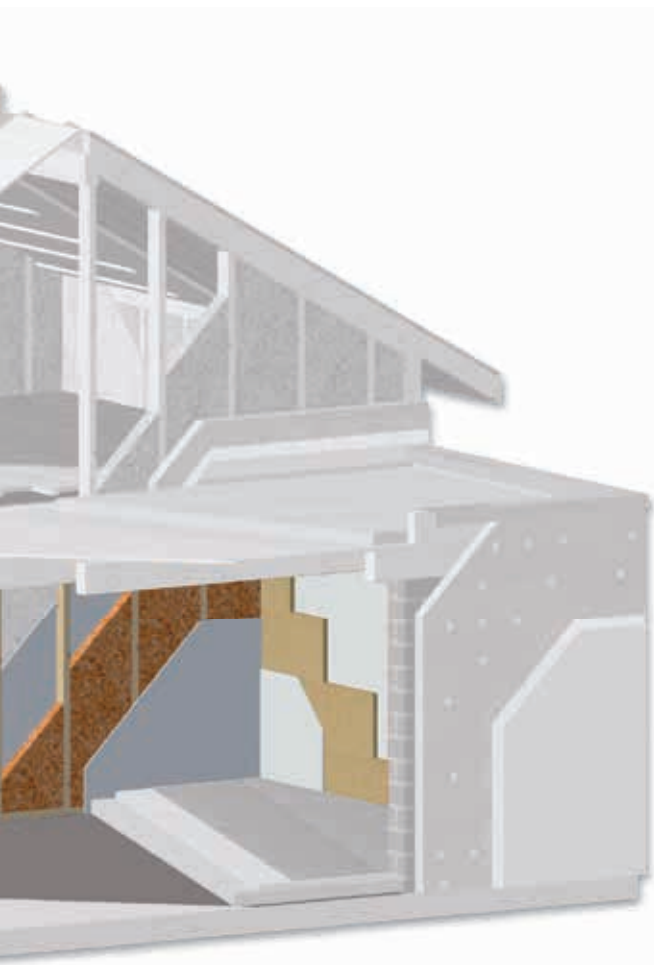


A Apply GUTEX Klebe- und Spachtelputz (adhesive/ base coat)

B Press GUTEX Thermoroom® firmly against the substrate

C Apply the plaster over the board





Installation Cavities and Lightweight Partition Walls

GUTEX Thermosafe-homogen®, *GUTEX Thermofibre®*, *GUTEX Thermoflex®*, *GUTEX Thermostat®*



Timber-framed houses often have a second plane on the inside of exterior walls where the power, heating and plumbing lines run and are installed. GUTEX Thermostat® installs with full surface contact to the sheathing. The worker cuts the channels in the board prior to covering it with wallboard. GUTEX Thermofibre® is also ideal for the insulation of these areas. It blows into the wall cavities effectively filling them around the service lines and hardware with significantly reduced manual effort. Insulating of these areas provides the entire building element with effective thermal and acoustic insulation.

Besides their obvious function of physically dividing open areas into rooms, lightweight partition walls are expected to dampen sound and provide fire protection. Thanks to their open-pore structure and high bulk density, wood fibreboard absorbs both structure-borne noise and indirect reflected sound. GUTEX fibreboards are REI 30 to REI 90 fire-rated for use with both metal and wood post wall constructions.

Lightweight partition walls

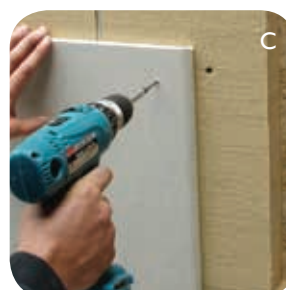


Lightweight timber-framed partition wall with GUTEX Thermofibre®/ GUTEX Thermoflex®/ GUTEX Thermosafe-homogen®



Lightweight partition walls with metal studs and GUTEX Thermofibre®/ GUTEX Thermoflex®/ GUTEX Thermosafe-homogen®

Service cavities



A Fastening GUTEX Thermostat®
B Cutting the channels for the service lines
C Fastening the gypsum board

Floors & Ceilings

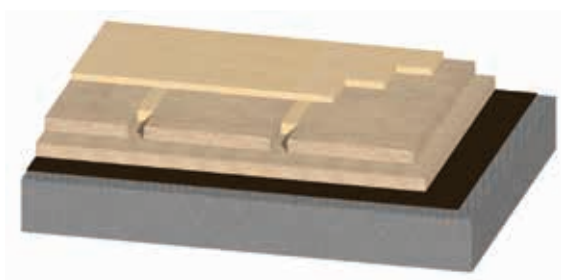
Concrete Ceilings, Concrete Floors

GUTEX Thermosafe-wd[®], GUTEX Thermofloor[®],
GUTEX Thermosafe-nf[®], GUTEX Happy Step[®]

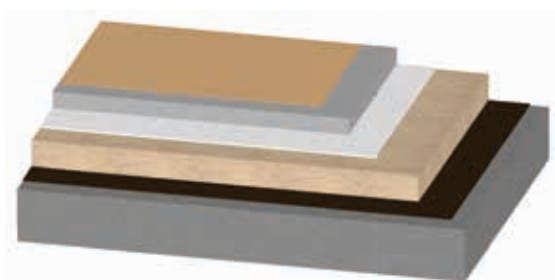


GUTEX floorboards provide suitable insulation for both floors over concrete and floors over timber joist ceilings. To sound-proof concrete substrates effectively, it is necessary to decouple the concrete ceiling from the walked-on floor covering. GUTEX wood fibreboard excels at this task. And the diverse selection of insulation boards permits a myriad of constructional variations. Highly resistant to compressive forces, insulation fibreboard performs ideally under, wet screed, mastic asphalt, particle or chipboard, OSB substrate floorboards, dry screed, engineered wood flooring, laminate flooring and solid wood planking.

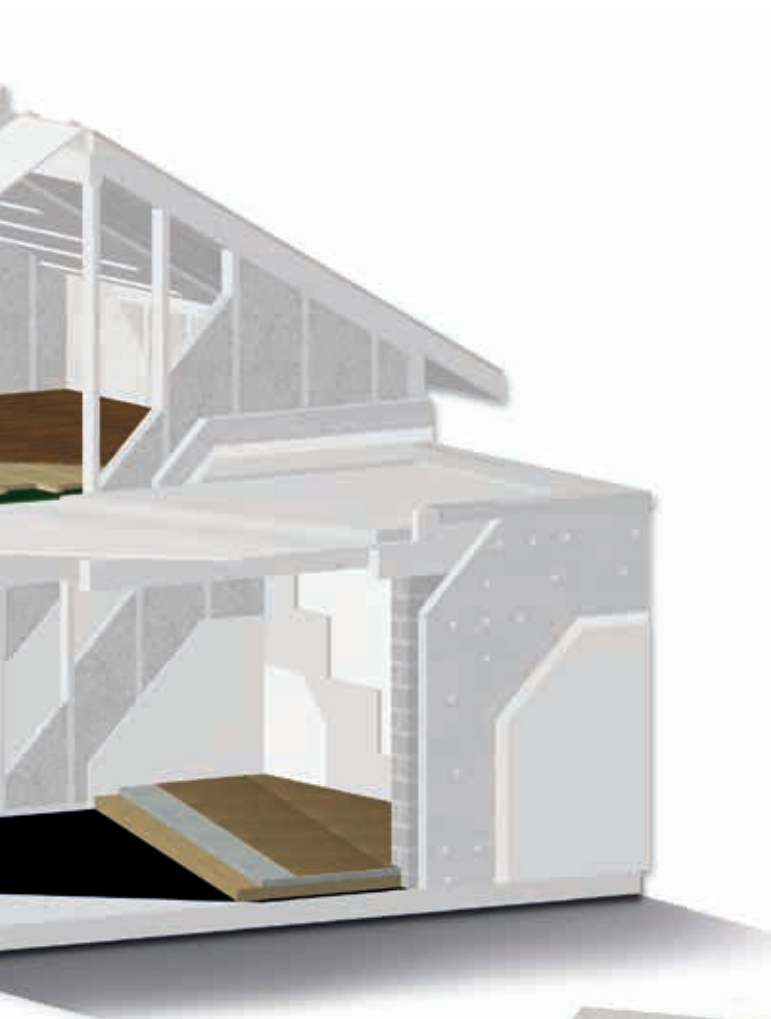
GUTEX Happy Step[®] in a floating, staggered joint pattern.
Suitable floor coverings include laminates, finished parquet or carpet.



Under solid wood planking, GUTEX Thermosafe-nf[®] with
joint strips installed over GUTEX Thermosafe-wd[®].



GUTEX Happy Step[®] installed over cement screed.
Both GUTEX Thermofloor[®] and GUTEX Thermosafe-wd[®] are
ideal for use between cement screed and concrete floors.



Timber Joist Ceilings

GUTEX Thermosafe-wd[®], GUTEX Thermofloor[®], GUTEX Thermosafe-nf[®], GUTEX Happy Step[®]



Like with over-concrete use, GUTEX insulation floorboards are suitable for a host of different wood assemblies. GUTEX Thermosafe-wd[®], an extremely compression-resistant product, is ideal where very thick insulation is required under dry or wet screed. If increased acoustic insulation is the primary need, either GUTEX Thermofloor[®] or GUTEX Thermosafe-nf[®] floorboard is the best choice. And when engineered wood flooring or laminate flooring is concerned, GUTEX Happy Step[®] delivers the extra impact insulation that is typically required of sub flooring boards for such assemblies.

With the availability of so many different products, it's easy to understand why GUTEX is the first stop when it comes to finding the most suitable, easy to install product for the specific sound or thermal insulation application.

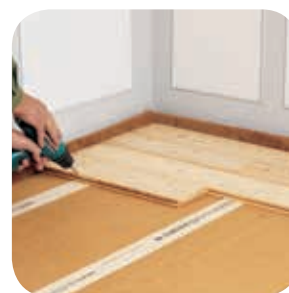
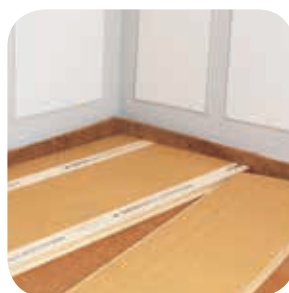
Once the surface is dust-free and clean, lay the trickle protection paper/moisture barrier. Install an insulating strip around the perimeter of the floor. Then install GUTEX Thermosafe-wd[®] as impact sound insulation and cover it with the GUTEX Thermosafe-nf[®] system before laying the solid wood plank flooring.



GUTEX Thermosafe-wd[®] installed in a floor over ceiling with exposed wood joists



GUTEX Thermosafe-nf with joint strips installed over solid wood planking



Facts and Figures

Product	Multiplex-top®				Ultratherm®								Thermosafe-homogen®							
Joint Type	Tongue and groove				Tongue and groove								butt							
	EN 13171				EN 13171								EN 13171							
Nominal thickness (mm)	18	22	28	35	50	60	80	100	120	140	160	40	60	80	100	120	140	160		
Length x Width (mm)	2500 x 750				1780 x 600								1200 x 625							
Weight per sheet (kg)	6,75	8,25	10,5	13,12	9,6	11,5	15,4	19,2	23,1	26,9	30,8	3,3	4,95	6,6	8,25	9,9	11,55	13,2		
Weight per m ² (kg)	3,6	4,4	5,6	7,0	9,0	10,8	14,4	18	21,6	25,2	28,8	4,4	6,6	8,8	11	13,2	15,4	17,6		
Boards per pallet	55	45	35	28	40	34	26	20	18	14	12	112	70	56	42	36	32	28		
Square metres per pallet (m ²)	103,13	84,38	65,63	52,50	42,72	36,31	27,77	21,36	19,22	14,95	12,82	84	52,5	42	31,5	27	24	21		
Actual coverage, Length x Width (mm)	2476 x 726	2480 x 728		2480 x 722	1749 x 569 (0,995 m ²)								1185 x 610							
Square metres per sheet (m ²)	1,875				1,07								0,75							
Weight per pallet (kg)	400				400								400	390						
Density (kg/m ³)	~ 200				~ 180								~ 110							
Nominal thickness (mm)	18	22	28	35	50	60	80	100	120	140	160	40	60	80	100	120	140	160		
Nominal thermal resistance R _D (m ² K/W)	0,40	0,50	0,60	0,80	1,15	1,40	1,90	2,35	2,85	3,30	3,80	1,05	1,60	2,15	2,70	3,20	3,75	4,30		
sd-value (m)	0,054	0,066	0,084	0,105	0,15	0,18	0,24	0,30	0,36	0,42	0,48	0,12	0,18	0,24	0,30	0,36	0,42	0,48		
Vapour diffusion factor (μ)	3				3								3							
Specific heat capacity (J/kgK)	2100				2100								2100							
Nominal thermal conductivity λ _D (W/mK)	0,044				0,042								0,037							
Compressive stress/ strength (kPa)	200				150								50							
Tensile strength perpendicular to board surface (kPa)	30				30								30							
Short-term water absorption (kg/m ²)	≤ 1				≤ 1								≤ 2							
Dynamic stiffness (MN/m)																				
Compressibility (mm)																				
Air flow resistivity (kPas/m ²)	100				100								100							
Fire reaction ¹⁾	E				E								E							

1) Euro Class per DIN EN 13501-1

Thermal resistance is derived from λ_{90/90} and the board thickness.

GUTEX Multiplex-top® and GUTEX Ultratherm®. Guaranteed by Germany's Association of Roofers.

GUTEX will be glad to send you test reports.

					Thermosafe®					Thermofibre®		Thermoflex®											
Rebate					butt					unenclosed	enclosed (cavities)	stumpf											
					EN 13171					ETA-12/0181		DIN EN 13171											
180	200	220	240		20	40	60	80	100	bale height 330		40	50	60	80	100	120	140	160	180	200	220	240
					1200 x 625					bale format 800 x 400		1350 x 575											
14,85	16,5	18,15	19,8		2,4	4,8	7,2	9,6	12	(per bale) 15 kg		1,55	1,94	2,33	3,11	3,88	4,66	5,43	6,21	6,99	7,76	8,54	9,32
19,8	22	24,2	26,4		3,2	6,4	9,6	12,8	16		2	2,5	3	4	5	6	7	8	9	10	11	12	
24	22	20	18		220	100	66	50	40	bales (packages) per pallet 21	112	90	72	56	42	36	32	28	24	20	20	16	
18	16,5	15	13,5		165	75	49,5	37,5	30		86,94	69,86	55,89	43,47	32,60	27,95	24,84	21,74	18,63	15,53	15,53	12,42	
					0,75							0,78											
					490					330		200											
					~ 160					25–30		~ 50											
180	200	220	240		20	40	60	80	100	bale height 330		40	50	60	80	100	120	140	160	180	200	220	240
4,85	5,40	5,95	6,45		0,50	1,05	1,60	2,15	2,70		1,10	1,35	1,65	2,20	2,75	3,30	3,85	4,40	5,00	5,55	6,10	6,65	
0,54	0,60	0,66	0,72		0,10	0,20	0,30	0,40	0,50		0,08	0,10	0,12	0,16	0,20	0,24	0,28	0,32	0,36	0,40	0,44	0,48	
					5					1/2		1/2											
					2100					2100		2100											
					0,037					0,039		0,036											
					20																		
					10																		
					100					≥ 5		5											
					E					E		E											



Facts and Figures

Product	Thermoflat®				Multitherm®								Thermoinstal®			
Joint Type	Rebate				Tongue and groove								butt			
	EN 13171				EN 13171								EN 13171			
Nominal thickness (mm)	100	120	140	160	40	60	80	100	120	140	160	180	200	50	20	40
Length x Width (mm)	1230 x 600												1250 x 600			
Weight per sheet (kg)	10,3	12,4	14,5	16,5	5,92	8,87	11,83	14,78	17,74	20,70	23,66	26,61	29,57	5,6	1,6	3,1
Weight per m ² (kg)	14	16,8	19,6	22,4	5,6	8,4	11,2	14	16,8	19,6	22,4	25,2	28	7,5	2,6	5,2
Boards per pallet	44	36	32	28	54	36	26	22	18	16	14	12	10	84	96	48
Square metres per pallet (m ²)	32,47	26,57	23,62	20,66	57,02	38,02	27,46	23,23	19,00	16,89	14,78	12,67	10,56	63	57,60	28,80
Actual coverage, Length x Width (mm)	1215 x 585				1740 x 580											
Square metres per sheet (m ²)	0,738				1,056								0,75			
Weight per pallet (kg)	490				350								500			
Density (kg/m ³)	~ 140				~ 140								~ 150			
Nominal thickness (mm)	100	120	140	160	40	60	80	100	120	140	160	180	200	50	20	40
Nominal thermal resistance R _D (m ² K/W)	2,55	3,05	3,55	4,10	1,00	1,50	2,05	2,55	3,05	3,55	4,10	4,60	5,10	1,25	0,50	1,00
sd-value (m)	0,30	0,36	0,42	0,48	0,12	0,18	0,24	0,30	0,36	0,42	0,48	0,54	0,6	0,15	0,06	0,12
Vapour diffusion factor (μ)	3				3								3			
Specific heat capacity (J/kgK)	2100				2100								2100			
Nominal thermal conductivity λ _D (W/mK)	0,039				0,039								0,039			
Compressive stress/ strength (kPa)	70				70								100			
Tensile strength perpendicular to board surface (kPa)	7,5				10								10			
Short-term water absorption (kg/m ²)	≤ 1				≤ 2											
Dynamic stiffness (MN/m)																
Compressibility (mm)																
Air flow resistivity (kPas/m ²)	100				100								100			
Fire reaction ¹⁾	E				E								E			

1) Euro Class per DIN EN 13501-1 2) Further dimensional information available on request

Thermal resistance is derived from λ_{90/90} and the board thickness.

Thermoroom®	Thermosafe-wd®										Thermosafe-nf®	Thermofloor®		Happy Step®		Standard-n	
butt	butt									Rebate	Tongue and groove	butt		butt		butt	
EN 13171	EN 13171										EN 13171	EN 13171		EN 13171		EN 13171	
60 80 100	20	30	40	60	80	100	120	140	160	41	21	31	4	6	6-18	6-18	
1200 x 500	1250 x 600										1190 x 380	1200 x 600		860 x 590		2500 x 1500	2500 ³⁾ x 1000
4,7 6,2 7,8	2,1	3,2	4,2	6,3	8,4	10,5	12,6	14,7	16,8	2,41	2,4	3,6	0,5	0,8	5,6-16,9	3,8-11,3	
7,8 10,4 13	2,8	4,2	5,6	8,4	11,2	14	16,8	19,6	22,4	5,3	3,4	5	0,96	1,56	1,5-4,5		
30 24 18	224	140	112	70	56	42	36	32	28	75	180	120	900	640	170-55		
18,00 14,40 10,80	168	105	84	52,5	42	31,5	27	24	21	33,92	129,6	86,4	456,7	324,74	175-637,5		
	1250 x 600					1235 x 585					1170 x 360						
0,6	0,75										0,45	0,72		0,51		3,75	2,50
190	490										260	450		560		1000	700
~ 130	~ 140										~ 130	~ 160		~ 240	~ 260	~ 250	
60 80 100	20	30	40	60	80	100	120	140	160	41	21	31	4	6	6-18		
1,50 2,05 2,55	0,50	0,75	1,00	1,50	2,05	2,55	3,05	3,55	4,10	1,05	0,50	0,75	0,085	0,10	0,10-0,35		
0,18 0,24 0,3	0,06	0,09	0,12	0,18	0,24	0,30	0,36	0,42	0,48	0,12	0,11	0,16	0,02	0,03	0,03-0,09		
3	3										3	5		5		5	
2100	2100										2100	2100		2100		2100	
0,039	0,039										0,038	0,039		0,046		0,046	
50	70													100		100	
10	10																
														≤ 2,0		≤ 2,0	
											30	30					
											2	2					
100	100										50	100		100		100	
E	E										E	E		E		E	



Facts and Figures

Product	GUTEX Thermowall®																			
Joint Type	butt												Tongue and groove							
	EN 13171																			
Nominal thickness (mm)	20	40	60	80	100	120	140	160	180	80	100	120	80	100	120	80	100	120	140	160
Length x Width (mm)	1250 x 590				830 x 600					2600 x 1250			2800 x 1250			1300 x 600				
Weight per sheet (kg)	2,4	4,7	7,1	9,4	8,0	9,6	11,2	12,7	14,34	41,6	52,0	62,4	44,8	56,0	67,2	10,0	12,5	15,0	17,5	20,0
Weight per m ² (kg)	3,2	6,4	9,6	12,8	16,0	19,2	22,4	25,6	28,8	12,8	16,0	19,2	12,8	16,0	19,2	12,8	16,0	19,2	22,4	25,6
Boards per pallet	224	112	70	56	42	32	28	24	24	12	9	8	12	9	8	54	44	36	32	28
Square metres per pallet (m ²)	165,2	82,6	51,63	41,3	20,92	15,94	13,94	11,95	11,95	39,00	42,00	29,25	31,50	26,00	28,00	42,12	34,32	28,08	24,96	21,84
Actual coverage, Length x Width (mm)													1276 x 576			1280 x 580				
Square metres per sheet (m ²)	0,738				0,498					3,25	3,25	3,25	3,5	3,5	3,5	0,78				
Weight per pallet (kg)	540				320				360	520	520	520	560	560	560	540				
Density (kg/m ³)	~ 160																			
Nominal thickness (mm)	20	40	60	80	100	120	140	160	180	80	100	120	140	160						
Nominal thermal resistance R _D (m ² K/W)	0,50	1,00	1,50	2,05	2,55	3,05	3,55	4,10	4,60	2,05	2,60	3,05	3,55	4,10						
sd-value (m)	0,06	0,12	0,18	0,24	0,30	0,36	0,42	0,48	0,54	0,24	0,30	0,36	0,42	0,48						
Vapour diffusion factor (μ)	3																			
Specific heat capacity (J/kgK)	2100																			
Nominal thermal conductivity λ _D (W/mK)	0,039																			
Compressive stress/ strength (kPa)	100																			
Tensile strength perpendicular to board surface (kPa)	10																			
Short-term water absorption (kg/m ²)	≤ 1,0																			
Dynamic stiffness (MN/m)																				
Compressibility (mm)																				
Air flow resistivity (kPas/m ²)	100																			
Fire reaction ¹⁾	E																			

Thermal resistance is derived from λ_{90/90} and the board thickness.

GUTEX Thermowall® NF		Thermowall®-gf ³⁾								Thermowall®-L			
Tongue and groove		Tongue and groove				butt				stumpf			
		EN 13171								DIN EN 13171			
60		40	60	60	40	60	40	60	120	140	160	180	
1800 x 600		1300 x 600		1800 x 600		2600 x 1250		2800 x 1250		1250 x 590			
10,4		5,7	8,66	11,95	24,05	36,08	25,9	38,85	9,74	11,36	12,98	14,6	
9,6		7,4	11,1	11,1	7,4	11,1	7,4	11,1	13,2	15,4	17,6	19,8	
34		108	72	34	24	15	24	15	36	32	28	24	
36,72		84,24	56,16	36,72	78,00	48,75	84,00	52,50	26,55	23,6	20,65	17,7	
1780 x 580		1276 x 576		1776 x 576									
1,08		0,78		1,08		3,25		3,5		0,738			
345		650		460		610	570	650	370				
~ 160		~ 185								~ 110			

60	40	60	120	140	160	180
1,50	0,90	1,40	3,2	3,75	4,3	4,85
0,18	0,12	0,18	0,36	0,42	0,48	0,54
3	3		3			
2100	2100		2100			
0,039	0,043		0,037			
100	≥ 150		50			
10	30		7,5			
≤ 1,0	≤ 1,0		≤ 1,0			
100	200		100			
E	E		E			



NOTE

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Insulation in summer

GUTEX wood insulation boards protect living areas from high temperatures, in particular, areas under roofs. Thanks to their high thermal storage capacity, they effectively dampen the flow of warmth from exterior to interior areas. Wood has a specific thermal storage capacity of 2100 J/kgK, which is the highest amongst all insulation materials.



Insulation in winter

Effective insulation reduces heating bills and creates a comfortable living environment in winter. Due to their low thermal conductivity (e.g. GUTEX Thermosafe-homogen has $\lambda_D = 0.037$ W/mK), GUTEX insulating wood fibreboard provides optimum insulation in winter, protecting the interior of houses from heat loss and ingress of cold.



Healthy indoor environment

GUTEX wood fibre insulation boards permit diffusion (μ value = 3) and regulate the interior relative humidity by virtue of their ability to absorb and release up to 15 % of their weight in moisture without the loss of insulation capacity. These two functions improve the living environment of indoor areas significantly.



Acoustic insulation

The open-pore structure of GUTEX wood fibreboard and its high absorption volume contribute to their ability to deliver superb soundproofing against airborne and impact noise.



Fire protection

GUTEX wood fibre insulation boards easily comply with fire protection regulations. Various individual certificates of approval are available for REI 30 to REI 90 fire resistance ratings for roof and wall structures.



Environmental compatibility

The raw material for all GUTEX insulation boards comes from wood that is locally harvested and grown using sustainable forestry management practices. GUTEX exclusively uses untreated chips and shavings from spruce and fir, which are by-products obtained from other timber manufacturing processes. All GUTEX insulation boards are tested and certified as biologically safe and compatible with other building materials (natureplus® seal of quality).



Recyclability

GUTEX wood fibreboard is completely recyclable and, provided wood preservatives have not contaminated it, can be disposed of at the nearest recovery centre.



User friendly

GUTEX insulation boards are manufactured according to the highest quality standards and are characterised by absolutely minimum dimensional deviation. This, combined with the detailed installation instructions the manufacturer provides, makes working with GUTEX products a pleasure.



Made in Germany

For more than 85 years, GUTEX, a family-owned and -operated company, has manufactured insulation boards at its plant in Waldshut-Tiengen, which is located in the southern Black Forest. All GUTEX insulation boards carry the CE marks and are produced according to the current applicable standards. Moreover, the German building authorities have issued a European Technical Approval for GUTEX's Thermowall External Thermal Insulation Composite System.

GUTEX customer service

An important part of GUTEX's customer service is its qualified assistance. Whether you require help with a private single-family house or commercial property, GUTEX's trained and qualified staff will gladly assist you. If you have technical queries, please contact our technical assistance department by phone ++49-7741/60 99-125, fax ++49-7741/60 99-21 or per e-mail at anwendungstechnik@gutex.de.

GUTEX product training

Architects, craftsmen, wholesalers, sales staffs and developers can benefit from the workshops GUTEX offers, which address specific topics, including physics and building, construction techniques, product applications, etc. Visit our website for further information or give us a call.



Your source for GUTEX products:



NATURALLY MADE FROM WOOD

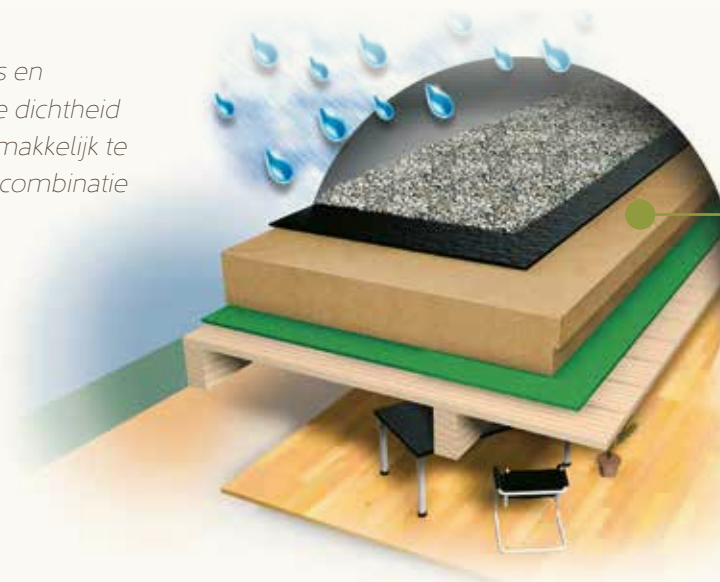
HDP protect

DIE HOCHBELASTBARE FÜR DACH, BODEN
UND OBERSTE GESCHOSSDECKEN.

*HDP protect - de uiterst drukvaste functionele plaat van HOMATHERM®.
Deze houtvezel isolatieplaat is bijzonder geschikt voor platdakconstructies en
onderconstructies van vloeren. Met een stevige drukvastheid en een ruwe dichtheid
van 140 kg/m³, biedt de plaat toch een perfecte warmte-isolatie en is gemakkelijk te
verwerken. Kan in een enkele laag worden gelegd, waarbij een efficiënte combinatie
ontstaat van rendement en de beste bouwfysische eigenschappen.*

UW ISOLATIEVOORDELEN IN ÉÉN OOGOPSLAG:

- Vervaardigd in een droog procedé
- Hoge drukvastheid
- Laag warmtegeleidingsvermogen
- Door en door gehydrofobeerd
- Open voor dampdiffusie
- Goedkeuring van het algemene bouwtoezicht



HDP protect



Information sur le niveau d'émission de substances volatiles dans l'air intérieur, présentant un risque de toxicité par inhalation, sur une échelle de classe allant de A+ (très faibles émissions) à C (fortes émissions)

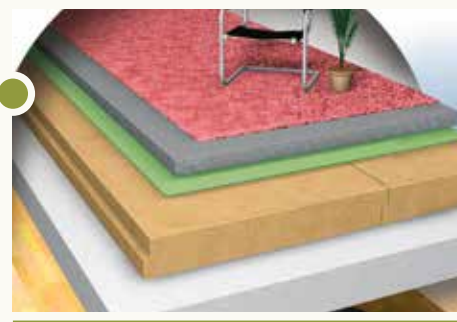


TOEPASSINGSGEBIEDEN

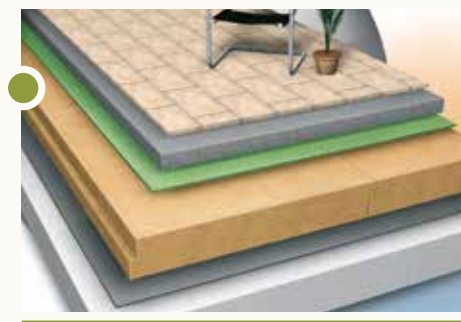
- Types toepassing volgens DIN 4108-10: DADdm, DAAAdh, DZ, Dlzg, DEODm, WABdm, WH, Wlzg, WTR
- Platdak- en buitendakse isolatie op het dakbeschoot
- Uitwendige isolatie van wanden met houten stijlen achter de gevelbekleding
- Isolatie op onafgewerkte plafonds (bijv. onder de afwerklaag)
- Overige isolatiematerialen voor vloeren
- Plafond bovenste verdieping
- Binnenisolatie voor wanden en plafonds



Platdak: buitenisolatie van woon- en bedrijfsgebouwen met HDP protect.



Plafond bovenste verdieping: drukbelastbare isolatie-oplossing voor goed toegankelijke ruimten onder het dak met HDP protect.



Dankzij de solide drukvastheid is HDP protect vooral geschikt voor onderconstructies van vloeren en biedt het tegelijkertijd een perfecte warmte-isolatie.

TECHNISCHE GEGEVENS



Aanduiding	houtvezelisolatieplaat WF-EN 13171-T3- DS(70,-)2-CS(10/Y)100-TR10-WS1,0-MU3-AF100
Allgemeine bauaufsichtliche Zulassung (DIBt) (Algemene goedkeuring van het bouwtoezicht)	Z-23.15-1417 [DE] ACERMI N° 10/113/645/1 [FR]
Volledige samenstelling	houtvezels, PMDI-verlijming 4 %, paraffine 1 %
Productieprocedé	droog procedé
Specifieke warmtecapaciteit	2100 J/(kg·K)
Ruwe dichtheid (ca.)	140 kg/m ³
Elasticiteitsmodulus	1,5 N/mm ²
Dimensionsstabilität bei definierten Temperatur- und Feuchtebedingungen	DS (70,-)2
Druksterkte bij 10% vervorming	≥ 100 kPa
Treksterkte loodrecht op het vlak van de plaat	≥ 10 kPa
Waterdamp-diffusieweerstandswaarde μ	3
Nominale warmtegeleidingswaarde	$\lambda_D = 0,039 \text{ W/(mK)}$ [EU] λ uit hoofde van SIA 279 = 0,040 W/(mK) [CH] $\lambda = 0,042 \text{ W/(mK)}$ [DE] $\lambda_s = 0,043 \text{ W/(mK)}$ [AT] $\lambda_{certificatie} = 0,043 \text{ W/(mK)}$ [FR]

TECHNISCHE GEGEVENS



Langtegerelateerde doorstromingsweerstand	≥ 100 kPa·s/m ²
Kortstondige wateropname	≤ 1,0 kg/m ²
Brandwerendheid	Euroklasse volgens EN 13501-1: E
Afvalcode volgens de AVV (Duitse verordening afvalverwerking)	030105, 170201

FORMATEN



Levering in de vorm van	homogene platen	
Kantenprofiel	versprongen groef	stomp
Dikte [mm]	140, 160, 200, 240	40, 60, 80, 100, 120
Afmetingen voor levering en calculatie	1265 x 615 mm	1250 x 600 mm
Dekmaat [mm]	1250 x 600	-

NOG VRAGEN? OP DE HIERNA VERMELDE ADRESSEN ONTVANGT U EEN DESKUNDIG ADVIES:

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HOMATHERM®





Technisches Merkblatt GUTEX Thermoflat®



Fotos: GUTEX Archiv

GUTEX Thermoflat ist die druckfeste Dämmplatte mit einschichtigem homogenem Rohdichteprofil für Flachdachkonstruktionen auf Holz-, Beton- und Blechkonstruktionen.

Technische Daten:	Thermoflat
Kantenausbildung	Stufenfalz
Dicke (mm)	100/120/140/160
Länge x Breite (mm)	1230 x 600
Deckmaß Länge x Breite (mm)	1215 x 585 (0,71m ²)
Quadratmeter pro Platte (m ²)	0,738
Gewicht pro Platte (kg)	10,3/12,4/14,5/16,5
Gewicht pro m ² (kg)	14/16,8/19,6/22,4
Platten pro Palette	44/36/32/28
Quadratmeter pro Palette (m ²)	32,47/26,57/23,62/20,66
Rohdichte (kg/m ³)	140
Gewicht pro Palette (kg)	490
Wärmeleitfähigkeit Nennwert λ_D (W/mK)	0,039
Wärmeleitfähigkeit Bemessungswert λ (W/mK)	0,042
Wärmedurchlasswiderstand Nennwert R_D (m ² K/W)	2,55/3,05/3,55/4,10
Wärmedurchlasswiderstand R (m ² K/W)	2,35/2,85/3,30/3,80
Dampfdiffusion (μ)	3
sd-Wert (m)	0,3/0,36/0,42/0,48
Druckspannung/-festigkeit (kPa)	70
Zugfestigkeit senkrecht zur Plattenebene (kPa)	7,5
kurzzeitige Wasseraufnahme (kg/m ²)	≤ 1
Strömungswiderstand (kPa s/m ²)	≥ 100
spezifische Wärmekapazität (J/kgK)	2100
Brandverhalten: Euroklasse nach DIN EN 13501-1	E

Bezeichnung: WF-EN13171-T4-CS(10/Y)70-TR7,5-MU3-AF100.

Entsorgung: Altholzkategorie A2 Abfallschlüsselnummern nach AVV:030105; 170201

Anwendungsgebiete:

- Dämmung von Flachdachkonstruktionen auf Holz-, Beton- und Blechkonstruktionen
- nach DIN 4108-10:DAA dh

Vorzüge:

- hervorragende Wärmedämmung
- umlaufende Stufenfalz-Profilierung
→ Vermeidung von Wärmebrücken
- hervorragende Wärmespeicherkapazität
→ sommerlicher Hitze- und winterlicher Kälteschutz
- Verbesserung der Schalldämmung
- feuchtigkeitsregulierend
- dampfdiffusionsoffen
- druckbelastbar
- nachhaltiger Rohstoff Holz → recyclefähig
- hergestellt in Deutschland (Schwarzwald)
- baubiologisch unbedenklich (natureplus zertifiziert)

Unser GUTEX Service:

- Bei **technischen Fragen** rufen Sie unsere Info-Line unter **+49-7741/60 99-125** an, schicken Sie uns ein Fax unter **+49-7741/60 99-21** oder senden Sie eine E-mail an **anwendungstechnik@gutex.de**
- Besuchen Sie auch unsere **kostenlose Schulung** im Hause GUTEX. Termine finden Sie auf unserer Homepage unter „Service“
- Unter **www.gutex.de** finden Sie u.a. Informationen über Bauphysik, Produktanwendungen, Konstruktionsvorschläge mit Berechnungen sowie Ausschreibungstexte und CAD-Zeichnungen zum Downloaden.

Inhaltsstoffe:

- unbehandeltes Tannen- und Fichtenholz aus dem Schwarzwald
- Zuschlagstoffe:
 - 4% PUR-Harz
 - 1,5% Paraffin

Verlegehinweise:

- Platten trocken lagern und verarbeiten
- Kreuzfugen vermeiden
- Zuschneiden mit GUTEX Zuschnittsäge oder Handkreissäge mit Absaugung
- trockenen, ebenen und technisch einwandfreien Untergrund schaffen
- die Dämmschicht muss vor Feuchtigkeit geschützt werden
- Platten sind während der Montage vor Windsog zu schützen
- Staubabsaugung gemäß BG-Vorschrift, Bestimmungen der TR GS 553 beachten

Befestigung:

- Bei Nacktdächern wird die Dämmplatte während der Montage gegen Wind gesichert. Die Befestigung wird mit der Verlegung der Abdichtungsfolie ausgeführt.
- Bei Kiesdächern und Dächern mit Terrasse ist nur eine Randbefestigung notwendig.
- Befestigungstechniken sind gemäß Abdichtungsbahnenhersteller auszuführen.

Anwendungsgebiete nach DIN 4108-10:

- DAAh: Außendämmung von Dach oder Decke, vor Bewitterung geschützt, Dämmung unter Abdichtungen.
- dh: Hohe Druckbelastbarkeit

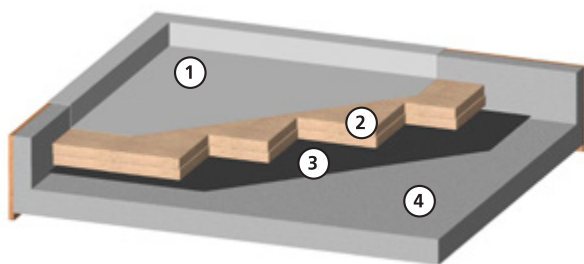
Konstruktionsvarianten mit deren Randbedingungen:

	Aufbau auf Folie außen	Nacktdach	Dachterrasse/ Kies	Holzrost	Nacktdach	Dachterrasse/ Kies	Holzrost	Nacktdach	Dachterrasse/ Kies	Holzrost
1	Farbe Folie außen	grau (schwarz)			grau/ schwarz			grau/ schwarz		
	sd-Wert Folie außen	10 - 100 m	30 - 50 m		10 - 100 m			10 - 100 m	30 - 50 m	
2	max. Einbaufeuchte GUTEX Thermoflat	12 Masse %			12 Masse %			12 Masse %		
3	sd-Wert Folie innen	250 - 1500 m			feuchtevariable Dampfbremse			250 - 1500 m		
4	Konstruktion	Beton			Holz			Blech		

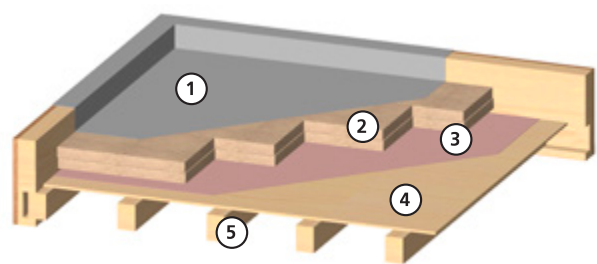
Basis des Nachweises ist die Software „WUFI“. Der Nachweis wurde innerhalb einer Diplomarbeit unter Betreuung des Fraunhofer Instituts für Bauphysik in Holzkirchen geführt.

Alle Konstruktionsvarianten sind mit den Klimadaten aus „Holzkirchen“ vom Jahr 1991 nachgewiesen.

Beispiel Flachdachaufbau:



- 1 Abdichtungsfolie mechanisch befestigt
- 2 GUTEX Thermoflat
- 3 Dampfsperre
- 4 Beton-/ Blechuntergrund



- 1 Abdichtungsfolie mechanisch befestigt
- 2 GUTEX Thermoflat
- 3 Dampfbremse feuchtevariabel/Luftdichtung
- 4 Sichtschalung
- 5 Sichtbalkenlage

Druckfehler, Änderungen und Irrtümer vorbehalten. Das vorliegende Produktdatenblatt entspricht dem derzeitigen Entwicklungsstand unserer Produkte und verliert bei Erscheinen einer Neuauflage seine Gültigkeit.

Die Eignung des Produktes ist nicht verbindlich für Einzelfälle besonderer Art. Gewährleistung und Haftung richten sich bei Lieferung nach unseren Allgemeinen Geschäftsbedingungen.

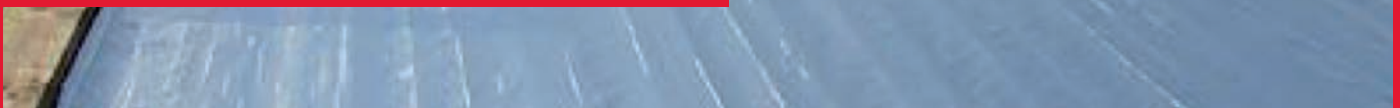


DÄMMPLATTEN AUS SCHWARZWALDHOLZ



Rockfol SK II

Dampscherm voor platte daken



Productomschrijving

Rockfol SK II is een koud zelfklevend dampscherm met een aluminiumfolie cachering voor platte daken met een onderconstructie in geprofileerde stalen platen of in houten platen. Het product is mandragend en voldoet door zijn dampremmende waarde ruim aan de hoogste eisen wat betreft dampwerendheid.



Toepassing

Rockfol SK II wordt toegepast als damp- en luchtdichte laag bij geïsoleerde platte daken, afgedekt met een bitumineuze, kunststof of metalen dakbedekking. Het product is vooral geschikt voor toepassing op onderconstructies in geprofileerde stalen platen met een gekleefd dakbedekkingssysteem. Ook als hierbij hoge eisen aan de brandveiligheid worden gesteld.

Rockfol SK II

Productvoordelen

- Lage bijdrage bij brand;
- Koude zelfklevende butyllaag;
- Zeer goede kleefkracht, ook bij lage temperaturen;
- Mandragend en goed beloopbaar;
- Niet toepasbaar als tijdelijke waterdichting of noodlaag;
- Blijvend flexibel en wordt niet bros;
- Eenvoudig op maat te snijden en snel te verwerken.

Technische informatie

Afmetingen

Lengte (m)	Baan-breedte (m)	Oppervlakte (m ² /rol)	Dikte (mm)	Werkende breedte (m)	Werkende oppervlakte (m ² /rol)
25	1,58	39,5	Ca. 0,6	Ca. 1,50	Ca. 37,5

Samenstelling

Mandragende dampremmende laag	0,2 mm glasvezelversterkte aluminium-duplexfolie
Zelfklevende laag	0,4 mm butyl kleefstof
Beschermingslaag	0,07 mm gesiliconiseerde aftrekbare LDPE beschermfolie

Algemene eigenschappen

Dampdiffusie-weerstand	$S_d \geq 1500$ m (EN 1931)
Brandreactie	Euro-brandklasse E (NEN-EN 13501-1)
Brandbijdrage	≤ 11.600 kJ/m ² (getest om toegepast te kunnen worden volgens DIN 18234-1 op geprofileerde stalen platen)
Oppervlaktemassa	690 g/m ²
Lakverdraagzaamheid	Siliconenvrij (volgens Duitse automobielnorm)
Treksterkte (dwarsrichting D)	≥ 500 N/50 mm (EN 12311-1)
Treksterkte (lengterichting L)	≥ 350 N/50 mm (EN 12311-1)
Afpelweerstand van de overlapverbinding	≥ 300 N/50 mm (EN 12317-1)
Plooittemperatuur	$\leq -45^\circ\text{C}$ (EN 1109)
Verwerkings-temperatuur	van $+5^\circ\text{C}$ tot $+80^\circ\text{C}$
Afdruip-temperatuur	$\geq 110^\circ\text{C}$ (EN 1110)

Opslag en verwerking

Opslag

Rockfol SK II is verkrijgbaar op rollen, die gestapeld zijn op pallets. Het gewicht per rol, inclusief kartonnen kernhuls, is circa 26,85 kg. De pallets mogen niet op elkaar worden gestapeld.

De producten zijn verpakt in karton en polyethyleen folie. Dit biedt voldoende bescherming bij tijdelijke buitenopslag. Bij opslag langer dan 1 week dienen de producten droog te worden opgeslagen, beschermd tegen direct zonlicht, temperaturen boven 35°C en overige weersinvloeden. De houdbaarheid van het product is circa 6 maanden na productiedatum.



Verwerking

Bij onderconstructies in geprofileerde stalen platen, dient Rockfol SK II direct te worden aangebracht op de bovenzijde van de cannelures. De ondergrond dient schoon, droog, stof- en vetvrij te zijn. Rockfol SK II kan niet als tijdelijke dichting of noodafdichting worden toegepast. Bij onderconstructies in houten platen dient eerst een butyl hechtpriemer aangebracht te worden alvorens de Rockfol SK II te kleven. Rockfol SK II is eenvoudig op maat te snijden met een scherp mes of met een schaar.

De legrichting is parallel aan de richting van de cannelures. Hechting vindt plaats na het verwijderen van de beschermende aftrekfolie aan de onderkant en daarna door de Rockfol SK II voldoende aan te drukken.

Bij alle naden dient een overlap van 8 cm te worden aangehouden. Alle overlapverbindingen dienen door middel van aanrollen of aandrukken luchtdicht en dampdicht te worden uitgevoerd. Beschadigingen aan de folie dienen gerepareerd te worden door middel van het overplakken met een passtuk Rockfol SK II.

Vervolgens kan een mechanisch bevestigd of losliggend geballast dakbedekkingssysteem toegepast worden, bestaande uit ROCKWOOL dakisolatie en een bitumineuze, kunststof of metalen dakbedekking. De verwerking van alle dakcomponenten dient te gebeuren volgens de geldende normen, certificaten en attesten.

Stap 1

De baan Rockfol SK II wordt met een overlapping van circa 8 cm evenwijdig aan de cannelurerichting uitgerold en uitgelijnd. Bij verticale aansluitingen dient het dampscherm minimaal 5 tot 10 cm boven de isolatiedikte omhoog gevoerd te worden voor aansluiting met de dakbedekking.



Stap 2

Het begin van het dampscherm plakken en luchtdicht aansluiten en aandrukken.



Stap 3

De beschermingsfolie aan de onderkant kan via de zijkant verwijderd worden. Alle overlappingen dienen nauwkeurig te worden aangesloten en luchtdicht en dampdicht te worden aangedrukt of aangerold.



Stap 4a

Als laatste worden alle overige aansluitingen uitgevoerd. Belangrijk is dat alle aansluitingen bij dakranden, doorvoeren en opgaand werk volgens de geldende normen en richtlijnen voldoende omhoog worden gevoerd.



Stap 4b

Al deze aansluitingen dienen luchtdicht en dampdicht te worden uitgevoerd, indien nodig door middel van het plakken van overlappende passtukken.



Benodigde hoeveelheid

Op de meest toegepaste onderconstructies in geprofileerde stalen platen is per m² dakoppervlak circa 1,05 m² Rockfol SK II nodig. Het verbruik kan echter verschillen per type geprofileerde stalen plaat.

Technische Service

Voor technische vragen kunt u terecht bij de afdeling Customer Service: 0475 35 36 37.

Productwijzigingen zijn voorbehouden zonder voorafgaande berichtgeving.
ROCKWOOL kan geen aansprakelijkheid aanvaarden voor de eventuele aanwezigheid van (zet)fouten en onvolledigheden.

ROCKWOOL B.V.
Postbus 1160, 6040 KD Roermond
Industrieweg 15, 6045 JG Roermond
Telefoon: 0475 35 35 35
info@rockwool.nl - www.rockwool.nl



comprialuminium

Dakprofielen

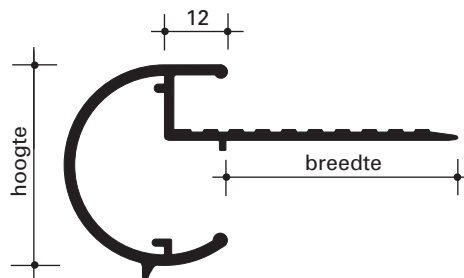


Dakprofielen

Comprial 630 NM A-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 628 NM	27 mm	40 mm
CA 630 NM	38 mm	43 mm
CA 632 NM	45 mm	48 mm
CA 633 NM	55 mm	58 mm
CA 635 NM	60 mm	48 mm

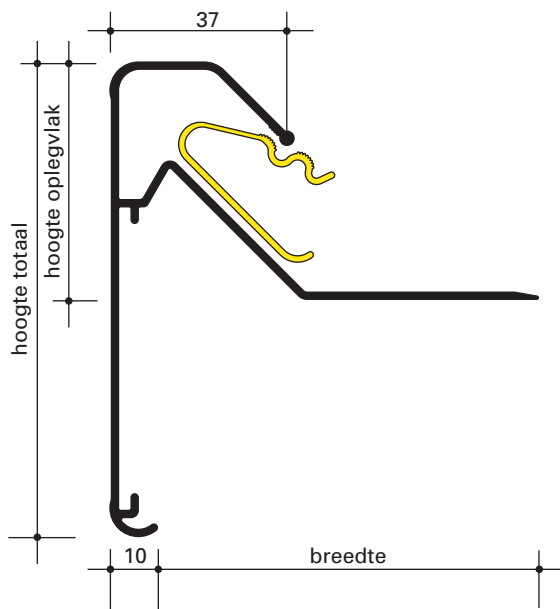


Comprial Trio 2000 A-serie

Standaardlengte 5000 mm

Artikel	Hoogte totaal	Hoogte oplegvlak	Breedte
Trio-100	100 mm	50 mm	80 mm
Trio-130	130 mm	60 mm	95 mm
Trio-150	150 mm	60 mm	95 mm
Trio-200	200 mm	60 mm	95 mm

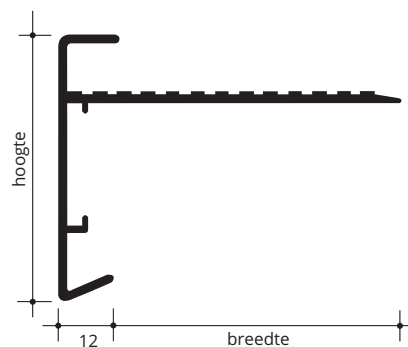
Tweedelig vlakdakrandprofiel met universele kliklijsten geschikt voor kunststof en bitumen ovaal geponst 6 x 15 mm, 400 mm h.o.h.



Comprial 600 A-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 605	55 mm	58 mm
CA 606	55 mm	78 mm

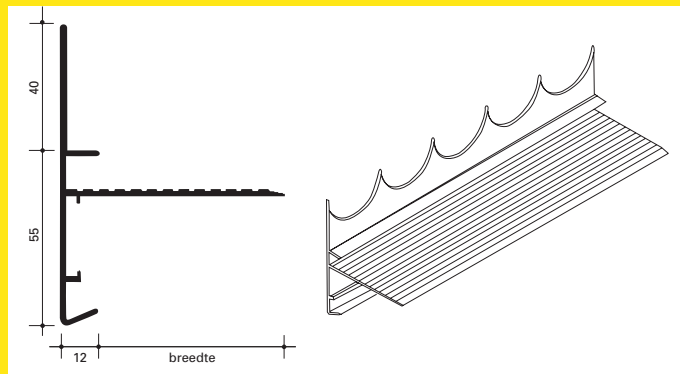


Dakprofielen

Antiklimtrim CA 609

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 609	55 mm + 40 mm	58 mm

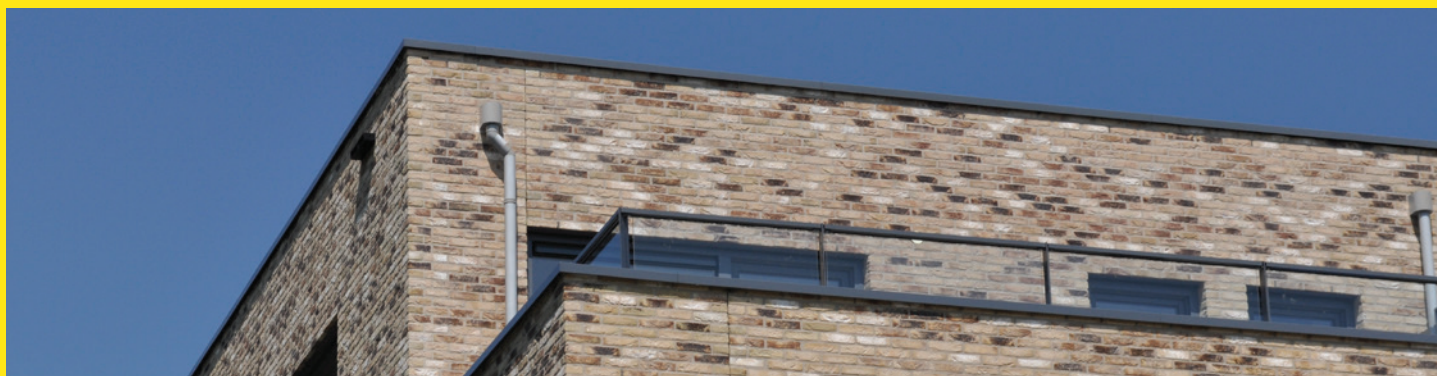
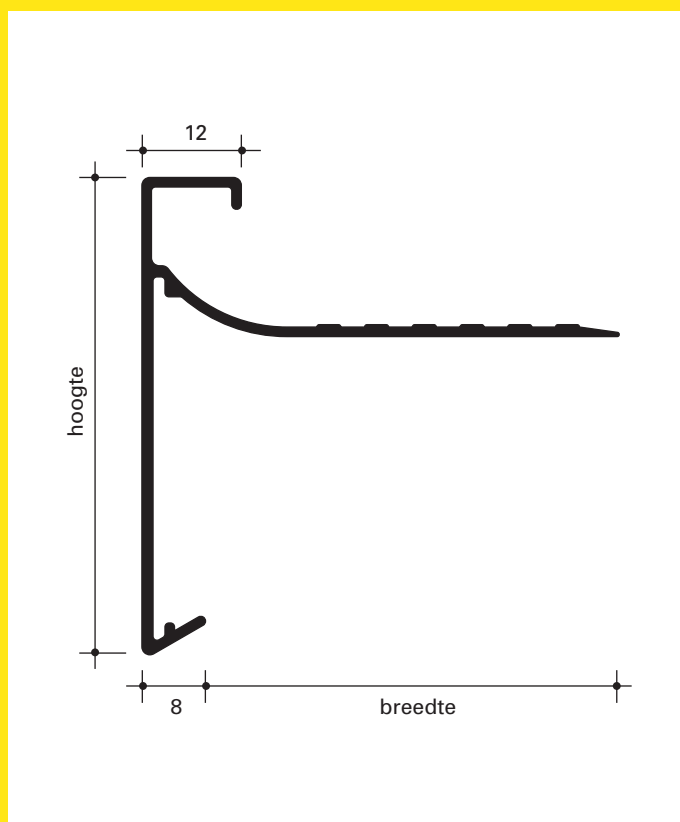


Comprial 6000 A-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 6002	45 mm	37 mm
CA 6005	60 mm	52 mm
CA 6006	80 mm	52 mm
CA 6007	110 mm	52 mm
CA 6008	125 mm	52 mm

Deze 6000 serie wordt gekenmerkt door een oplopend oplegvlak, waardoor er geen hemelwater tegen de "kop" van de daktrim blijft staan en er praktisch geen kans meer is op vochtinsluiting ter plaatse van de dakrand.



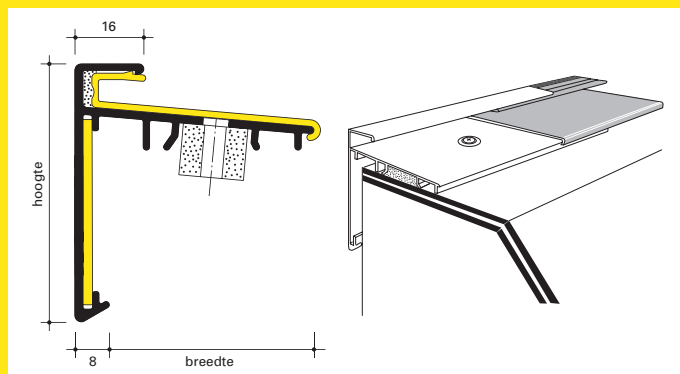
Dakprofielen

Comprial Monotrim A-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
Monotrim 45	45 mm	47 mm
Monotrim 60	60 mm	47 mm
Monotrim 80	80 mm	47 mm
Monotrim 100	100 mm	47 mm
Monotrim 130	130 mm	47 mm

De Monotrimmen worden geleverd inclusief celband, voldoende geanodiseerde klemkoppelstukken en RVS schroeven met afdichtringen.

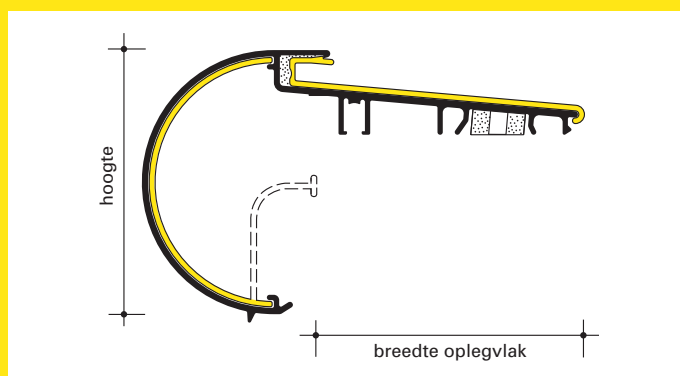


Comprial Monokraaltrim A-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
Monokraaltrim 45	45 mm	58 mm
Monokraaltrim 60	60 mm	58 mm
Monokraaltrim 75	75 mm	75 mm

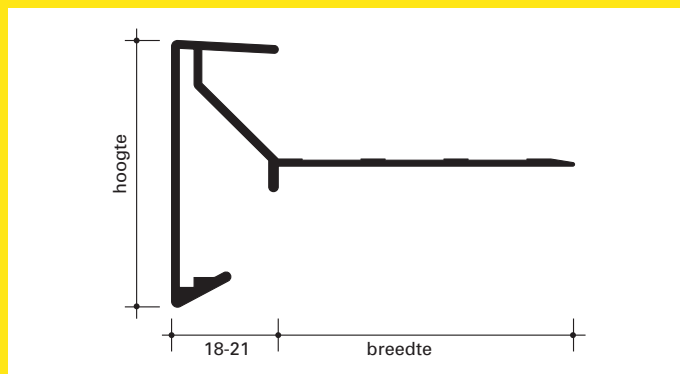
De Monokraaltrimmen worden geleverd inclusief celband, voldoende geanodiseerde klemkoppelstukken en RVS schroeven met afdichtringen.



Comprial 620 / 650 A-serie

Standaardlengte 2500 mm

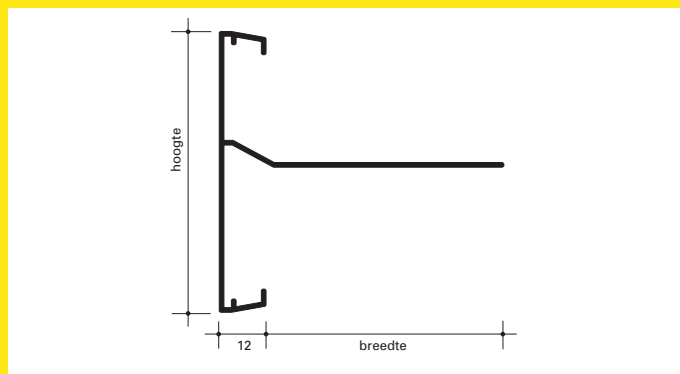
Artikel	Hoogte	Breedte
CA 621	45 mm	50 mm
CA 625	60 mm	60 mm
CA 627	80 mm	60 mm
CA 653	100 mm	70 mm
CA 654	125 mm	70 mm
CA 656	150 mm	70 mm
CA 658	200 mm	70 mm



Comprial V A-serie

Standaardlengte 5000 mm

Artikel	Hoogte	Breedte
CA 75V	75 mm	69 mm
CA 95V	95 mm	89 mm

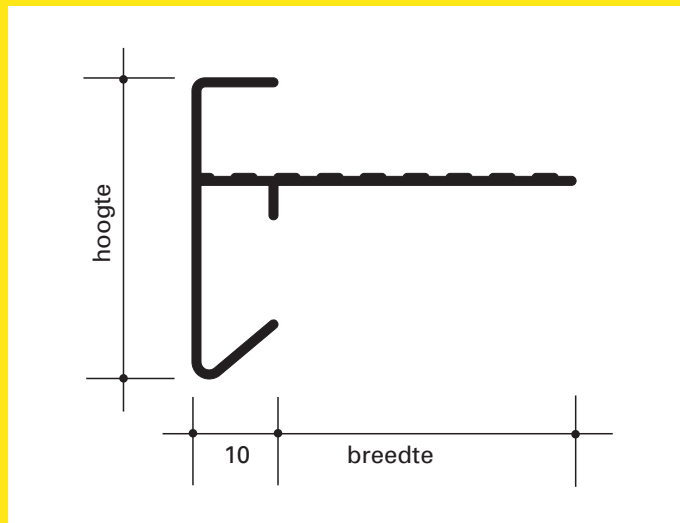


Dakprofielen

Comprial 6300 B-serie

Standaardlengte 2500 mm

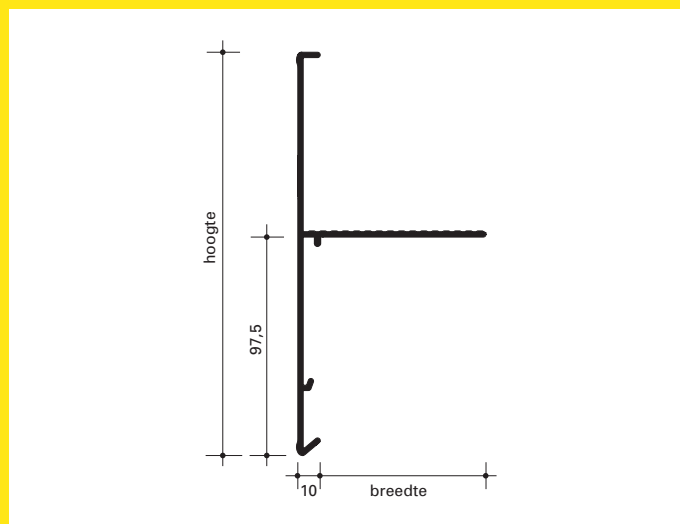
Artikel	Hoogte	Breedte
CA 6301	30 mm	18 mm
CA 6302	35 mm	18 mm
CA 6303	35 mm	25 mm
CA 6304	35 mm	35 mm
CA 6305	38 mm	45 mm
CA 6306	45 mm	35 mm
CA 6307	45 mm	54 mm
CA 6308	55 mm	54 mm
CA 6309	60 mm	35 mm
CA 6310	60 mm	54 mm
CA 6311	80 mm	54 mm
CA 6312	80 mm	100 mm
CA 6313	90 mm	54 mm
CA 6314	110 mm	54 mm



Comprial 6300 B-serie extra hoog model

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 6318	180 mm	74 mm

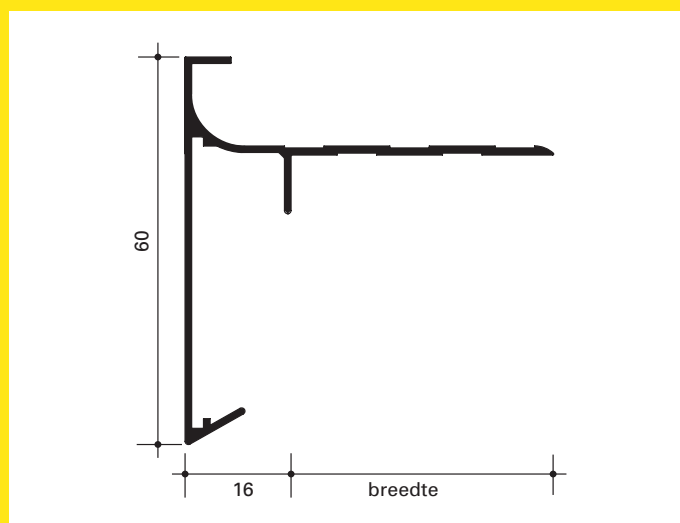


Comprial 6060 B-serie

Standaardlengte 2500 mm

Artikel	Hoogte	Breedte
CA 6060	60 mm	40 mm

Kenmerk: B-trim met oplopend oplegvlak
(maatvoering als CA6310)



Dakprofielen

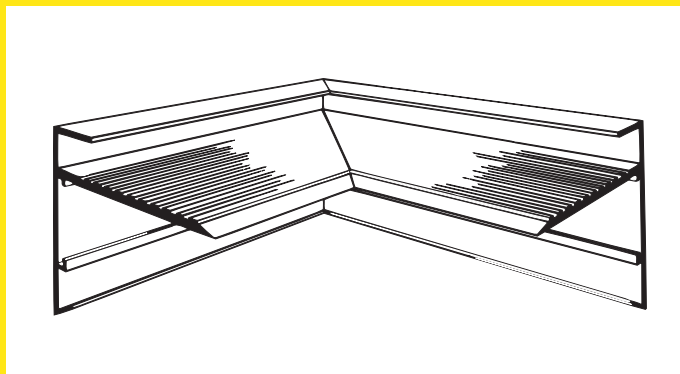
Hoekstukken

Gelaste binnen- en buitenhoeken 400 x 400 mm.

(De productietolerantie op gelaste hoeken is $\pm 2^\circ$)

Afwijkende maten en graden zijn op aanvraag mogelijk.

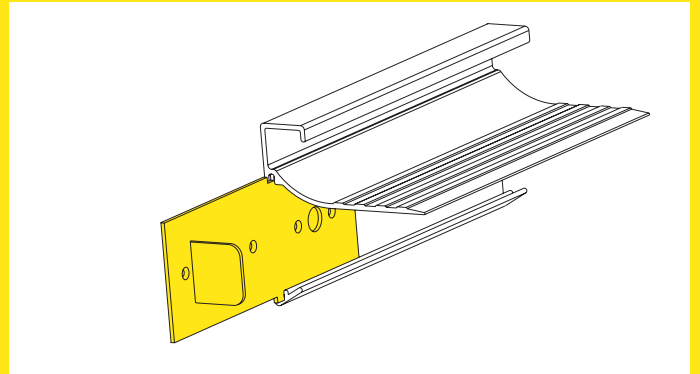
Daarnaast leveren wij ook top- en dalhoeken op maat.



Dakprofielen

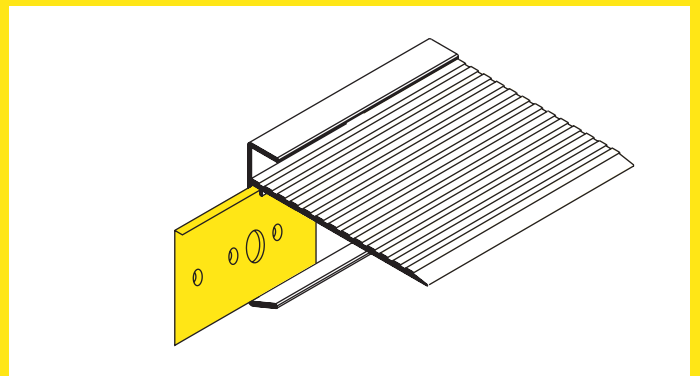
Verbindingsstukje

Ten behoeve van serie 6000 A
Aluminium verbindingsstukje.
In blanke of gemoffelde uitvoering leverbaar.



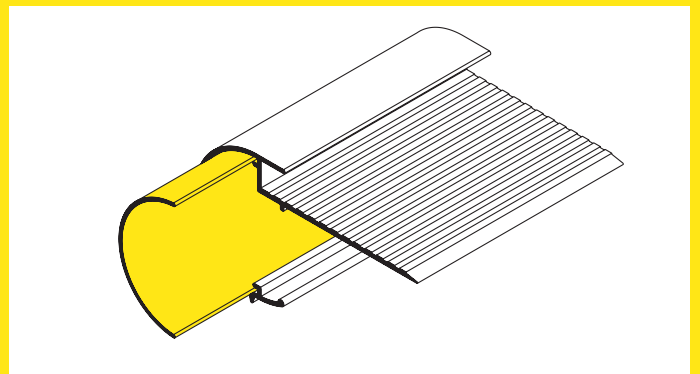
Verbindingsstukje

Ten behoeve van 6300 B
Aluminium verbindingsstukje.
In blanke of gemoffelde uitvoering leverbaar.



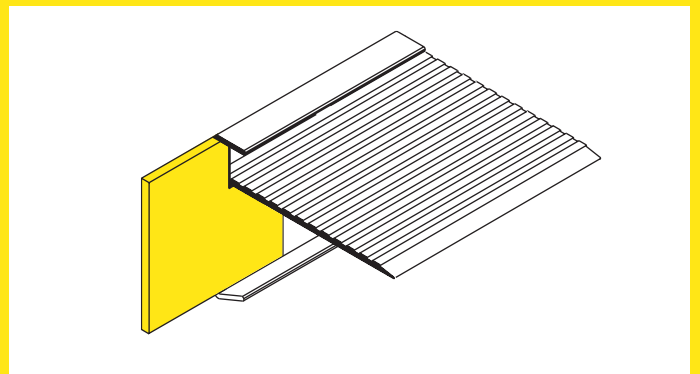
Verbindingsstukje

Ten behoeve van serie 630 en Monokraal
Aluminium verbindingsstukje.
In blanke of gemoffelde uitvoering leverbaar.



Verbindingsstukje

Ten behoeve van 620
Aluminium verbindingsstukje.
In blanke of gemoffelde uitvoering leverbaar.

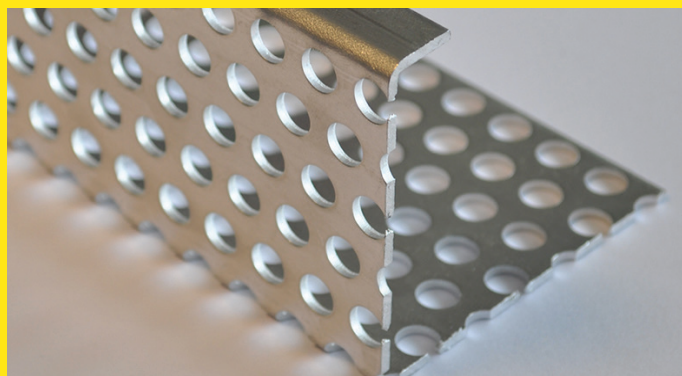


Dakprofielen

CA 15000

Daktrim speciaal voor groene daken.
Voorzien van gaten met een diameter van 8 mm.

Artikel	Hoogte	Breedte
CA 15001	60 mm	40 mm
CA 15002	60 mm	60 mm
CA 15003	70 mm	70 mm



CA 16000

Daktrim speciaal voor groene daken.
Voorzien van sleufgaten met een breedte van 12 mm.

Artikel	Hoogte	Breedte
CA 16001	60 mm	40 mm
CA 16002	60 mm	60 mm
CA 16003	70 mm	70 mm

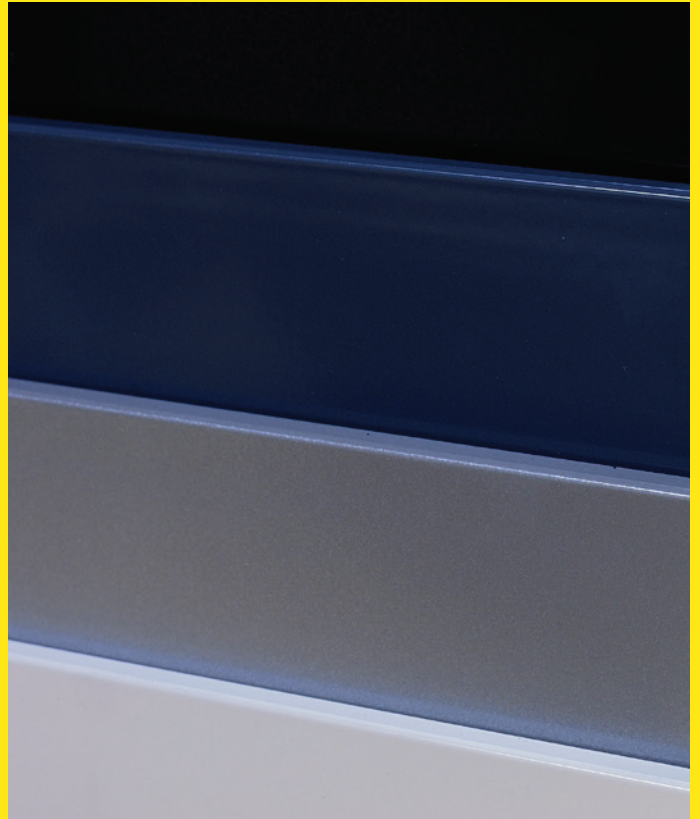


Dakprofielen

Gemoffeld uit voorraad

Standaard leveren wij de CA 6306 en CA 6310 in de volgende kleuren direct uit voorraad:

- RAL 7015
- RAL 7016
- RAL 7021
- RAL 7039
- RAL 8019
- RAL 9001
- RAL 9005
- RAL 9006
- RAL 9007
- RAL 9001
- RAL 9010



Geanodiseerd uit voorraad

De meest gebruikte daktrimmen levert Compri Aluminium geanodiseerd uit voorraad. U heeft de geanodiseerde trimmen inclusief hoeken en koppelstukjes binnen 48 uur geleverd (mits in voorraad).

De anodiseer behandeling uit voorraad is altijd vb6-a20-vom1



Dakprofielen

Enkelvoudige aansluitprofielen

Voor een goede dakrandafwerking geldt als uitgangspunt dat de dakrandafwerking en de toplaag van het dakpakket van éénzelfde kwaliteit dient te zijn. Om deze reden wordt altijd aanbevolen te kiezen voor producten op basis van gemodificeerde bitumen.

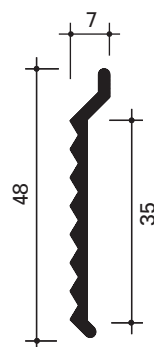
Met Compri-Aluminium® knelprofielen kan een goede waterdichte afdichting tegen een steenachtige of metalen ondergrond worden bereikt. Het is daarbij uiteraard wel zaak om er voor te zorgen dat boven het knelprofiel afdoende maatregelen zijn genomen tegen doorslag. Dit kan door in de ontwerpfase al rekening te houden met de nodige voorzieningen tegen doorslag, zoals een waterkerende folie of een sparing met de functie van een druiphol. Zijn deze voorzieningen niet aanwezig, zoals bijvoorbeeld bij renovatie, dan moet het metselwerk waterafstotend worden behandeld.

Comprial® knelprofielen

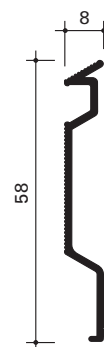
Standaardlengte 3000 mm

Artikel	Hoogte	Breedte
CA 837	48 mm	7 mm
CA 872	58 mm	8 mm
CA 880	58 mm	10 mm
CA 885	46 mm	7,5 mm
CA 886	75 mm	12 mm
CA 888	60 mm	10,5 / 6,5 mm
CA 892	43 mm	8 mm
CA 895	56,25 mm	12,4 / 6,4 mm
ED-3-110	110 mm	13 mm
LSN 60	55 mm	14 mm
LSN 80	75 mm	20 mm
SP/F 60	60 mm	14,5 mm
SP/F 70	70 mm	14,5 mm

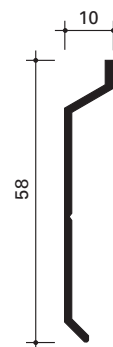
Voor bovenstaande profielen worden de benodigde band en epdm rubbers meegeleverd.



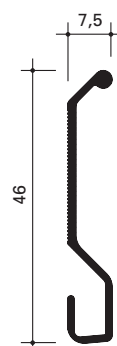
CA 837



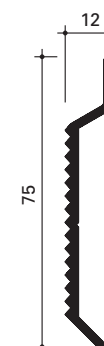
CA 872



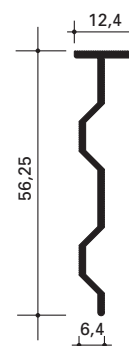
CA 880



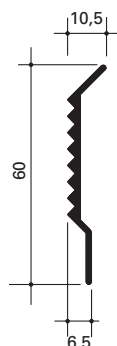
CA 885



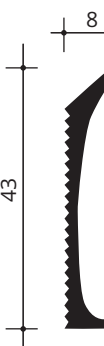
CA 886



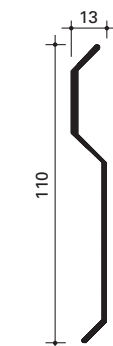
CA 895



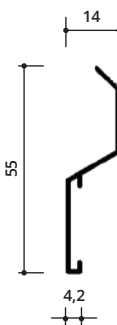
CA 888



CA 892



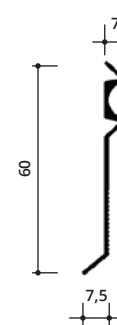
ED-3-110



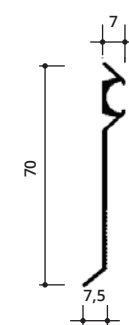
LSN 60



LSN 80



SP/F 60



SP/F 70





Azobé

Duurzaamheid	Klasse 1-2, overgangshout 2
Sterkteklasse	D70
Toepassingen	Steigers, platen, palen, damwanden, gordingen, sluisdeuren
Volumieke massa	Vers 1100-1300 kg/m ³ . Bij 12% vochtgehalte 950-1050 kg/m ³ .
Kleur	Azobé hout is donkerbruin-rood
Draad	Meestal kruisdraad of onregelmatige draad
Werken	Groot
Drogen	Azobé hout droogt zeer langzaam
Hardheid	Langsvlak 17.000 N
Bewerkbaarheid	Ondanks de hardheid kan Azobé vrij gemakkelijk machinaal worden bewerkt
Spijkeren/schroeven	Vorboren noodzakelijk
Oppervlakafwerking	Goed
Botanische naam	Lophira alata
Groeigebied	Tropisch West-Afrika
Andere namen	Bongossi, Ekki
Kwaliteitseisen	Azobé staat genoemd in de NEN 5493 'Kwaliteitseisen voor loofhout in grond-, weg en waterbouwkundige werken en andere constructieve toepassingen.
Familie	Ochnaceae

PRODUCT INFORMATIE

ANGELIM VERMELHO



PROFIEL

MAATVASTE LIGGERS

50X150MM
GEËGALISEERD

KLIMAAT NEUTRAAL?



JA



NEE

VOLUMIEKE MASSA

1300

^{VERS}
KG / M³

STERKTE KLASSE

D40

NEN-EN 338

DUURZAAMHEIDS KLASSE

1

ZEER DUURZAAM



Angelim Vermelho is een bekende in de Grond-, Weg- en Waterbouw en is uitermate geschikt voor gebruik als liggers en in zwaar constructiewerk.

Het is zeer duurzaam, sterk en uitstekend beschikbaar.

HUIDIGE SPECIFICATIE

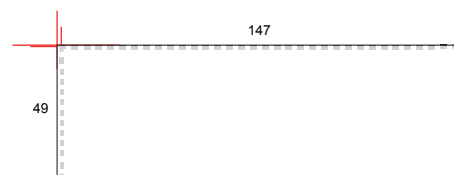
Lengte	Aantal	Lengte	Aantal
200	72	400	64
250	40	450	48
300	62	450	60
300	60	500	50
350	70	550	56
350	66	600	20

INFO

Bij gebruik van ijzeren bevestigingsmiddelen in nat hout kunnen grijsblauwe verkleuringen ontstaan.

Vers en droog heeft Angelim Vermelho een opvallende geur.

Deze houtsoort laat zich het beste boren met een aluminium boor.



**AL ONS HOUT IS AFKOMSTIG UIT
FSC® GECERTIFICEERDE BOSSEN**



PRODUCT INFORMATIE

CUMARU ALLESKUNNER



PROFIEL

4 ZIJDEN GESCHAAFD + 4 RONDE HOEKJES

KUNSTMATIG GEDROOGD - 21X145MM

KLIMAAT NEUTRAAL?



JA



NEE

VOLUMIEKE MASSA

1000

VERS
KG / M³

HARDHEID

15700 1

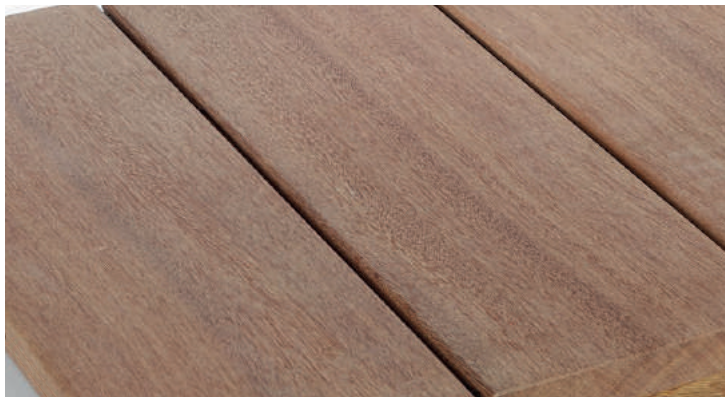
N. LANGSVLAK

DUURZAAMHEIDS KLASSE

ZEER DUURZAAM

BESCHIKBARE LENGTES

VALLEND LANG



Cumaru is voor veel toepassingen dé ideale houtsoort.

De eigenschappen van Cumaru, zoals de sterkteklasse (D60) en de geel- tot roodbruine kleur zorgen ervoor dat Cumaru veel wordt toegepast in straatmeubilair, (zware) constructies, en brug - en steiger dekken.

Cumaru geschaafde planken, hardhout voor een mooiere wereld.

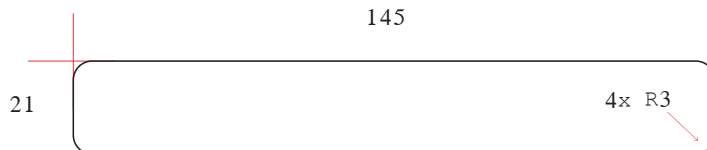
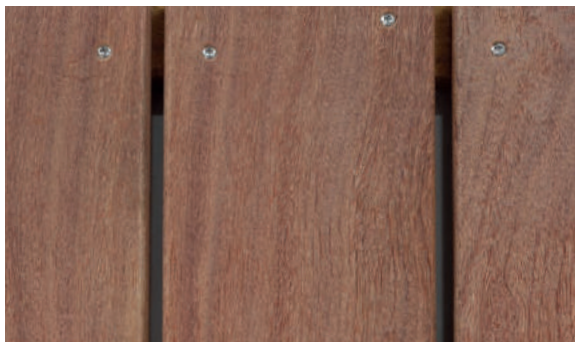
INFO

Cumaru hardhout is goed bewerkbaar, het oppervlak wordt zeer glad.

Cumaru hardhout is afkomstig uit tropisch Zuid-Amerika.

ANDERE TOEPASSINGEN

VLONDERS | VRACHTWAGENVLOEREN | GELUIDSSCHERMEN



**AL ONS HOUT IS AFKOMSTIG UIT
FSC® GECERTIFICEERDE BOSSEN**



Okan

Duurzaamheid	Klasse 1
Sterkteklasse	D50
Toepassingen	Palen, GWW constructies, gordingen, straatmeubilair
Volumieke massa	Vers 1000-1200 kg/m ³ . Bij 12% vochtgehalte: 850-950 kg/m ³
Kleur	Geel bruin
Bijzonderheden	Okan hardhout is een zeer decoratieve houtsoort
Draad	Kruisdraad
Nerf	Matig grof
Werken	Niet bekend
Drogen	Zeer langzaam
Hardheid	Langsvlak 12.300 N volgens Janka
Bewerkbaarheid	De bewerkbaarheid van Okan hout is moeilijk door het wisselend draadverloop en de hoge volumieke massa. Het oefent op gereedschappen een afstompende werking uit. Voor een glad oppervlak bij het schaven is een snijhoek van 10 graden vereist. Okan laat zich goed draaien en glad afwerken.
Spijkeren/schroeven	Voorboren is noodzakelijk bij Okan
Oppervlakafwerking	Goed
Botanische naam	Cylicodiscus gabunensis
Groeigebied	Tropisch West-Afrika
Andere namen	Edoum, Denya
Achtergrondinformatie	Het kernhout van Okan is geel tot goudbruin met een min of meer lichte tot donkere olijfgroene tint, die onder invloed van licht roodbruin wordt met soms een diepe koperkleurige gloed. Op het kopse vlak zijn de brede groeiringgrenzen door de donkere kleur duidelijk te herkennen. Het spint is lichtroze en 50-75 mm breed met een duidelijk kleurverschil tussen kernhout en spint. Okan heeft nat een onaangename geur; droog is het hout zonder geur.
Familie	Leguminosae (Mimoseae)
Referentie projecten	Constructie voor terrasvlonder



Flexa Strak in de lak Zijdeglans Watergedragen

Een zijdeglanzende, watergedragen aflak voor binnen en buiten, op basis van acrylaathars.

Toepassing: Geschikt voor binnen en buiten. Voor hout, metaal en harde PVC. Zoals kozijnen, deuren en gebruiksvoorwerpen.

Producteigenschappen: Watergedragen en makkelijk in gebruik
Krasvast
Goede dekking
Uitstekende vloei
Zowel binnen als buiten te gebruiken.

Productinformatie

Aanwijzingen voor gebruik: Goed roeren.
Product is gebruiksklaar.

Droging:	10°C	20°C
Stofdroog:	2 uur	1 uur
Schuurbaar:	12 uur	6 uur
Overschilderbaar:	12 uur	6 uur
Doorgehard:	4 dagen	7 dagen

De laagdikte van de natte verflaag en de temperatuur beïnvloeden de droging. Des te lager de temperatuur des te langer de droogtijd. Maar ook, hoe dikker de verflaag des te langer de droogtijd.

Bij temperaturen beneden de 10°C dit product niet verwerken.

Glansgraad: Hoogglans, $\geq 25 - 35$ G.U./60 °

Droge laagdikte in systeem: Onbehandeld hout = 2 lagen = 74 μm ;
Behandeld hout = 1-2 lagen = 37-74 μm .

Duurzaamheid: Ca. 4 - 5 jaar bij voldoende laagdikte. Mede van invloed op de duurzaamheid zijn onder meer de voorbehandeling, de laagdikte en de ligging van het object.

Rendement: 14 m²/ltr. Applicatiemethode en structuur van de ondergrond beïnvloeden het rendement.



Flexa Strak in de lak Zijdeglans Watergedragen

Verwerkingsgegevens:

Gereedschap:	Kwast	Roller	Spuit
Reinigen gereedschap	Acrylkwast	Acryl	Lucht
	Water	Water	Water

Systeeminformatie:

- Onbehandeld hout:
1. Ontvetten met Alabastine Verfreiniger. Hardhout (Teak, Meranti, e.d.) ontvetten met Thinner. Afzelia reinigen met water en ammonia.
 2. Schuren met schuurpapier, korrelgrofte P150-P180 en stofvrij maken. Om een optimale kantendekking te verkrijgen, scherpe hoeken en randen afronden.
 3. Opnieuw ontvetten.
 4. Daarna één laag Flexa Strak in de lak Grondverf aanbrengen.
 5. Zonodig plamuren met Alabastine Houtvuller.
 6. Opnieuw één laag Flexa Strak in de lak Grondverf aanbrengen.
 7. Tot slot afwerken met twee lagen Flexa Strak in de lak Zijdeglans watergedragen. Tussen de lagen schuren met Scotch-Brite.
- Dekkende verf- of beitslagen:
1. Acryllagen en slecht hechtende delen verwijderen met Flexa Afbijt, een verfschraper of grof schuren.
 2. Intacte lagen reinigen met Alabastine Verfreiniger.
 3. Het kale hout voorbehandelen, zoals genoemd onder hout (punt 1 t/m 6).
 4. De intacte laag dof schuren met schuurpapier, korrelgrofte P220 en P280 en stofvrij maken.
 5. Vervolgens één laag Flexa Strak in de lak Grondverf aanbrengen.
 6. Afwerken met twee lagen Flexa Strak in de lak Zijdeglans watergedragen.
Tussen de lagen schuren met fijn schuurpapier of Scotch-Brite.
- Kunststof (Hard):
1. Ontvetten met thinner, wasbenzine of Alabastine Verfreiniger.
 2. Kunststof schuren met fijn schuurpapier, korrelgrofte P280-P320 en stofvrij maken.
 3. Opnieuw ontvetten.
 4. Daarna één laag Flexa Grondverf voor Kunststof aanbrengen.
 5. Schuren met schuurpapier, korrelgrofte P280-P320 en stofvrij maken.
 6. Afwerken met twee lagen Flexa Strak in de lak Zijdeglans watergedragen.
Tussen de lagen schuren met fijn schuurpapier of Scotch-Brite.



Flexa Strak in de lak Zijdeglans Watergedragen

- Metaal:
1. Ontroesten met schuurpapier korrelgrote P24-P36 staalborstel.
 2. Stofvrij maken en ontvetten met wasbenzine.
 3. Direct na ontroesten en ontvetten één laag Flexa Grondverf voor Metaal aanbrengen.
 4. Na droging een tweede laag Flexa Grondverf voor Metaal aanbrengen.
 5. Afwerken met 2 lagen Flexa Strak in de Lak Zijdeglans watergedragen. Tussen de lagen schuren met fijn schuurpapier of Scotch Brite.

Aanvullende informatie:

Houdbaarheid: Tenminste één jaar in ongeopende verpakking.
Vorstvrij bewaren.

V.O.S. 49 g/l.

Kleur: Zie de kleurdocumentatie.

Verpakking: 375 ml en 750 ml

Informatie: Bezoek: www.flexa.nl
Mail uw vraag naar: info@flexa.nl
Bel onze technisch adviseur: 071-3082344

Milieu en veiligheid:

Milieu: Flexa Strak in de lak Zijdeglans bevat géén loodhoudende pigmenten.
Zorg voor een goede ventilatie tijdens het schilderen.

De gebruiker van dit product dient zich aan de nationale wetten betreffende gezondheid, veiligheid en milieu te houden.

Gooi de verfresten niet weg, maar breng ze naar een verzamelpunt voor klein chemisch afval.

Veiligheid: Voor de meest recente veiligheidsinformatie raadpleeg de etikettekst of het betreffende Material Safety Data Sheet.

De doeltreffendheid van onze systemen berust op jarenlange praktijkervaring en laboratoriumresearch. Wij staan ervoor in, dat de kwaliteit van het volgens onze systemen vervaardigde werk voldoet aan de eigenschappen die Akzo Nobel Decorative Coatings BV heeft toegezegd, mits de onzerzijds gegeven voorschriften stipt zijn opgevolgd en het werk is uitgevoerd naar de eisen van goed vakmanschap. Wij wijzen iedere aansprakelijkheid af, indien het eindresultaat ongunstig is beïnvloed door factoren waarop wij geen controle hebben. De afnemer dient met de hem normaal ten dienste staande middelen te controleren of de geleverde producten geschikt zijn voor de beoogde toepassing. Bij het verschijnen van een nieuwe uitgave verliest dit technisch documentatieblad zijn geldigheid.



Bestek- service



BESTEKSTEKST VB-EPDM-SYSTEEM

MECHANISCH BEVESTIGD VB-THERMOFIX®-SYSTEEM:

33.34 KUNSTSTOF DAKBEDEKKINGEN

33.34.11-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, MECHANISCH BEVESTIGD

0. EPDM DAKBEDEKKINGSSYSTEEM, MECHANISCH BEVESTIGD

Prefab membraan:

- materiaal: ethyleen propyleen dimonomeer (EPDM)
- materiaalcode: BD K 60 A 00.
- kleur: zwart.
- mechanisch bevestigd met VB-Thermofix®-systeem:
aantal en verdeling van de bevestigingspunten
berekenen
volgens NEN 6707.
- afmetingen membraan: op dakmaat geïmpregneerd.
- detailnaden in het werk: vulkaniseren met een mobiele
'hotbondingmachine'.

Kimfixatie: met contactlijm KS-100, 20 cm in het vlak en
gehele opstand. Ondergrond moet geschikt zijn
voor verlijming.

6. EPDM MEMBRAAN

Leverancier/producent: Van Beek EPDM BV te Born
Type: VB-EPDM FR rubberfolie membraan (EN 13956).

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,3./1,5.

Toebehoren:

- prefab FR hoekstukken ten behoeve van buitenhoeken
van dakopstanden.
- contactlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwaterafvoerstukken met
VB-EPDM FR slabbe.
- VB-Thermofix®-elementen.
- Beschermvlies 200 gram, rol afm. 50,00 x 2,50 m¹

.01 PLAT DAK

De dakbedekking op alle (geïsoleerde) dakvlakken.

33.35 DAKDETAILS

33.35.21-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

0. KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

Detail volgens voorschriften van de leverancier/fabrikant.

4. EPDM DAKBAAN

Fabricaat: VB-EPDM FR.

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,3./1,5.

Toebehoren:

- prefab FR hoekstukken ten behoeve van buitenhoeken van dakopstanden.
- kontaktlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwaterafvoerstukken met VB-EPDM FR slabbe.

.01 PLAT DAK

De aansluiting en afwerking ten behoeve van opstanden, dakdoorbrekingen en doorvoeren.

BESTEKSTEKST VB-EPDM-SYSTEEM

VB-EPDM-SYSTEEM VERLIJMD:

33.34 KUNSTSTOF DAKBEDEKKINGEN

33.34.11-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, VERLIJMD MET KS-150

0. EPDM DAKBEDEKKINGSSYSTEEM, VERLIJMD MET KS-150

Prefab membraan:

- materiaal: ethyleen propyleen dimonomeer (EPDM)
- materiaalcode: BD K 60 A 00.
- kleur: zwart.
- verlijmd met polyurethaanlijm KS-150 op een daarvoor geschikte ondergrond. Hoeveelheid lijm afhankelijk van de ondergrond ca. 200 tot 400 g/m².
- afmetingen membraan: op dakmaat gevulkaniseerd.
- detailnaden in het werk: vulkaniseren met een mobiele 'hotbondingmachine'.

Kimfixatie: met contactlijm KS-100, 20 cm in het vlak en gehele opstand. Ondergrond moet geschikt zijn voor verlijming.

6. EPDM MEMBRAAN

Leverancier/producent: Van Beek EPDM BV

Type: VB-EPDM FR rubberfolie membraan (EN 13956).

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,3. / 1,5.

Toebehoren:

- prefab FR hoekstukken ten behoeve van buitenhoeken van dakopstanden.
- contactlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwaterafvoerstukken met VB-EPDM FR slabbe
- polyurethaanlijm KS-150.

.01 PLAT DAK

De dakbedekking op alle (geïsoleerde) dakvlakken.

33.35 DAKDETAILS

33.35.21-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

0. KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

Detail volgens voorschriften van de leverancier/fabrikant.

4. EPDM DAKBAAN

Fabricaat: VB-EPDM FR.

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,3. / 1,5.

Toebehoren:

- prefab FR hoekstukken ten behoeve van buitenhoeken van dakopstanden.
- contactlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwaterafvoerstukken met VB-EPDM FR slabbe.

.01 PLAT DAK

De aansluiting en afwerking ten behoeve van opstanden, dakdoorbrekingen en doorvoeren.

BESTEKSTEKST VB-EPDM-SYSTEEM

VB-EPDM-SYSTEEM LOSLIGGEND GEBALLAST:

33.34 KUNSTSTOF DAKBEDEKKINGEN

33.34.11-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, LOSLIGGEND GEBALLAST

0. EPDM DAKBEDEKKINGSSYSTEEM, LOSLIGGEND GEBALLAST

Prefab membraan:

- materiaal: ethyleen propyleen dimonomeer (EPDM)
- materiaalcode: BD K 60 A 00.
- kleur: zwart.

Losliggend geballast met grof grind; laagdikte en Korreldiameter berekenen volgens NEN 6707.

- afmetingen membraan: op dakmaat gevulkaniseerd.
- detailnaden in het werk: vulkaniseren met een mobiele 'hotbondingmachine'.

Kimfixatie: met contactlijm KS-100, 20 cm in het vlak en gehele opstand. Ondergrond moet geschikt zijn voor verlijming.

6. EPDM MEMBRAAN

Leverancier/producent: Van Beek EPDM BV

Type: VB-EPDM rubberfolie membraan (DIN 7864, Teil 1-84).

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,2. / 1,5.

Toebehoren:

- prefab hoekstukken ten behoeve van buitenhoeken van dakopstanden.
- contactlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwater afvoerstukken met VB-EPDM slabbe.
- Beschermvlies 200 gram, rol afm. 50,00 x 2,50 m¹

.01 PLAT DAK

De dakbedekking op alle (geïsoleerde) dakvlakken.

33.35 DAKDETAILS

33.35.21-a KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

0. KUNSTSTOF DAKBEDEKKINGSSYSTEEM, DAKDETAILS

Detail volgens voorschriften van de leverancier/fabrikant.

4. EPDM DAKBAAN

Fabriek: VB-EPDM.

Materiaal: ethyleen propyleen dimonomeer (EPDM).

Materiaalcode: BD K 60 A 00.

Dikte (mm): 1,2. / 1,5.

Toebehoren:

- prefab hoekstukken ten behoeve van buitenhoeken van dakopstanden.
- kontaktlijm KS-100.
- rubberkit VB-9510.
- polyethyleen hemelwaterafvoerstukken met VB-EPDM slabbe.

.01 PLAT DAK

De aansluiting en afwerking ten behoeve van opstanden, dakdoorbrekingen en doorvoeren.

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Academy Drive
Warwick
Warwickshire
CV34 6QZ

03.01.2221;3211;3222 Geberit Drainage System

■ GEBERIT

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Eire +44 (0) 1926 516 800
Literature 0800 007 5133

www.geberit.co.uk

Clean disposal.

Geberit drainage systems, waste fittings and traps.

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KNOW
HOW
INSTALLED



Water, simply connected.

Play safe.

Almost no other company can understand plumbing technology as well as Geberit. Our expertise covers the entire pathway taken by water on its way through a building. Geberit systems can be relied upon one hundred per cent – from the water supply connection, via the risers and distribution pipes to the usage points, through to drainage from the roof and from the rest of the building into the public sewerage system. So if you place your faith in Geberit drainage systems, waste fittings and traps, you can offer your customers a solution that represents the very latest technology in terms of hydraulics, acoustic insulation, fire protection, reliability ease of installation and environmental friendliness.

Everything for drainage.



Drainage

Geberit Silent-db20	8-9
Geberit HDPE	10-11
Geberit Sovent	12-13

Roof drainage

Geberit Pluvia	14-17
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Safety and comfort

Fire protection and sound insulation	18-19
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Inlets and drains in the bathroom

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Shower drains	22-23
Floor drains and shower channels	24-25
Shower frame with wall drain	26-27
Floor drain	28-29
Washbasin traps	30-31

Certificates for Geberit HDPE applications

Partners

British Board of Agrément
Institute of Plumbing
Istituto Italiano dei Plastici
WPC/World Plumbing Council

SKZ (Süddeutsches
Kunststoffzentrum)
KOMO certificate

EN 1519
DIN 19535-10
DIN 19537

EN ISO Standard
9001

ISO Standard
14001

Complete Geberit technology.

With everything working in harmony.

Drainage means more than just draining away water – at least as far as Geberit is concerned. Geberit invests a good deal of know-how in the development of innovative products to ensure that drainage technology keeps pace with reality on the building site as well as continuing to meet high standards in terms of sound insulation and fire protection.

Even things that have proven themselves a million times can be made better.

Geberit is market leader in the field of plumbing and drainage technology in Europe. Year after year Geberit invests more than almost all other companies in this industry in the continuous optimisation of existing systems and in the development of new technologies and products.

High level of expertise in fire protection and sound insulation

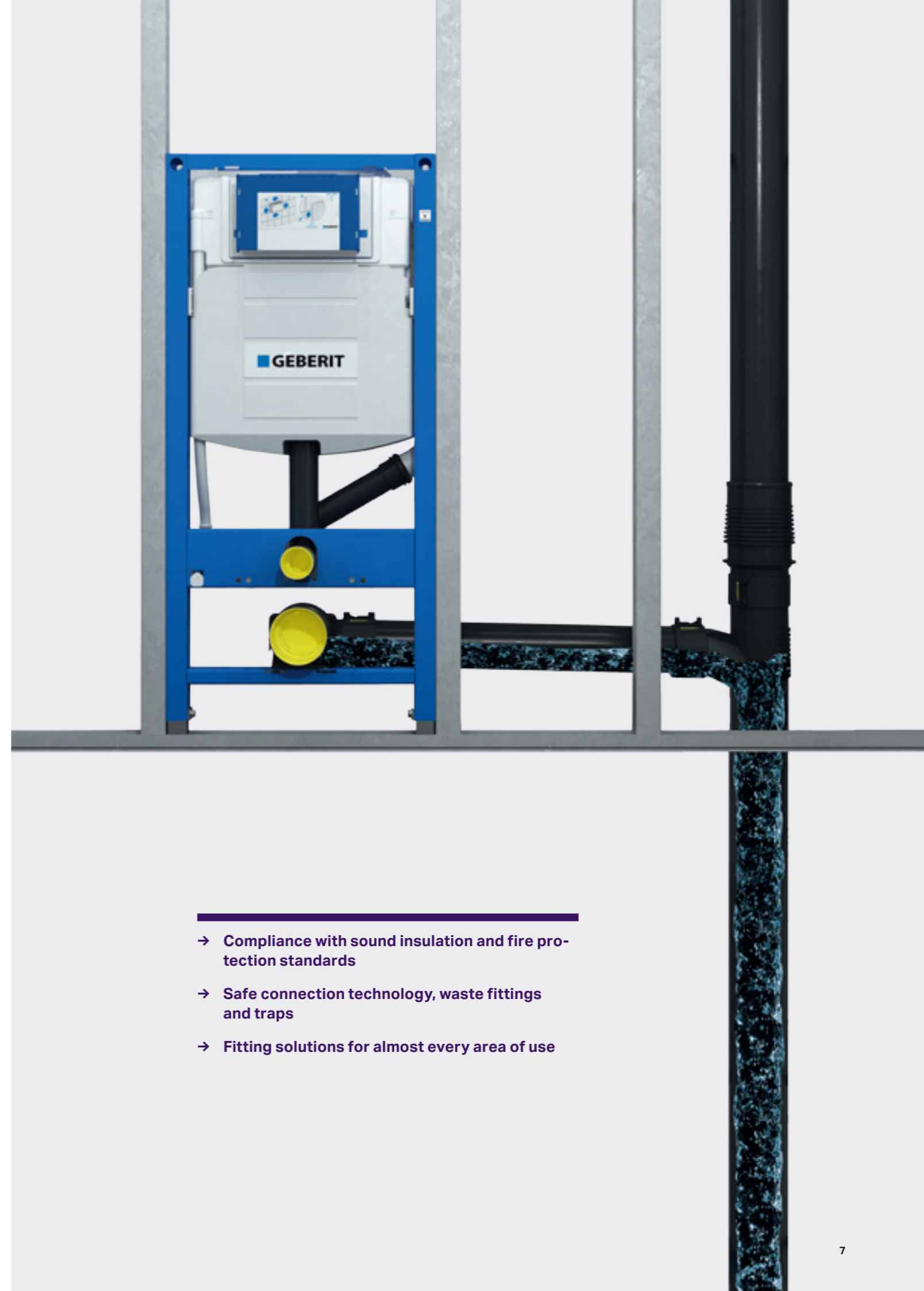
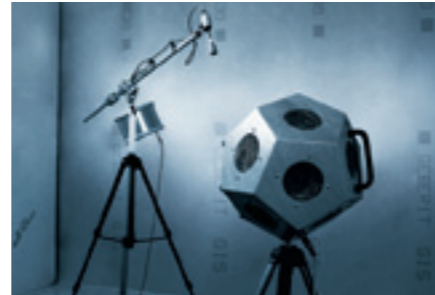
In addition to laboratories for sanitary technology and material development, Geberit also operates a building technology and acoustics laboratory that is unique throughout the world. Here, not only individual components but entire drainage systems are tested for their hydraulic, acoustic and static characteristics. Thus for example, the sound transmission of discharge stacks can be tested and optimised over several floors under realistic conditions. Geberit works closely with external testing bodies in the field of fire protection. Both prototypes as well as production parts are tested under realistic conditions. This development work takes full account of the varying national fire protection standards of different countries.

System solutions with high flexibility

For Geberit, waste fittings and traps are the principal part of the waste water installation and, together with the Geberit piping systems, form a homogenous unit with simple interfaces. Geberit waste fittings and traps also create perfect connections to the sanitary appliances. No matter whether it is a question of high end bathroom design, whether applications for less abled people are called for or simply whether construction should be as space-saving as possible – Geberit offers the fitting solution.

Good things are those that professionals enjoy installing

The success of a product or technology stands and falls with its practical suitability on the building site and with its price vs. value. For this reason, all new or further development work takes account of all feedback and suggestions from plumbers from all over the world. With this in mind, Geberit also invests its know-how in its products and systems.



- **Compliance with sound insulation and fire protection standards**
- **Safe connection technology, waste fittings and traps**
- **Fitting solutions for almost every area of use**

Geberit Silent-db20.

Waste water on a quiet foundation.

With the Geberit Silent-db20 drainage system the sound insulation is already installed. As a result it impressively fulfils existing sound insulation requirements. Pipes, fittings, connections, fastenings and insulation can be processed economically and offer everything needed for a practical drainage system.

Triple protection against sound

The mineral-filled plastic PE-S2 is used for the manufacture of Geberit Silent-db20. It increases the density of the pipes and fittings. This reduces natural vibrations and effectively insulates the sound. Additional sound insulation ribs in the impact zones help reduce noise development. System pipe brackets for wall fastening decouple the system acoustically from the wall or ceiling and prevent sound transmission.

Always the right dimension

The branch dimensions in the typical discharge stack are hydraulically optimised. This enables a higher load on the discharge stack and in part permits the use of smaller discharge stack dimensions. Pipes and fittings are available from DN 56 to DN 150.

Two safe connection types

Two different connection types are available depending on the application. Screwed clamping connectors can be loosened at any time and thus enable correction of the installation. Full tensile strength is achieved easily and safely using the electrofusion sleeve coupling, thus offering additional safety when laying in concrete. Separation and installation does not involve dangerous flexing. Processing residue can be re-used as fitting pieces are disposed of without problems.

Pipe ventilation BON-AIR™

For installations which do not permit conventional ventilation for space reasons, Geberit also offers the BON-AIR™ air admittance valve for dimensions up to DN 100.



- 1 Hydraulically optimised fittings with sound insulation ribs.
- 2 High-tensile connection with electrofusion sleeve coupling.
- 3 High material strength for reduced noise: PE-S2 mineral-filled plastic.

→ Flexible and versatile: fittings for almost every conceivable installation situation.



- Outstanding sound insulation
- Diverse system with numerous dimensions and fittings
- Hydraulically optimised fittings
- Precise and safe processing without flying sparks
- Little cutting waste and environmentally friendly disposal

Geberit HDPE drainage pipes.

Pipes for professionals.

Enormous temperature fluctuations, aggressive waste water, pressure, offsetting and chemical influences: Wherever drainage requires high resistance capability, you are on the right side with Geberit HDPE drainage pipes.

Geberit HDPE resists temperatures, pressure and aggressive media

The Geberit HDPE drainage system is produced from the robust pipe material high density polyethylene (PE-HD). It is suitable for a number of uses such as in industry, commerce or laboratories, for underground installation, in concrete or bridge buildings as well as for house drainage. Hot water up to 80 °C, for short periods and without mechanical load even up to 100 °C, does not attack the material. It is resistant to roughly 95 percent of all common household alkalis, acids and chemicals. The pipes and fittings can also withstand shock, lowering, knocks or pressure up to 1.5 bar without breakage or lasting deformation. The plastic used is environmentally friendly and completely recyclable. No toxic emissions whatsoever result during its processing or in the event of fire.

Geberit HDPE – long-term stable connections

Geberit HDPE pipes are available in the dimensions of DN 30 to DN 300 with a broad range of fittings. Depending on the use, the pipes and fittings can be connected by butt welding, electrofusion, screw connections or flanges.

Fits in with Geberit system technology

Geberit HDPE pipes and fittings are incorporated seamlessly into the Geberit system with its fire protection, roof drainage and industry systems and can be combined with these without any problems.



- 1 Eccentric reducer
- 2 Access cap for cleaning
- 3 Electrofusion coupling
- 4 Y-branch swept-entry
- 5 Expansion coupling
- 6 Butt weld
- 7 Flange connection



← Fittings and connections for many different areas of use.



- Wide range of dimensions
- High resistance to temperatures and chemicals
- Flexible and impact-resistant
- Various jointing options
- Environmentally friendly plastic

Geberit Sovent.

Economic and perfected drainage of high-rise buildings.

The Geberit Sovent fittings for optimised flow enable inexpensive design of discharge stacks in high-rise buildings. They increase the pipe capacity many times and render the installation of a parallel ventilation pipe unnecessary.

Tricky challenge for hydraulic technicians

In conventional discharge stacks very special flow laws apply above a certain length. Quickly changing pressure situations can result in the horizontal pipes connected to the discharge stack being sucked empty by high negative pressure or being blown empty by overpressure. Both are extremely undesirable. To avoid this situation, many high-rise buildings have very generously dimensioned discharge stacks and a parallel ventilation pipe which is connected to the discharge stack at regular intervals.

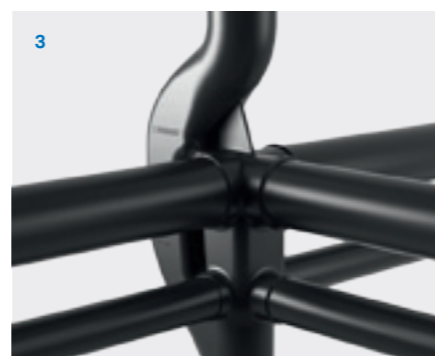
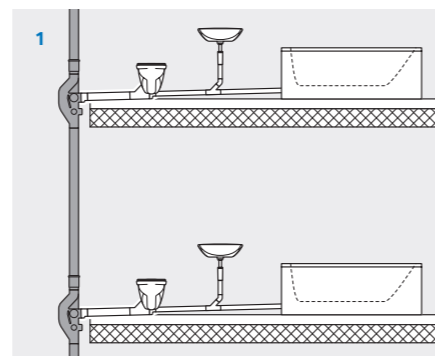
Geberit know-how

With the Sovent fitting, Geberit has developed an inexpensive and technically perfected alternative to conventional drainage systems in high-rise buildings. Geberit Sovent prevents a hydraulic seal in the discharge stack, thus increasing the flow capacity of the discharge stack. At the same time, Sovent ensures air circulation between branch discharge pipe and discharge stack. This makes a parallel ventilation pipe unnecessary. In addition, a partition prevents the penetration of foam or spray water into the branch discharge pipe.

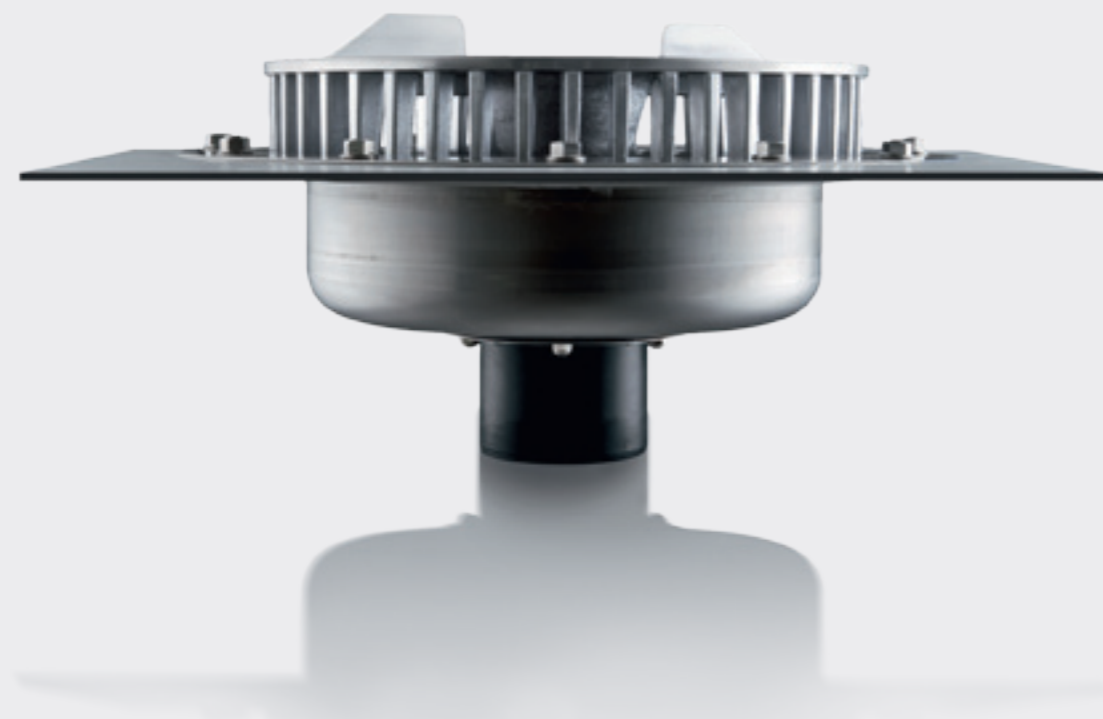
Robust and completely system-compatible

Geberit Sovent is available in two different sizes for discharge stacks with a diameter of 110 or 160 mm. The fitting is produced from the resistant plastic HDPE and can be welded together with Geberit HDPE or Geberit Silent-db20 drainage pipes making it absolutely leakproof and pressure resistant.

- 1 Installation examples
- 2 Comparison of conventional and Sovent stacks
- 3 Numerous connection options



- Economic alternative to conventional discharge stacks
- Improved flow characteristics
- High capacity
- Compatible with Geberit HDPE and Geberit Silent-db20



- Siphonic roof drainage system for considerably higher drainage capacity
- Various dimensions for drainage capacity of 1 to 100 litres/second
- Fewer discharge stacks and underground pipes, fewer channel connections
- More freedom of design, less planning workload
- Professional planning with Geberit ProPlanner

Geberit Pluvia.

Extract rain instead of allowing it to drain.

Double the discharge amount at half the pipe diameter: Through the Pluvia Siphonic roof drainage system, Geberit has, for decades, been setting standards in roof drainage and gives architects and planners greater freedom in the construction of halls and roofs.

Economic roof drainage thanks to negative pressure

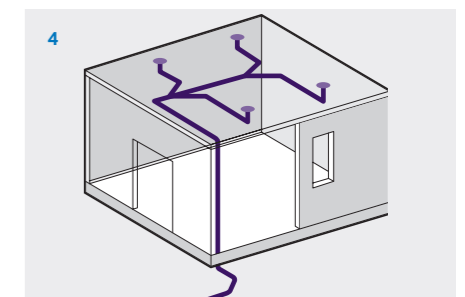
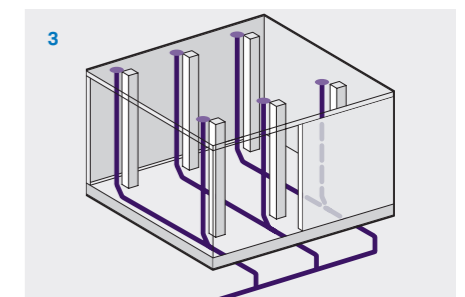
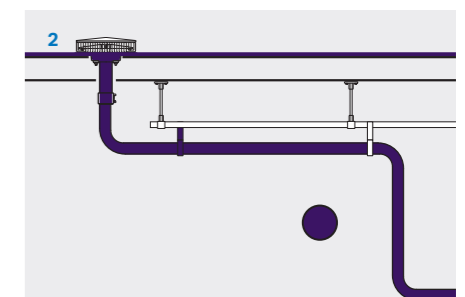
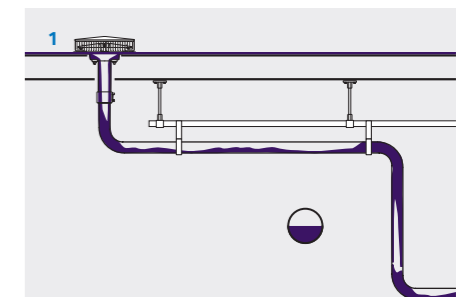
The Geberit Pluvia roof outlets ensure that the relatively smaller dimensioned collector pipes and discharge stacks fill up quickly whenever it rains. This creates a closed, quick flowing water column in the pipelines and thus negative pressure. As a result, there is no need to have a slope in the horizontal collector pipe. The rain water is extracted thanks to the negative pressure. The increased flow speed also improves the self-cleaning of the pipes and thus reduces the risk of clogging.

More freedom of design, less planning workload

Geberit Pluvia gives architects more freedom of design compared to conventional roof drainage as a lower number of roof outlets as well as of discharge stacks and underground pipes is required. Material costs and ground work are also reduced.

Planning with Geberit ProPlanner and Pluvia module

The Geberit ProPlanner software is suitable for planning a roof drainage system with Geberit Pluvia. Taking account of currently applicable standards, the software calculates the entire system, including fire protection sleeves and sound insulation. It prepares quotation and materials lists as well as a hydraulics list. The isometric graph can be exported to a CAD program and further processed there.



Fewer pipes, fewer roof outlets: the Geberit Pluvia negative pressure system.

- 1 Partial filling
- 2 Complete filling
- 3 Conventional
- 4 Negative pressure drainage with Geberit Pluvia

Geberit Pluvia.

A proven and versatile system.

Cold and warm roof constructions, inverted roofs or green roofs: Geberit Pluvia can be used in many construction situations. The three system components Pluvia roof outlet, Geberit HDPE piping system and Pluvia fastening system create clear installation advantages compared to conventional roof drainage systems.

Good connections everywhere and at all times

Geberit Pluvia rainwater outlets are suitable for installation in a wide variety of roof constructions. They can be welded to almost all plastic or bituminous roof foils. The connection to the Geberit HDPE drainage pipes is via a fixed welding connection or the Geberit Pluvia connection pipe that enables even more flexible and easy installation.

Economic lightweights

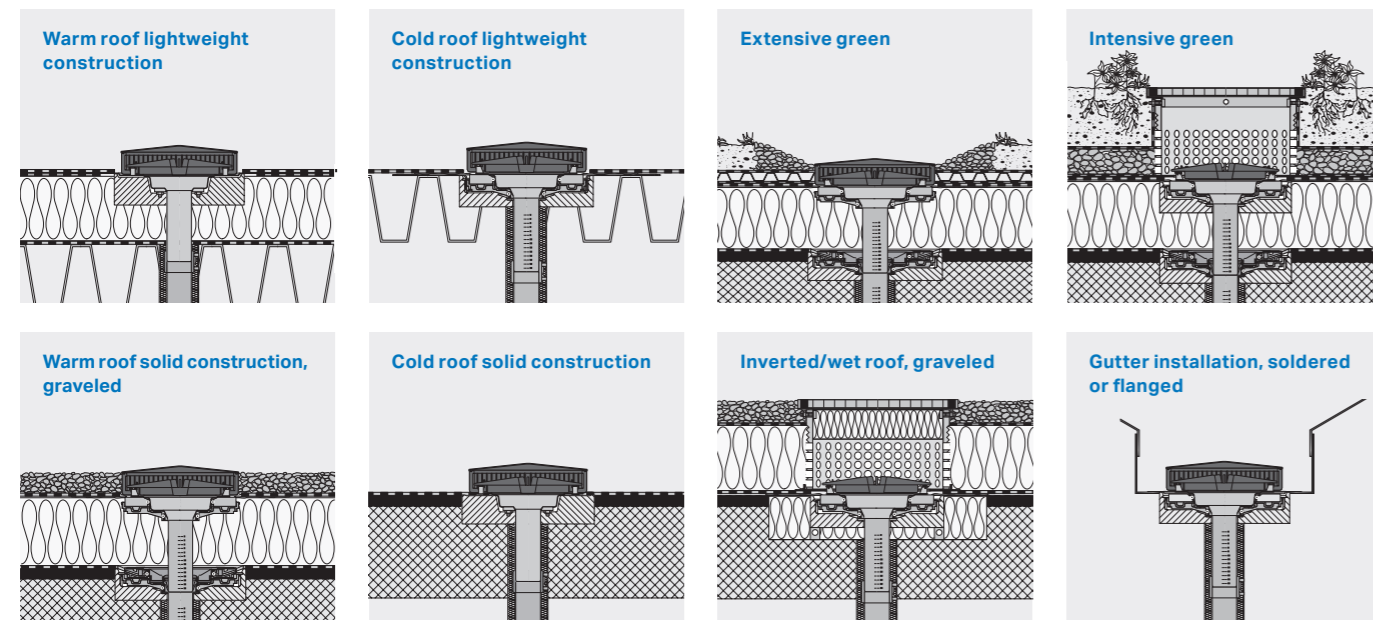
The pipe joints for the roof drainage are designed with Geberit HDPE drainage pipes. The individual pipe sections are welded together so that the tightness required for the creation of negative pressure is guaranteed. Geberit HDPE pipes are quick and easy to process and their low weight facilitates installation at greater heights. Individual pipe sections can be pre-assembled in the workshop.

Flexible fastening

The flexible Geberit fastening system makes installation of horizontal pipe sections particularly easy and safe. A square steel profile running parallel to the drainage pipe makes it possible to bridge large distances with just a few fastenings on the wall or ceiling. The fastening system absorbs thermally related shear forces and tensile loads via anchor brackets.

Safety in all cases

To be equipped for frequently occurring heavy rain and resulting static loads on the roof construction, emergency drainage must be provided for. This must direct the water to an area that can be flooded without causing damage.



← React flexibly to all construction situations: Geberit Pluvia roof outlet.

- Suitable for all roof constructions
- Low system weight thanks to small pipe diameters
- Completely welded
- Flexible fastening

Geberit fire protection and sound insulation.

Functionality with safety installed.

With fire protection and sound insulation products that have proven themselves many times over, Geberit offers solutions backed by a great deal of know-how and experience. They ensure that you and your customers can sleep in peace.

Safety in the system

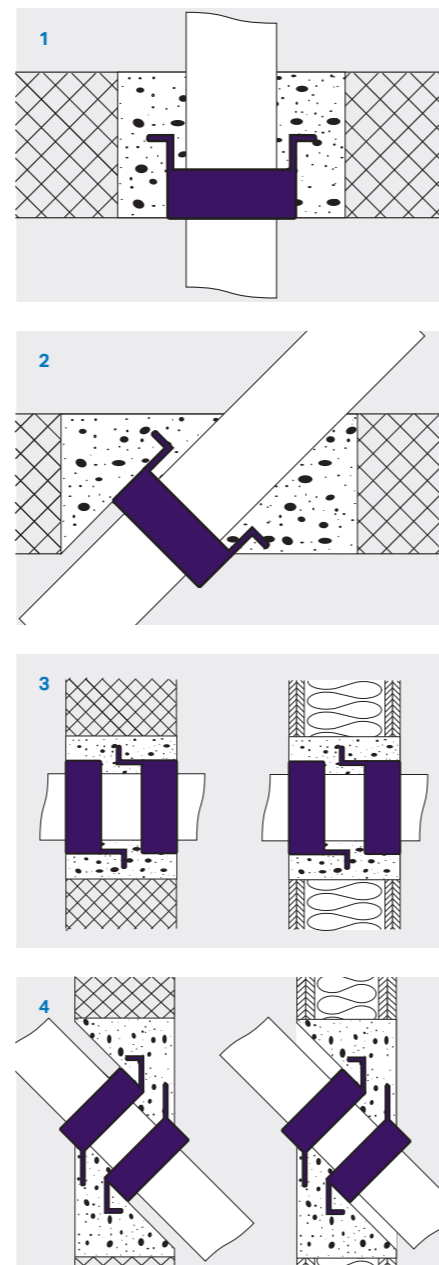
Fire protection and sound insulation of a drainage system are always only as good as their weakest component. If elements from various manufacturers are combined, there is a risk of compromise at the interfaces. Compliance with applicable standards and regulations is likewise more difficult. Geberit therefore offers you complete systems with warranty and the evidence required for your project. This enables you to offer your customers a demonstrably high level of safety prior to the spread of a fire through the drainage pipes. Geberit's sound insulation expertise also enables you to ensure that drainage noise in private homes, public buildings, hotels and business premises is reduced to a minimum.

Reliable protection against the spreading of fire

Holes in walls and ceilings as well as installation ducts can promote the spread of fires in a building if they are not closed correctly and in accordance with standards. The Geberit RS90 Plus fire protection sleeve closes the pipe opening in the event of fire and prevents the spreading of smoke, fire and heat to other rooms or parts of the building. The Geberit RS90 Plus can be used with all Geberit drainage systems.

Sound insulation from a single source

In addition to the optimised sound insulation system, Geberit Silent-db20, intelligent fastening and insulation techniques ensure that sound development from the waste water remains low. The system pipe bracket for Geberit Silent-db20, the environmentally friendly sound insulation mat Geberit Isol, the insulation hose and the self-adhesive insulating tape complete the sound insulation system.



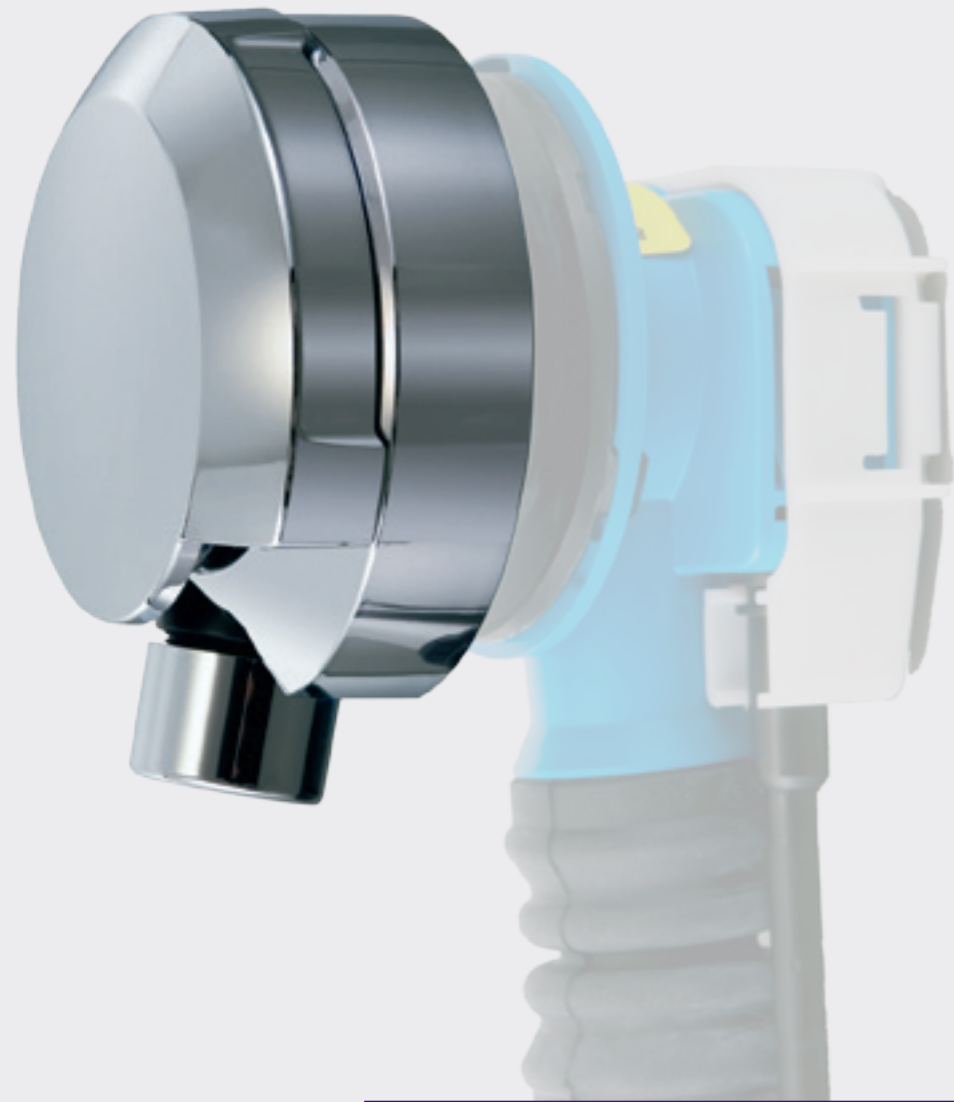
- 1 Installation flush with the ceiling
- 2 Diagonal in-ceiling installation
- 3 In-wall installation
- 4 Diagonal in-wall installation

- High level of safety and comfort through integral systems
- Versatile use of Geberit RS90 Plus fire protection sleeve
- Complete system with system pipe brackets and insulation materials



Geberit bathtub inlets and drains.

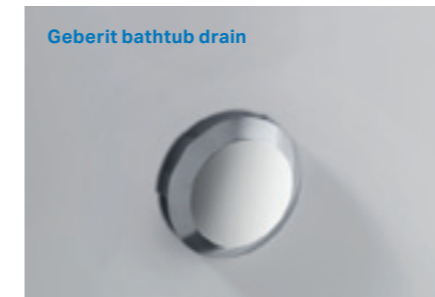
Function in top form.



- Intelligent details for easier installation and safety
- Shaped for optimised flow
- Complete range for all areas of use
- Certified as per BS EN 274

Geberit inlets, drains and overflows for bathtubs convince through well-thought-out details for greater safety, comfort and functionality, and impress with stylish design.

Geberit bathtub drain



Geberit bathtub drains – intelligent details

Easy installation as well as safe, tension-free installation are ensured through the flexible bellows seal on the overflow. Seals on both sides of the drain and overflow protect bathtubs of all materials against corrosion damage.

Flow engineering

The traps shaped for optimised flow ensure high drainage capacity and optimum self-cleaning. Thanks to a low construction height they enable comfortable entry into the bath.

Complete range

Geberit bathtub drains are available in various dimensions and in the typical sanitary tapware colours: gloss chrome or white - a suitable solution for all bathtub types and all customer wishes.

Geberit bathtub drain with inlet function



Geberit PushControl bathtub drain – flat construction height – comfortable to lean against



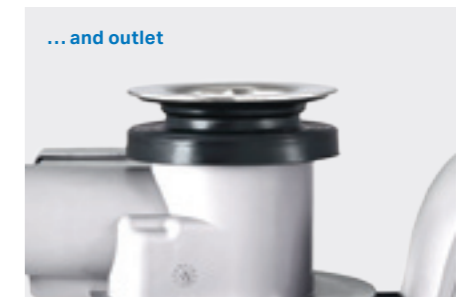
Flexible bellows seal for tension-free installation



All-round seals on both sides on the overflow ...



... and outlet



Geberit shower drains.

Low height with high performance.

Geberit shower drains offer high practical value thanks to the low construction height. They are also extremely easy to maintain and convince through outstanding drainage capacities.

Geberit shower drain d90



Construction height and ergonomics

The trap casing of the Geberit shower drains has a low construction height which ensures flat placement of the tray and thus comfortable entry for your customers.

Safety and easy cleaning

Seals on both sides protect shower trays from various materials against water damage. The trap casing inserts can be removed comfortably, thus enabling easy cleaning of the drainage pipe.

Geberit shower drain d50/60



Variants

Geberit shower drains are available in all common dimensions and in the typical sanitary tapware colours: bright chrome-plated, white alpine, matt chrome-plated and gold-plated.

Maintenance and cleaning made easy:
removable dip tube



Low construction height enables
comfortable entry

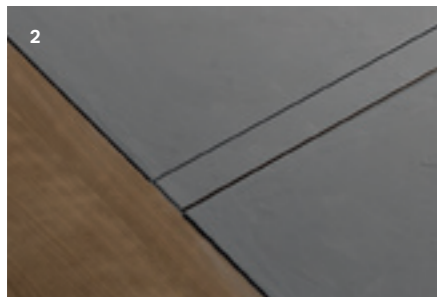
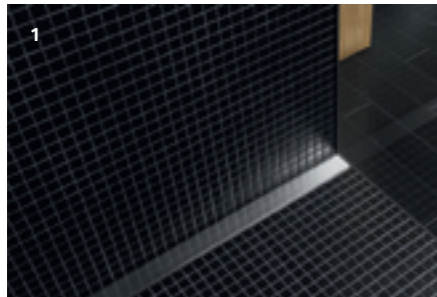


- Low construction height for comfortable entry
- Optimum protection of the tray
- Good accessibility enables easy cleaning
- The shower drain for every shower tray

Geberit shower channel.

Wetroom shower design of the highest level.

The Geberit shower channel convinces right down the line: timeless elegance, high-quality materials and technical refinement for demanding customers.



- 1 No matter whether stainless steel design directly on the wall...
- 2 ... or individually tiled in the centre of the room, the Geberit shower channel embodies timeless design.

Mounting feet – fastening, comfortable setting and sound insulation combined

The Geberit shower channel stands on four feet fixed to the floor which are also used for height adjustment.

The cubic design of the sound insulation case also enables easy and closed laying of the insulation.

The subsequent removal of the threaded pins interrupts the sound bridge between the useful layer and building structure and thus ensures compliance with the highest sound insulation standards.

Versions

The Geberit shower channel is available in the room and wall installation versions and in five lengths between 70 and 120 cm.

The design cover is available in the versions brushed stainless steel or tile bearing; this enables individual adaptation to each bathroom design.



Maintenance and cleaning made easy: removable dip tube



Foot construction for optimum sound levels



- Various versions and setting options
- Easy installation
- Modern design
- Sound insulation certified for increased requirements

Geberit shower frame with wall drain.

Wetrooms, redefined.

The innovative Geberit shower frame for wetroom showers transfers the drain unit from the floor to the wall. The result: simplified planning and installation with an attractive design.



1-4 The design cover for the Geberit shower element is available in four versions: stainless steel, tile bearing, chrome-plated and white.

Geberit shower element – consistent system technology

Geberit shower frame is an integral component of the Geberit Duofix installation system. Drainage pipes are guided in the prewall – sound insulation and fire protection subjects are solved within the framework of the Geberit system technology.

Flexibility

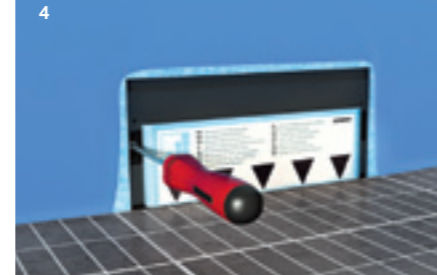
Geberit frames offer enormous flexibility in bathroom design. This philosophy is consistently continued with the shower frame.

Safe sealing

Geberit shower frame is equipped ex-factory with flexible connections for composite sealing, thus ensuring simple, reliable and durable sealing.

Design cover

The cover is available in four different versions – the fitting design for every bathroom. The stainless steel version is also offered as a vandal-resistant option.



- 1 Adjust the drain unit.
- 2 Form the slope in the screed.
- 3 Attach the sealing collar.
- 4 Set the compensation frame.



DESIGN PLUS

powered by: **ISH**

- Shower drainage integrated into the prewall
- Simple planning and installation
- Perfectly coordinated with the construction process
- Modern design
- Sound insulation certified for increased requirements

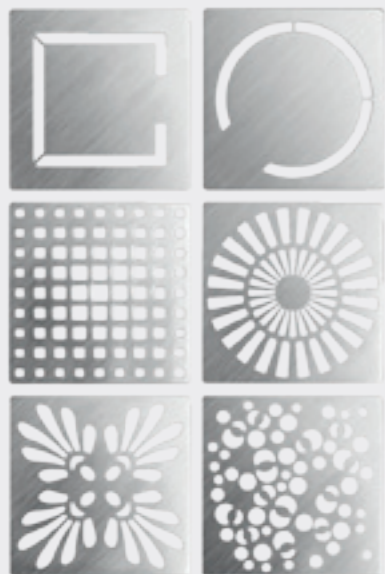


Geberit floor drain.

Wetroom, comfort and function.

The proven Geberit floor drain offers excellent value for money and high flexibility during installation – a well-thought-out solution for wetrooms.

Design grating in various styles



Easy installation

Special lugs attached to the trap casing ensure reliable positioning. The drain body can also be set flexibly to different floor structures in terms of insulation, screed and tile thickness.

Easy cleaning

The hair trap integrated invisibly beneath the grating can be removed; it enables easy cleaning and prevents clogging of the drain and of the subsequent pipe.

One base unit, six design options

Six different design gratings in various styles are available for the Geberit floor drain for showers. The standard grating is also available in a screw-locking variant.

Low minimum construction height



Flexible setting



- For use in wetrooms
- Intelligent details for easier installation
- Design grating in solid stainless steel



- Optimised flow
- High level of corrosion resistance
- Easy installation
- Complete range
- Ultimate design for practically every washbasin

Geberit washbasin traps.

Channel water away safely and quickly.

Geberit offers a comprehensive range of attractive washbasin traps: optimised flow right down to the final detail, absolute corrosion resistance and proven a million times over.



Geberit direct trap

Flow engineering

Geberit washbasin traps are shaped for optimised flow thanks to computer-animated simulation technology. This guarantees rapid outflow of the waste water and simultaneously achieves a self-cleaning effect.

Plastic – high quality, durable, easy to install

Geberit traps are produced from corrosion-resistant plastic. This gives them a long service life and enables easier installation.

Complete range

Geberit direct traps for washbasins – the universal design solution, fits every washbasin. Direct traps are available in gloss chrome.



The Geberit design trap: ultimate solution and easy installation thanks to high-quality materials.

Know-How Installed.

Innovative system technology for professional sanitary installations.

Using Geberit systems means playing it safe. No uncertainties that can result when combining components from different manufacturers and no unnecessary material costs and installation workload. In addition, Geberit systems offer maximum reliability and economic viability, and have a minimum impact on the environment.



1 Geberit cisterns and mechanisms

Exposed and concealed cisterns and clever flush control solutions all offer the perfection you have come to expect from Geberit, down to the finest detail. Together with the Geberit Monolith sanitary modules, the countless attractive Geberit flush plates and urinal flush controls, this creates efficient flush control solutions for WCs and urinals that fit into modern bathrooms.



2 Geberit installation systems

No matter if it's a solid wall or drywall, prewall or inwall installation: With Geberit Duofix you will find the optimum solution for every sanitary application. At the same time, you have the certainty of using efficient and economic system technology in bathroom construction and renovation.



3 Geberit supply systems

The Geberit Mapress and Geberit Mepla pressing systems together with a coordinated assortment of product materials, dimensions and fittings allow for the quick, easy, reliable and efficient installation of domestic and industrial supply systems. Naturally, the necessary pressing tools are part of the system. The robust Geberit pressing systems ensure quick and flexible connection.



4 Geberit drainage systems

Drainage systems for building drainage, the acoustically optimised Geberit Silent-db20, the indestructible Geberit HDPE system and the use in industrial and laboratory drainage, and the Geberit Pluvia siphonic roof drainage system can be combined to form complete solutions for drainage. Geberit waste fittings and traps ensure hydraulically optimised and stylish connection to sanitary appliances.



5 Geberit taps and flushing systems for public facilities

Only genuinely reliable sanitary technology products will satisfy the high and diverse requirements of semi-public and public sanitary facilities. Electronic and mechanical urinal and WC flush controls and quick-response washroom taps ensure hygienic, economic operation and create a harmonious overall impression together with the Geberit urinal divisions.

→ Geberit masters the art of developing practical products. This is not without reason. On the one hand, we use our complete knowledge and experience for each new and further development. On the other hand, our engineers and product designers are often found on construction sites, with plumbers or consultants. Because this is where the decision is taken as to whether an idea is really practical. Consequently, our products also contain the know-how of our market partners. "Know-How Installed" – something we can all be proud of.



**KNOW
HOW
INSTALLED**

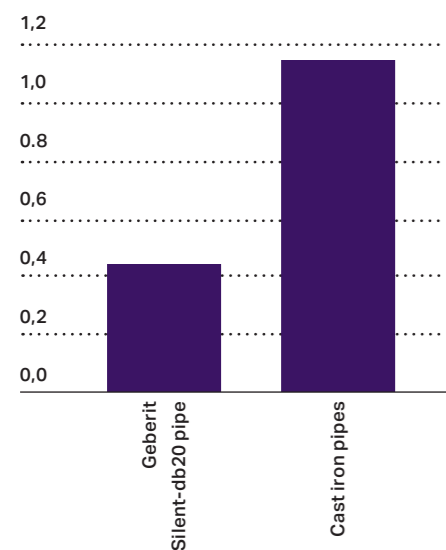
Sustainable.

Plastic pipes perform well in the ecobalance.



Ecobalance

Environmental impact of pipe systems in comparison, measured in eco-indicator points (EIP99) of the Dutch ecobalance method.



Optimum comfort and minimum environmental impact – this is Geberit’s answer to the challenges of today. As a leading manufacturer of sanitary technology, we make every effort to use natural resources carefully, thus making a contribution towards protecting the environment.

This begins with the development of our products and extends to their manufacture and use through to responsible recycling. Geberit products are durable and reliable goods that make a significant contribution to protecting natural resources.

Examples are the sound-optimized plastic pipes Geberit Silent-db20 and Geberit HDPE for building drainage. These pipes, developed and produced by Geberit, perform considerably better from an ecological perspective than traditional discharge pipes of cast iron.

With cast iron pipes, melting of the iron at temperatures of over 1000° C and the high transport weight of the pipes make a decisive contribution to the environmental impact. With plastic pipes, on the other hand, almost only the raw material is of significance. Production is very energy efficient and even disposal in modern combustion plants causes only a low environmental impact. This can be reduced even further through one hundred percent recycling.

The advantages for you as customer are obvious: you benefit from a sound-optimised and durable drainage system that can be installed easily and quickly. And, at the same time, you create an added value for the environment.

Further information is available at:

→ www.geberit.co.uk

/Silent-db20

/HDPE

/Sovent

/Pluvia

03.01.5311 Waste water tank



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			Height (m)		Height (m)						
			1.15	2.18	2.18	3.23	4.27	5.31	6.35	7.39	8.43
			Flat Qty.		Flat Qty.						
			AK1	AK2	KK2	KK3	KK4	KK5	KK6	KK7	KK8
Capacity > Volume (Ton / Gallon)		Capacity > Volume (Ton / Gallon)									
EKAP004	2.68	4	6 1585	12 3.170	12 3.170	18 4.755	24 6.340	30 7.925	36 9.510	42 11.095	48 12.680
EKAP005	3.35	5	10 2.642	19 5.019	19 5.019	28 7.396	38 10.038	47 12.416	56 14.793	65 17.171	74 19.548
EKAP006	4.02	6	15 3.962	28 7.397	28 7.397	41 10.831	54 14.265	67 17.699	81 21.398	94 24.832	107 28.266
EKAP007	4.68	7	20 5.283	38 10.038	38 10.038	56 14.793	73 19.284	91 24.039	109 28.794	127 33.550	145 38.305
EKAP008	5.35	8	26 6.868	49 12.944	49 12.944	73 19.284	96 25.360	119 31.436	143 37.776	166 43.852	190 50.192
EKAP009	6.02	9	33 8.717	62 16.378	62 16.378	92 24.300	122 32.228	151 39.890	181 47.815	210 55.476	240 63.401
EKAP010	6.69	10	40 10.567	77 20.341	77 20.341	114 30.115	150 39.625	187 49.400	223 58.910	260 68.684	296 78.195
EKAP011	7.36	11	49 12.944	93 24.568	93 24.568	137 36.191	182 48.079	226 59.702	270 71.326	314 82.950	359 94.837
EKAP012	8.02	12	58 15.322	110 29.058	110 29.058	163 43.060	216 57.061	268 70.798	321 84.799	373 98.536	426 112.537
EKAP013	8.69	13	68 17.963	129 34.078	129 34.078	192 50.721	253 66.835	315 83.214	377 99.592	438 115.707	500 132.086
EKAP014	9.36	14	79 20.869	150 39.626	150 39.626	222 58.646	294 77.666	365 96.422	437 115.443	508 134.199	580 153.219
EKAP015	10.03	15	91 24.039	172 45.437	172 45.437	255 67.363	337 89.025	420 111.000	502 132.614	584 154.276	666 176.000
EKAP016	10.70	16	103 27.209	196 51.778	196 51.778	290 76.609	384 101.442	477 126.010	571 150.842	665 175.674	758 200.242
EKAP017	11.36	17	117 30.908	221 58.382	221 58.382	327 86.284	433 114.386	538 142.124	644 170.126	749 197.864	854 225.602
EKAP018	12.04	18	131 34.606	248 65.514	248 65.514	368 97.215	486 128.387	605 159.824	723 190.996	841 222.168	960 253.605
EKAP019	12.71	19	146 38.569	277 73.175	277 73.175	410 108.310	542 143.181	674 178.051	806 212.922	938 247.793	1,070 282.664
EKAP020	13.37	20	161 42.532	306 80.836	306 80.836	453 119.670	599 158.239	746 197.072	892 235.641	1,038 274.210	1,184 312.779
EKAP021	14.02	21	178 47.022	337 89.026	337 89.026	499 131.821	659 174.089	820 216.621	980 258.888	1,141 301.420	1,301 343.687
EKAP022	14.71	22	195 51.513	370 97.743	370 97.743	549 145.030	726 191.790	902 238.283	1,079 285.041	1,256 331.800	1,433 378.558
EKAP023	15.37	23	213 56.268	404 106.725	404 106.725	599 158.239	792 209.224	985 260.209	1,178 311.194	1,371 362.179	1,564 413.165
EKAP024	16.05	24	233 61.552	441 116.500	441 116.500	653 172.504	864 228.244	1,074 283.720	1,285 339.461	1,495 395.000	1,706 450.677
EKAP025	16.72	25	252 66.571	479 126.538	479 126.538	709 187.298	938 247.793	1,166 308.024	1,394 368.255	1,623 428.751	1,851 488.982
EKAP026	17.38	26	273 72.119	517 136.577	517 136.577	766 202.355	1,013 267.606	1,260 332.856	1,506 397.843	1,753 463.093	2,000 528.344
EKAP027	18.05	27	294 77.666	558 147.408	558 147.408	827 218.470	1,093 288.740	1,359 359.009	1,625 429.279	1,891 499.549	2,157 569.819
EKAP028	18.72	28	317 83.742	600 158.503	600 158.503	889 234.848	1,175 310.402	1,461 385.955	1,748 461.772	2,034 537.325	2,320 612.879
EKAP029	19.39	29	340 89.818	644 170.127	644 170.127	954 252.020	1,261 333.120	1,568 414.221	1,875 495.322	2,182 576.423	2,489 657.524
EKAP030	20.05	30	363 95.894	688 181.750	688 181.750	1,020 269.455	1,348 356.104	1,677 443.016	2,005 529.665	2,333 616.313	2,662 703.226

QUICK SHIPMENT: Yellow painted tanks will be shipped from our stock as soon as possible.



Saudi Arabia 1000 Tons (2) Apollo Series.

Specifically designed for all weather and demanding conditions our Apollo® liquid storage tank is entirely Turkish made and available in a wide range of sizes from 6.000 to 248.000 liters in a standard or can be custom built up to 2.662.000 liters.

Easy Transportation!



Carrying 2 tanks with a capacity of almost 3.000.000 liters on a trailer.



A standard truck can carry 30 Apollo® tanks for international export.

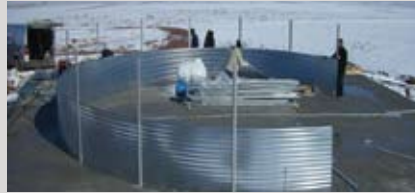


A helicopter is bringing a tank to a remote area. The size of the tank allows for installation in isolated or difficult areas like islands.

Easy to Erect!



Marking out the tank diameter



Completion of the first ring



Fitting on the dome truss



Laying and fitting on the roof sheets across the truss



Fitting on and securing the flexible liners



Finished EKAP021KK3-499 tons of tanks (with aggregate)

Applications!



Community water supply



Industrial water supply



Fire Protection



Agricultural water supply



Elevated Installations



Water supply for mining



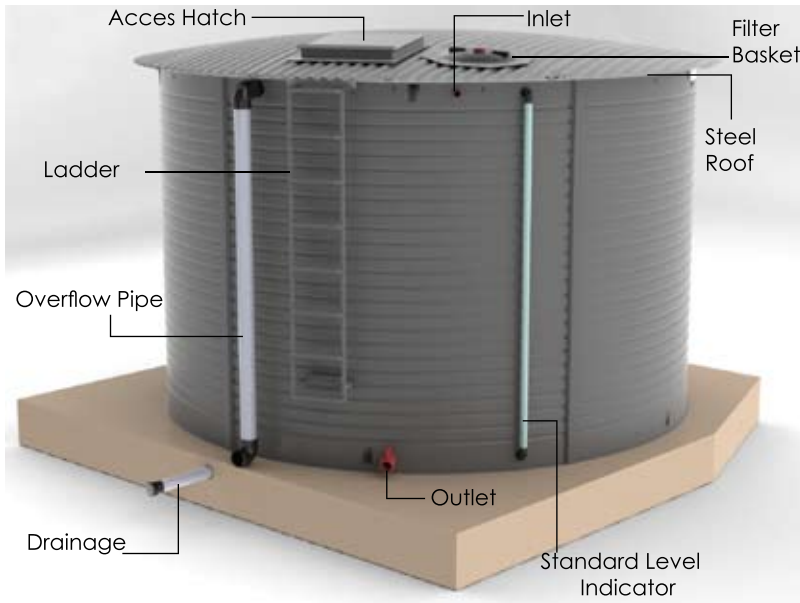
Aid organizations



Wine storage

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- General Water Supply (residential or public use)
- Storage for Special Industrial Liquid (Diesel, Jet A1, fuel, crude oil, unleaded and normal fuel)
- Fish Ponds, Fresh Water Fishery
- Schools, hospitals, fire departments
- Army camps, UN organizations and its sister teams (UNICEF, WHO, WFP...)
- Military operations
- Theme parks, hotels, resorts
- Mega malls
- Offices, factory plants, municipal districts
- Remote working sides



Tank Elevator Montage System

Allows you to build your tank easily without ladder or staging. For your own safety and a practical installation we recommend this piece when you have a tank that's taller than 3 meters. With applying the elevator onto tank, montage session should be start from top to bottom panels. Installation will end after a level-by-level elevation. Each elevator has a carrying capacity of up to 2000 kilos.

Extra Accersory



Apollo® Inlet / Outlet Connection

EKOTANK® APOLLO® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	Optional
5"	
6"	
8"	

Advantages

- Statically designed by engineers, invented after a hard reseach and development for many years.
- Fully enclosed bolt cover is tamper-proof and protected against a possible external harm.
- The special coated Galvanized panels are extremely durable.
- The modular design makes relocation in an easy and inexpensive way.
- The variety of membrane lets you to store any kinds of different liquids.
- The highest quality of membrane lets you to collect drinkning water and use it safely. It's also protects the liquid from external harms.

The Geotextile PES coated membrane has a certicate from Turkish Food Codex.

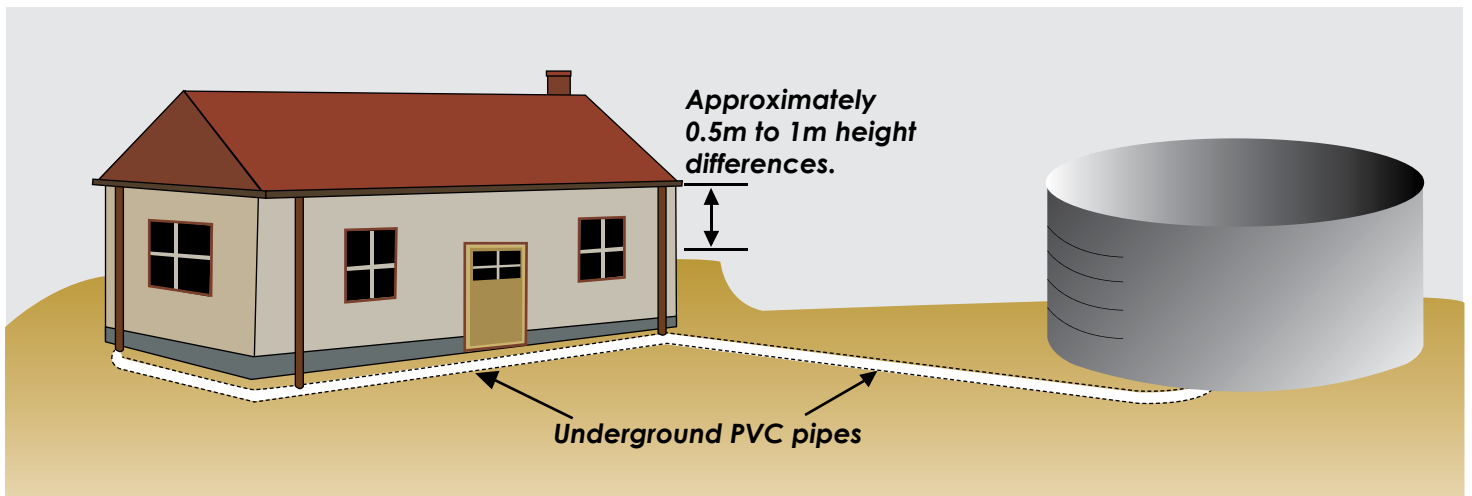
- Provides a selection of RAL colours for option.
- The rprofile of the tank's steel wall is designed strong for earth conditions and minimize the likelihood distortion after the load.
- By attaching magnesium anodes and painting with RAL colors the Apollo®, tank life is significantly extended.
- Whether you have Apollo® around your house or office, with using rainwater colection technique, you'll save money.

Two Different Ways to Collect Rainwater with APOLLO®

Rainwater collection from roof-top Underground system

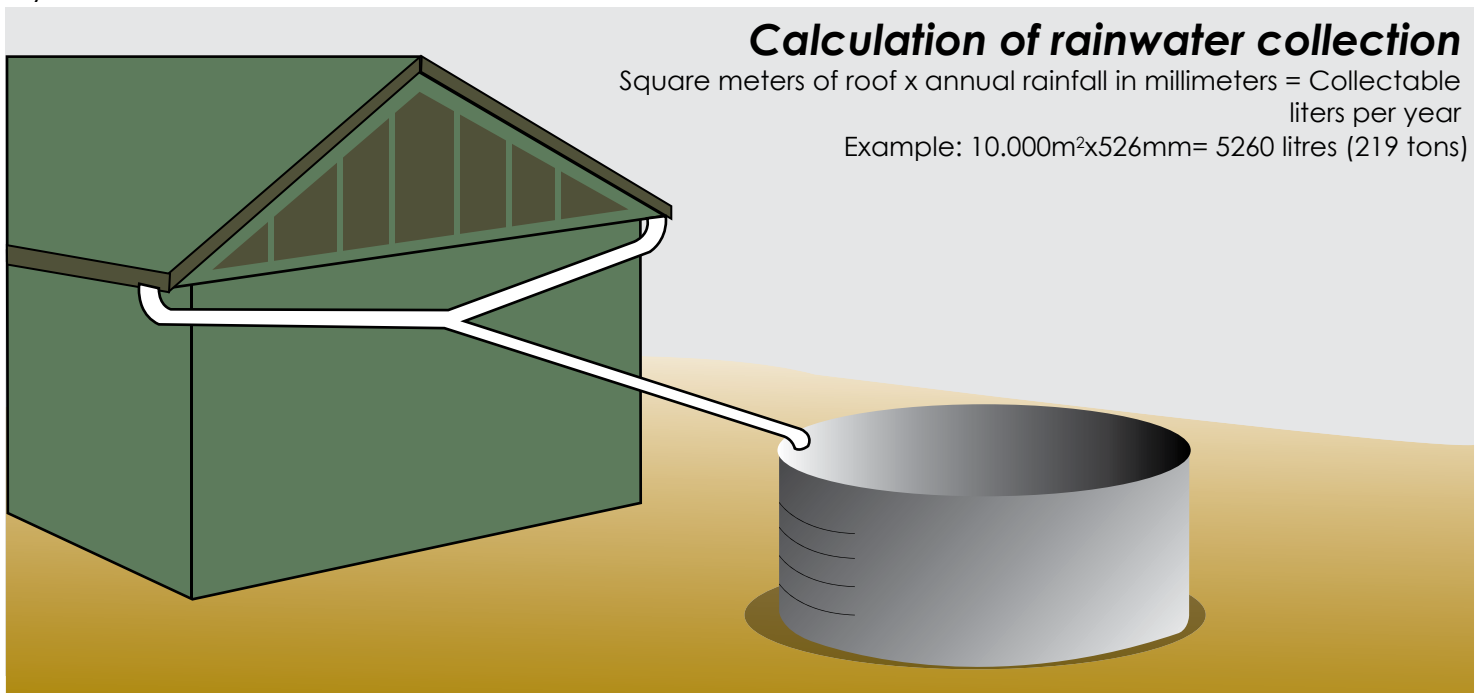
This is the most popular method because of the neat appearance. Water is channelled via the PVC storm water pipe below ground and up into the tank via the filter basket. It is important that the tank entry point is minimum 500 mm lower than the roof gutter and the PVC pipe is sealed and watertight.

Attention: The height difference between the gutter and the tank will vary according to the distance from the house or shed. Consult to your Ekotank® distributor or construction team to determine the height difference.



Rain collection from the shed Overhead system

All PVC storm water pipes are channeled (as shown) by the filter basket which is mounted to the roof.





SAUDI ARABIA / APOLLO® GALVANIZED STEEL TANK

Code : EKAP026KK4
Diameter \varnothing : 17.38
Height (m) : 4.27
Volume (m³) : 1013

SAUDI ARABIA / INSTALLATION OF GALVANIZED STEEL TANK APOLLO®

Code : EKAP026KK4 Height (m) : 4.27
Diameter \varnothing : 17.38 Volume (m³) : 1013



Looking for **COMPETITIVE**

Liquid Storage System?

MARS® is the Obvious Choice!



From 9 up to 3.000 tons of capacity!



New Generation Liquid Storage Systems

Competitive Price • Durable • Modular Design • Aesthetically Appealing • Larger Customer Base

EKOTANK®
MARS®

About

The Galvanized Steel Tank MARS®, the newest product of EKOTANK® that has been designed to be a cost effective alternative to Apollo® Series.

Mars® specifically fills the market need where budget and performance need to be as close as possible to each other. The roof system has been redesigned for the Mars® series to include a soft top, replacing the conventional truss roof systems up to a diameter of 11,64 m.

Product Info

Use of 76.2/18mm Corrugated Galvanized Steel Sheeting forms Mars® into a flexible system. The steel panels of the tank are coated with hot dip Galvanizing on both sides to ensure long lasting performance in outdoor weather conditions. Mars® is produced from **9.000** liters up to **3.000.000** liters (**3.000 M3**) in-house using corrugated steel galvanized technology.

Mars® has a special geomembrane liner inside to ensure the liquid stored in the tank does not contact with the steel parts. The standard geomembrane used in our tanks is certified for drinking water and can also be used to store other types of liquids. Fuel, industrial liquids and related chemicals can be stored using Ekotank® Mars® with membranes specially developed for purpose use. Please contact our sales team to inquire about storing industrial chemicals. The liner is produced using high frequency ultrasonic welding machines to ensure a perfect weld and water tightness. Standard Mars® liner is UV protected and prevents aquatic organisms such as mould, fungi etc... to form in our tanks.

The tank offers 2 different steel roof systems. A triangle modular roof system and a truss based steel dome roof just like the Apollo® Series. In the Triangle system the roof is separated in a number of panels, which are fitted together with watertight connection technology. In the truss dome system, the roof is first retrofitted with galvanized steel trusses, and then the roof area is covered by galvanized steel panels to complete the process.

Ekotank® Mars® also has 2 soft top solutions for applications that do not require steel domes. The indoor flat cover is made out of high-quality synthetic fabric which is fixed on to the roof-top to make

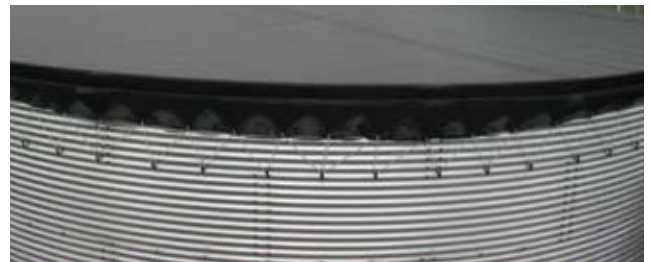
sure that the quality of water or the liquid inside is preserved. For outdoor applications, the conical shaped cover is specifically designed to offload rain and snow loads making sure that the water or liquid keeps its quality without contamination. Ekotank® Mars® soft covers provide the perfect balance between budget and performance, making the product more attractive to a larger customer base.

All Ekotank® Mars® systems come with a standard level indicator placed outside the tank. Digital and manual pulley type level indicators are available as optional accessories upon request.



Mars®
Inlet / Outlet Connection

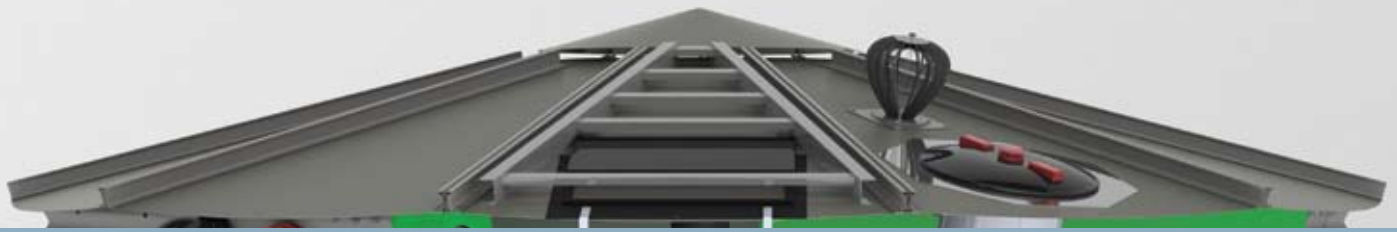
Indoor Flat Cover



Outdoor Conical Cover



EKOTANK® MARS® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	
5"	Optional
6"	
8"	



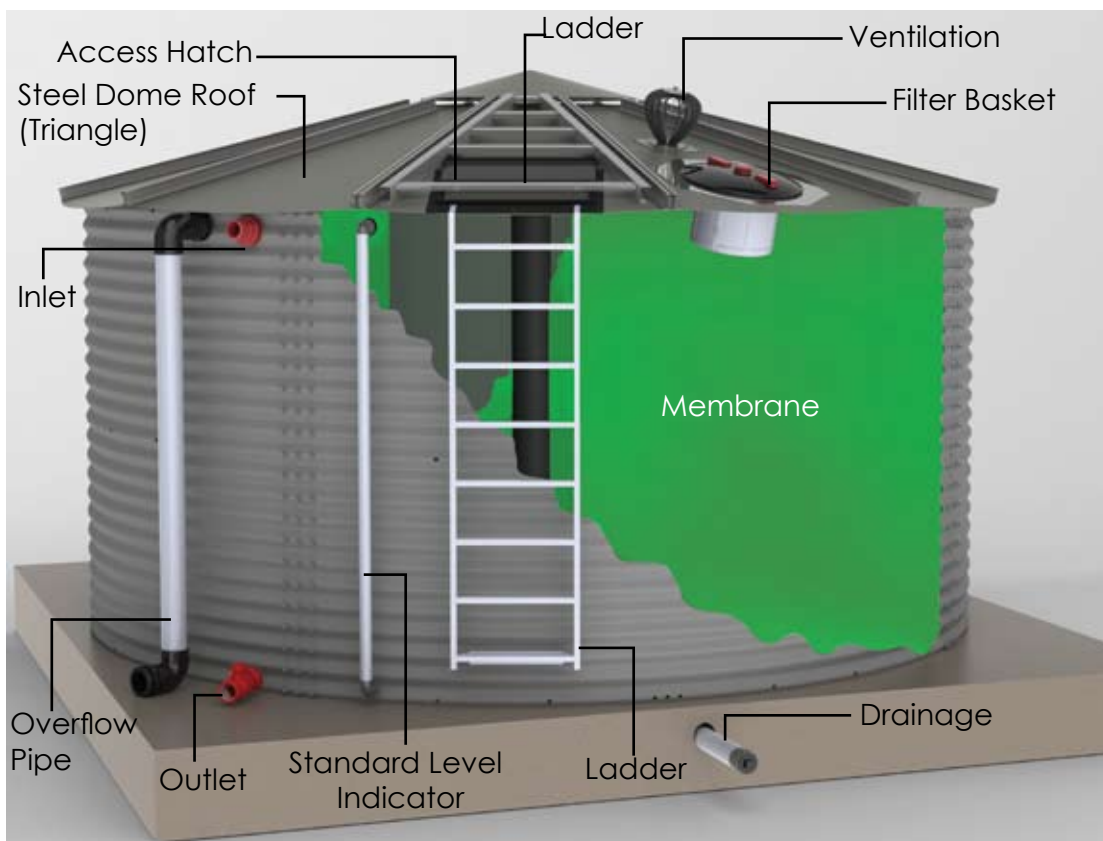
Triangle Modular Roof System

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- Industrial Applications
- General Water Supply (residential or public use)
- Fish Ponds and Fish-hatcheries
- Schools, Hospitals, Fire Departments
- Army Camps, Military operations
- UN Organizations and its sister agencies (UNICEF,WHO,WFP...ETC.),
- Recreational/ Theme Parks, Hotels, Resorts
- Mega-mall, Shopping centers
- Offices, Factory Plants, Municipal Districts (theme parks, offices)
- Housing Properties, Remote Working Sites

Advantages

- Thanks to its corrugated shell and hot dip galvanizing technology, Ekotank® Mars® is very durable both indoor and outdoor conditions.
- Using the latest in geomembrane technology, Mars® makes sure that the liquid stored inside is not contaminated
- Having a modular design, Ekotank® Mars® can be shipped anywhere in the world and erected on site very easily.
- Ekotank® Mars®, when produced in optional powder coated colors can easily blend into any environment.
- Mars® is designed to withstand thunderstorms and earthquakes.



EKOTANK® MARS® CAPACITY AND DIMENSION CHART

ROOF WITH TRIANGLE MUDULAR SYSTEM

Code No. >>		EKMA04	EKMA05	EKMA06	EKMA07	EKMA08	EKMA09	EKMA10	EKMA11	EKMA12	EKMA13
No of Rings	Wall Height (m.)	Diameter (m.)									
		3.58m	4.48m	5.37m	6.27m	7.16m	8.06m	8.95m	9.85m	10.74m	11.64m
		Capacity (M ³ / Gallon)									
R1	0.88	9 2,378	14 3,698	20 5,283	27 7,133	35 9,246	45 11,888	55 14,529	67 17,700	79 20,870	93 24,568
R2	1.62	16 4,227	25 6,604	37 9,774	50 13,209	65 17,171	82 21,662	102 26,946	123 32,493	146 38,569	172 45,438
R3	2.36	24 6,340	37 9,774	53 14,001	73 19,285	95 25,096	120 31,701	148 39,097	179 47,287	213 56,269	250 66,043
R4	3.10	31 8,189	49 12,944	70 18,492	95 25,096	125 33,022	158 41,739	195 51,514	236 62,345	280 73,968	329 86,913
R5	3.84	39 10,303	60 15,850	87 22,983	118 31,172	154 40,682	195 51,514	241 63,665	292 77,138	347 91,668	408 107,782
R6	4.58	46 12,152	72 19,020	104 27,474	141 37,248	184 48,608	233 61,552	288 76,082	348 91,932	415 109,631	487 128,652
R7	5.32	54 14,265	84 22,190	120 31,701	164 43,324	214 56,533	271 71,591	334 88,233	405 106,990	482 127,331	565 149,257
R8	6.06	61 16,114	95 25,096	137 36,192	187 49,400	244 64,458	309 81,629	381 100,652	461 121,783	549 145,030	644 170,127
R9	6.80	68 17,964	107 28,266	154 40,682	210 55,476	274 72,383	346 91,404	428 113,066	517 136,577	616 162,730	723 190,996
R10	7.54	76 20,077	119 31,436	171 45,173	232 61,288	303 80,044	384 101,442	474 125,218	574 151,635	683 180,430	801 211,632
R11	8.28	83 21,926	130 34,342	187 49,400	255 67,364	333 87,969	422 111,481	521 137,634	630 166,428	750 198,129	880 232,471
R12	9.02	91 24,040	142 37,512	204 53,891	278 73,440	363 95,894	459 121,255	567 149,786	686 181,222	817 215,829	959 253,341

ROOF WITH TRUSS DOME

Code No. >>		EKMA14	EKMA15	EKMA16	EKMA17	EKMA18	EKMA19	EKMA20	EKMA21	EKMA22	EKMA23
No of Rings	Wall Height (m.)	Diameter (m.)									
		12.53m	13.43m	14.32m	15.22m	16.11m	17.01m	17.90m	18.80m	19.69m	20.59m
		Capacity (M ³ / Gallon)									
R1	0.88	108 28,531	124 32,757	141 37,248	159 42,003	178 47,023	199 52,570	220 58,118	243 64,194	266 70,270	291 76,874
R2	1.62	199 52,570	229 60,495	260 68,685	294 77,667	329 86,913	367 96,951	406 107,254	448 118,349	492 129,973	538 142,125
R3	2.36	290 76,610	333 87,969	379 100,121	428 113,066	480 126,803	535 141,332	593 156,654	654 172,769	717 189,411	784 207,111
R4	3.10	382 100,914	438 115,707	499 131,822	563 148,729	631 166,693	703 185,713	779 205,790	859 226,924	943 249,114	1,030 272,097
R5	3.84	473 124,953	543 143,445	618 163,258	697 184,128	782 206,583	871 230,094	965 254,926	1,064 281,079	1,168 308,553	1,277 337,348
R6	4.58	564 148,993	648 171,183	737 194,695	832 219,791	933 246,473	1,039 274,475	1,152 304,326	1,270 335,449	1,393 367,992	1,523 402,334
R7	5.32	656 173,297	753 198,922	856 226,131	967 255,454	1,084 286,363	1,207 318,856	1,338 353,462	1,475 389,654	1,619 427,695	1,769 467,320
R8	6.06	747 197,337	857 226,395	975 257,568	1,101 290,853	1,234 325,988	1,375 363,237	1,524 402,598	1,680 443,809	1,844 487,133	2,016 532,571
R9	6.80	838 221,376	962 544,434	1,095 289,268	1,236 326,517	1,385 365,878	1,544 407,882	1,710 451,734	1,886 498,228	2,069 546,572	2,262 597,557
R10	7.54	929 245,416	1,067 281,872	1,214 320,705	1,370 361,916	1,536 405,768	1,712 425,263	1,897 501,134	2,091 552,384	2,295 606,275	2,508 662,544
R11	8.28	1,021 269,720	1,172 309,610	1,333 352,141	1,505 397,579	1,687 445,658	1,880 496,643	2,083 550,270	2,296 606,539	2,520 665,714	2,755 727,794
R12	9.02	1,112 293,759	1,276 337,084	1,452 383,578	1,639 432,978	1,838 485,548	2,048 541,024	2,269 599,406	2,502 669,958	2,746 725,416	3,001 792,780

GALAXY[®]!

Where Mobility Matters...



From 3 up to 300 tons of Capacity!



New Generation Liquid Storage Systems

UV & Weather Resistant • Collapsible & Compact • Easy Installation • Easy Transportation • Durable

EKOTANK[®]
GALAXY[®]

About Pillow / Bladder Galaxy® Tanks

Ekotank® produces a wide variety of collapsible fabric tanks also known as pillow bladders both for temporary and long-term liquid storage. Our latest product Galaxy®, is made out of a special PVC coated polyester fabric. Thanks to new developments in technology, all Galaxy® products are flexible, foldable, certified for drinking water, strong and resistant to bad weather conditions. Our tanks hold water, various chemicals, oil, gasses, effluents and slurries. The raw material used inside the tank blocks UV rays which makes it resistant to bacteria, mould and moss growth. Presently, fiberglass and polyethylene tanks are known to be popular but most of us are not aware of its disadvantages. These tanks are not healthy because the water inside is exposed to UV rays directly, therefore unsanitary substances can occur such as moss and bacteria which are harmful for human health. Since the fiberglass and polyethylene tanks are not compact they cover a large area which makes it more difficult and expensive to install. When it comes to repair these tanks they can not be repaired without professional help and they need outrageous transportation costs. Unlike these regular tanks, Galaxy® is invented for practical and easy storage with approved sanitary conditions. They have endless applications and typically used by military and municipality operations, hospitals, schools, hotels, relief efforts, agriculture cooperatives, rural construction sites, Red Cross, civil rescue organizations, fire departments, and many other commercial areas... Galaxy® products are not only useful for industrial solutions, they can also be used in residences, roof areas, gardens, green houses, boats as well. In other

words these pillow tanks can be used in anywhere wherever you need to store liquid products. Capacities from **300 liters to 300.000 liters** are available. The tanks are easily transported and installed quickly with little or no on-site preparation. Specialized materials are available for a variety of applications. Please consult our sales team to choose the best material and types of fittings for your needs.



Strong



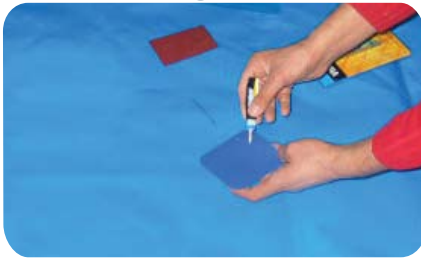
Collapsible & Compact



Easy Transportation



Can be repaired w/out moving the tank



Passes through quality Control test



Climate resistant



Applications

Terraces



Factories



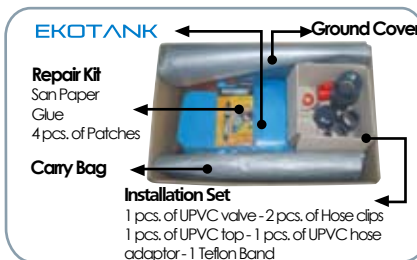
Liquid Transportation



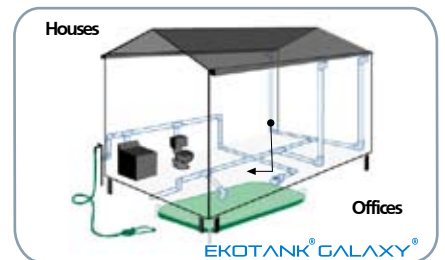
Agriculture



Delivery package



Recycling of rain and snow water





As the tank begins to fill with water, its unique design allows it to rise automatically.



UPVC valves are hygienic and long lasting.



Open top (Onion) tanks design allows for easy filling of liquids and protects the water source from outside contamination. The open top reservoirs are low profile circular shape tanks with a collar made of closed cell foam. As the tank begins to fill, its unique design allows it to rise automatically. These tanks are used for spill recovery, fire-fighting, storage of potable water, aquaculture, sewage, rain water accumulation, drilling and many other types of industrial liquids.



EKO Yatay 1/2" - 3/4" - 1" - 1 1/2"



Float Valve Reservoir

Float Types			
Product Code	Explanation	Outlet (Inch)	Float Reservoir
UREKOTKEYSAMYRMPARMAK	EKO YATAY 1/2"	1/2"	Includes
UREKOTKEYSAMUCCPARMAK	EKO YATAY 3/4"	3/4"	Includes
UREKOTKEYSAMBIRPARMAK	EKO YATAY 1"	1"	Includes
UREKOTKEYSAMBCKPARMAK	EKO YATAY 1 1/2"	1 1/2"	Includes

Capacity and Dimension Chart of Open Top Ekotank® Galaxy®						
Product Code	Ton	Bottom Diameter	Top Diameter	Height	Inlet / Outlet	Gallon (USA)
EKOA001000	1	192	150	44	1"	264
EKOA002000	2	250	195	52	1 1/2"	528
EKOA003000	3	310	242	52	1 1/2"	792
EKOA004000	4	310	242	67	1 1/2"	1.056
EKOA005000	5	310	242	84	1 1/2"	1.321
EKOA006000	6	370	289	71	2"	1.585
EKOA008000	8	370	289	94	2"	2.113
EKOA010000	10	443	346	82	2"	2.642
EKOA015000	15	503	392	96	2"	3.962
EKOA020000	20	613	478	86	2"	5.283
EKOA025000	25	690	538	85	2"	6.604
EKOA030000	30	735	573	90	2"	7.925
EKOA040000	40	848	661	90	2 1/2"	10.567
EKOA050000	50	918	716	96	2 1/2"	13.209

Capacity and Dimension Chart of Pillow Tanks Ekotank® Galaxy®									
Product Code	Ton	Empty Width	Empty Length	Full Width	Full Length	Full Height	Inlet Outlet	Float Valve System	Gallon (USA)
EKOK000300	0.3	117	145	101	129	30	1"	EKO YATAY1/2"	79
EKOK000500	0.5	145	168	125	150	33	1"	EKO YATAY1/2"	132
EKOK000750	0.75	145	214	125	195	43	1"	EKO YATAY1/2"	198
EKOK001000	1	145	261	128	235	50	1"	EKO YATAY1/2"	264
EKOK001500	1.5	177	274	153	250	60	1 1/2"	EKO YATAY1/2"	396
EKOK002000	2	211	274	182	244	67	1 1/2"	EKO YATAY1/2"	528
EKOK002500	2.5	246	274	222	247	69	1 1/2"	EKO YATAY 3/4"	660
EKOK003000	3	274	283	247	255	67	1 1/2"	EKO YATAY 3/4"	792
EKOK004000	4	274	337	236	300	81	1 1/2"	EKO YATAY 3/4"	1.057
EKOK005000	5	274	404	236	368	79	1 1/2"	EKO YATAY 3/4"	1.320
EKOK006000	6	274	455	236	415	88	2"	EKO YATAY 1"	1.585
EKOK007000	7	274	510	242	459	92	2"	EKO YATAY 1"	1.849
EKOK008000	8	274	571	242	515	91	2"	EKO YATAY 1"	2.113
EKOK009000	9	274	623	242	561	96	2"	EKO YATAY 1"	2.377
EKOK010000	10	274	676	242	609	99	2"	EKO YATAY 1"	2.642
EKOK015000	15	419	570	361	508	100	2"	EKO YATAY 1"	3.962
EKOK020000	20	523	570	471	513	101	2"	EKO YATAY 1"	5.283
EKOK025000	25	570	629	513	566	101	2"	EKO YATAY 1"	6.604
EKOK030000	30	570	734	491	654	101	2"	EKO YATAY 1"	7.925
EKOK040000	40	570	945	491	860	101	2 1/2"	EKO YATAY 1"	10.567
EKOK050000	50	748	866	674	777	101	2 1/2"	EKO YATAY 1 1/2"	13.209
EKOK060000	60	866	878	780	760	101	2 1/2"	EKO YATAY 1 1/2"	15.850
EKOK070000	70	866	1007	780	906	101	2 1/2"	EKO YATAY 1 1/2"	18.492
EKOK080000	80	866	1136	745	1011	101	2 1/2"	EKO YATAY 1 1/2"	21.133
EKOK100000	100	866	1395	745	1270	101	2 1/2"	EKO YATAY 1 1/2"	26.417
EKOK120000	120	1162	1221	1046	1099	101	3"	EKO YATAY 1 1/2"	31.700
EKOK150000	150	1162	1501	1000	1336	101	3"	EKO YATAY 1 1/2"	39.626
EKOK200000	200	1458	1560	1312	1404	101	3"	EKO YATAY 1 1/2"	52.834
EKOK250000	250	1458	1925	1254	1713	101	3"	EKO YATAY 1 1/2"	66.043
EKOK300000	300	1458	2290	1254	2084	101	3"	EKO YATAY 1 1/2"	79.251

Package Sizes

Product Code	Width	Length	Height	Weight
EKOK000300	40	50	30	7.4
EKOK000500	40	50	30	9.4
EKOK000750	40	50	30	11
EKOK001000	40	50	40	12.8
EKOK001500	40	50	40	15.2
EKOK002000	40	60	30	17.6
EKOK002500	40	60	30	20.3
EKOK003000	50	60	40	22.7
EKOK004000	50	60	40	26.6
EKOK005000	60	75	30	31
EKOK006000	60	75	30	35.2
EKOK007000	60	75	30	38
EKOK008000	60	75	40	42.4
EKOK009000	60	75	40	46.2
EKOK010000	60	75	40	49.5
EKOK015000	60	75	40	63.4
EKOK020000	60	100	50	81
EKOK025000	60	100	50	93.1
EKOK030000	60	100	50	103.6
EKOK040000	80	100	60	138
EKOK050000	80	100	60	195

The Most Cost-Effective Liquid Storage System in the World!



From 25 up to 1.072 tons of capacity!



New Generation Liquid Storage Systems

Ideal for Agriculture • Easy Installation • Cost Effective • Modular Structure • Easy Transportation



ABOUT

Ekotank Star® is based on 4 main components. Affordability, easy montage, lightweight and long lasting. Whether you have a small or large profit business, Ekotank Star® will perfectly suit your needs while saving your budget. These tanks are made out of galvanized steel mesh panels which is extremely durable and light at the same time. Star® mesh panels offer many different storage solutions between 25m³- 1.072m³. Another great thing about this tank is, its flexibility. In case you'll need it smaller or bigger in the future, the standard panels will allow you to adjust it upon your request

any time you wish. The special PVC membrane that is used through the tank is UV resistant and prevents the water from humidity, bacteria and moss growth. This PVC membrane is approved by the Turkish Ministry of Health and Turkish Ministry of Agriculture. This tank can be also a perfect alternative solution to traditional underground irrigation systems with its economical price. Ekotank Star® offers 2 optional top lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions such as freezing and evaporation.



REVOLUTION

Modular structured MESH PANELLED TANK is a brand new type of liquid storage system in agriculture field, where mostly concrete or underground storages are being used. Unlike the old ones, Ekotank Star® is extremely easy to use and install at the same time.

The height of the tank (2.20 cm) protects the liquid inside from the contaminations dragged by the wind. That way the tank's dripping system is always clean, never gets clogged.

Thanks to modular structure of Star®; it's always easy to move it around. Where ever you need to store water, Ekotank Star® lets you to collect without hassle. It's perfectly designed to last longer, so you can use it for many years. Because of the modular design it's easy to install, and demount. Since the material that's being used for the tank is lightweight, there will only be very low cost for the transportation. Mounting can be simply done by end-user with only 2 tools.

Ekotank Star® is radically changing the traditional liquid storage habits. It's obvious that there is going to be a huge necessity for a storage system solution which lets you to keep your water without losing its quality, also perfectly fits your budget and easy to carry around.



LOOKING FOR THE BEST PRICE IN LIQUID STORAGE? STAR MEETS YOUR NEEDS...

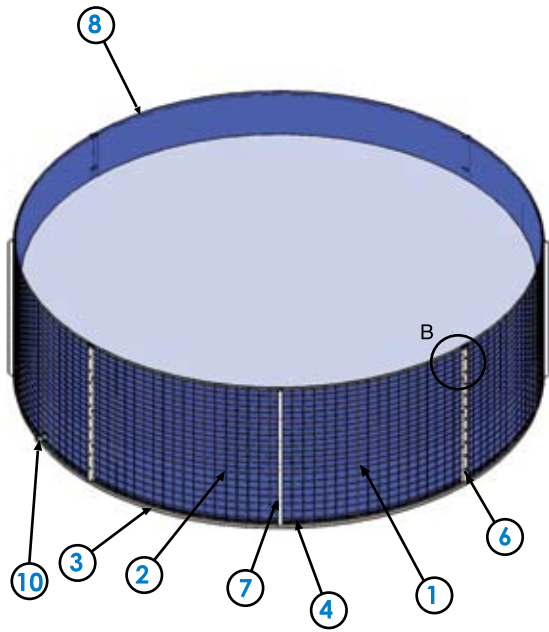


THE ADVANTAGES OF STAR® STEEL PANEL TANKS:

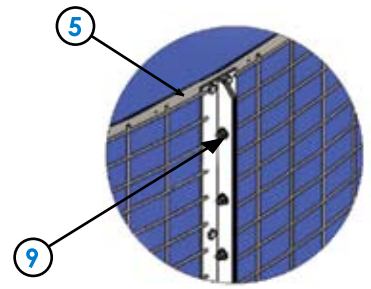
- ▶ Ekotank® Star®, offers the **MOST COST EFFECTIVE** solution for irrigation of agricultural fields as well as storing other types of liquids.
- ▶ Star® **CAN BE USED IN MANY AREAS** such as irrigation, agriculture, fishing industry, and in many other areas requiring temporary and permanent storage of liquids.
- ▶ Ekotank® Star® is especially **DESIGNED FOR EASY AND HASSLE-FREE INSTALLATION**. Mounting can be simply done by the end user with only 2 tools. Star® can be installed and demounted very easily so the end user can change the location of the tank whenever needed.
- ▶ Star® is made out of very strong steel mesh panels both **DURABLE AND LIGHT** at the same time.
- ▶ Having a modular structure, the tank can be **EASILY TRANSPORTED** and exported.
- ▶ Star® **SAVES MONEY** in transportation due to the light nature of its mesh steel panels.
- ▶ Ekotank® Star® is produced using high quality S-500 construction grade steel. Produced panels are treated with hot dip galvanizing for **DURABILITY**.
- ▶ When needed, the membrane of Ekotank® Star® can **EASILY BE REPAIRED** with the repair kit provided in standard packaging.
- ▶ Star® is **RESISTANT TO EXTREME WEATHER CONDITIONS**. The special PVC membrane protects the liquid from UV rays and the tanks can be operated in rough conditions from -30° C to +70° C. When used with the optional lid, Star® prevents freezing and evaporation of the liquids inside the tank.
- ▶ Thanks to the special PVC membrane that is used through the tank; the **LIQUID INSIDE DOES NOT CONTACT WITH STEEL PARTS OF THE TANK**. The open mesh structure of the Ekotank® Star® prevents humidity, therefore extending the life of the steel structure. Since the liquid does not touch the steel parts of the tank, corrosion won't occur. Ekotank® Star® offers 2 optional Top Lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions.

Star® mesh Steel Panel Tanks are produced with a capacity of **25 to 1072 m³**.

THE EXPLANATION OF STAR® STEEL PANELS



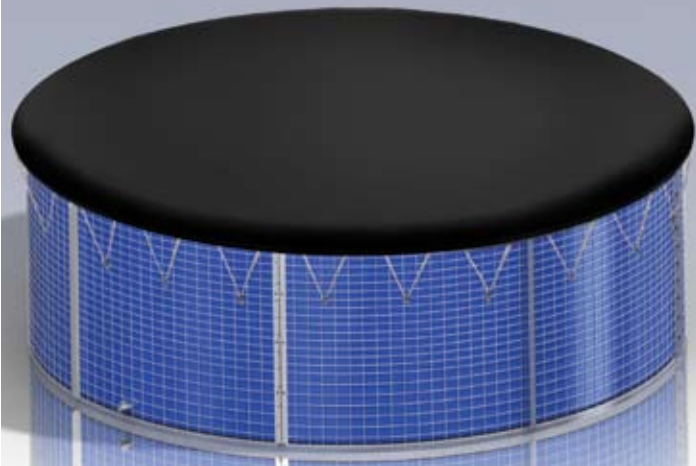
1. Steel Mesh Panel Module
2. Protective Ground Cloth
3. PVC Membrane
4. Bottom Steel Ring
5. Top Steel Ring
6. Corner Pieces for Module Joints
7. Corner Piece for Top Protection
8. Plastic Profile for Top Protection
9. Screw, Bolt, Washer
10. Valve



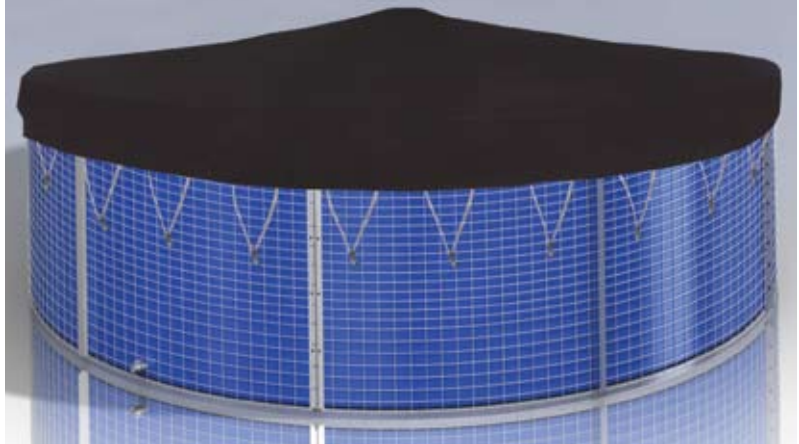
Star® Inlet- Outlet Connection

EXTRA ACCESSORIES

INDOOR FLAT COVER



OUTDOOR FLAT COVER



EKOTANK® - STAR® - CAPACITY and DIMENSION CHART

Code No	Number of Models	Weight (Kg.)	Diameter ø (M.)	Outlet	Height (M.)	Volume (M ³)	Gallon (USA)
EKST02	2	345	3.83	3"	2.20	25	6604
EKST03	3	526	5.75	3"	2.20	57	15.080
EKST04	4	714	7.66	3"	2.20	102	26.955
EKST05	5	909	9.58	3"	2.20	159	42.003
EKST06	6	1.110	11.50	3"	2.20	228	60.231
EKST07	7	1.317	13.41	3"	2.20	311	82.151
EKST08	8	1.530	15.33	3"	2.20	406	107.285
EKST09	9	1.750	17.25	3"	2.20	514	135.784
EKST10	10	1.976	19.16	3"	2.20	634	167.485
EKST11	11	2.209	21.08	3"	2.20	768	202.884
EKST12	12	2.448	22.99	3"	2.20	914	241.453
EKST13	13	2.693	24.91	3"	2.20	1.072	283.192

For a Fast and Economical Storage Solution



From 3 up to 100 tons of Capacity!



New Generation Liquid Storage Systems

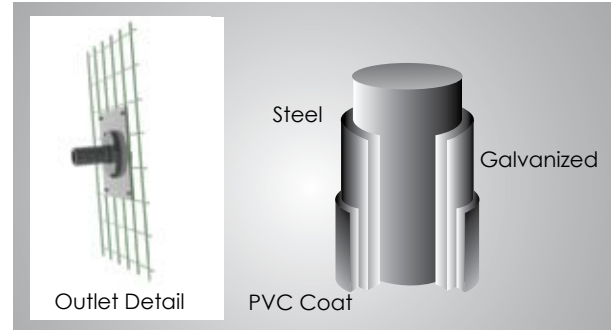
Economical • Light • Practical • Easy to Assemble • Aesthetically Appealing





ABOUT

Ekotank®, the manufacturer leader in liquid storage systems has opened another new era with its unique and most innovative tank known to be Quick Star®. Being the 20th century storage solution, quick tanks are inexpensive, lightweight and easy to assemble. With these special features now everyone can own a storage tank. Quick tanks have a wide variety of applications from personal to general use. They have a capacity of storage starting from 3 m³ to 100 m³ and the standard height of the tanks are 122 cm.



Advantages

- Shipped As a Kit
- Inexpensive
- Lightweight
- Easy To Assemble
- Practical

Prime Applications

FISHING

- Fish Hatchery
- Pisciculture
- Fresh Water Fishery

RAIN WATER COLLECTION

- Roof Rainwater Collection

EMERGENCY STORAGE

MILITARY / CIVIL RESCUE TEAM

- Residential & Public use
- Army & Civil rescue org.

IRRIGATION

- Orchard Irrigation
- Garden Irrigation
- Plantation Irrigation
- Green House
- Winter Garden
- Farms
- Agriculture

SEAWATER STORAGE

PORTABLE SWIMMING POOL

Capacity and Dimension Chart of Ekotank® QUICK-STAR®

Product Code	Weight (Kgs.)	Diameter (m.)	Height (m.)	Volume (m ³)	Outlet (inch)	Gallon (USA)
EKQST003	22	1,77	1,22	3	1 ½"	792
EKQST004	26	2,05	1,22	4	1 ½"	1.056
EKQST005	29	2,29	1,22	5	1 ½"	1.320
EKQST008	37	2,89	1,22	8	1 ½"	2.113
EKQST010	42	3,24	1,22	10	2"	2.641
EKQST012	47	3,54	1,22	12	2"	3.170
EKQST015	53	3,96	1,22	15	2"	3.962
EKQST020	63	4,57	1,22	20	2"	5.283
EKQST025	72	5,11	1,22	25	2"	6.604
EKQST030	80	5,60	1,22	30	2"	7.925
EKQST040	96	6,47	1,22	40	2"	10.566
EKQST050	111	7,23	1,22	50	2"	13.208
EKQST060	125	7,92	1,22	60	2 ½"	15.850
EKQST070	138	8,55	1,22	70	2 ½"	18.492
EKQST080	151	9,14	1,22	80	2 ½"	21.133
EKQST090	163	9,70	1,22	90	2 ½"	23.775
EKQST100	175	10,22	1,22	100	2 ½"	26.417

The most convenient water tank: EKOTANK® QuickStar®



- 1- Tie a rope or cord around the fence roll using a sliding knot.
Caution: The fence roll is wound extremely tight.
 - 2- Holding the rope or cord snug, cut the wires securing the roll. The roll will begin to open; loosen the rope gradually until the roll loses its tension.
 - 3- Once the roll has lost its tension remove the rope and continue unrolling the fence.
- Dikkat:** It is recommended that leather work gloves be used to avoid cuts or burns.



4. Mark a circle the size of the tank's diameter on the exact area the fence will be placed.



5. Place the fence on the circle as shown in this picture.
Important: One person should remain inside of the fenced area.
6. Using a measuring tape, verify the diameter of the fence is correct.



- 7- Connect the two ends of the fence. The ends should overlap each other approximately 25 cm (5 holes).



8. Using the 2 (One attachment), 4 (Two attachments) spiral locker wires provided with the QUICK STAR® kit anchor each end of the fence.
 - The anchors should be twisted down the mesh of the fence until they span from top to bottom.



9. Begin by placing the Geotextile Pre-Liner on the floor and any excess on the wall of the fence. Overlap minimum 10 cm. at the joining sections. Turn at least 15 cm. the outer side of the fence at the top. Fix the outer (15 cm.) geotextile to the fence using the plastic clips.

10. Unfold the liner inside the tank. The liner will have wrinkles when unfolded. These wrinkles will not affect performance of the liner and will most likely disappear once the geomembrane is filled with water.



11. Position the perimeter of the bottom of the Geomembrane against the perimeter of the tank. Remove all fold overs and make sure any slack is positioned along the perimeter of the fence.



12. Position the wall section of the Geomembrane over the top of the fence. DO NOT fold over the fence, as the walls of the Geomembrane will be drawn down the inside of the tank while being filled with water.

13. Begin filling the tank with water.

Completed EKOTANK® Quick Star®



Tools necessary for installation

- Measuring tape
- Scissors or knife
- Leather work gloves
- Rope or cord
- Leather
- Adhesive tape

Included items

- A. Fence
- B. Pre-liner Geotextile (200 gr/m²)
- C. Geomembrane
- D. Spiral locker wires (PVC coated)

SAMPLE PROJECTS



CYPRUS / GALVANIZED STEEL TANK MARS®

Code : EKMA08R7

Diameter \varnothing : 7.16

Height (m) : 5.32

Volume (Ton) : 216



AFGHANISTAN / GALVANIZED STEEL TANK APOLLO®

Code : EKAP025KK3

Diameter \varnothing : 16.72

Height (m) : 3.23

Volume (Ton) : 709



IRAQ/ PILLOW TANK GALAXY®

Code : EKOK050000

Volume (m³) : 50



CHAD / FUEL PILLOW TANK GALAXY®

Code : EKOK100000F

Volume (m³) : 100



KONYA - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP018KK2

Diameter \varnothing : 12.04

Height (m) : 2.18

Volume (Ton) : 248



KIRKLARELI - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP021KK3

Diameter \varnothing : 14.02

Height (m) : 3.23

Volume (Ton) : 499

SAMPLE PROJECTS



SUDAN / APOLLO® GALVANIZED STEEL FUEL TANK

Code : EKAP012KK2
Diameter \varnothing : 8.01
Height (m) : 2.18
Volume (m³) : 110



KONYA- TATKOY / APOLLO® GALVANIZED STEEL WATER TANK

Code : EKAP016KK2
Diameter \varnothing : 10.70
Height (m) : 2.18
Volume (m³) : 196



MALDIVES / APOLLO® SERIES

MALDIVES ISLAND HOTEL IN 7 DIFFERENT SIZES OF POTABLE AND WASTE WATER TANKS

Volume (m³) : Between 76 -150 Tons

SAMPLE PROJECTS



IRAQ/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP015KK3
Diameter \varnothing : 10.03
Height (m) : 3.23
Volume (m³) : 255



ROMANIA / GALVANIZED STEEL TANK APOLLO®

Code : EKAP017KK3
Diameter \varnothing : 11.38
Height (m) : 3.23
Volume (m³) : 227

PROCTER&GAMBLE-IZMIR - TURKEY/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP07KK2
Diameter \varnothing : 4.68
Height (m) : 2.18
Volume (m³) : 38



SUDAN / GALVANIZED STEEL TANK TOWER APOLLO®

Code : EKAP008KK2
Diameter \varnothing : 5.35
Height (m) : 2.18
Volume (m³) : 49



TRABZON - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP021KK3
Diameter \varnothing : 14.02
Height (m) : 3.23
Volume (m³) : 499

Our Certificates

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU

Sayfa No: 1/2

Sayı : B.10.1.RSH.0.09.00/10/2353
Konu : PVC analizi
Protokol No : 39792
19.09.2008

Numunenin Geliş Sebebi : Kimyasal analiz
Numuneyi Gönderen Kişi/Kurum/Kuruluş : Hıtaç Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
İlgili Yazı Tarihi/Sayı : 23.07.2008 / Bila sayı
Numunenin Alındığı Adres⁽¹⁾ ve Tarih : Yukarı Dudullu Org. San. Böl. 1.Cad.No:6 34776 Ümraniye-İST. ve 23.07.2008
Numunenin Sahibi : Hıtaç Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
Numunenin Cinsi - Miktar⁽²⁾ : PVC Membran - 13x16 cm'lik 6 adet
Tutanak Tarihi ve No. : Yok
Numunenin Geliş Şekli ve Mühür Durumu : Poğet içerisinde ve mühürlü
Makbuz / Dekont Tarihi ve No. : 21.08.2008 ve 82618541
Numunenin Laboratuvara Geliş Tarihi ve Saati : 23.07.2008 ve 16.30
Analiz Başlama ve Bitiş Tarihi : 22.08.2008 ve 18.09.2008

YAPILAN MUAYENE VE ANALİZLER

Hammaddenin Ticari Adı : PVC membran
Hammaddenin Kimyasal Adı : Polivinilklorür

FİZİKSEL VE ORGANOLEPTİK MUAYENE

Renk ve Görünüş : Mavi renkli plastik
Koku : Koksuz

KİMYASAL MUAYENELER

Yöntem	Mevzuat Limiti ⁽³⁾⁽⁴⁾	Analiz Sonucu
1- Plastik Türünün Tespisi	Infrared Spektroskopisi	PVC özelliğindedir
2- Boya Geçirgenliği ; Damıtık Suda (5 saat 50 °C'de)	Ekstraksiyon	Geçirgenlik vermemeli / Geçirgenlik vermedi
3- Toplam Migrasyon ; Damıtık suda (40°C'de 10 gün)	Gravimetrik	10 mg/dm ² / 9.2 mg/dm ²
4- Kurgun miktar ; Damıtık su (gıda sasında)	ICP-OES	2.5 mg/m ² / 2.15 mg/m ²
1.gün (24 saat)		2.5 mg/m ² / 1.04 mg/m ²
2.gün (24 saat)		0.3 mg/m ² / 6.15 mg/m ²
3.gün (24 saat)		

Adres: Cemal Gürsel Cad.No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
Web adresi: www.rshm.gov.tr e-mail: rgida@rshm.gov.tr
Form No: R05/ GGBM/ 00

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU

Sayfa No: 2/2

SONUÇ DEĞERLENDİRME

Yukarıdaki analiz sonuçlarına göre PVC membran numunesi Türk Gıda Kodeksi Yönetmeliğinin plastik esaslı ambalaj maddeleri kısmına ve Alman Yönetmeliğine uygundur.

⁽¹⁾ Numune tarafınca alınmış olup, Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü Numune Kabul Kriterleri Talimatına (GT01-GGBM) uygun olarak kabul edilmiştir.
⁽²⁾ 16.11.1997 tarih ve 23172 sayılı Resmî Gazete'de yayımlanan Türk Gıda Kodeksi Yönetmeliği.
⁽³⁾ Alman Yönetmeliği (Kunststoffe im Lebensmittelverkehr).

ANALİZ YAPAN : Zir.Yük.Müh.Gönlü KANGAL
LABORATUVAR SORUMLUSU : Zir.Yük.Müh.ÖZÜDOĞRU
Dr.Kıymışer TÜLİN ÇELİK

Zir.Yük.Müh.Gönlü KANGAL
Zir.Yük.Müh.ÖZÜDOĞRU

T.C. SAĞLIK BAKANLIĞI
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü

Adres: Cemal Gürsel Cad.No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
Web adresi: www.rshm.gov.tr e-mail: rgida@rshm.gov.tr
Form No: R05/ GGBM/ 00

All Ekotanks have Turkish Food Codex Certificate from Ministry of Health.

T.C. TARIM VE KÖYİŞLERİ BAKANLIĞI
Ankara İl Kontrol Laboratuvarı Müdürlüğü
Gayret Mah. Şehit Çam Erzurum Cad. No:12
Yenimahalle ANKARA TÜRKİYE

TÜRKAK
TÜRK AKREDİTASYON KURUMU
tarafından akredite

ÖZEL İSTEK MUAYENE VE ANALİZ RAPORU

Rapor No: 2008G-6428
Revizyon: 00
Bu Rapor ABN - İdari İşlemlerde ve Risklerin Anamlılığı Kullanılmamıştır.

Analiz Amacı : Genel İstek
Num.Gıda.Yarımın Tarihi : 05.08.2008
Sayısı : --
Cins : --
Ambalaj : --
Erişim Tarihi : --
Sınıf/Kullanım Tarihi : --
Seri-Parç. No : --
Miktarı (Net) : --

Num.Gıda.Tarih ve Saat : 05.08.2008 - 09:42
Adres : Ümraniye - İSTANBUL
An. Bas. ve Bitiş Tarihi : 05.08.2008 - 20.08.2008
Çevresel Firma : --
Adresi : --

Yapılan Analizler

Analiz	Metode	Yöntem	D	Analiz Metodu
1- Toplam Migrasyon	10 mg/dm ²	✓	EN 1180-1-11	
2- FT-IR Spektrometrisi	Polivinilklorür (PVC)	✓	Analiz FT-IR Spektrometrisi de yapılmıştır.	
3- Boya Geçirgenliği	Geçirgenlik vermemelidir	✓	Kameralarla foto çekimlerle de B-1-B	

Açıklama: Türk Gıda Kodeksi'ne göre uygundur.

Yapılan muayene ve analiz sonucunda yukarıdaki belirtilen değerler rapor edilmiştir.
Not: 1. Bu analiz raporunun bir kopyası 16.08.2008 tarihinde tarafımıza teslim edilmiştir.
2. Bu rapor kullanılmadık süresinde geçersizdir.
3. Bu rapor 3. ve 4. maddelerle akredite edilmiştir.
4. Bu rapor laboratuvarımızca yapılmış olduğundan geçerlidir.

Analiz Sorumlusu : **ŞEHİR ÇELİK**
Niteleme Kabul ve Rapor Durumunu Soran : **ŞEHİR ÇELİK**

TERCÜMEDİR
17. EYLÜL 2008
ACİL TERCÜME

REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND RURAL AFFAIRS
Directorate of Ankara Provincial Control Laboratory
Gayret Mah. Şehit Çam Erzurum Cad. No:12 Yenimahalle / ANKARA
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TURKAK
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TURKISH ACCREDITATION INSTITUTION
SPECIAL REQUEST INSPECTION AND ANALYSIS REPORT

Rapor No: 2008G-6428
Revizyon: 00

This Report is not allowed to be used in procedural-administrative acts and for the purpose of advertising.

Purpose of the analysis : Special Request
Date of the Letter by which the samples were dispatched : 05.08.2008
The Number of the Sample(s) : --
Type : Closed Type Ekotank (Water Deposit Tank)
Package : Paper Box
Date of Production : --
Expiry Date : --
Serial-Part No. : --
Quantity (Net) : --

Sample Dispatched by : Hıtaç Hisar İnşaat Turizm
Via : T.C. A.Ş.
Address : Ümraniye-İSTANBUL
Date and Time the Sample was received : 05.08.2008 - 09:42
Start and Finish Dates of the Analysis : 05.08.2008 - 20.08.2008
Manufacturer : --
Address : --

Analizler Yapılan

Analiz	Metode	Yöntem	D	Analiz Metodu
1- Total Migrasyon	10 mg/dm ²	✓	EN 1180-1-11	
2- Kameralarla Foto Çekimlerle de B-1-B	Geçirgenlik vermemelidir	✓	Kameralarla foto çekimlerle de B-1-B	

Açıklama: * Akredite edilmiş analizlerdir. / ** İstatistiksel olarak kabul edilebilirlik sınırlarıdır.

The values shown have been determined as a result of the examination and analysis.
Note: 1. Any of the parts of this analysis report can not be used safely and separately.
2. This report is valid for the sample shown.
3. This report has been drawn up in two languages.
4. This Report can not be duplicated without the approval of the laboratory.

Responsible of the Analysis : **ŞEHİR ÇELİK**
Chief of Packaging Lab. : **ŞEHİR ÇELİK**
Signature : **ŞEHİR ÇELİK**

Chief of Sample Acceptance and Report Preparation : **ŞEHİR ÇELİK**
Signature : **ŞEHİR ÇELİK**

All Ekotanks have Turkish Food Codex Certificate from Ministry of Agriculture.

Certificate of Guarantee



All Ekotanks have Conformance to Criteria Certificate from Turkish Standard Institute.



All Ekotanks have ISO 9001:2000 Certificates



All Ekotanks are Under 5 Years of Guarantee.



All Ekotanks have Service Compliance Certificate.



03.01.05311 Waste water pump



EKOTANK[®]
LIQUID STORAGE SYSTEMS

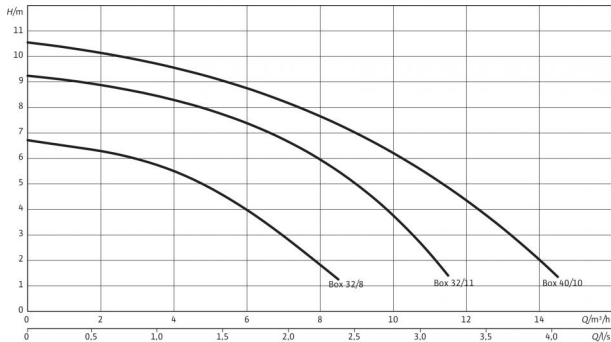


www.ekotank.net www.pillowtanks.net www.ekotank.com.tr



Data sheet: DrainLift Box 32/8

Pump curves Wilo-DrainLift Box - 50 Hz - 2900 rpm



According to EN 12056-4, 6.1, flow velocity (in the pressure pipe) must be kept between 0.7 and 2.3 m/s.

The stated Q_{min} values apply to the inside diameter of single-walled steel pipes.

Motor data

Mains connection	1~230 V, 50 Hz
Rated current I_N	2.1 A
No. of poles	2
Activation type	Direct
Insulation class	F
Protection class	IP 68
Max. switching frequency	50 1/h

Cable

Length of connecting cable	10 m
Mains plug	Shock-proof
Type of connecting cable	Non-detachable

Permitted field of application

Max. permissible pressure in the pressure pipe p	1.7 bar
Fluid temperature T	+3 ... +35 °C
Max. fluid temperature, for short periods up to 3 min T	60 °C
Max. ambient temperature T	35 °C

Dimensions/weights

Gross volume V	113 l
Switching volume V	26 l
Dimensions <i>Width x height x depth</i>	720x880x705 mm
Free ball passage	10 mm
Weight approx. m	26 kg

Connections

Pressure connection	Ø40
Flanges (according to EN 1092-2) PN	PN -
Connection standard	DIN 8074
Maximum operating pressure p_{max}	0.8 bar
Inlet connection	DN 100
Venting	DN 100

Installation sundries

Fixation material	-
Kit for pressure pipe connection	•
Curve cutter for inlet borehole	-
Hole saw for inlet borehole	-
Inlet seal	-
Soundproofing material	-

Materials

Motor housing	Stainless steel
Pump housing	Plastic
Impeller	Plastic
Tank	Plastic

Data sheet: DrainLift Box 32/8

Information for order placements

Make	Wilo
Art no.	2521820
EAN number	4016322705765
Price group	PG7



TECHNICAL DATA

WATER AND AIR PRESSURE GAUGES

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Pressure Gauges give visual indication of the water or air pressure available to the fire protection system.

2. LISTINGS AND APPROVALS

UL Listed - VEVX
ULc Listed - VEVXC
FM Approved - Pressure Gauges

3. TECHNICAL DATA

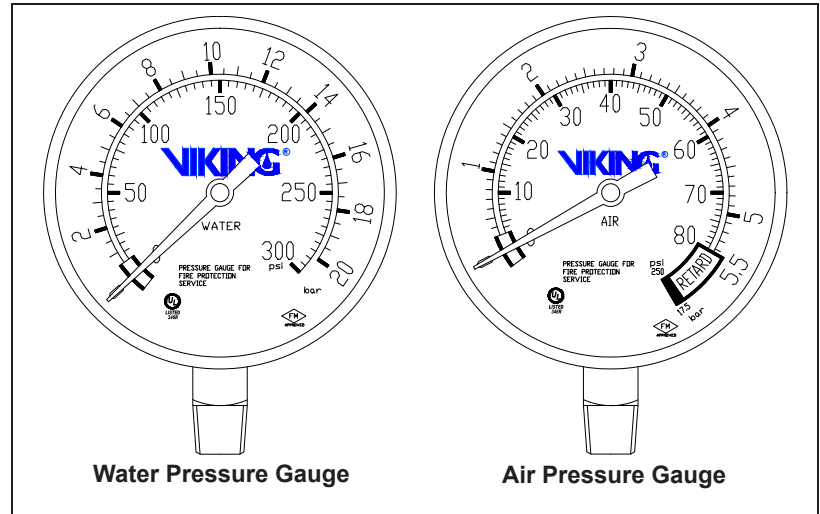
Connection: 1/4" NPT

Working Pressure:

- Water Gauge: 300 psi (20.7 bar)
- Air Gauge: 80 PSI (5.5 bar)

Maximum Pressure:

- Water Gauge: 300 PSI (20.7 bar)
- Water Gauge: 600 PSI (41.4 bar)
- Air Gauge: 250 PSI (17.2 bar) (Air gauge includes a "Retard Zone" between 80 and 250 PSI)



Material Standards

Case: ABS (Acrylonitrile Butadiene Styrene)

Window: Polycarbonate

Dial: Black Figures on White Background

Pointer: Black, Aluminum

Movement: Suspended Spring with Polyester Segment

Bourdon Tube: Bronze

Socket: Brass, Soft Soldered

Ordering Information

Available since 1977.

300 PSI (20.7 bar) Water Pressure Gauge - VWATERSF

600 PSI (41.4 bar) Water Pressure Gauge - VWATERSF600

250 PSI (17.2 bar) Air Pressure Gauge - VAIRSF

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.

4. INSTALLATION

1. Gauges are to be installed in accordance with the latest published standards of the National Fire Protection Association or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards whenever applicable.
2. Gauges must be handled with care. They must be stored in a cool, dry place in their original shipping container. Never install gauges that have been dropped or damaged in any way. Such gauges should be destroyed immediately.
3. Adequate heat must be provided where gauges are installed.
4. The gauges must be protected from mechanical damage. Install the gauges according to the following steps:
 - a. Apply a small amount of pipe-joint compound or tape to the external threads of the gauge only. Take care that no joint compound is allowed into the orifice of the gauge.
 - b. Turn the unit clockwise to thread the gauge into the 1/4" (6.4 mm) NPT connection of the fitting. DO NOT over-tighten the gauge.

5. AVAILABILITY

The water and air gauges are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

6. GUARANTEES

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

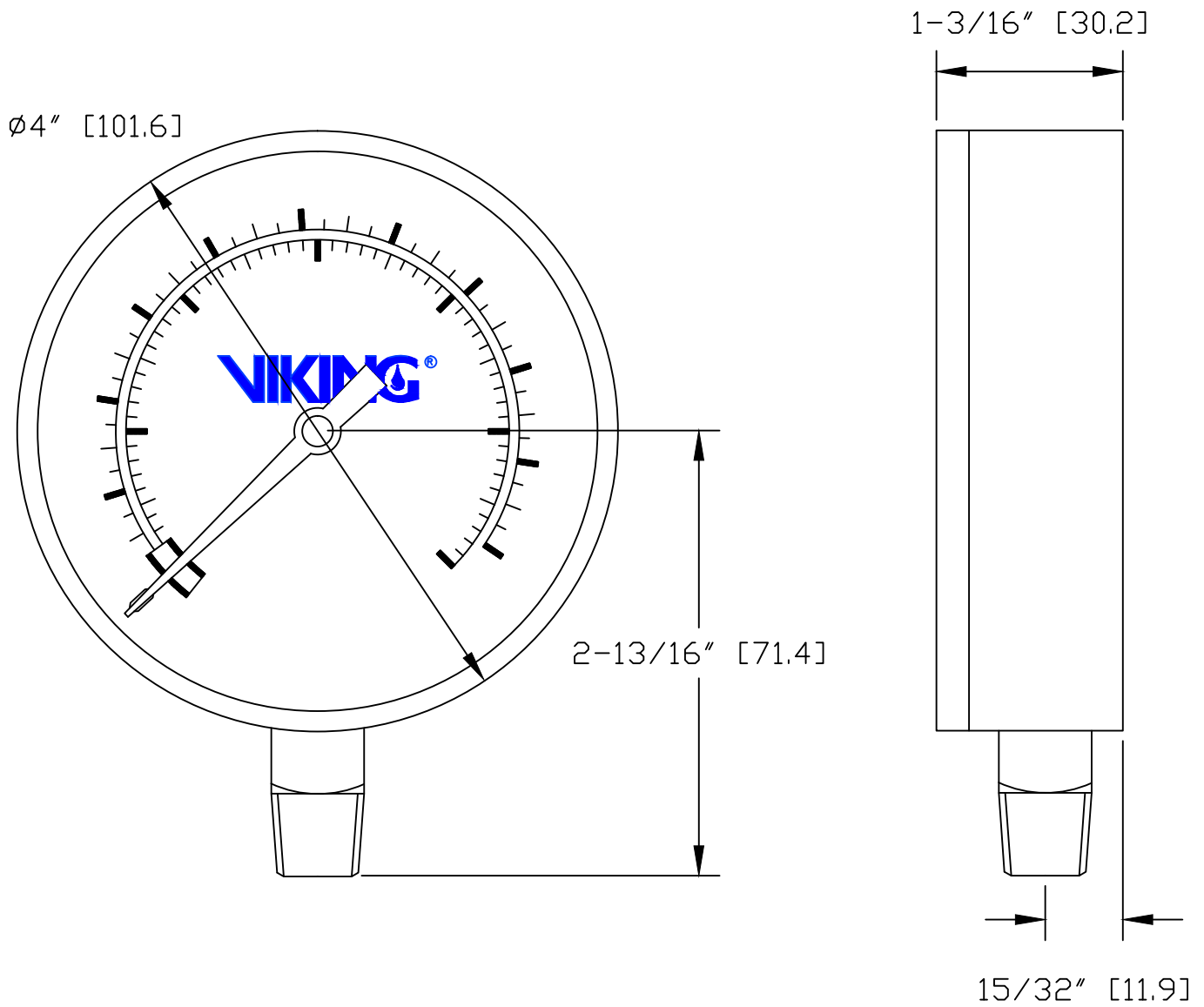


TECHNICAL DATA

**WATER AND AIR
PRESSURE GAUGES**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com



**Figure 1 - Gauge Dimensions
(Dimensions Apply to Air and Water Gauges)**



LG Electronics
AE Company, Commercial Air Conditioning
Two IFC, 10 Gukjegeumyung-ro, Yeongdeungpo-gu, Seoul, 150-945, Korea.
www.lg.com www.lgeaircon.com
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Distributed by



THERMAV™

Air-to-water Heat Pump

**High Efficient
Heating
Solution**



Focus on Energy & Environment

Continuous Challenges

The EU has set a target to cut emissions by 40% by 2030 with 27% of energy being produced by renewable sources. Plans are in place to move each country to a more energy efficient, low-carbon economy to help meet this target.

The UK's example

- The UK "Green Deal" and the "CRC Energy Efficiency Scheme" to assist investing in low carbon technologies
- All properties (homes, commercial and public buildings) must have an "Energy Performance Certificate (EPC)" when sold, built or rented.
- Larger public buildings over 500m² must display a "Display Energy Certificate (DEC)."

The Renewable Heat Incentive (RHI)

The RHI is the UK Government financial incentive scheme to encourage a switch from fossil fuel heating systems to renewable heating systems.

Renewable heat is defined as the heat generated minus the electrical input. (If the output is 10 kW, and the input is 3 kW, then the renewable output is 7kW, or 7kWh every hour of operation.)

- **The domestic RHI for Air to Water Heat Pump (launched 9 April 2014) :**
RHI pays 7.3p/kWhr to homeowners, private landlords, social landlords and self-builders.
- **Non-domestic RHI for Air to Water Heat Pump (launched 28 May 2014) :**
RHI pays 2.5p/kWhr to industry, businesses and public sector organization.

In order to claim for the RHI you will need a Green Deal Assessment and a MCS approved product and an MCS approved installer.

Microgeneration Certified Scheme (MCS)

Before applying

- A Green Deal Assessment must be carried out.
- Install loft or cavity wall insulation if it's recommended in the Green Deal Advice Report.
- Get an updated EPC (Energy Performance Certificate) to verify you've installed the loft or cavity wall insulation.

How to apply

The end-user must complete an online application form and supply

- MCS Certificate (or equivalent) Number
This is at the top of the certificate and looks like : MCS 01 234567-A
- EPC Number
This is at the top of your certificate and looks like : 12345-5678-9012-3456
- Green Deal Advice Report Number
This is at the top of your report and looks like : 12345-6789-0123-4567

Save money and pay-back

- Domestic RHI Claimable for 7 years (this can be backdated) Tariff 7.3pkWhr
- Non-domestic RHI Claimable for 20 years Tariff 2.5pkWhr

*Further Information

<https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive>
<https://gdcashback.decc.gov.uk/>
<https://www.gov.uk/crc-energy-efficiency-scheme-qualification-and-registration>

European Standards

LG THERMA V has adopted for the energy certification to correspond with the market demand for the each country. THERMA V has been validated for its reliability and efficiency by acquiring these certifications under strict conditions.

Certification benefit

- MCS (UK) : RHI (Renewable Heat Incentive) tariff 7.3 Pence / kWh for 7 years
- NF PAC (France) : Promoted in the context of Thermal Regulation RT 2012. Tax Refund (15%-25% of product cost)
- EUROVENT (EU) : Model registration at the EUROVENT website



LG Energy Lab

LG THERMA V has passed through the severe testing condition at the Energy Lab which is located in northern France. It can prove LG THERMA V is designed to make sure the steady performance and reliability under European winter condition.

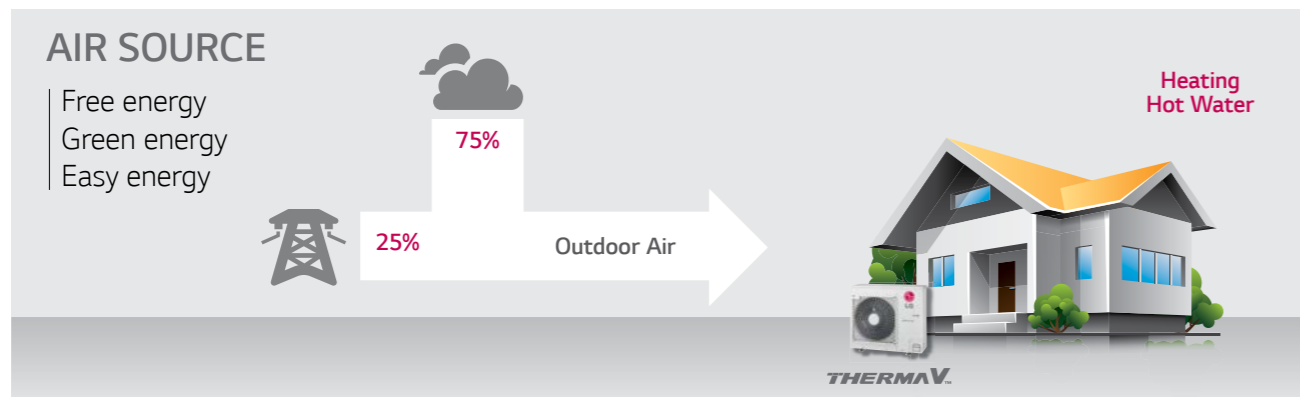


What is LG THERMA V?

THERMA V is LG's newest Air to Water Heat Pump system, especially designed for new housing and renovation by LG's advanced heating technology with energy saving. THERMA V can be used as various heating solution from floor heating to hot water supply with multiple heat sources.

Energy Efficient Application

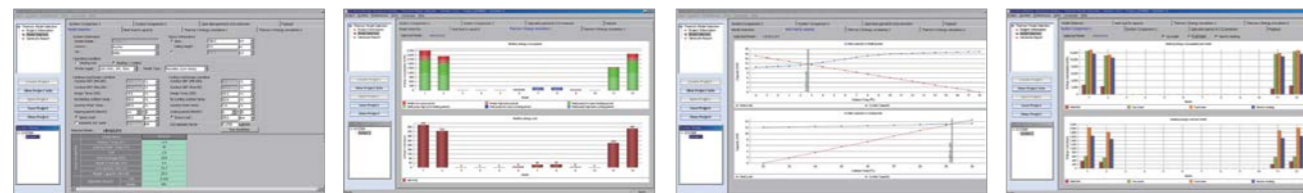
THERMA V offers the best solution for home heating and hot water supply with LG's inverter technology. It is 4 times more energy efficient than boiler system by absorbing energy from the outdoor environment.



Optimal Application

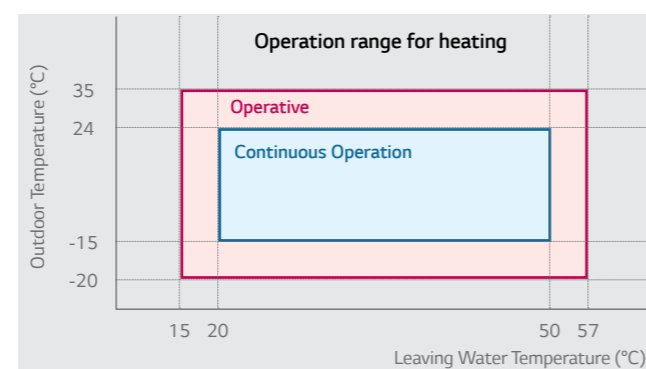
Advanced model selection software enables designers to choose optimal THERMA V model based on the location and environmental factors.

- Model selection screen
- Monthly energy simulation
- Heat load & heat pump capacity
- System comparison chart



Reliable Application

Heating range for outdoor temperature is down to -20°C and leaving water temperature can reach max. 57 degree.



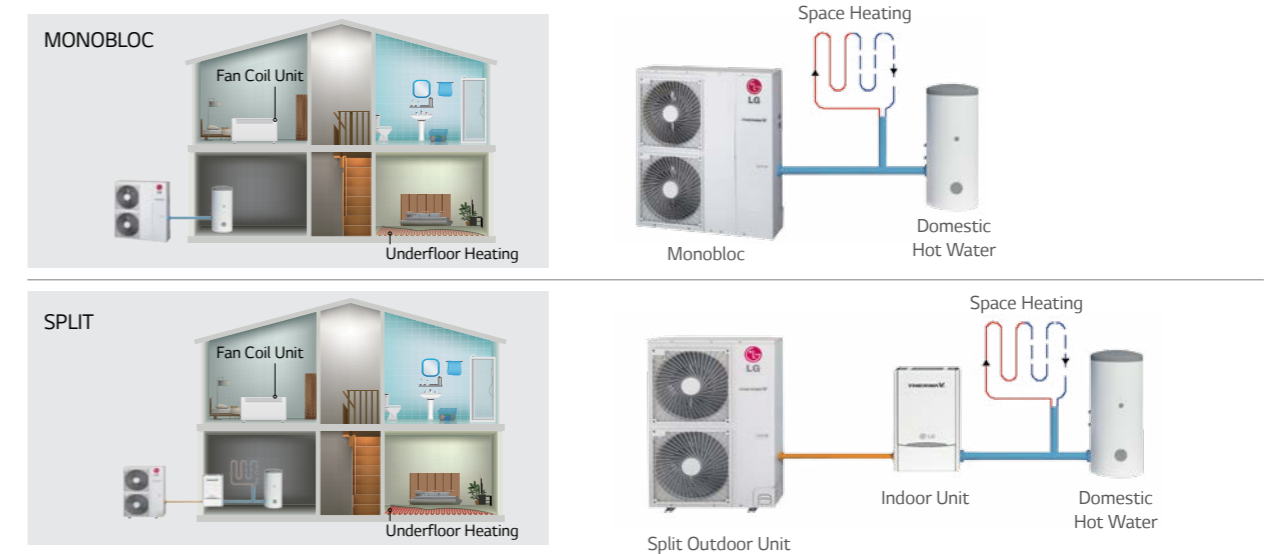
* In case of Monobloc models.

Various Application

Various kinds of application is possible with THERMA V units including new house also renovation house.

New House

With low temp. monobloc & split model, heating and cooling can be done.



Renovation House

THERMA V can be connected to existing boiler system to optimize energy efficiency and heating capacity for renovation house. Also THERMA V High Temperature can replace completely existing boiler by providing 80°C hot water.



Why LG THERMA V?

The LG Therma V is designed to create incomparable customer values like energy saving, comforts, easy controls and services by applying the advanced technologies.

The LG inverter technology provides excellent energy efficiency with optimal components such as water pump, heat exchanger and fan motor.

Moreover, the pressure control technology provides stable heating capacity at low temperature and reaches target performance without difficulties.

Additionally, the differentiated structure like all-in-one type, gold-fin and users-oriented functions enhance professionals reputations as well as end-users happiness by experiencing the LG's full line-up from 3kW to 16kW in heating capacity.

1 ENERGY EFFICIENCY



P.08

- Highly efficient inverter compressor
- Savings from energy efficient water pump
- Energy efficiency at -2°C
- Optimized components

2 CONVENIENCE & COMFORT



P.10

- Stable heating capacity with refrigerant pressure control
- Low operating noise
- Convenient control for end-users

3 EASY INSTALLATION & SVC



P.12

- Compact size & light weight for easy installation
- All-in-one type for quick and reliable installation
- Improved structure for easy service
- Emergency operation mode
- Service & Warranty support

1 ENERGY EFFICIENCY

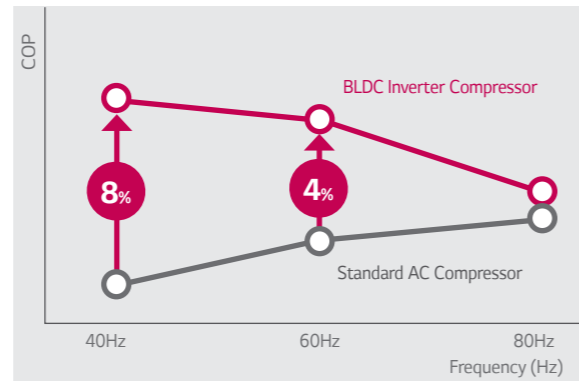
Powerful BLDC* Compressor

*BLDC : Brushless DC Motor

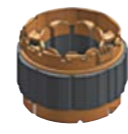
THERMA V is equipped with a BLDC* compressor that uses a strong neodymium magnet. The compressor has improved efficiency compared to standard AC inverter product and it is optimized for seasonal efficiency.



- Minimized oil circulation
- High efficiency motor
- Optimized compression
- Optimized vibration, noise
- High reliability



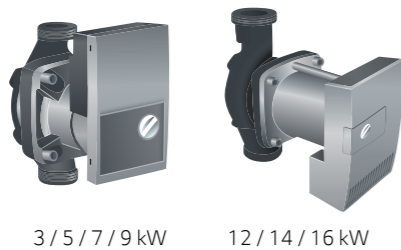
Conventional Distributed Winding



New Concentrated Winding

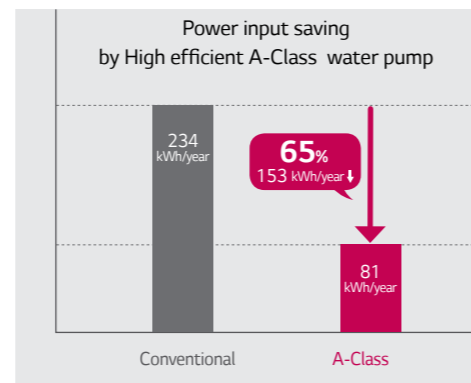
High Efficient Water Pump

THERMA V is equipped with a high efficiency A-Class water pump. The pump pressure is adjustable, to suit design conditions.



3 / 5 / 7 / 9 kW

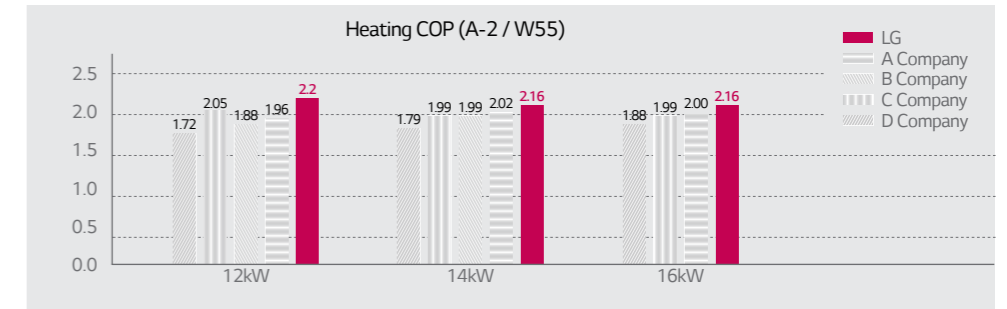
12 / 14 / 16 kW



* Condition : 12 hours x 30 days x 5 month (estimated value)

Energy Efficiency at -2°C

Energy efficiency is higher than others. (Condition : Ambient temp. -2°C / Leaving water temp. 55°C)



* Peak value / Monobloc models.

Heat Exchanger Improvement

Efficiency and performance are improved by increased heat exchange rate of wide louver fin & new optimal distributor design applied to the heat exchanger.

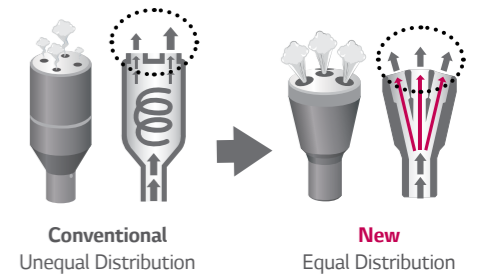
Wide Louver Fin

Improved heat exchanger efficiency of up to 28%.

Optimized Heat Exchanger Path

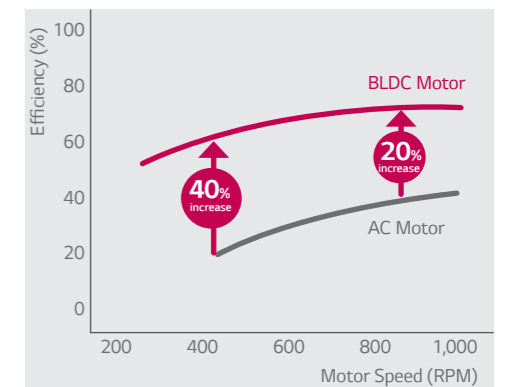
Improved cycle efficiency up to 5% with equal distribution.

Heat Exchange Rate (%)



Inverter BLDC Fan Motor

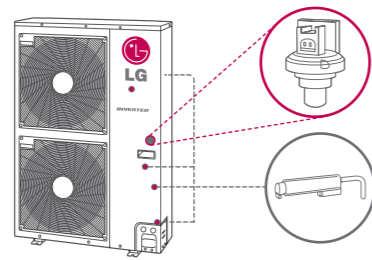
LG BLDC fan motor offers additional energy savings up to 40% at low speed and 20% at high speed compared to an AC motor.



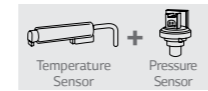
2 CONVENIENCE & COMFORT

Reliability at Low Temperature

Pressure control reinforces heating performance by operating in stable condition at low ambient temperature.

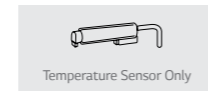


Pressure Control



This ensures to reach target performance point without failing to keep a reliable operation.

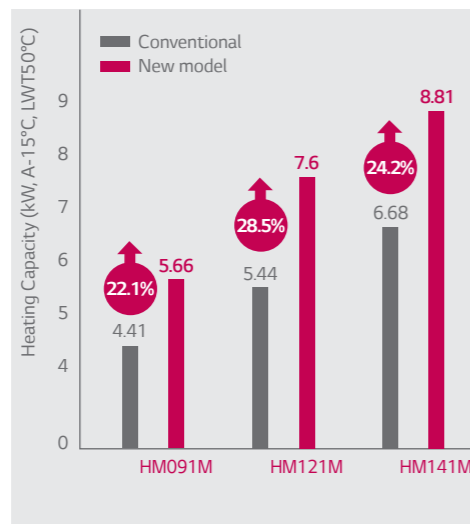
Temperature Control



This algorithm is more likely to be affected by temperature change and it takes more time to calculate proper operation range of compressor to target point.

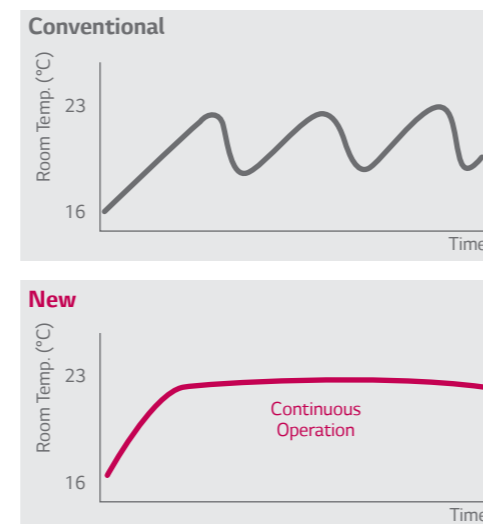
Heating Capacity at Low Temperature

High and stable performance at low temperatures.



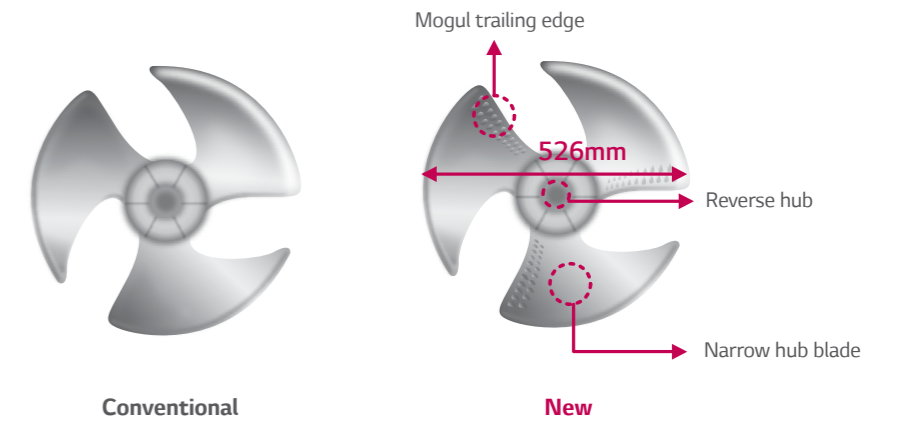
Stable Operation

High and stable heating performance at low temperatures.



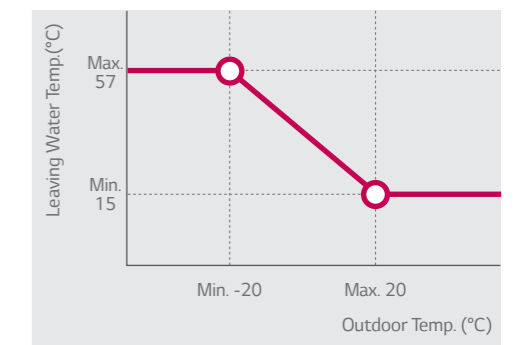
Improved Fan for Low Noise

The New Axial Fan has a narrow hub blade and mogul trailing edge, this provides a high efficiency, low noise as well as improving the air flow rate.



Weather Dependent Operation

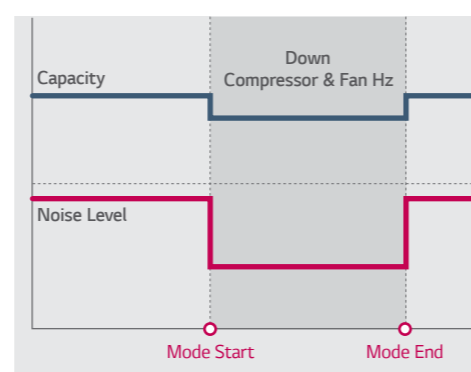
If users choose this mode, setting temperature will follow outdoor temperature automatically. If outdoor temperature decreases, heating capacity for the house will increase automatically in order to keep comfortable heating performance according to weather.



Silent Mode & Scheduler

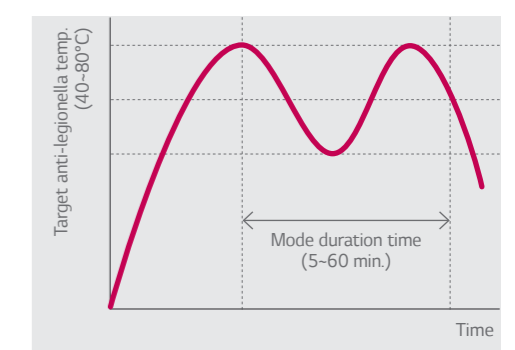
Silent mode operation can reduce the noise level specially during the setting time by remote controller and users can set the weekly on/off schedule also.

Heating Capacity (kW)	Heating Sound Pressure (dBA)	
	Normal	Silent Mode
3	47	43
5	51	48
7	52	48
9	52	48
12	53	50
14	53	50
16	53	50



Anti-Legionella Function

By setting Anti-legionella operation mode on, THERMA V heats the whole water tank automatically once a week until water temperature reach up to 80°C.

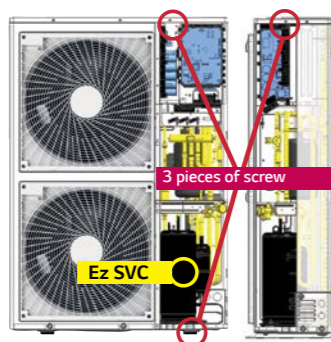
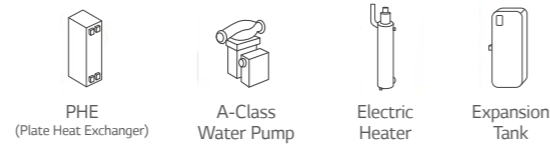


3 EASY INSTALLATION & SVC

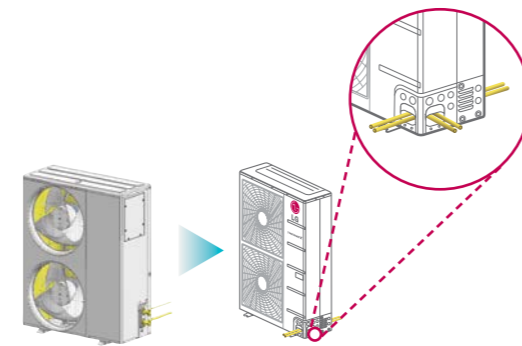
Ez Installation & SVC



All-in-one concept
 LG will provide fully packaged monobloc with 4 main component. (except 3kW monobloc) basically.
 No need to work refrigerant piping, easier and quicker installation.



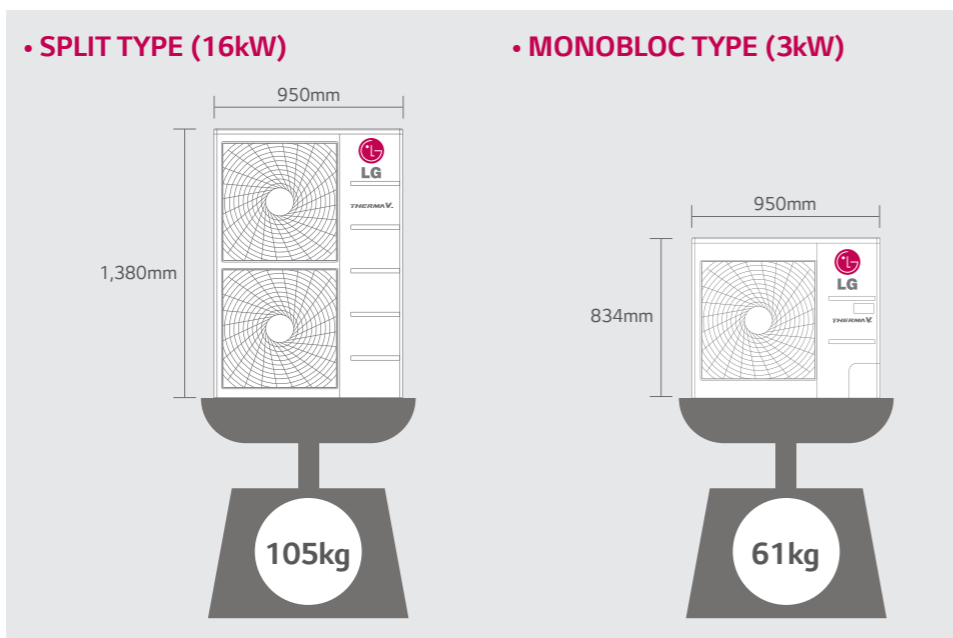
Compact design & Ez SVC
 - Remove 3 pieces of screw for SVC
 - Front panel removal system



3-Way charging pipe (Split type only)
 Refrigerating connection is possible in three directions.

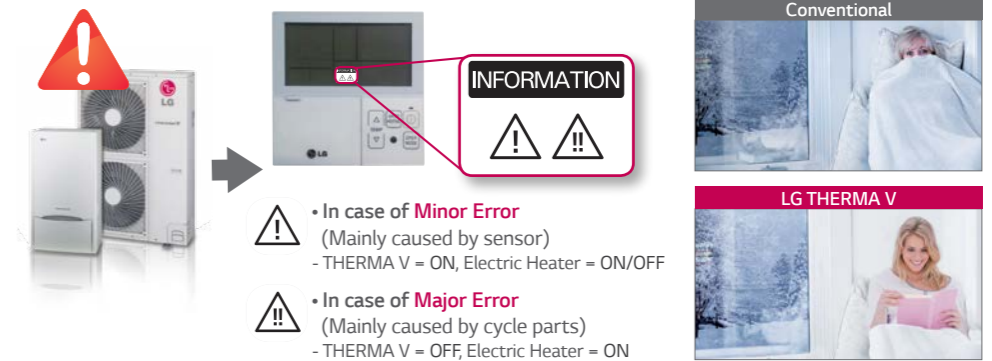
Compact & Slim

THERMA V is shaped to minimize the size and weight in order to help easy and efficient work condition for installation.



Emergency Operation

Even in case of sudden product error, THERMA V ensures stable heating operation by applying 2 steps of emergency control.



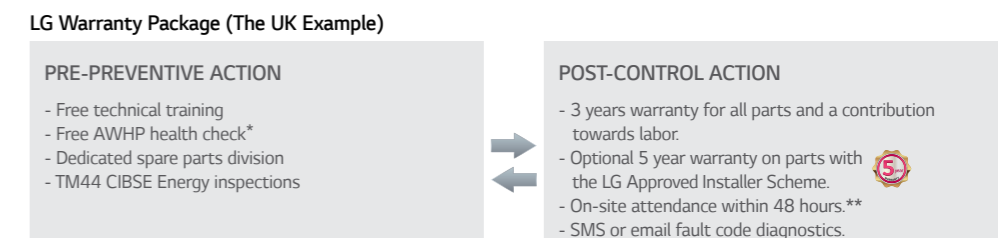
Corrosion Resistant Heat Exchanger

LG's Outdoor Heat Exchanger is coated with a gold-colored anti-corrosive epoxy treatment on the aluminum coil, to prevent corrosion. This maintains excellent heat transfer properties of the coil for an extended time, whereas non-Gold Fin™ coils progressively lose efficiency due to surface corrosion. Gold Fin™ fin is perfect for areas with high pollution or locations exposed to saltwater spray from the sea.



Service and Warranty

LG provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.



* If 3 warranty issues are claimed within the warranty period.
 ** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

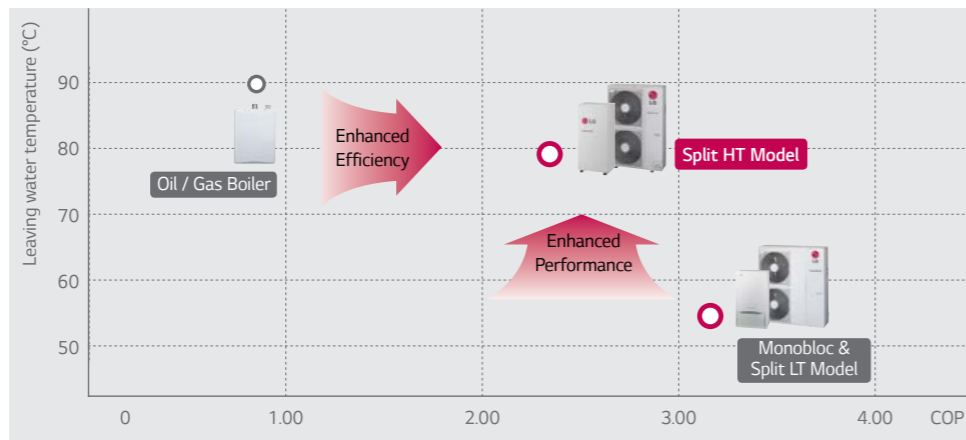
NEW

THERMA V HIGH TEMPERATURE



Enhanced Efficiency & Performance

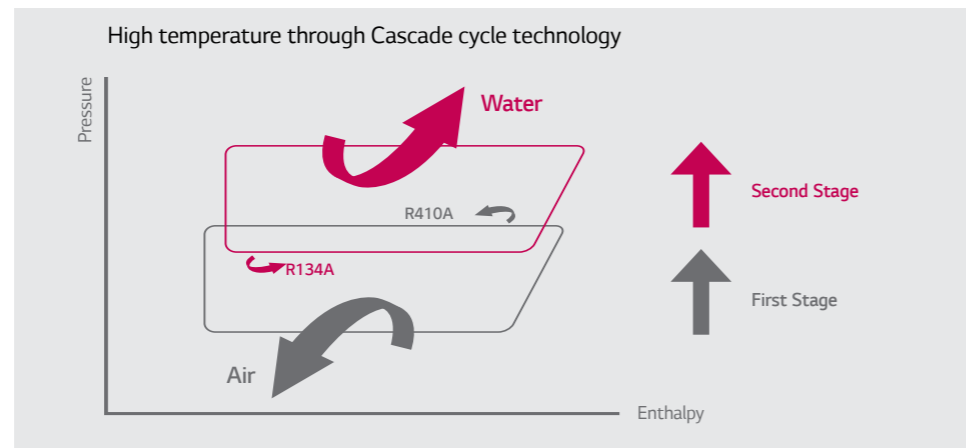
THERMA V high temp. can produce Max. 80°C hot water with high efficiency (Max. COP 4.06 at 24°C ODT & 40/45 EWT/LWT) through cascade 2 stage compression technology.



*Condition for HT model : Outdoor air temp. 18°C, entering water temp. 70°C
 *Condition for LT model : Outdoor air temp. 18°C, entering water temp. 50°C

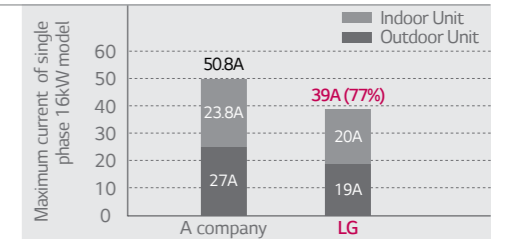
Cascade 2 Stage Compression Technology

Max. 80°C hot water can be generated through Cascade R410A to R134A BLDC compressor technology and applicable for existing old boiler heating system which demands hot water supply.



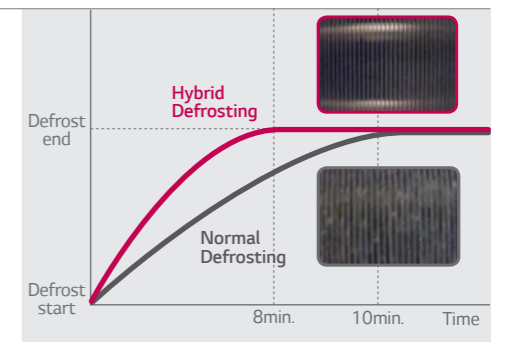
Low Maximum Current Level

LG High Temperature THERMA V can be easily installed without any additional electric connection cost.

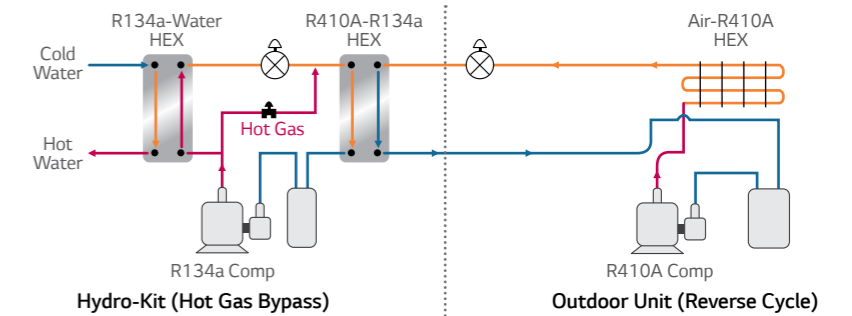


Quick Defrosting

Through R134A compressor controlling technology, necessary time for defrost operation has been minimized effectively. (LG Patent)

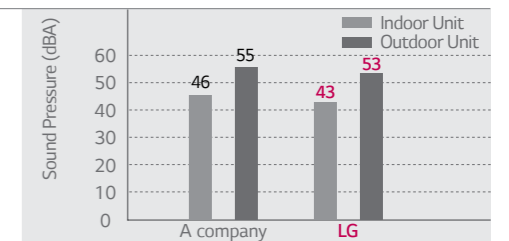


As compared to normal reverse cycle defrost, 25% reduction in defrost time, and 10% increase of integrated heating capacity is achieved using hybrid defrosting.



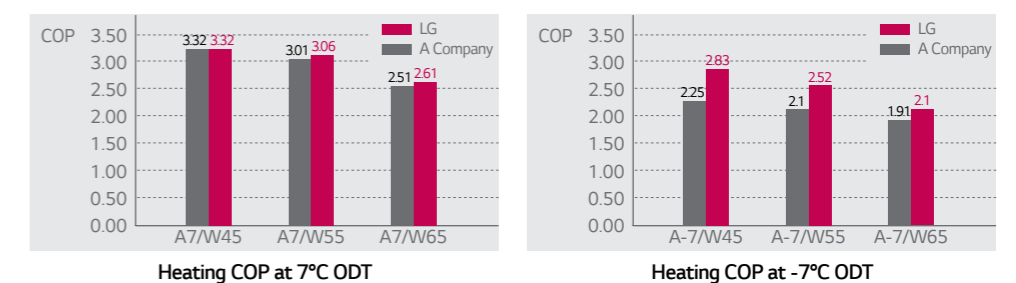
Low Noise Level

Through cutting edge technology for DC inverter compressor, operating noise level of indoor & outdoor unit has been reduced and serves more comfort.



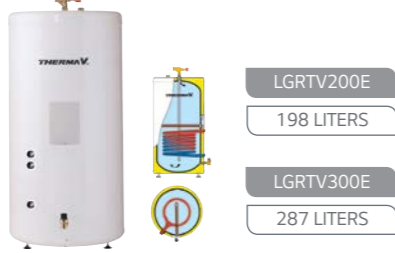





Higher Energy Efficiency

By applying efficient compressor and optimally designed structure, the more energy saving, the lower operating cost make sooner return on initial investment.



















ACCESSORY

Accessories provided by LG

Accessory	Feature
Domestic Hot Water Tank	 <p>LGRTV200E 198 LITERS</p> <p>LGRTV300E 287 LITERS</p> <p>Single Coil</p>  <p>LGRTV200VE 198 LITERS</p> <p>LGRTV300VE 287 LITERS</p> <p>Double Coil</p>
Domestic Hot Water Tank Kit	<ul style="list-style-type: none"> • PHLTA (1Φ, Split) • PHLTC (3Φ, Split) • PHLTB (Monobloc) <p>* The sensor (PHRSTA0) can be purchased separately in case of using other brand's Domestic tank.</p>  <p>PHLTA / PHLTC PHLTB</p> <p>Features Easy to install the domestic hot water for monobloc. There is a MCCB to protect the product. Dimension(mm) (HxWxD) : 250x170x110 Weight(kg) : 2.1</p> <p>To extend THERMA V functionality in generating domestic hot water.</p>
Remote Temperature Sensor	<ul style="list-style-type: none"> • PQRSTA0  <p>Features It can help to detect the exact room temperature. Applied to ceiling cassette, ceiling concealed duct, AWHP and Hydro Kit.</p> <p>Parts Included Remote temperature sensor / Extension cable (15m) / Manual</p>
Solar Thermal Kit	<ul style="list-style-type: none"> • PHLLA  <p>Features To interface solar-thermal system with THERMA V and double coil Domestic tank. Installed at the water pipe, between Domestic tank and solar-thermal system. Dimension(mm) (HxWxD) : 110x55x22</p>
Dry Contact	<ul style="list-style-type: none"> • PQDSA  <p>Features For connection with boiler(Bivalent scene)</p>

Optional accessories supplied in the fields

No.	Accessory	Picture	Purpose	Specification
1	Domestic Hot Water Tank		Store and provide hot water for sanitation	Volume : 200-400 l Enamelled or stainless-steel tank / Insulating foam (e.g. PUR - polyurethane) heat-exchanger surface ≥ 3 m²
2	3-Way-Valve		Switch between heating and domestic hot water circuit	230V AC SPDT (Single Pole Double Throw) / opening time 30-90 sec / final position switch Internal leakage rate < 0,1%
3	Electrical Tank Heater		Supports heating of domestic hot water, when heat pump is blocked or capacity is limited	2-6 kW Connector dimension suitable for DHW tank
4	Buffer Tank		Prevents cycling, when water volume is low and/or heating demand is low; secures enough heat for defrosting cycle	Insulating foam (e.g. PUR - polyurethane) Volume : 100-200 l (installation in series with heat pump) 500-1,000 l (installation in parallel with heat pump)
5	Bypass Valve		Ensures minimum water flow rate, when flow through heating circuits is limited due to closed valves	Dimensioning according manufacturer adjustable opening pressure
6	2-Way-Valve		Blocks heating circuits, that are not suitable for cooling during cooling operation	230V AC NO or NC type final position switch
7	Expansion Vessel		Absorption of pressure differences in the heating circuits due to temperature increase/decrease of the water	Dimensioning on-site required
8	Strainer		Protects plate-heat-exchanger from blocking particles	1 inch / 25.4mm, Mesh size ~ 1x1mm for HM03M1.U42 only (other models are included)
9	Heating Cable		Prevents the condensate pan and the drainage pipe from icing	Thermostatic control depending on outdoor temperature
10	Condensate Pan		Collects condensate water (when dropping to the base is not possible) and drains the water to a pipe	Diameter of drainage at least 3/4" Minimum dimensions according to chassis sizes (refer to specification) plus 5-10cm in width and length
11	Antifreeze		Prevents the heating water from freezing, when heat pump is out of order	Monoethyleneglycole Concentration according to lowest possible outdoor temperature
12	Noise Damper		Prevents that structure-born noise is transported via the water piping	EPDM; Operating temperature according climate region (at least -10 - +90°C)
13	Anti-Noise Sockets		Prevents that structure-born noise is transported to the base or to the brackets	Dimensioning on-site required
14	Thermostat		When thermostatic room temperature control is preferred by customer	230V AC When heat pumps operates in heating and cooling mode: thermostat with mode selection
15	Refrigerant Tubes		Pre-fabricated double-pipe to connect split indoor and outdoor unit	Diameter: Please refer to Specification
16	Water Tubes		Pre-fabricated double-pipe to connect monobloc outdoor unit with heating system	When heat pump is used for cooling: diffusion-resistant tubes
17	Bushing Sleeve		Protecting the building against pressing water coming through the duct of the heating tubes	Dimensioning on-site required
18	Insulation Material		Mandatory when heat pump is used for cooling; prevents condensate water on cold pipes and assemblies	Diffusion-resistant

FLEXIBLE APPLICATIONS

Table of the Hydraulic Applications

This shows some examples of how to integrate the THERMA V into the heating system according to each customer needs. Each application is accompanied with the representative connection and installation explanations with symbol icons.

Case	Heating	DHW	Heating & Cooling	Bivalent with boiler	Double Zone Heating
1	•				
2	•	•			
3	•	•	•		
4	•	•			•
5	•	•		•	•
6	•*	•	•		

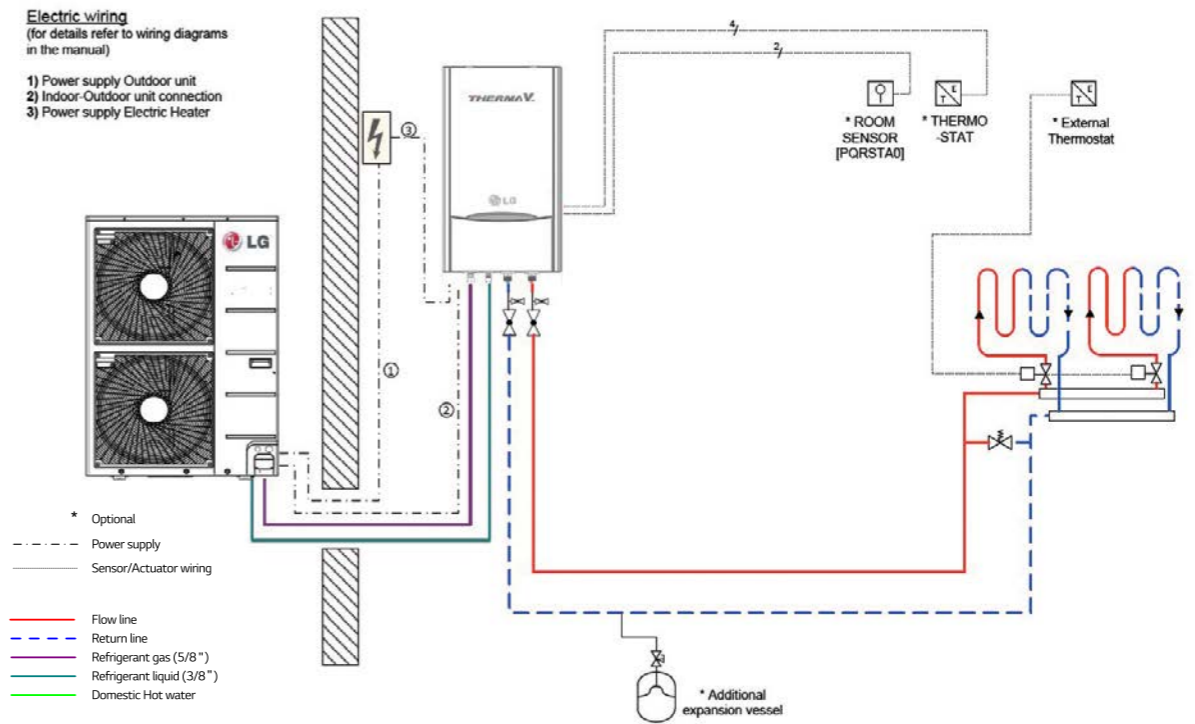
Combinations of these systems might be possible. Please refer to your local LG heating specialist.

* High Temperature 80°C

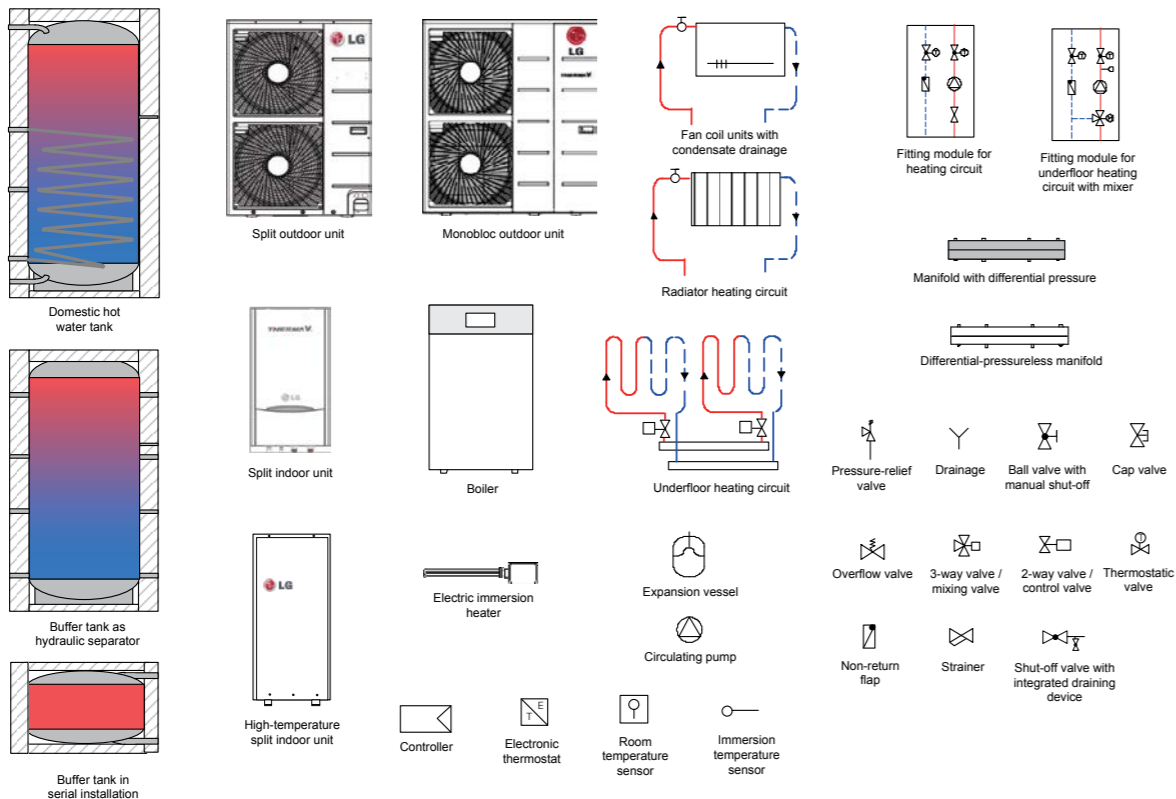
Case 1. Split _ for Floor Heating

Electric wiring
(for details refer to wiring diagrams in the manual)

- 1) Power supply Outdoor unit
- 2) Indoor-Outdoor unit connection
- 3) Power supply Electric Heater



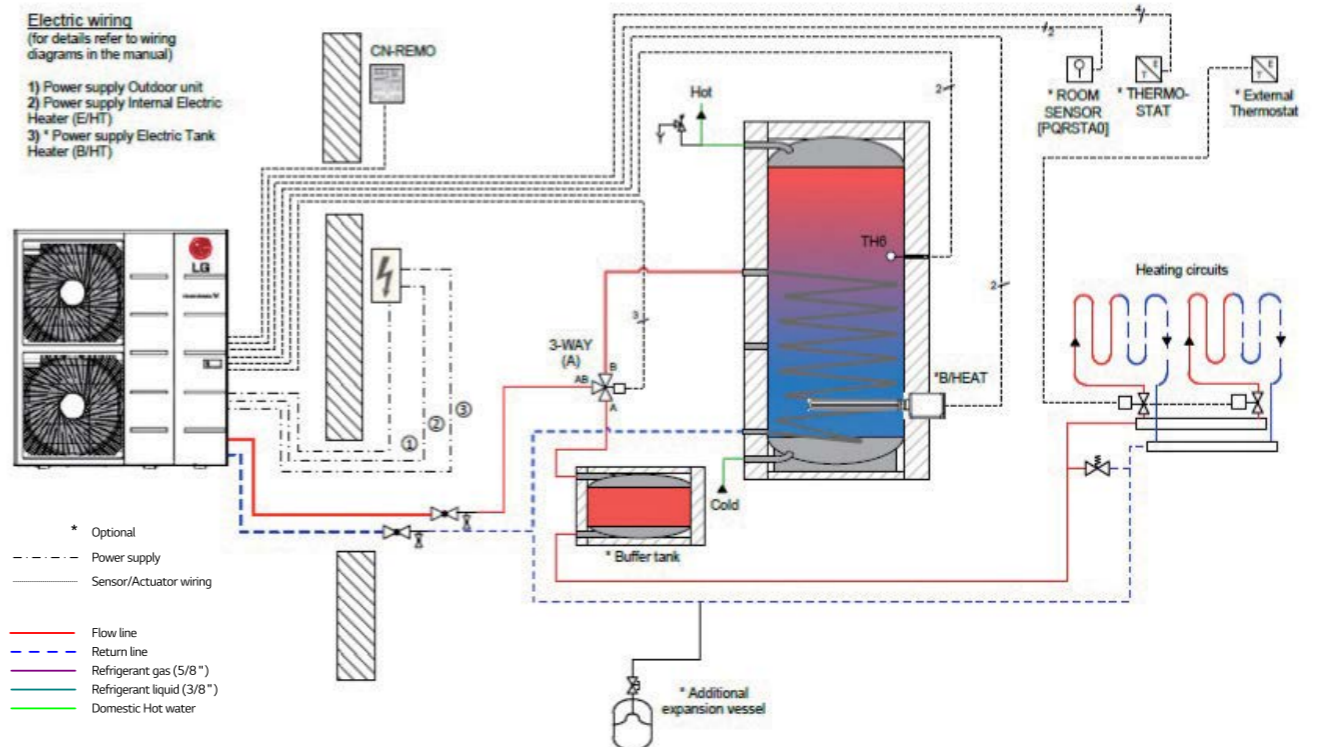
Used Symbols



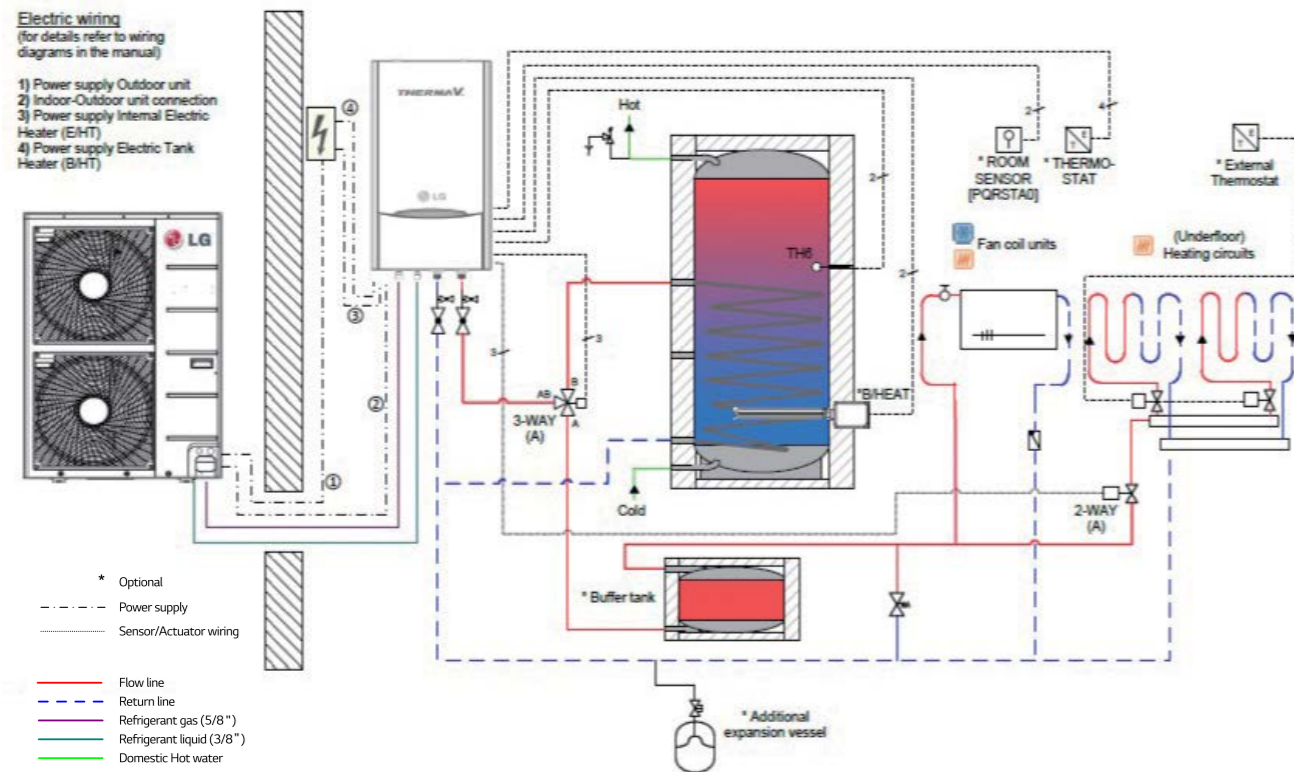
Case 2. Monobloc _ for Floor Heating & DHW

Electric wiring
(for details refer to wiring diagrams in the manual)

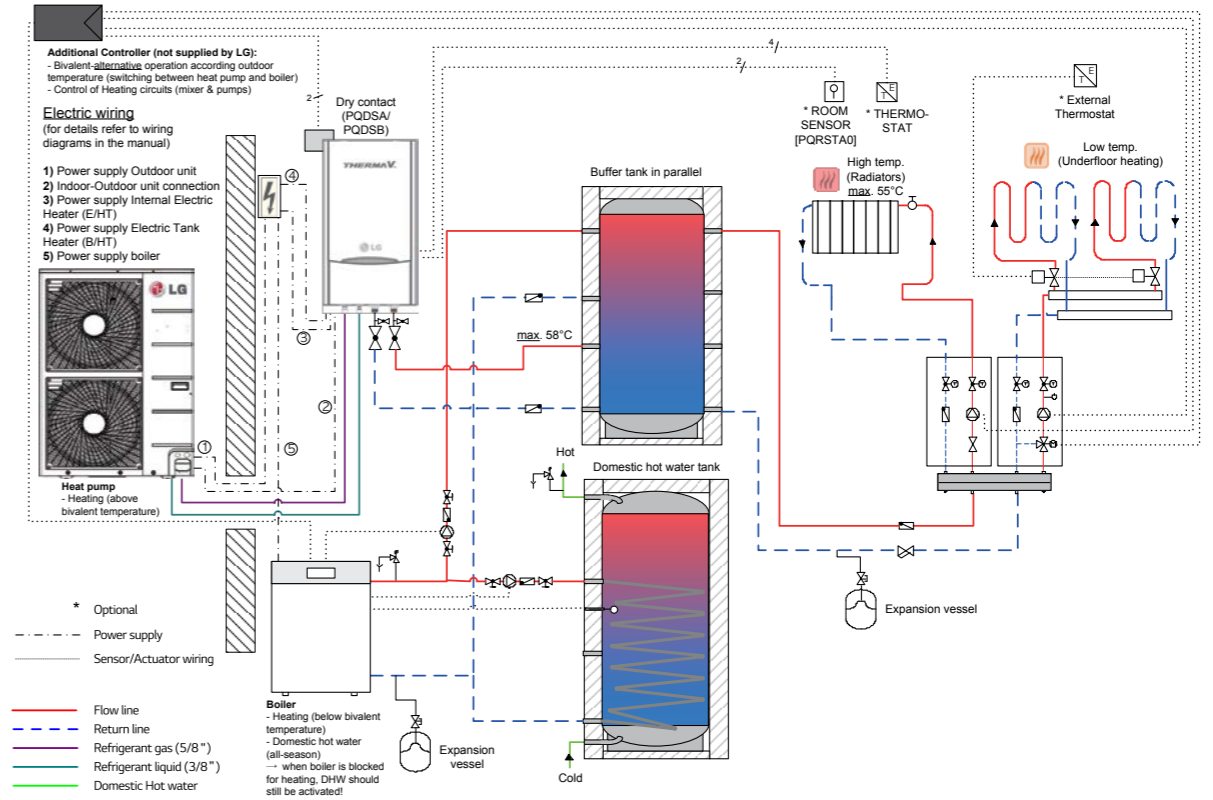
- 1) Power supply Outdoor unit
- 2) Power supply Internal Electric Heater (E/HT)
- 3) * Power supply Electric Tank Heater (B/HT)



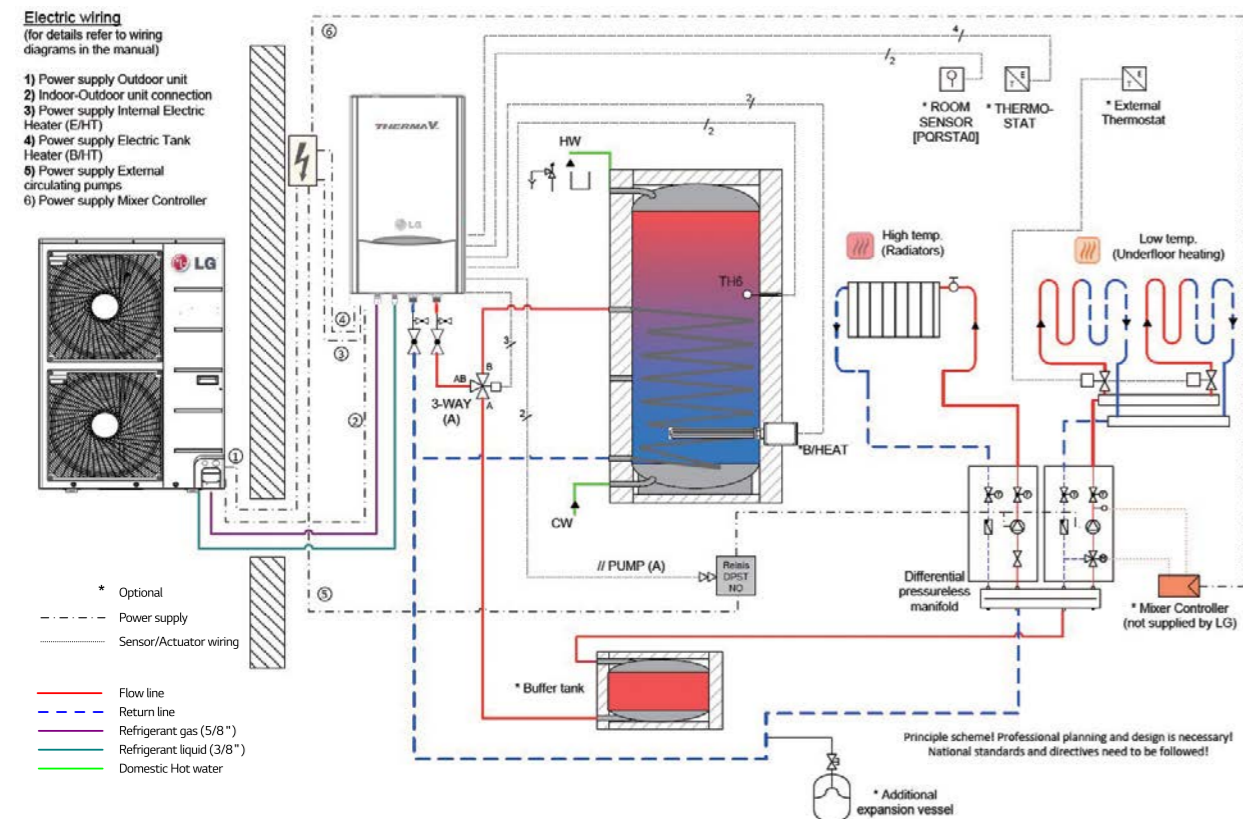
Case 3. Split _ for Floor Heating & DHW & Cooling with Fan Coil Unit



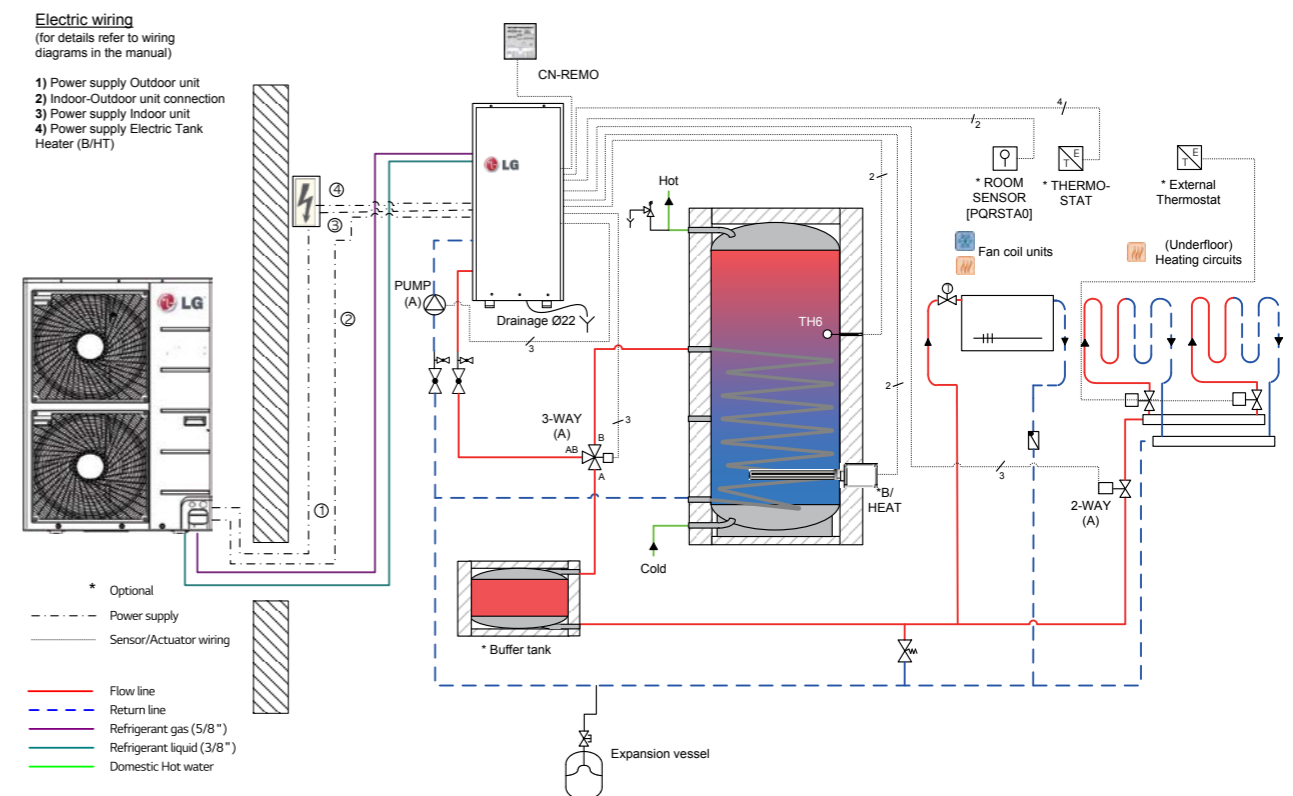
Case 5. Split _ for Floor Heating & Radiator & DHW with Boiler (Bivalent Scene)



Case 4. Split _ for Floor Heating & Radiator & DHW (2 Zone Heating)



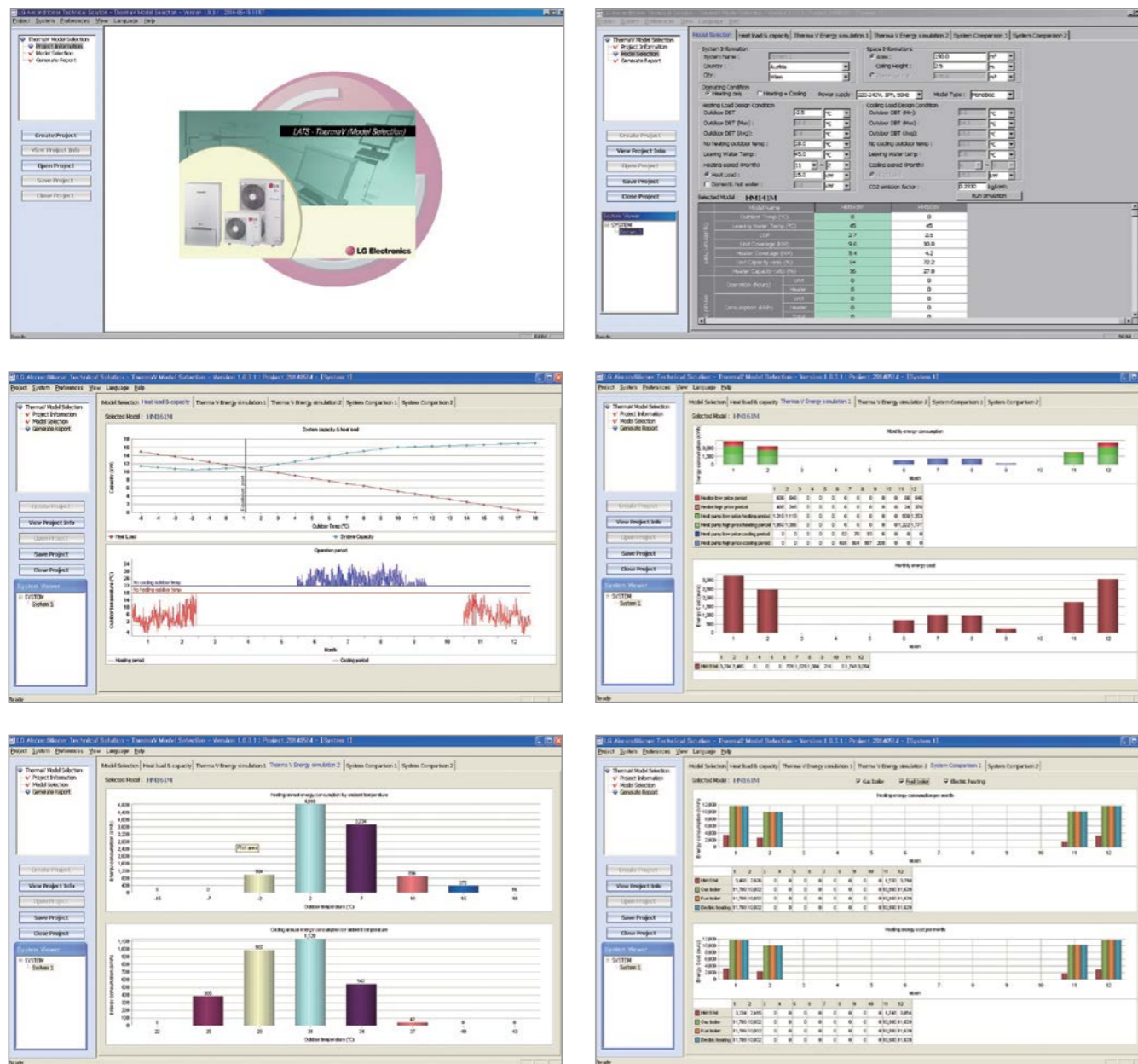
Case 6. Split (High Temp.) _ for Floor Heating & DHW & Fan Coil Units



BEFORE SALES & AFTER SALES SERVICE

THERMA V Selection Program

LATS THERMA V simulates quick and easy result of THERMA V's economic benefits. By specifying a number of parameters, this program shows annual energy cost compared with conventional heating system and CO2 annual amount, monthly energy amount and cost, total amount of thermal energy in kWh as the outside temperature.



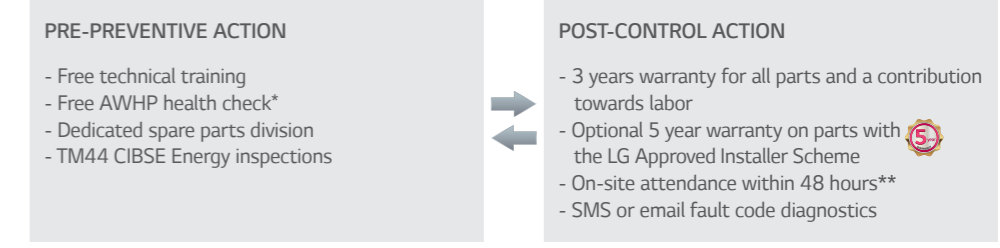
Service and Warranty

A dedicated Technical Service department and LG's authorized Service Centers provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.

3 Levels of Technical Service



LG Warranty Package (The UK Example)



* If 3 warranty issues are claimed within the warranty period.
** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

SMS 24/7
Just text the 1, 2 or 3 digital fault code to : 07624 818 794
Available 24 hours a day, 365 days per year.

Telephone
Speak to an LG engineer call :
08448 471 402 and select 'Option 4'
Available Monday to Friday between 09:00 and 17:00

E-mail support
Send your question by e-mail to : uk.aircon@lge.com
Available Monday to Friday between 09:00 and 17:00

For specific enquiries please email
Spare parts : aircon.spares@lge.com
Warranty queries : aircon.warranty@lge.com
Commissioning : aircon.commissioning@lge.com
Training : aircon.training@lge.com

LG Training and CPD Seminars (The UK Example)



Two Training Academies positioned in the South and North of England – Slough and Leeds, both equipped with the latest THERMA V, LG Air to Water Heat Pump. Installers can gain hands-on practical experience of the product range as well as theory in the purpose built classroom. Training courses are free of charge. LG also offer CPD accredited seminars, which can be held at your offices or at our own premises.

2014 Full Line-up of LG AWHP

Type	Capacity	φ	Product	European Certificate	Performance at Low Ambient				Reliability & Comfort							Convenience						
					A7 / W35		A-2 / W55		Heating Operating Range		BLDC Inverter Compressor	Control Sensor	Embedded Component	Water Pump	Heat Exchanger Coating	Electric Heater		Timer	Emergency Operation	Dry Contact Connectivity	Weather Dependant Operation	PHEX Anti-Freezing Control
					COP	Capacity	COP	Capacity	Outdoor Temp.	Leaving Water Temp.						Size	Capacity Control					
Monobloc Type	3kW	1φ			4.10	3.00	1.94	1.80	-20°C ~ 35°C	20°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A		1 LEVEL			
	5kW	1φ			4.42	4.99	2.08	3.01	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	7kW	1φ			4.30	7.00	2.03	4.21	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	9kW	1φ			4.09	9.00	2.04	5.41	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL			
		3φ			4.49	12.00	2.04	7.31														
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL			
3φ				4.44	14.00	2.03	8.40															
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57															
Split Type	3kW*	1φ		Work in Progress	4.62	3.00	2.16	2.19	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A		1 LEVEL			
	5kW*	1φ		Work in Progress	4.55	5.00	2.11	4.11	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	7kW*	1φ		Work in Progress	4.40	7.00	2.17	5.20	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	9kW*	1φ		Work in Progress	4.23	9.00	2.00	5.85	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL			
		3φ			4.41	12.00	2.04	7.31														
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL			
		3φ			4.32	14.00	2.03	8.40														
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57															
Split High Temp. Type	16kW	1φ			2.61 (A7/W65)	16.00	2.62	16.60	-15°C ~ 35°C	25°C ~ 80°C	LG Twin Rotary			N/A	gold™ Gold-fin	N/A	N/A		1 LEVEL			

* These models will be available in Q1 2015

* NF-PAC / MCS certification is work in progress. Expected release Q2 2015.

* Split 12,14,16kW certified only single phase for MCS certification.

SPECIFICATION

MONOBLOC TYPE



Monobloc (Outdoor Unit)			Capacity Reference	NEW 3kW 1Φ HMO31M.U42	NEW 5kW 1Φ HMO51M.U42	NEW 7kW 1Φ HMO71M.U42	NEW 9kW 1Φ HMO91M.U42
Nominal Capacity	Heating (A7/W35)	kW		3.00	4.99	7.00	9.00
	Heating (A2/W50)	kW		2.10	3.49	4.89	6.29
	Heating (A-7/W50)	kW		1.96	3.26	4.57	5.88
	Heating (A-7/W35)	kW		2.83	4.72	6.61	8.61
Nominal Power Input	Cooling (A35/W18)	kW		-	4.99	7.00	9.00
	Heating (A7/W35)	kW		0.73	1.13	1.63	2.20
	Heating (A2/W50)	kW		0.90	1.40	2.01	2.57
	Heating (A-2/W50)	kW		0.89	1.39	1.98	2.65
COP	Heating (A-7/W35)	kW		1.10	1.72	2.45	3.19
	Cooling (A35/W18)	kW		-	1.39	2.00	2.65
	Heating (A7/W35)			4.10	4.42	4.30	4.09
	Heating (A2/W50)			2.33	2.49	2.43	2.45
EER	Heating (A-2/W50)			2.20	2.35	2.31	2.22
	Heating (A-7/W35)			2.57	2.74	2.70	2.70
Dimension	W*H*D	mm		950 x 834 x 330	1,239 x 907 x 390		
			Weight	kg	61	99	
Sound Pressure Level (Heating)		dB(A)		47	51	52	52
			Outdoor Air Operation Range	°CDB	-20 - 35		
Leaving Water Temp. Range	Heating	°C		20 - 57	15 - 57		
			Cooling	°C	-	6 - 35	
Water Pipe Connection	Inlet	mm(inch)	Female PT 25(1)				
	Outlet	mm(inch)	Female PT 25(1)				
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50				
	Capacity	kW	4				
Water Flowrate Limit		LPM	Min. 15				
Max. Water Head		m	6		7		
Power Supply		P/V/Hz	1 / 220-240 / 50				
Recommended Fuse		A	20				

Monobloc (Outdoor Unit)			Capacity Reference	NEW 12kW 1Φ HM121M.U32	NEW 14kW 1Φ HM141M.U32	NEW 16kW 1Φ HM161M.U32	NEW 12kW 3Φ HM123M.U32	NEW 14kW 3Φ HM143M.U32	NEW 16kW 3Φ HM163M.U32
Nominal Capacity	Heating (A7/W35)	kW		12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW		8.50	9.78	11.03	8.55	9.83	11.29
	Heating (A-2/W50)	kW		7.94	9.14	10.30	7.99	9.18	10.54
	Heating (A-7/W35)	kW		11.48	13.11	14.80	11.48	13.11	14.92
Nominal Power Input	Cooling (A35/W18)	kW		14.50	15.50	16.10	14.50	15.50	16.10
	Heating (A7/W35)	kW		2.67	3.15	3.81	2.67	3.15	3.81
	Heating (A2/W50)	kW		3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW		3.30	3.95	4.63	3.40	4.00	4.63
COP	Heating (A-7/W35)	kW		4.16	4.85	5.61	4.16	4.85	5.95
	Cooling (A35/W18)	kW		4.00	4.69	5.07	4.00	4.69	5.07
	Heating (A7/W35)			4.49	4.44	4.20	4.49	4.44	4.20
	Heating (A2/W50)			2.49	2.45	2.40	2.45	2.42	2.39
EER	Heating (A-2/W50)			2.41	2.31	2.22	2.35	2.30	2.28
	Heating (A-7/W35)			2.76	2.70	2.64	2.76	2.70	2.51
Dimension	W*H*D	mm		1,239 x 1,450 x 390					
			Weight	Kg	141				
Sound Pressure Level (Heating)		dB(A)		53					
			Outdoor Air Operation Range	°CDB	-20 - 35				
Leaving Water Temp. Range	Heating	°C		15 - 57					
			Cooling	°C	6 - 35				
Water Pipe Connection	Inlet	mm(inch)	Female PT 25(1)						
	Outlet	mm(inch)	Female PT 25(1)						
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50						
	Capacity	kW	6						
Water Flowrate Limit		LPM	Min. 15						
Max. Water Head		m	8						
Power Supply		P/V/Hz	1 / 220-240 / 50			3 / 380-415 / 50			
Recommended Fuse		A	32			10			

SPECIFICATION

SPLIT TYPE



Split (Outdoor Unit)		Capacity	NEW 3kW 1φ	NEW 5kW 1φ	NEW 7kW 1φ	NEW 9kW 1φ
		Reference	HU031.UE2*	HU051.U42*	HU071.U42*	HU091.U42*
Nominal Capacity	Heating (A7/W35)	kW	3.00	5.00	7.00	9.00
	Heating (A2/W50)	kW	2.25	4.08	5.19	6.04
	Heating (A-2/W50)	kW	2.26	4.16	5.25	5.98
	Heating (A-7/W35)	kW	2.89	4.92	6.70	8.11
	Cooling (A35/W18)	kW	3.00	5.00	7.00	9.00
Nominal Power Input	Heating (A7/W35)	kW	0.65	1.10	1.59	2.13
	Heating (A2/W50)	kW	0.89	1.59	2.07	2.59
	Heating (A-2/W50)	kW	0.93	1.73	2.18	2.64
	Heating (A-7/W35)	kW	1.02	1.69	2.31	3.03
COP	Heating (A7/W35)		4.62	4.55	4.40	4.23
	Heating (A2/W50)		2.53	2.57	2.51	2.33
EER	Heating (A-2/W50)		2.44	2.40	2.41	2.27
	Heating (A-7/W35)		2.83	2.91	2.90	2.68
	Cooling (A35/W18)		4.00	3.70	3.41	3.10
Dimension	W*H*D	mm	870 x 655 x 320	950 x 834 x 330	950 x 834 x 330	950 x 834 x 330
Weight		kg	46	64	64	64
Sound Pressure Level (Heating)		dB(A)	51	54	54	54
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30	-20~30	-20~30	-20~30
	Cooling	°CDB	5 ~ 48	5~48	5~48	5~48
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	φ 6.35(1/4)	9.52(3/8)	9.52(3/8)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	φ 12.7(1/2)	15.88(5/8)	15.88(5/8)	15.88(5/8)
	Pre-Charged Amount	kg	1	1.55	1.55	1.55
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5
Ref. Pipe Length	Additional Charging Volume	g/m	20	40	40	40
	Minimum	m	-	-	-	-
Power Supply	Standard	m	7.5	7.5	7.5	7.5
	Maximum	m	40	50	50	50
Recommended Fuse	P/V/Hz		1/220-240/50	1/220-240/50	1/220-240/50	1 / 220-240 / 50
	A		20	20	20	20

Split (Outdoor Unit)		Capacity	12kW 1φ	14kW 1φ	16kW 1φ	12kW 3φ	14kW 3φ	16kW 3φ
		Reference	HU121.U31	HU141.U31	HU161.U31	HU123.U31	HU143.U31	HU163.U31
Nominal Capacity	Heating (A7/W35)	kW	12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW	8.50	9.78	11.03	8.55	9.83	11.30
	Heating (A-2/W50)	kW	7.94	9.14	10.30	7.99	9.18	10.50
	Heating (A-7/W35)	kW	11.48	13.11	14.80	11.66	12.72	14.92
	Cooling (A35/W18)	kW	14.50	15.50	16.10	14.60	15.50	16.80
Nominal Power Input	Heating (A7/W35)	kW	2.67	3.15	3.81	2.72	3.24	3.81
	Heating (A2/W50)	kW	3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW	3.30	3.95	4.63	3.40	4.00	4.63
	Heating (A-7/W35)	kW	4.16	4.85	5.61	4.31	4.98	5.95
COP	Cooling (A35/W18)	kW	4.00	4.69	5.07	4.02	4.65	5.09
	Heating (A7/W35)		4.49	4.44	4.20	4.41	4.32	4.20
EER	Heating (A2/W50)		2.49	2.45	2.40	2.45	2.42	2.39
	Heating (A-2/W50)		2.41	2.31	2.22	2.35	2.30	2.27
	Heating (A-7/W35)		2.76	2.70	2.64	2.71	2.55	2.51
	Cooling (A35/W18)		3.63	3.30	3.18	3.63	3.33	3.30
Dimension	W*H*D	mm	950 x 1,380 x 330					
Weight		kg	105					
Sound Pressure Level (Heating)		dB(A)	53					
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30					
	Cooling	°CDB	5 ~ 48					
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)					
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)					
	Pre-Charged Amount	Kg	2.85	2.85	2.85	2.98	2.98	2.98
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5	7.5	7.5
Ref. Pipe Length	Additional Charging Volume	g/m	60	60	60	60	60	60
	Minimum	m	3					
Power Supply	Standard	m	7.5					
	Maximum	m	50					
Recommended Fuse	P/V/Hz		1 / 220-240 / 50			3 / 380-415 / 50		
	A		32			16		

Split (Indoor Unit)		Capacity	NEW 3kW	NEW 5,7,9kW
		Reference	HN0314.NK2	HN0914.NK2
Dimension	W*H*D	mm	490*850*315	490*850*315
Weight		kg	47	48
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	1 / 220-240 / 50
	Capacity	kW	4	4
Leaving Water Temp. Range	Heating	°C	15-55	15-55
	Cooling	°C	6-30	6-30
Water Flowrate Limit	LPM		Min. 8	Min. 15
Max. Water Head	m		6	7
Water Pipe Connection	Inlet	mm(inch)	Male PT 25(1)	Male PT 25(1)
	Outlet	mm(inch)	Male PT 25(1)	Male PT 25(1)

Split (Indoor Unit)		Capacity	12-16kW				
		Reference	HN1616.NK1	HN1626.NK1	HN1629.NK1	HN1636.NK1	HN1639.NK1
Dimension	W*H*D	mm	490 x 850 x 315				
Weight		kg	54.5				
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	3 / 220 / 50			3 / 380-415 / 50
	Capacity	kW	6	6	9	6	9
Leaving Water Temp. Range	Heating	°C	15 ~ 55				
	Cooling	°C	6 ~ 30				
Water Flowrate Limit	LPM		Min. 15				
Max. Water Head	m		7				
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)				
	Outlet	mm(inch)	Male PT 25 (1)				

* Combination Table

Outdoor Unit (1φ) Indoor Unit	3kW	5kW	7kW	9kW
		HU031.UE2 HN0314.NK2	HU051.U42 HN0914.NK2	HU071.U42 HN0914.NK2

* Combination Table

Outdoor Unit (1φ)	HU121.U31	HU141.U31	HU161.U31	Outdoor Unit (3φ)	HU123.U31	HU143.U31	HU163.U31
	12kW	14kW	16kW		12kW	14kW	16kW
Indoor Unit	HN1616.NK1	HN1616.NK1	HN1616.NK1	Indoor Unit	HN1616.NK1	HN1616.NK1	HN1616.NK1
	HN1626.NK1	HN1626.NK1	HN1626.NK1		HN1626.NK1	HN1626.NK1	HN1626.NK1
	HN1636.NK1	HN1636.NK1	HN1636.NK1		HN1636.NK1	HN1636.NK1	HN1636.NK1
	HN1629.NK1	HN1629.NK1	HN1629.NK1		HN1629.NK1	HN1629.NK1	HN1629.NK1
	HN1639.NK1	HN1639.NK1	HN1639.NK1		HN1639.NK1	HN1639.NK1	HN1639.NK1

* These models will be available in Q1 2015

SPECIFICATION

HIGH TEMPERATURE TYPE



High Temp. Split (Outdoor Unit)		Capacity Reference	NEW 16kW 1φ HU161H.U32
Nominal Capacity	Heating (A7/W65)	kW	16
	Heating (A2/W65)	kW	14.6
	Heating (A-2/W65)	kW	15.7
	Heating (A-7/W65)	kW	15.1
Nominal Power Input	Heating (A7/W65)	kW	6.13
	Heating (A2/W65)	kW	6.81
	Heating (A-2/W65)	kW	6.96
	Heating (A-7/W65)	kW	7.2
COP	Heating (A7/W65)		2.61
	Heating (A2/W65)		2.14
	Heating (A-2/W65)		2.26
	Heating (A-7/W65)		2.10
Dimension	W*H*D	mm	950 x 1,380 x 330
Weight		Kg	105
Sound Pressure Level (Heating)		dB(A)	53
Outdoor Air Operation Range	Heating	°CDB	-15 - 35
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	Kg	3.5
	Chargeless Pipe Length	m	10
Additional Charging Volume		G/m	60
	Minimum	m	5
	Standard	m	7.5
Ref. Pipe Length	Maximum	m	50
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

High Temp. Split (Indoor Unit)		Capacity Reference	NEW 16kW 1φ HN1610H.NK2
Dimension	W*H*D	mm	520 x 1,080 x 330
Weight		kg	94
Sound Pressure Level (Heating)		dB(A)	43
Nominal Power Input	Heating	kW	6.13
Leaving Water Temp. Range	Heating	°C	25 - 80
Water Flowrate Limit		LPM	Min. 15
Refrigerant (R134a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	kg	2.3
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)
	Outlet	mm(inch)	Male PT 25 (1)
Draining Pipe Connection		mm(inch)	Male PT 25 (1)
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

DOMESTIC HOT WATER TANK



Domestic Hot Water Tank – Double Coil

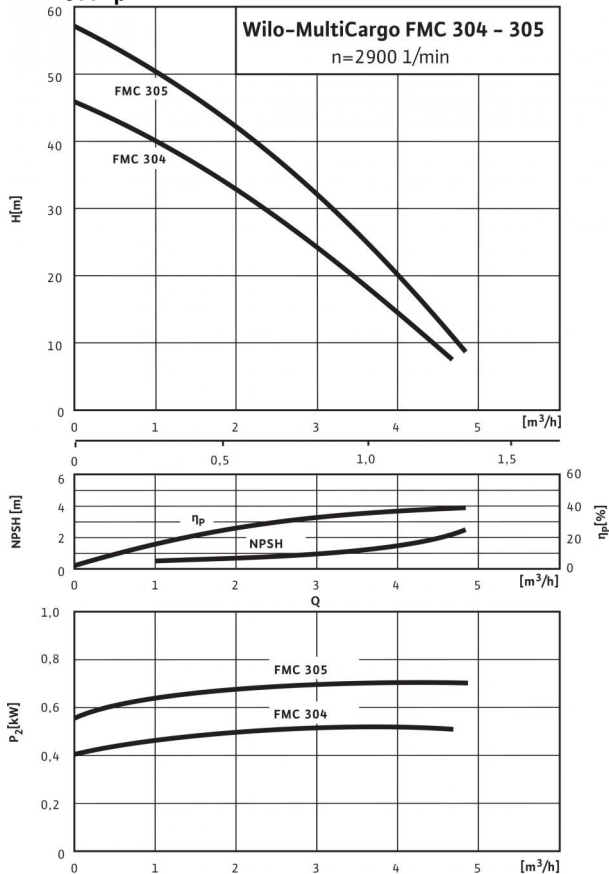
Domestic Hot Water Tank			LGRTV200VE	LGRTV300VE
General Characteristics	Water Volume	L	198	287
	Diameter	mm	580	580
	Height	mm	1,230	1,680
	Empty Weight	kg	50	64
	Tank – Materials		Stainless Steel	Stainless Steel
	Outer Skin – Materials		Paint Epoxy	Paint Epoxy
Characteristics of Electrical Back-Up	Color – White RAL		White NC	White NC
	Additional Electric Heater	kW	3	3
Characteristics of Exchanger	Adjustable Thermostat	°C	60 - 90	60 - 90
	Exchanger Type		Double	Double
	Material Exchanger		LDX 2101 – Stainless Steel	LDX 2101 – Stainless Steel
	Maximum Water Temperature	°C	80 (With an Heat Pump)	80 (With an Heat Pump)
Hydraulic Connections – Heat Pump	Coil Surface	mm	0.94	0.94
	THERMA V Entry	mm	25	25
Hydraulic Connections – Domestic Hot Water Tank	THERMA V Exit	mm	25	25
	City Water Entry	mm	22	22
Electric Connection	Hot water Exit	mm	22	22
	Supply	φ/V/Hz	1φ / 220-240V 50Hz	1φ / 220-240V 50Hz

MANDATORY OPTIONAL ACCESSORIES

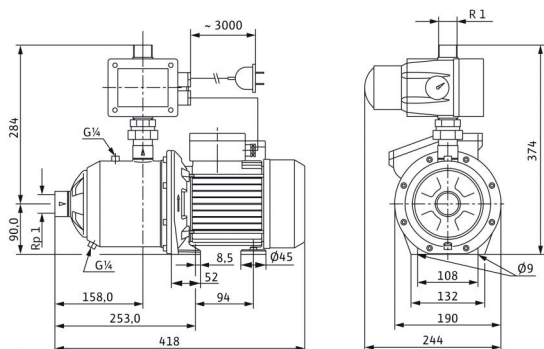
Domestic Hot Water Tank Installation Kit	PHLTA	PHLTA

Data sheet: MultiCargo FMC 304 (1~230 V)

Pump curves n = 2900 rpm



Dimension drawing



Approved fluids (other fluids on request)

Pure water without settling sediment
Process water, cold water, cooling water, rainwater

Output

Max. suction head H : 8 m
Inlet pressure max. H : 1.5 bar
Fluid temperature T : +5...+35 °C
Max. ambient temperature T : 40 °C
Rated speed n : 2,900 rpm

Motor/electronics

Protection class: IP 54
Insulation class: F
Screwed cable connection: 1x11 PG
Power consumption P_1 : 0.84 kW
Mains connection: 1~230 V, 50 Hz

Pipe connections

Nominal connection diameter on the pressure side: R 1
Nominal connection diameter on suction side: Rp 1

Materials

Pump housing: 1.4301
Impeller: Noryl
Pump shaft: 1.4057 [AISI431]
Mechanical seal: Carbon/ceramic
Stage chambers: Noryl
Seal: NBR

Information for order placements

Make: Wilo
Type: FMC 304
Art no.: 4088346
Weight approx. m : 10.2 kg



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New Generation Liquid Storage Systems

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APOLLO® Capacity and Dimension Chart

Code	Ø (m) Diameter	Module Qty.	Apollo® Open Top Tanks		Apollo® Closed Top Tanks						
			Height (m)		Height (m)						
			1.15	2.18	2.18	3.23	4.27	5.31	6.35	7.39	8.43
			Flat Qty.		Flat Qty.						
			AK1	AK2	KK2	KK3	KK4	KK5	KK6	KK7	KK8
Capacity > Volume (Ton / Gallon)		Capacity > Volume (Ton / Gallon)									
EKAP004	2.68	4	6 1585	12 3,170	12 3,170	18 4,755	24 6,340	30 7,925	36 9,510	42 11,095	48 12,680
EKAP005	3.35	5	10 2,642	19 5,019	19 5,019	28 7,396	38 10,038	47 12,416	56 14,793	65 17,171	74 19,548
EKAP006	4.02	6	15 3,962	28 7,397	28 7,397	41 10,831	54 14,265	67 17,699	81 21,398	94 24,832	107 28,266
EKAP007	4.68	7	20 5,283	38 10,038	38 10,038	56 14,793	73 19,284	91 24,039	109 28,794	127 33,550	145 38,305
EKAP008	5.35	8	26 6,868	49 12,944	49 12,944	73 19,284	96 25,360	119 31,436	143 37,776	166 43,852	190 50,192
EKAP009	6.02	9	33 8,717	62 16,378	62 16,378	92 24,300	122 32,228	151 39,890	181 47,815	210 55,476	240 63,401
EKAP010	6.69	10	40 10,567	77 20,341	77 20,341	114 30,115	150 39,625	187 49,400	223 58,910	260 68,684	296 78,195
EKAP011	7.36	11	49 12,944	93 24,568	93 24,568	137 36,191	182 48,079	226 59,702	270 71,326	314 82,950	359 94,837
EKAP012	8.02	12	58 15,322	110 29,058	110 29,058	163 43,060	216 57,061	268 70,798	321 84,799	373 98,536	426 112,537
EKAP013	8.69	13	68 17,963	129 34,078	129 34,078	192 50,721	253 66,835	315 83,214	377 99,592	438 115,707	500 132,086
EKAP014	9.36	14	79 20,869	150 39,626	150 39,626	222 58,646	294 77,666	365 96,422	437 115,443	508 134,199	580 153,219
EKAP015	10.03	15	91 24,039	172 45,437	172 45,437	255 67,363	337 89,025	420 111,000	502 132,614	584 154,276	666 176,000
EKAP016	10.70	16	103 27,209	196 51,778	196 51,778	290 76,609	384 101,442	477 126,010	571 150,842	665 175,674	758 200,242
EKAP017	11.36	17	117 30,908	221 58,382	221 58,382	327 86,284	433 114,386	538 142,124	644 170,126	749 197,864	854 225,602
EKAP018	12.04	18	131 34,606	248 65,514	248 65,514	368 97,215	486 128,387	605 159,824	723 190,996	841 222,168	960 253,605
EKAP019	12.71	19	146 38,569	277 73,175	277 73,175	410 108,310	542 143,181	674 178,051	806 212,922	938 247,793	1,070 282,664
EKAP020	13.37	20	161 42,532	306 80,836	306 80,836	453 119,670	599 158,239	746 197,072	892 235,641	1,038 274,210	1,184 312,779
EKAP021	14.02	21	178 47,022	337 89,026	337 89,026	499 131,821	659 174,089	820 216,621	980 258,888	1,141 301,420	1,301 343,687
EKAP022	14.71	22	195 51,513	370 97,743	370 97,743	549 145,030	726 191,790	902 238,283	1,079 285,041	1,256 331,800	1,433 378,558
EKAP023	15.37	23	213 56,268	404 106,725	404 106,725	599 158,239	792 209,224	985 260,209	1,178 311,194	1,371 362,179	1,564 413,165
EKAP024	16.05	24	233 61,552	441 116,500	441 116,500	653 172,504	864 228,244	1,074 283,720	1,285 339,461	1,495 395,000	1,706 450,677
EKAP025	16.72	25	252 66,571	479 126,538	479 126,538	709 187,298	938 247,793	1,166 308,024	1,394 368,255	1,623 428,751	1,851 488,982
EKAP026	17.38	26	273 72,119	517 136,577	517 136,577	766 202,355	1,013 267,606	1,260 332,856	1,506 397,843	1,753 463,093	2,000 528,344
EKAP027	18.05	27	294 77,666	558 147,408	558 147,408	827 218,470	1,093 288,740	1,359 359,009	1,625 429,279	1,891 499,549	2,157 569,819
EKAP028	18.72	28	317 83,742	600 158,503	600 158,503	889 234,848	1,175 310,402	1,461 385,955	1,748 461,772	2,034 537,325	2,320 612,879
EKAP029	19.39	29	340 89,818	644 170,127	644 170,127	954 252,020	1,261 333,120	1,568 414,221	1,875 495,322	2,182 576,423	2,489 657,524
EKAP030	20.05	30	363 95,894	688 181,750	688 181,750	1,020 269,455	1,348 356,104	1,677 443,016	2,005 529,665	2,333 616,313	2,662 703,226

QUICK SHIPMENT: Yellow painted tanks will be shipped from our stock as soon as possible.



Saudi Arabia 1000 Tons (2) Apollo Series.

Specifically designed for all weather and demanding conditions our Apollo® liquid storage tank is entirely Turkish made and available in a wide range of sizes from 6.000 to 248.000 liters in a standard or can be custom built up to 2.662.000 liters.

Easy Transportation!



Carrying 2 tanks with a capacity of almost 3.000.000 liters on a trailer.



A standard truck can carry 30 Apollo® tanks for international export.



A helicopter is bringing a tank to a remote area. The size of the tank allows for installation in isolated or difficult areas like islands.

Easy to Erect!



Marking out the tank diameter



Completion of the first ring



Fitting on the dome truss



Laying and fitting on the roof sheets across the truss



Fitting on and securing the flexible liners



Finished EKAP021KK3-499 tons of tanks (with aggregate)

Applications!



Community water supply



Industrial water supply



Fire Protection



Agricultural water supply



Elevated Installations



Water supply for mining



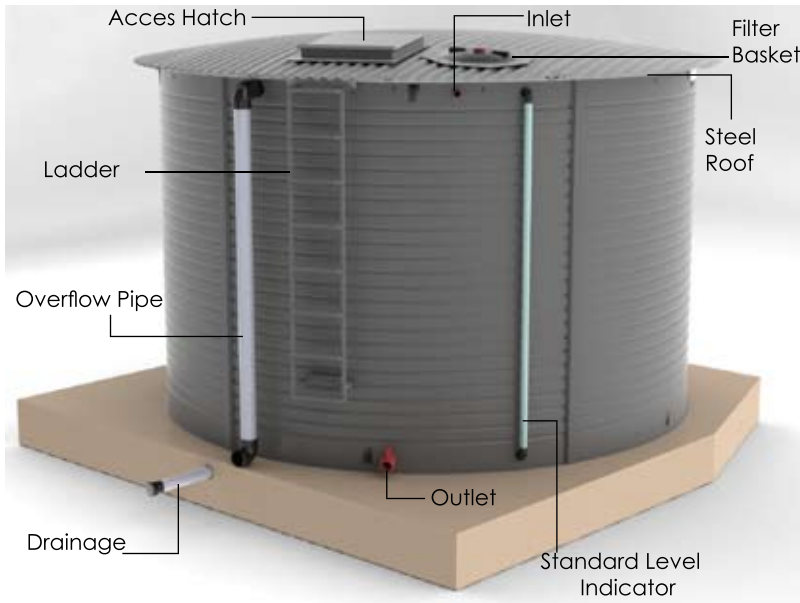
Aid organizations



Wine storage

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- General Water Supply (residential or public use)
- Storage for Special Industrial Liquid (Diesel, Jet A1, fuel, crude oil, unleaded and normal fuel)
- Fish Ponds, Fresh Water Fishery
- Schools, hospitals, fire departments
- Army camps, UN organizations and its sister teams (UNICEF, WHO, WFP...)
- Military operations
- Theme parks, hotels, resorts
- Mega malls
- Offices, factory plants, municipal districts
- Remote working sides



Tank Elevator Montage System

Allows you to build your tank easily without ladder or staging. For your own safety and a practical installation we recommend this piece when you have a tank that's taller than 3 meters. With applying the elevator onto tank, montage session should be start from top to bottom panels. Installation will end after a level-by-level elevation. Each elevator has a carrying capacity of up to 2000 kilos.

Extra Accersory



Apollo® Inlet / Outlet Connection

EKOTANK® APOLLO® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	Optional
5"	
6"	
8"	

Advantages

- Statically designed by engineers, invented after a hard reseach and development for many years.
- Fully enclosed bolt cover is tamper-proof and protected against a possible external harm.
- The special coated Galvanized panels are extremely durable.
- The modular design makes relocation in an easy and inexpensive way.
- The variety of membrane lets you to store any kinds of different liquids.
- The highest quality of membrane lets you to collect drinkning water and use it safely. It's also protects the liquid from external harms.

The Geotextile PES coated membrane has a certicate from Turkish Food Codex.

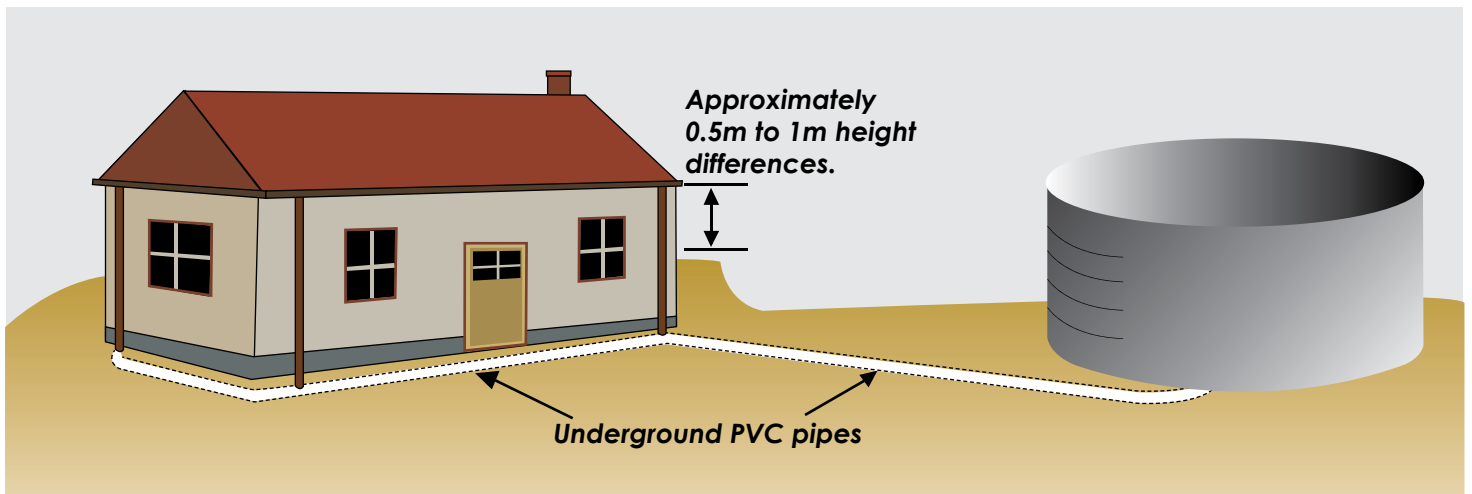
- Provides a selection of RAL colours for option.
- The rprofile of the tank's steel wall is designed strong for earth conditions and minimize the likelihood distortion after the load.
- By attaching magnesium anodes and painting with RAL colors the Apollo®, tank life is significantly extended.
- Whether you have Apollo® around your house or office, with using rainwater colection technique, you'll save money.

Two Different Ways to Collect Rainwater with APOLLO®

Rainwater collection from roof-top Underground system

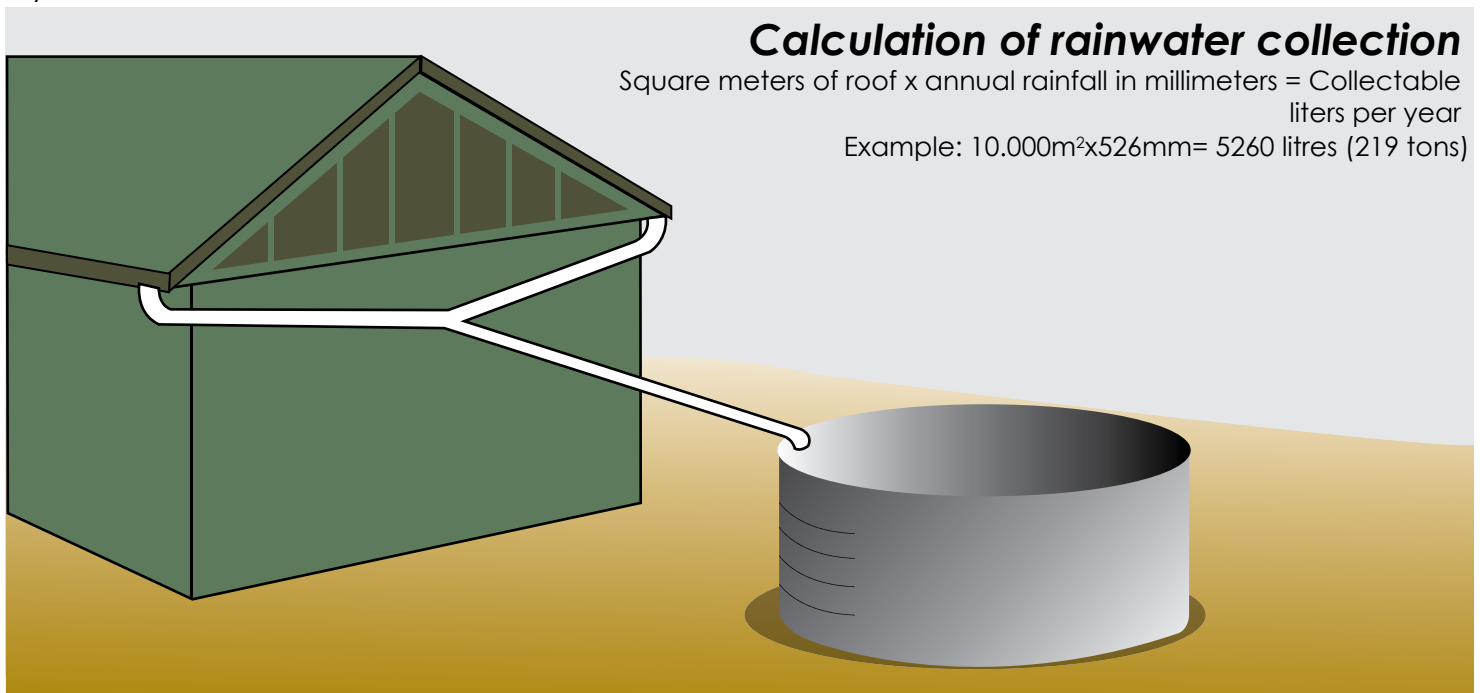
This is the most popular method because of the neat appearance. Water is channelled via the PVC storm water pipe below ground and up into the tank via the filter basket. It is important that the tank entry point is minimum 500 mm lower than the roof gutter and the PVC pipe is sealed and watertight.

Attention: The height difference between the gutter and the tank will vary according to the distance from the house or shed. Consult to your Ekotank® distributor or construction team to determine the height difference.



Rain collection from the shed Overhead system

All PVC storm water pipes are channeled (as shown) by the filter basket which is mounted to the roof.





SAUDI ARABIA / APOLLO® GALVANIZED STEEL TANK

Code : EKAP026KK4
Diameter \varnothing : 17.38
Height (m) : 4.27
Volume (m³) : 1013

SAUDI ARABIA / INSTALLATION OF GALVANIZED STEEL TANK APOLLO®

Code : EKAP026KK4 Height (m) : 4.27
Diameter \varnothing : 17.38 Volume (m³) : 1013



Looking for **COMPETITIVE**

Liquid Storage System?

MARS® is the Obvious Choice!



From 9 up to 3.000 tons of capacity!



New Generation Liquid Storage Systems

Competitive Price • Durable • Modular Design • Aesthetically Appealing • Larger Customer Base

EKOTANK®
MARS®

About

The Galvanized Steel Tank MARS®, the newest product of EKOTANK® that has been designed to be a cost effective alternative to Apollo® Series.

Mars® specifically fills the market need where budget and performance need to be as close as possible to each other. The roof system has been redesigned for the Mars® series to include a soft top, replacing the conventional truss roof systems up to a diameter of 11,64 m.

Product Info

Use of 76.2/18mm Corrugated Galvanized Steel Sheeting forms Mars® into a flexible system. The steel panels of the tank are coated with hot dip Galvanizing on both sides to ensure long lasting performance in outdoor weather conditions. Mars® is produced from **9.000** liters up to **3.000.000** liters (**3.000 M3**) in-house using corrugated steel galvanized technology.

Mars® has a special geomembrane liner inside to ensure the liquid stored in the tank does not contact with the steel parts. The standard geomembrane used in our tanks is certified for drinking water and can also be used to store other types of liquids. Fuel, industrial liquids and related chemicals can be stored using Ekotank® Mars® with membranes specially developed for purpose use. Please contact our sales team to inquire about storing industrial chemicals. The liner is produced using high frequency ultrasonic welding machines to ensure a perfect weld and water tightness. Standard Mars® liner is UV protected and prevents aquatic organisms such as mould, fungi etc... to form in our tanks.

The tank offers 2 different steel roof systems. A triangle modular roof system and a truss based steel dome roof just like the Apollo® Series. In the Triangle system the roof is separated in a number of panels, which are fitted together with watertight connection technology. In the truss dome system, the roof is first retrofitted with galvanized steel trusses, and then the roof area is covered by galvanized steel panels to complete the process.

Ekotank® Mars® also has 2 soft top solutions for applications that do not require steel domes. The indoor flat cover is made out of high-quality synthetic fabric which is fixed on to the roof-top to make

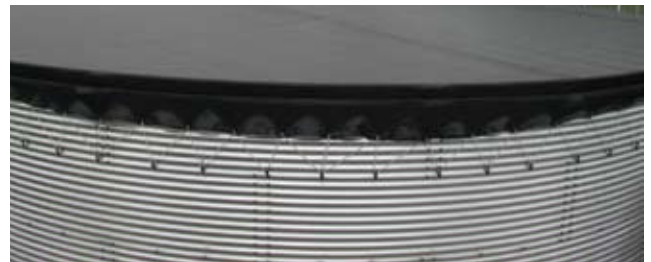
sure that the quality of water or the liquid inside is preserved. For outdoor applications, the conical shaped cover is specifically designed to offload rain and snow loads making sure that the water or liquid keeps its quality without contamination. Ekotank® Mars® soft covers provide the perfect balance between budget and performance, making the product more attractive to a larger customer base.

All Ekotank® Mars® systems come with a standard level indicator placed outside the tank. Digital and manual pulley type level indicators are available as optional accessories upon request.



Mars®
Inlet / Outlet Connection

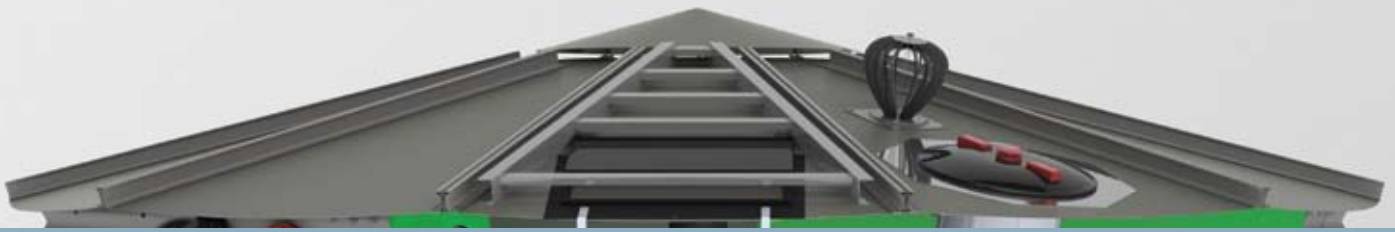
Indoor Flat Cover



Outdoor Conical Cover



EKOTANK® MARS® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	
5"	Optional
6"	
8"	



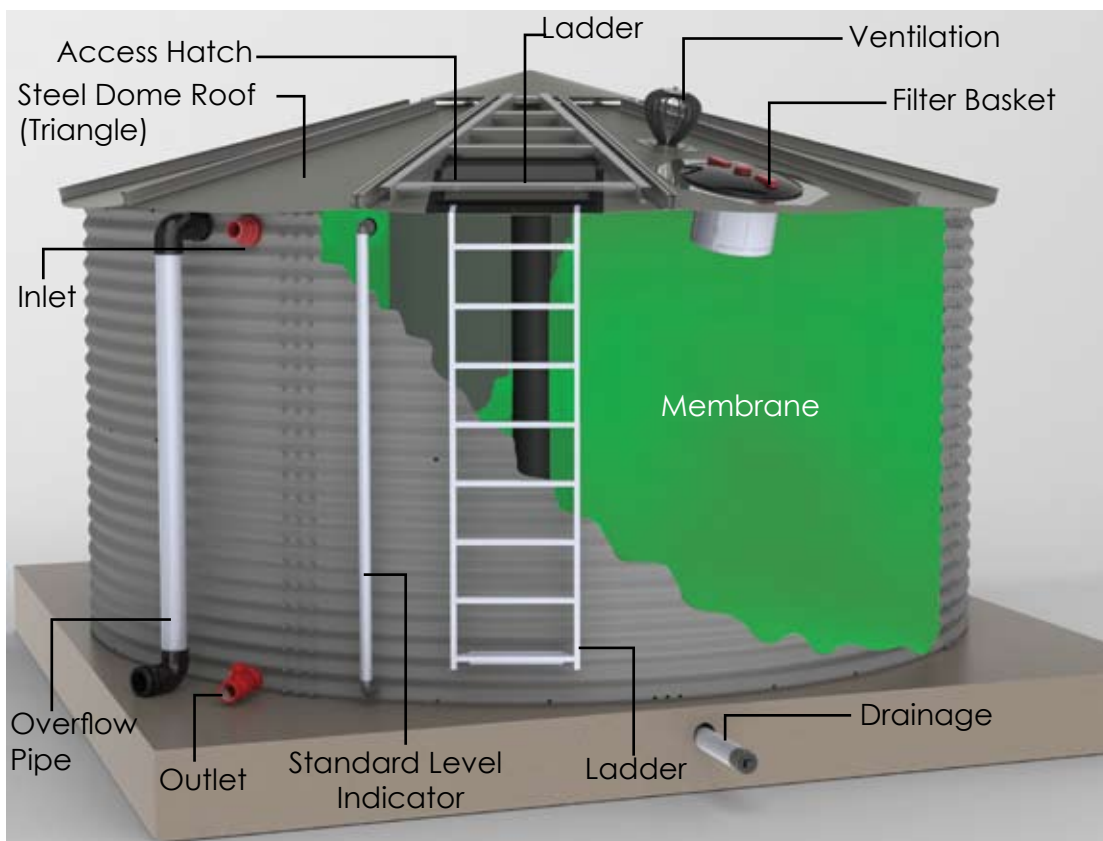
Triangle Modular Roof System

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- Industrial Applications
- General Water Supply (residential or public use)
- Fish Ponds and Fish-hatcheries
- Schools, Hospitals, Fire Departments
- Army Camps, Military operations
- UN Organizations and its sister agencies (UNICEF,WHO,WFP...ETC.),
- Recreational/ Theme Parks, Hotels, Resorts
- Mega-mall, Shopping centers
- Offices, Factory Plants, Municipal Districts (theme parks, offices)
- Housing Properties, Remote Working Sites

Advantages

- Thanks to its corrugated shell and hot dip galvanizing technology, Ekotank® Mars® is very durable both indoor and outdoor conditions.
- Using the latest in geomembrane technology, Mars® makes sure that the liquid stored inside is not contaminated
- Having a modular design, Ekotank® Mars® can be shipped anywhere in the world and erected on site very easily.
- Ekotank® Mars®, when produced in optional powder coated colors can easily blend into any environment.
- Mars® is designed to withstand thunderstorms and earthquakes.



EKOTANK® MARS® CAPACITY AND DIMENSION CHART

ROOF WITH TRIANGLE MUDULAR SYSTEM

Code No. >>		EKMA04	EKMA05	EKMA06	EKMA07	EKMA08	EKMA09	EKMA10	EKMA11	EKMA12	EKMA13
No of Rings	Wall Height (m.)	Diameter (m.)									
		3.58m	4.48m	5.37m	6.27m	7.16m	8.06m	8.95m	9.85m	10.74m	11.64m
		Capacity (M ³ / Gallon)									
R1	0.88	9 2,378	14 3,698	20 5,283	27 7,133	35 9,246	45 11,888	55 14,529	67 17,700	79 20,870	93 24,568
R2	1.62	16 4,227	25 6,604	37 9,774	50 13,209	65 17,171	82 21,662	102 26,946	123 32,493	146 38,569	172 45,438
R3	2.36	24 6,340	37 9,774	53 14,001	73 19,285	95 25,096	120 31,701	148 39,097	179 47,287	213 56,269	250 66,043
R4	3.10	31 8,189	49 12,944	70 18,492	95 25,096	125 33,022	158 41,739	195 51,514	236 62,345	280 73,968	329 86,913
R5	3.84	39 10,303	60 15,850	87 22,983	118 31,172	154 40,682	195 51,514	241 63,665	292 77,138	347 91,668	408 107,782
R6	4.58	46 12,152	72 19,020	104 27,474	141 37,248	184 48,608	233 61,552	288 76,082	348 91,932	415 109,631	487 128,652
R7	5.32	54 14,265	84 22,190	120 31,701	164 43,324	214 56,533	271 71,591	334 88,233	405 106,990	482 127,331	565 149,257
R8	6.06	61 16,114	95 25,096	137 36,192	187 49,400	244 64,458	309 81,629	381 100,652	461 121,783	549 145,030	644 170,127
R9	6.80	68 17,964	107 28,266	154 40,682	210 55,476	274 72,383	346 91,404	428 113,066	517 136,577	616 162,730	723 190,996
R10	7.54	76 20,077	119 31,436	171 45,173	232 61,288	303 80,044	384 101,442	474 125,218	574 151,635	683 180,430	801 211,632
R11	8.28	83 21,926	130 34,342	187 49,400	255 67,364	333 87,969	422 111,481	521 137,634	630 166,428	750 198,129	880 232,471
R12	9.02	91 24,040	142 37,512	204 53,891	278 73,440	363 95,894	459 121,255	567 149,786	686 181,222	817 215,829	959 253,341

ROOF WITH TRUSS DOME

Code No. >>		EKMA14	EKMA15	EKMA16	EKMA17	EKMA18	EKMA19	EKMA20	EKMA21	EKMA22	EKMA23
No of Rings	Wall Height (m.)	Diameter (m.)									
		12.53m	13.43m	14.32m	15.22m	16.11m	17.01m	17.90m	18.80m	19.69m	20.59m
		Capacity (M ³ / Gallon)									
R1	0.88	108 28,531	124 32,757	141 37,248	159 42,003	178 47,023	199 52,570	220 58,118	243 64,194	266 70,270	291 76,874
R2	1.62	199 52,570	229 60,495	260 68,685	294 77,667	329 86,913	367 96,951	406 107,254	448 118,349	492 129,973	538 142,125
R3	2.36	290 76,610	333 87,969	379 100,121	428 113,066	480 126,803	535 141,332	593 156,654	654 172,769	717 189,411	784 207,111
R4	3.10	382 100,914	438 115,707	499 131,822	563 148,729	631 166,693	703 185,713	779 205,790	859 226,924	943 249,114	1,030 272,097
R5	3.84	473 124,953	543 143,445	618 163,258	697 184,128	782 206,583	871 230,094	965 254,926	1,064 281,079	1,168 308,553	1,277 337,348
R6	4.58	564 148,993	648 171,183	737 194,695	832 219,791	933 246,473	1,039 274,475	1,152 304,326	1,270 335,449	1,393 367,992	1,523 402,334
R7	5.32	656 173,297	753 198,922	856 226,131	967 255,454	1,084 286,363	1,207 318,856	1,338 353,462	1,475 389,654	1,619 427,695	1,769 467,320
R8	6.06	747 197,337	857 226,395	975 257,568	1,101 290,853	1,234 325,988	1,375 363,237	1,524 402,598	1,680 443,809	1,844 487,133	2,016 532,571
R9	6.80	838 221,376	962 544,434	1,095 289,268	1,236 326,517	1,385 365,878	1,544 407,882	1,710 451,734	1,886 498,228	2,069 546,572	2,262 597,557
R10	7.54	929 245,416	1,067 281,872	1,214 320,705	1,370 361,916	1,536 405,768	1,712 425,263	1,897 501,134	2,091 552,384	2,295 606,275	2,508 662,544
R11	8.28	1,021 269,720	1,172 309,610	1,333 352,141	1,505 397,579	1,687 445,658	1,880 496,643	2,083 550,270	2,296 606,539	2,520 665,714	2,755 727,794
R12	9.02	1,112 293,759	1,276 337,084	1,452 383,578	1,639 432,978	1,838 485,548	2,048 541,024	2,269 599,406	2,502 669,958	2,746 725,416	3,001 792,780

GALAXY[®]!

Where Mobility Matters...



From 3 up to 300 tons of Capacity!



New Generation Liquid Storage Systems

UV & Weather Resistant • Collapsible & Compact • Easy Installation • Easy Transportation • Durable

EKOTANK[®]
GALAXY[®]

About Pillow / Bladder Galaxy® Tanks

Ekotank® produces a wide variety of collapsible fabric tanks also known as pillow bladders both for temporary and long-term liquid storage. Our latest product Galaxy®, is made out of a special PVC coated polyester fabric. Thanks to new developments in technology, all Galaxy® products are flexible, foldable, certified for drinking water, strong and resistant to bad weather conditions. Our tanks hold water, various chemicals, oil, gasses, effluents and slurries. The raw material used inside the tank blocks UV rays which makes it resistant to bacteria, mould and moss growth. Presently, fiberglass and polyethylene tanks are known to be popular but most of us are not aware of its disadvantages. These tanks are not healthy because the water inside is exposed to UV rays directly, therefore unsanitary substances can occur such as moss and bacteria which are harmful for human health. Since the fiberglass and polyethylene tanks are not compact they cover a large area which makes it more difficult and expensive to install. When it comes to repair these tanks they can not be repaired without professional help and they need outrageous transportation costs. Unlike these regular tanks, Galaxy® is invented for practical and easy storage with approved sanitary conditions. They have endless applications and typically used by military and municipality operations, hospitals, schools, hotels, relief efforts, agriculture cooperatives, rural construction sites, Red Cross, civil rescue organizations, fire departments, and many other commercial areas... Galaxy® products are not only useful for industrial solutions, they can also be used in residences, roof areas, gardens, green houses, boats as well. In other

words these pillow tanks can be used in anywhere wherever you need to store liquid products. Capacities from **300 liters to 300.000 liters** are available. The tanks are easily transported and installed quickly with little or no on-site preparation. Specialized materials are available for a variety of applications. Please consult our sales team to choose the best material and types of fittings for your needs.



Strong



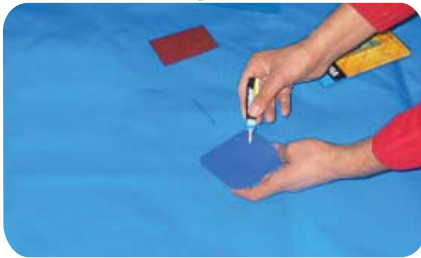
Collapsible & Compact



Easy Transportation



Can be repaired w/out moving the tank



Passes through quality Control test



Climate resistant



Applications

Terraces



Factories



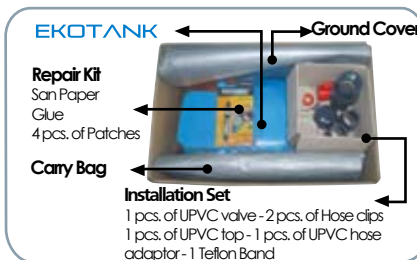
Liquid Transportation



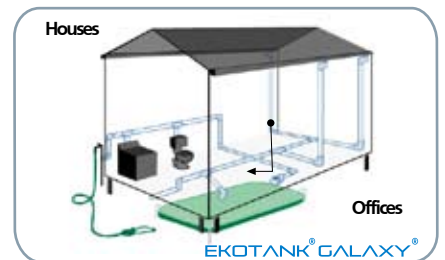
Agriculture



Delivery package



Recycling of rain and snow water





As the tank begins to fill with water, its unique design allows it to rise automatically.



UPVC valves are hygienic and long lasting.



Open top (Onion) tanks design allows for easy filling of liquids and protects the water source from outside contamination. The open top reservoirs are low profile circular shape tanks with a collar made of closed cell foam. As the tank begins to fill, its unique design allows it to rise automatically. These tanks are used for spill recovery, fire-fighting, storage of potable water, aquaculture, sewage, rain water accumulation, drilling and many other types of industrial liquids.



EKO Yatay 1/2" - 3/4" - 1" - 1 1/2"



Float Valve Reservoir

Float Types			
Product Code	Explanation	Outlet (Inch)	Float Reservoir
UREKOTKEYSAMYRMPARMAK	EKO YATAY 1/2"	1/2"	Includes
UREKOTKEYSAMUCCPARMAK	EKO YATAY 3/4"	3/4"	Includes
UREKOTKEYSAMBIRPARMAK	EKO YATAY 1"	1"	Includes
UREKOTKEYSAMBCKPARMAK	EKO YATAY 1 1/2"	1 1/2"	Includes

Capacity and Dimension Chart of Open Top Ekotank® Galaxy®						
Product Code	Ton	Bottom Diameter	Top Diameter	Height	Inlet / Outlet	Gallon (USA)
EKOA001000	1	192	150	44	1"	264
EKOA002000	2	250	195	52	1 1/2"	528
EKOA003000	3	310	242	52	1 1/2"	792
EKOA004000	4	310	242	67	1 1/2"	1.056
EKOA005000	5	310	242	84	1 1/2"	1.321
EKOA006000	6	370	289	71	2"	1.585
EKOA008000	8	370	289	94	2"	2.113
EKOA010000	10	443	346	82	2"	2.642
EKOA015000	15	503	392	96	2"	3.962
EKOA020000	20	613	478	86	2"	5.283
EKOA025000	25	690	538	85	2"	6.604
EKOA030000	30	735	573	90	2"	7.925
EKOA040000	40	848	661	90	2 1/2"	10.567
EKOA050000	50	918	716	96	2 1/2"	13.209

Capacity and Dimension Chart of Pillow Tanks Ekotank® Galaxy®									
Product Code	Ton	Empty Width	Empty Length	Full Width	Full Length	Full Height	Inlet Outlet	Float Valve System	Gallon (USA)
EKOK000300	0.3	117	145	101	129	30	1"	EKO YATAY1/2"	79
EKOK000500	0.5	145	168	125	150	33	1"	EKO YATAY1/2"	132
EKOK000750	0.75	145	214	125	195	43	1"	EKO YATAY1/2"	198
EKOK001000	1	145	261	128	235	50	1"	EKO YATAY1/2"	264
EKOK001500	1.5	177	274	153	250	60	1 1/2"	EKO YATAY1/2"	396
EKOK002000	2	211	274	182	244	67	1 1/2"	EKO YATAY1/2"	528
EKOK002500	2.5	246	274	222	247	69	1 1/2"	EKO YATAY 3/4"	660
EKOK003000	3	274	283	247	255	67	1 1/2"	EKO YATAY 3/4"	792
EKOK004000	4	274	337	236	300	81	1 1/2"	EKO YATAY 3/4"	1.057
EKOK005000	5	274	404	236	368	79	1 1/2"	EKO YATAY 3/4"	1.320
EKOK006000	6	274	455	236	415	88	2"	EKO YATAY 1"	1.585
EKOK007000	7	274	510	242	459	92	2"	EKO YATAY 1"	1.849
EKOK008000	8	274	571	242	515	91	2"	EKO YATAY 1"	2.113
EKOK009000	9	274	623	242	561	96	2"	EKO YATAY 1"	2.377
EKOK010000	10	274	676	242	609	99	2"	EKO YATAY 1"	2.642
EKOK015000	15	419	570	361	508	100	2"	EKO YATAY 1"	3.962
EKOK020000	20	523	570	471	513	101	2"	EKO YATAY 1"	5.283
EKOK025000	25	570	629	513	566	101	2"	EKO YATAY 1"	6.604
EKOK030000	30	570	734	491	654	101	2"	EKO YATAY 1"	7.925
EKOK040000	40	570	945	491	860	101	2 1/2"	EKO YATAY 1"	10.567
EKOK050000	50	748	866	674	777	101	2 1/2"	EKO YATAY 1 1/2"	13.209
EKOK060000	60	866	878	780	760	101	2 1/2"	EKO YATAY 1 1/2"	15.850
EKOK070000	70	866	1007	780	906	101	2 1/2"	EKO YATAY 1 1/2"	18.492
EKOK080000	80	866	1136	745	1011	101	2 1/2"	EKO YATAY 1 1/2"	21.133
EKOK100000	100	866	1395	745	1270	101	2 1/2"	EKO YATAY 1 1/2"	26.417
EKOK120000	120	1162	1221	1046	1099	101	3"	EKO YATAY 1 1/2"	31.700
EKOK150000	150	1162	1501	1000	1336	101	3"	EKO YATAY 1 1/2"	39.626
EKOK200000	200	1458	1560	1312	1404	101	3"	EKO YATAY 1 1/2"	52.834
EKOK250000	250	1458	1925	1254	1713	101	3"	EKO YATAY 1 1/2"	66.043
EKOK300000	300	1458	2290	1254	2084	101	3"	EKO YATAY 1 1/2"	79.251

Package Sizes

Product Code	Width	Length	Height	Weight
EKOK000300	40	50	30	7.4
EKOK000500	40	50	30	9.4
EKOK000750	40	50	30	11
EKOK001000	40	50	40	12.8
EKOK001500	40	50	40	15.2
EKOK002000	40	60	30	17.6
EKOK002500	40	60	30	20.3
EKOK003000	50	60	40	22.7
EKOK004000	50	60	40	26.6
EKOK005000	60	75	30	31
EKOK006000	60	75	30	35.2
EKOK007000	60	75	30	38
EKOK008000	60	75	40	42.4
EKOK009000	60	75	40	46.2
EKOK010000	60	75	40	49.5
EKOK015000	60	75	40	63.4
EKOK020000	60	100	50	81
EKOK025000	60	100	50	93.1
EKOK030000	60	100	50	103.6
EKOK040000	80	100	60	138
EKOK050000	80	100	60	195

The Most Cost-Effective Liquid Storage System in the World!



From 25 up to 1.072 tons of capacity!



New Generation Liquid Storage Systems

Ideal for Agriculture • Easy Installation • Cost Effective • Modular Structure • Easy Transportation



ABOUT

Ekotank Star® is based on 4 main components. Affordability, easy montage, lightweight and long lasting. Whether you have a small or large profit business, Ekotank Star® will perfectly suit your needs while saving your budget. These tanks are made out of galvanized steel mesh panels which is extremely durable and light at the same time. Star® mesh panels offer many different storage solutions between 25m³- 1.072m³. Another great thing about this tank is, its flexibility. In case you'll need it smaller or bigger in the future, the standard panels will allow you to adjust it upon your request

any time you wish. The special PVC membrane that is used through the tank is UV resistant and prevents the water from humidity, bacteria and moss growth. This PVC membrane is approved by the Turkish Ministry of Health and Turkish Ministry of Agriculture. This tank can be also a perfect alternative solution to traditional underground irrigation systems with its economical price. Ekotank Star® offers 2 optional top lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions such as freezing and evaporation.



REVOLUTION

Modular structured MESH PANELLED TANK is a brand new type of liquid storage system in agriculture field, where mostly concrete or underground storages are being used. Unlike the old ones, Ekotank Star® is extremely easy to use and install at the same time.

The height of the tank (2.20 cm) protects the liquid inside from the contaminations dragged by the wind. That way the tank's dripping system is always clean, never gets clogged.

Thanks to modular structure of Star®; it's always easy to move it around. Where ever you need to store water, Ekotank Star® lets you to collect without hassle. It's perfectly designed to last longer, so you can use it for many years. Because of the modular design it's easy to install, and demount. Since the material that's being used for the tank is lightweight, there will only be very low cost for the transportation. Mounting can be simply done by end-user with only 2 tools.

Ekotank Star® is radically changing the traditional liquid storage habits. It's obvious that there is going to be a huge necessity for a storage system solution which lets you to keep your water without losing its quality, also perfectly fits your budget and easy to carry around.



LOOKING FOR THE BEST PRICE IN LIQUID STORAGE? STAR MEETS YOUR NEEDS...

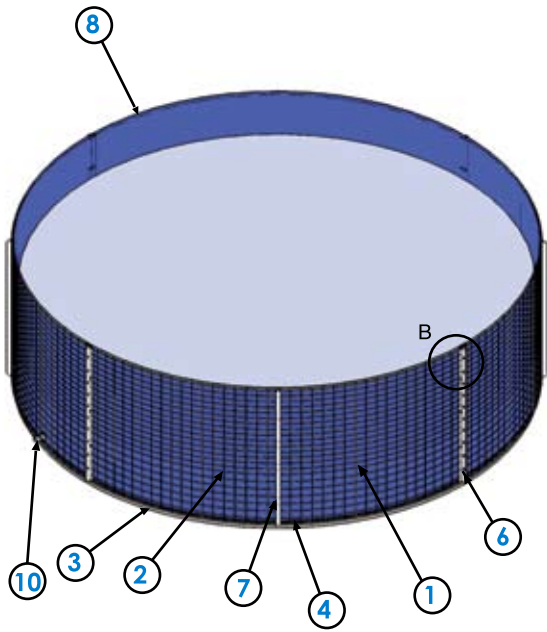


THE ADVANTAGES OF STAR® STEEL PANEL TANKS:

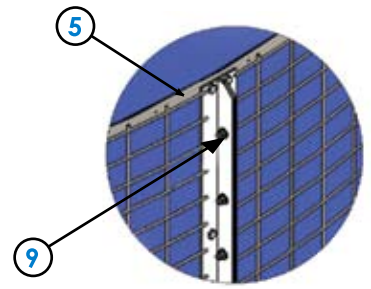
- ▶ Ekotank® Star®, offers the **MOST COST EFFECTIVE** solution for irrigation of agricultural fields as well as storing other types of liquids.
- ▶ Star® **CAN BE USED IN MANY AREAS** such as irrigation, agriculture, fishing industry, and in many other areas requiring temporary and permanent storage of liquids.
- ▶ Ekotank® Star® is especially **DESIGNED FOR EASY AND HASSLE-FREE INSTALLATION**. Mounting can be simply done by the end user with only 2 tools. Star® can be installed and demounted very easily so the end user can change the location of the tank whenever needed.
- ▶ Star® is made out of very strong steel mesh panels both **DURABLE AND LIGHT** at the same time.
- ▶ Having a modular structure, the tank can be **EASILY TRANSPORTED** and exported.
- ▶ Star® **SAVES MONEY** in transportation due to the light nature of its mesh steel panels.
- ▶ Ekotank® Star® is produced using high quality S-500 construction grade steel. Produced panels are treated with hot dip galvanizing for **DURABILITY**.
- ▶ When needed, the membrane of Ekotank® Star® can **EASILY BE REPAIRED** with the repair kit provided in standard packaging.
- ▶ Star® is **RESISTANT TO EXTREME WEATHER CONDITIONS**. The special PVC membrane protects the liquid from UV rays and the tanks can be operated in rough conditions from -30° C to +70° C. When used with the optional lid, Star® prevents freezing and evaporation of the liquids inside the tank.
- ▶ Thanks to the special PVC membrane that is used through the tank; the **LIQUID INSIDE DOES NOT CONTACT WITH STEEL PARTS OF THE TANK**. The open mesh structure of the Ekotank® Star® prevents humidity, therefore extending the life of the steel structure. Since the liquid does not touch the steel parts of the tank, corrosion won't occur. Ekotank® Star® offers 2 optional Top Lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions.

Star® mesh Steel Panel Tanks are produced with a capacity of **25 to 1072 m³**.

THE EXPLANATION OF STAR® STEEL PANELS



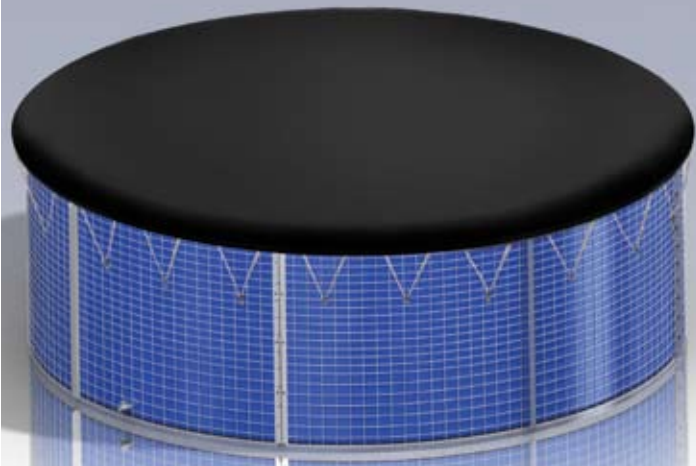
1. Steel Mesh Panel Module
2. Protective Ground Cloth
3. PVC Membrane
4. Bottom Steel Ring
5. Top Steel Ring
6. Corner Pieces for Module Joints
7. Corner Piece for Top Protection
8. Plastic Profile for Top Protection
9. Screw, Bolt, Washer
10. Valve



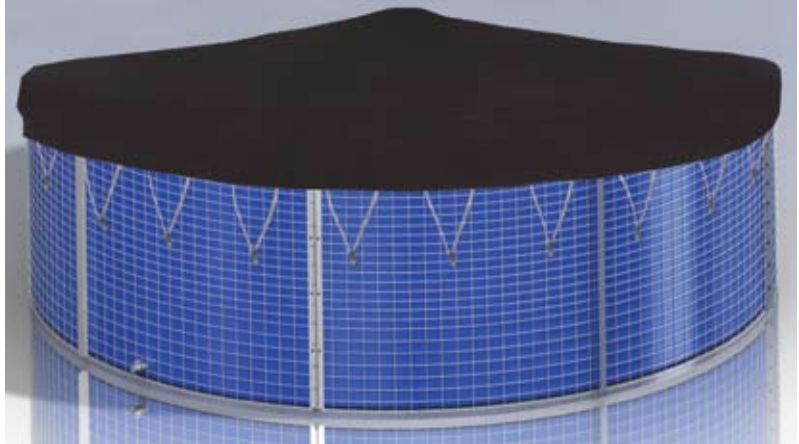
Star® Inlet- Outlet Connection

EXTRA ACCESSORIES

INDOOR FLAT COVER



OUTDOOR FLAT COVER



EKOTANK® - STAR® - CAPACITY and DIMENSION CHART

Code No	Number of Models	Weight (Kg.)	Diameter ø (M.)	Outlet	Height (M.)	Volume (M ³)	Gallon (USA)
EKST02	2	345	3.83	3"	2.20	25	6604
EKST03	3	526	5.75	3"	2.20	57	15.080
EKST04	4	714	7.66	3"	2.20	102	26.955
EKST05	5	909	9.58	3"	2.20	159	42.003
EKST06	6	1.110	11.50	3"	2.20	228	60.231
EKST07	7	1.317	13.41	3"	2.20	311	82.151
EKST08	8	1.530	15.33	3"	2.20	406	107.285
EKST09	9	1.750	17.25	3"	2.20	514	135.784
EKST10	10	1.976	19.16	3"	2.20	634	167.485
EKST11	11	2.209	21.08	3"	2.20	768	202.884
EKST12	12	2.448	22.99	3"	2.20	914	241.453
EKST13	13	2.693	24.91	3"	2.20	1.072	283.192

For a Fast and Economical Storage Solution

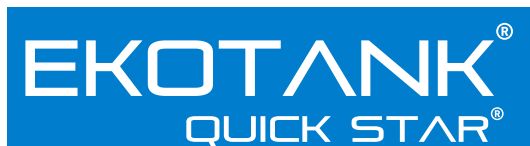


From 3 up to 100 tons of Capacity!



New Generation Liquid Storage Systems

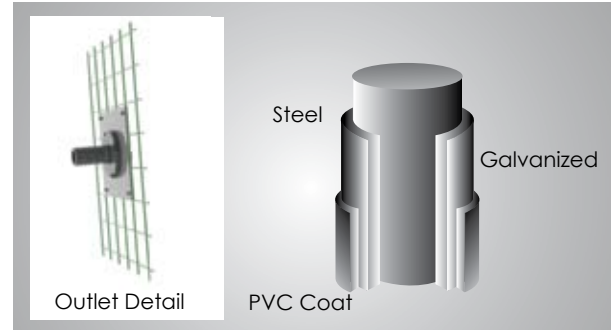
Economical • Light • Practical • Easy to Assemble • Aesthetically Appealing





ABOUT

Ekotank®, the manufacturer leader in liquid storage systems has opened another new era with its unique and most innovative tank known to be Quick Star®. Being the 20th century storage solution, quick tanks are inexpensive, lightweight and easy to assemble. With these special features now everyone can own a storage tank. Quick tanks have a wide variety of applications from personal to general use. They have a capacity of storage starting from 3 m³ to 100 m³ and the standard height of the tanks are 122 cm.



Advantages

- Shipped As a Kit
- Inexpensive
- Lightweight
- Easy To Assemble
- Practical

Prime Applications

FISHING

- Fish Hatchery
- Pisciculture
- Fresh Water Fishery

RAIN WATER COLLECTION

- Roof Rainwater Collection

EMERGENCY STORAGE

MILITARY / CIVIL RESCUE TEAM

- Residential & Public use
- Army & Civil rescue org.

IRRIGATION

- Orchard Irrigation
- Garden Irrigation
- Plantation Irrigation
- Green House
- Winter Garden
- Farms
- Agriculture

SEAWATER STORAGE

PORTABLE SWIMMING POOL

Capacity and Dimension Chart of Ekotank® QUICK-STAR®

Product Code	Weight (Kgs.)	Diameter (m.)	Height (m.)	Volume (m ³)	Outlet (inch)	Gallon (USA)
EKQST003	22	1,77	1,22	3	1 ½"	792
EKQST004	26	2,05	1,22	4	1 ½"	1.056
EKQST005	29	2,29	1,22	5	1 ½"	1.320
EKQST008	37	2,89	1,22	8	1 ½"	2.113
EKQST010	42	3,24	1,22	10	2"	2.641
EKQST012	47	3,54	1,22	12	2"	3.170
EKQST015	53	3,96	1,22	15	2"	3.962
EKQST020	63	4,57	1,22	20	2"	5.283
EKQST025	72	5,11	1,22	25	2"	6.604
EKQST030	80	5,60	1,22	30	2"	7.925
EKQST040	96	6,47	1,22	40	2"	10.566
EKQST050	111	7,23	1,22	50	2"	13.208
EKQST060	125	7,92	1,22	60	2 ½"	15.850
EKQST070	138	8,55	1,22	70	2 ½"	18.492
EKQST080	151	9,14	1,22	80	2 ½"	21.133
EKQST090	163	9,70	1,22	90	2 ½"	23.775
EKQST100	175	10,22	1,22	100	2 ½"	26.417

The most convenient water tank: EKOTANK® QuickStar®



- 1- Tie a rope or cord around the fence roll using a sliding knot.
Caution: The fence roll is wound extremely tight.
 - 2- Holding the rope or cord snug, cut the wires securing the roll. The roll will begin to open; loosen the rope gradually until the roll loses its tension.
 - 3- Once the roll has lost its tension remove the rope and continue unrolling the fence.
- Dikkat:** It is recommended that leather work gloves be used to avoid cuts or burns.



4. Mark a circle the size of the tank's diameter on the exact area the fence will be placed.



5. Place the fence on the circle as shown in this picture.
Important: One person should remain inside of the fenced area.
6. Using a measuring tape, verify the diameter of the fence is correct.



- 7- Connect the two ends of the fence. The ends should overlap each other approximately 25 cm (5 holes).



8. Using the 2 (One attachment), 4 (Two attachments) spiral locker wires provided with the QUICK STAR® kit anchor each end of the fence.
 - The anchors should be twisted down the mesh of the fence until they span from top to bottom.



9. Begin by placing the Geotextile Pre-Liner on the floor and any excess on the wall of the fence. Overlap minimum 10 cm. at the joining sections. Turn at least 15 cm. the outer side of the fence at the top. Fix the outer (15 cm.) geotextile to the fence using the plastic clips.

10. Unfold the liner inside the tank. The liner will have wrinkles when unfolded. These wrinkles will not affect performance of the liner and will most likely disappear once the geomembrane is filled with water.



11. Position the perimeter of the bottom of the Geomembrane against the perimeter of the tank. Remove all fold overs and make sure any slack is positioned along the perimeter of the fence.



12. Position the wall section of the Geomembrane over the top of the fence. DO NOT fold over the fence, as the walls of the Geomembrane will be drawn down the inside of the tank while being filled with water.

13. Begin filling the tank with water.

Completed EKOTANK® Quick Star®



Tools necessary for installation

- Measuring tape
- Scissors or knife
- Leather work gloves
- Rope or cord
- Leather
- Adhesive tape

Included items

- A. Fence
- B. Pre-liner Geotextile (200 gr/m²)
- C. Geomembrane
- D. Spiral locker wires (PVC coated)

SAMPLE PROJECTS



CYPRUS / GALVANIZED STEEL TANK MARS®

Code : EKMA08R7

Diameter \varnothing : 7.16

Height (m) : 5.32

Volume (Ton) : 216



AFGHANISTAN / GALVANIZED STEEL TANK APOLLO®

Code : EKAP025KK3

Diameter \varnothing : 16.72

Height (m) : 3.23

Volume (Ton) : 709



IRAQ/ PILLOW TANK GALAXY®

Code : EKOK050000

Volume (m³) : 50



CHAD / FUEL PILLOW TANK GALAXY®

Code : EKOK100000F

Volume (m³) : 100



KONYA - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP018KK2

Diameter \varnothing : 12.04

Height (m) : 2.18

Volume (Ton) : 248



KIRKLARELI - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP021KK3

Diameter \varnothing : 14.02

Height (m) : 3.23

Volume (Ton) : 499

SAMPLE PROJECTS



SUDAN / APOLLO® GALVANIZED STEEL FUEL TANK

Code : EKAP012KK2
Diameter \varnothing : 8.01
Height (m) : 2.18
Volume (m³) : 110



KONYA- TATKOY / APOLLO® GALVANIZED STEEL WATER TANK

Code : EKAP016KK2
Diameter \varnothing : 10.70
Height (m) : 2.18
Volume (m³) : 196



MALDIVES / APOLLO® SERIES

MALDIVES ISLAND HOTEL IN 7 DIFFERENT SIZES OF POTABLE AND WASTE WATER TANKS

Volume (m³) : Between 76 -150 Tons

SAMPLE PROJECTS



IRAQ/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP015KK3
Diameter \varnothing : 10.03
Height (m) : 3.23
Volume (m³) : 255



ROMANIA / GALVANIZED STEEL TANK APOLLO®

Code : EKAP017KK3
Diameter \varnothing : 11.38
Height (m) : 3.23
Volume (m³) : 227

PROCTER&GAMBLE-IZMIR - TURKEY/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP07KK2
Diameter \varnothing : 4.68
Height (m) : 2.18
Volume (m³) : 38



SUDAN / GALVANIZED STEEL TANK TOWER APOLLO®

Code : EKAP008KK2
Diameter \varnothing : 5.35
Height (m) : 2.18
Volume (m³) : 49



TRABZON - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP021KK3
Diameter \varnothing : 14.02
Height (m) : 3.23
Volume (m³) : 499

Our Certificates

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU
 Sayfa No: 1/2

RSHMB

Sayı : B.10.1.RSH.0.09.00/10/2353
 Konu : PVC analizi
 Protokol No : 39792
 19.09.2008

Numunenin Geliş Sebabi : Kimyasal analiz
 Numuneyi Gönderen Kişi/Kurum/Kuruluş : Hisaş Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
 İlgili Yazı Tarihi/Sayı : 23.07.2008 / Bila sayı
 Numunenin Alındığı Adres⁽¹⁾ ve Tarih : Yukarı Dudullu Org. San. Böl. 1.Cad.No:6 34776 Ümraniye-İST. ve 23.07.2008
 Numunenin Sahibi : Hisaş Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
 Numunenin Cinsi – Miktar⁽²⁾ : PVC Membran - 13x16 cm'lik 6 adet
 Tutanak Tarihi ve No. : Yok
 Numunenin Geliş Şekli ve Mühür Durumu : Poget içerisinde ve mühürlü
 Makbuz / Dekont Tarihi ve No. : 21.08.2008 ve 82618541
 Numunenin Laboratuvara Geliş Tarihi ve Saati : 23.07.2008 ve 16.30
 Analiz Başlama ve Bitiş Tarihi : 22.08.2008 ve 18.09.2008

YAPILAN MUAYENE VE ANALİZLER

Hammaddenin Ticari Adı : PVC membran
 Hammaddenin Kimyasal Adı : Polivinilklorür

FİZİKSEL VE ORGANOLEPTİK MUAYENE

Renk ve Görünüş : Mavi renkli plastik
 Koku : Koksuz

KİMYASAL MUAYENELER	Yöntem	Mezuarat Limiti ⁽³⁾	Analiz Sonucu
1- Plastik Türünün Tespisi	Infrared Spektroskopisi	-	PVC özelliğindedir
2- Boya Geçirgenliği ; Damıtık Suda (5 saat 50 °C'de)	Ekstraksiyon	Geçirgenlik vermemeli	Geçirgenlik vermedi
3- Toplam Migrasyon ; Damıtık suda (40°C'de 10 gün)	Gravimetrik	10 mg/dm ²	9.2 mg/dm ²
4- Kurgun miktar ; Damıtık su (gıda sasında)	ICP-OES		
1.gün (24 saat)		2.5 mg/m ²	2.15 mg/m ²
2.gün (24 saat)		2.5 mg/m ²	1.04 mg/m ²
3.gün (24 saat)		0.3 mg/m ²	0.15 mg/m ²

Adres: Cemal Gürsel Cad No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
 Web adresi: www.rshmb.gov.tr e-mail: rgda@rshmb.gov.tr
 Form No: R05/ GGBM/ 00

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU
 Sayfa No: 2/2

RSHMB

SONUÇ DEĞERLENDİRME

Yukarıdaki analiz sonuçlarına göre PVC membran numunesi Türk Gıda Kodeksi Yönetmeliğinin plastik esaslı ambalaj maddeleri kısmına ve Alman Yönetmeliğine uygundur.

⁽¹⁾ Numune tarafınca alınmış olup, Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü Numune Kabul Kriterleri Talimatına (GT01-GGBM) uygun olarak kabul edilmiştir.
⁽²⁾ 15.11.1997 tarih ve 23172 sayılı Resmî Gazete'de yayımlanan Türk Gıda Kodeksi Yönetmeliğidir.
⁽³⁾ Alman Yönetmeliği (Kunststoffe im Lebensmittelverkehr).

ANALİZ YAPAN : Zir.Yük.Müh.Gönlü KANGAL
 LABORATUVAR SORUMLUSU : Zir.Yük.Müh.ÖZÜDOĞRU
 DR.Kıymışer TÜLİN ÇELİK

Zir.Yük.Müh.Gönlü KANGAL

T.C. SAĞLIK BAKANLIĞI
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü

Adres: Cemal Gürsel Cad No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
 Web adresi: www.rshmb.gov.tr e-mail: rgda@rshmb.gov.tr
 Form No: R05/ GGBM/ 00

All Ekotanks have Turkish Food Codex Certificate from Ministry of Health.

T.C. TARIM VE KÖYİŞLERİ BAKANLIĞI
Ankara İl Kontrol Laboratuvarı Müdürlüğü
TÜRKAK
TÜRK AKREDITASYON KURUMU
ÖZEL İSTEK MUAYENE VE ANALİZ RAPORU

Rapor No: 2008G-6428
 Res: 00
 Bu Rapor ABN - İdari İşlemlerde ve Risklerin Anamlılığı Kullanılmamıştır.
 AB-0025-T
 2008G-6428
 08-08

Analiz Amacı : Genel İstek
 Num.Giö.Yarımın Tarihi : 05.08.2008
 Sayısı : -
 Numunenin Cinsi : Kapalı Tip Elaznak (5a Depozu Tankı)
 Num.Giö.Yarımın Tarihi ve Saati : 05.08.2008 - 20.08.2008
 Adresi : Ümraniye - İSTANBUL
 An. Bas. ve Bitiş Tarihi : -
 Üretici Firma : -
 Adresi : -

Yapılan Analizler	Yöntem	D	Analiz Metodu
1- Toplam Migrasyon	- 50 mg/dm ²	✓	EN 1180-1-11
2- FT-IR Spektrometrisi	Polivinilklorür (PVC)	✓	Analiz FT-IR Spektrometrisi de yapılmıştır.
3- Boya Geçirgenliği	Geçirgenlik vermemelidir.	✓	Kamertolun 101 laboratuvarlarında B-1-B

Analizler : - Metotlar : EN 1180-1-11, EN 1180-1-11, EN 1180-1-11
 Akademi : Türk Gıda Kodeksi ve diğer uygulamalar.

Yapılan muayene ve analiz sonucunda yukarıdaki belirtilen değerler aşağıdaki gibidir:
 1. Bu analiz raporunun bir kopyası tek nüshaya 1524 sayılı kanunla hazırlanmıştır.
 2. Bu rapor laboratuvar müdürlüğüne teslim edilmiştir.
 3. Bu rapor 3. ve 4. maddelerle düzenlenmiştir.
 4. Bu rapor laboratuvar müdürlüğüne teslim edilmiştir.

Analiz Sorumlusu : **Şaban ÇELİK**
 Analiz Lab. Şefi

Nüshaya Kabul ve Rapor Durumunu Şif : **Şaban ÇELİK**
 Müdür

Analiz Sorumlusu : **Şaban ÇELİK**
 Analiz Lab. Şefi

Nüshaya Kabul ve Rapor Durumunu Şif : **Şaban ÇELİK**
 Müdür

TERCÜMEDİR
 20080919433
 17. EYLÜL 2008
 ACİL TERCÜME
 #18570

REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND RURAL AFFAIRS
Directorate of Ankara Provincial Control Laboratory
 Çarşın Mah. Şehit Çam Erzurum Cad. No:12 Yenimahalle / ANKARA
 Fax: (312) 2157934 e-mail: tkak@ankara.gov.tr

TURKAK
 Accredited by
TURKISH ACCREDITATION INSTITUTION
SPECIAL REQUEST INSPECTION AND ANALYSIS REPORT

Report No: 2008G-6428
 Res: 00
 This Report is not allowed to be used in procedural-administrative acts and for the purpose of advertising.

Purpose of the analysis	Special Request	Sample Dispatched by	Method of analysis
Date of the Letter by which the samples were dispatched : 05.08.2008	Address : Ümraniye-İSTANBUL	By The A.S. : Ümraniye-İSTANBUL	EN 1180-1-11
The Number of the Sample(s) : 1	Date and Time the Sample was arrived : 05.08.2008 - 09.42	Start and Finish Dates of the Analysis : 05.08.2008 - 20.08.2008	The Analysis is made by FT-IR spectrum
Type : Closed Type Elaznak (Water Depozu Tankı)	Manufacturer : -	Address : -	Kamertolun 101
Package : Paper Box	Address : -	Address : -	
Expiry Date : -	Address : -	Address : -	
Serial-Part No : -	Address : -	Address : -	
Quantity (Unit) : -	Address : -	Address : -	

Analysis Carried Out	Result	D	Method of analysis
1- Total Migration	- 50 mg/dm ²	✓	EN 1180-1-11
2- FT-IR Spectrometry	Polivinilklorür(PVC)	✓	The Analysis is made by FT-IR spectrum
3- The Permeability in Distilled Water (Boiling tem. 5 hours)	No Permeability	✓	Kamertolun 101

Abbreviations : * Accredited analysis D: Evaluation ✓: suitable ✗: Not Suitable
 Remarks: Complies with the Turkish Food Codex

The values shown here have been determined as a result of the examination and analysis.
 Note: 1. Any of the parts of this analysis report can not be used safely and separately.
 2. This report is valid for the sample shown.
 3. This report has been drawn up in two originals.
 4. This Report can not be duplicated without the approval of the laboratory.

Responsible of the Analysis : **Şaban ÇELİK**
 Chief of Analyzing Lab.
 (Signature)

Şaban ÇELİK
 Chief of Analyzing Lab.
 (Signature)

Şaban ÇELİK
 Chief of Analyzing Lab.
 (Signature)

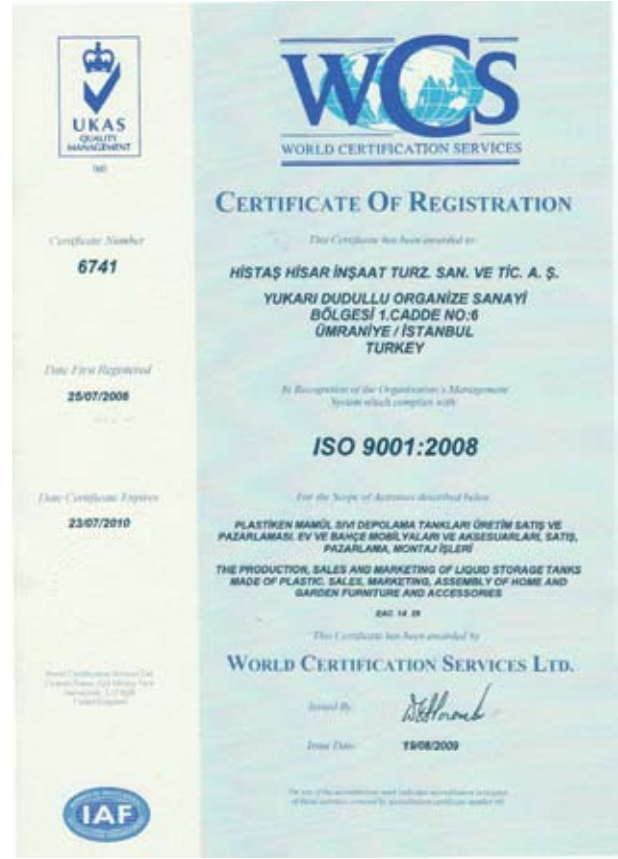
Şaban ÇELİK
 Chief of Analyzing Lab.
 (Signature)

All Ekotanks have Turkish Food Codex Certificate from Ministry of Agriculture.

Certificate of Guarantee



All Ekotanks have Conformance to Criteria Certificate from Turkish Standard Institute.



All Ekotanks have ISO 9001:2000 Certificates



All Ekotanks are Under 5 Years of Guarantee.



All Ekotanks have Service Compliance Certificate.

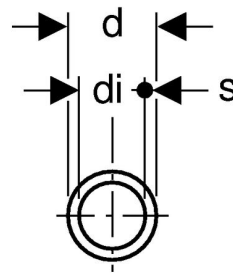
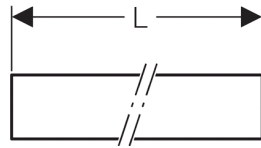


EKOTANK[®]

LIQUID STORAGE SYSTEMS

www.ekotank.net www.pillowtanks.net www.ekotank.com.tr



Geberit PushFit systeembuis ML, op rol

Toepassing

- Voor gebouwtechniek, industrie en scheepsbouw
- Toepassingsoverzicht: Geberit PushFit

Eigenschappen


- Vormvast
- Met de hand buigbaar
- Diffusiedicht
- Uitwendig zilvergrijs RAL 7001
- Buiseinde met transparante beschermstop

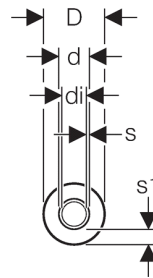
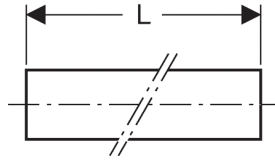
Technische gegevens

Materiaal	PE-RT II / AI / PE-RT II
Oppervlakteruwheid	7 μm
Warmte-uitzetting	0,029 mm/(m · K)
Thermische geleidbaarheid buis	0,41 W/(m · K)

Artikel

Art. nr.	DN	d, \emptyset [mm]	di, \emptyset [mm]	s [mm]	L [m]
650.101.00.1	12	16	12	2	50
650.102.00.2	12	16	12	2	120
650.103.00.3 N	12	16	12	2	250
651.101.00.1	15	20	16	2	50
651.102.00.1	15	20	16	2	100
652.101.00.1	20	25	20	2,5	50

 N: Nieuw, beschikbaar vanaf januari 2017

Geberit PushFit systeembuis ML, rond geïsoleerd, op rol

Eigenschappen

- Vormvast
- Met de hand buigbaar
- Mediumleiding diffusiedicht
- Mediumleiding uitwendig zilvergrijs RAL 7001
- Isolatie met gesloten celstructuur
- Buisende met transparante beschermstop

Technische gegevens

Materiaal	PE-RT II / AI / PE-RT II
Oppervlakteruwheid	7 μm
Warmte-uitzetting	0,029 mm/(m · K)
Thermische geleidbaarheid buis	0,41 W/(m · K)
Materiaal isolatie	PE zachtschuim
Thermische geleidbaarheid isolatie	0,04 W/(m · K)
Waterdamp diffusie weerstand buitenlaag isolatie	7000 μ

Artikel


Art. nr.	DN	d, \emptyset [mm]	di, \emptyset [mm]	D [cm]	s [mm]	s1 [mm]	L [m]
----------	----	------------------------	-------------------------	-----------	-----------	------------	----------

Kleur: Isolatie blauw

650.121.00.1	12	16	12	2,8	2	6	50
650.141.00.1	12	16	12	4,2	2	13	50
651.121.00.1	15	20	16	3,2	2	6	50
651.141.00.1	15	20	16	4,6	2	13	50
652.120.00.1	20	25	20	3,7	2,5	6	25
652.140.00.1	20	25	20	5,1	2,5	13	25

Kleur: Isolatie rood

650.122.00.1 N	12	16	12	2,8	2	6	50
651.122.00.1 N	15	20	16	3,2	2	6	50
652.122.00.1 N	20	25	20	3,7	2,5	6	25

 N: Nieuw, beschikbaar vanaf januari 2017



APOLLO®



MARS®



GALAXY®



STAR®



QUICK STAR®

EKOTANK®

LIQUID STORAGE SYSTEMS

Contact us for your quotation.

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Want a Durable and Flexible Liquid Storage System?

APOLLO® Stands Strong!



From 6 up to 2.662 tons of capacity!



New Generation Liquid Storage Systems

Light • Strong • Excellent Quality • Economic • Laboratory Approved Membrane • Portable



APOLLO® Capacity and Dimension Chart

Code	Ø (m) Diameter	Module Qty.	Apollo® Open Top Tanks		Apollo® Closed Top Tanks						
			Height (m)		Height (m)						
			1.15	2.18	2.18	3.23	4.27	5.31	6.35	7.39	8.43
			Flat Qty.		Flat Qty.						
			AK1	AK2	KK2	KK3	KK4	KK5	KK6	KK7	KK8
Capacity > Volume (Ton / Gallon)		Capacity > Volume (Ton / Gallon)									
EKAP004	2.68	4	6 1585	12 3,170	12 3,170	18 4,755	24 6,340	30 7,925	36 9,510	42 11,095	48 12,680
EKAP005	3.35	5	10 2,642	19 5,019	19 5,019	28 7,396	38 10,038	47 12,416	56 14,793	65 17,171	74 19,548
EKAP006	4.02	6	15 3,962	28 7,397	28 7,397	41 10,831	54 14,265	67 17,699	81 21,398	94 24,832	107 28,266
EKAP007	4.68	7	20 5,283	38 10,038	38 10,038	56 14,793	73 19,284	91 24,039	109 28,794	127 33,550	145 38,305
EKAP008	5.35	8	26 6,868	49 12,944	49 12,944	73 19,284	96 25,360	119 31,436	143 37,776	166 43,852	190 50,192
EKAP009	6.02	9	33 8,717	62 16,378	62 16,378	92 24,300	122 32,228	151 39,890	181 47,815	210 55,476	240 63,401
EKAP010	6.69	10	40 10,567	77 20,341	77 20,341	114 30,115	150 39,625	187 49,400	223 58,910	260 68,684	296 78,195
EKAP011	7.36	11	49 12,944	93 24,568	93 24,568	137 36,191	182 48,079	226 59,702	270 71,326	314 82,950	359 94,837
EKAP012	8.02	12	58 15,322	110 29,058	110 29,058	163 43,060	216 57,061	268 70,798	321 84,799	373 98,536	426 112,537
EKAP013	8.69	13	68 17,963	129 34,078	129 34,078	192 50,721	253 66,835	315 83,214	377 99,592	438 115,707	500 132,086
EKAP014	9.36	14	79 20,869	150 39,626	150 39,626	222 58,646	294 77,666	365 96,422	437 115,443	508 134,199	580 153,219
EKAP015	10.03	15	91 24,039	172 45,437	172 45,437	255 67,363	337 89,025	420 111,000	502 132,614	584 154,276	666 176,000
EKAP016	10.70	16	103 27,209	196 51,778	196 51,778	290 76,609	384 101,442	477 126,010	571 150,842	665 175,674	758 200,242
EKAP017	11.36	17	117 30,908	221 58,382	221 58,382	327 86,284	433 114,386	538 142,124	644 170,126	749 197,864	854 225,602
EKAP018	12.04	18	131 34,606	248 65,514	248 65,514	368 97,215	486 128,387	605 159,824	723 190,996	841 222,168	960 253,605
EKAP019	12.71	19	146 38,569	277 73,175	277 73,175	410 108,310	542 143,181	674 178,051	806 212,922	938 247,793	1,070 282,664
EKAP020	13.37	20	161 42,532	306 80,836	306 80,836	453 119,670	599 158,239	746 197,072	892 235,641	1,038 274,210	1,184 312,779
EKAP021	14.02	21	178 47,022	337 89,026	337 89,026	499 131,821	659 174,089	820 216,621	980 258,888	1,141 301,420	1,301 343,687
EKAP022	14.71	22	195 51,513	370 97,743	370 97,743	549 145,030	726 191,790	902 238,283	1,079 285,041	1,256 331,800	1,433 378,558
EKAP023	15.37	23	213 56,268	404 106,725	404 106,725	599 158,239	792 209,224	985 260,209	1,178 311,194	1,371 362,179	1,564 413,165
EKAP024	16.05	24	233 61,552	441 116,500	441 116,500	653 172,504	864 228,244	1,074 283,720	1,285 339,461	1,495 395,000	1,706 450,677
EKAP025	16.72	25	252 66,571	479 126,538	479 126,538	709 187,298	938 247,793	1,166 308,024	1,394 368,255	1,623 428,751	1,851 488,982
EKAP026	17.38	26	273 72,119	517 136,577	517 136,577	766 202,355	1,013 267,606	1,260 332,856	1,506 397,843	1,753 463,093	2,000 528,344
EKAP027	18.05	27	294 77,666	558 147,408	558 147,408	827 218,470	1,093 288,740	1,359 359,009	1,625 429,279	1,891 499,549	2,157 569,819
EKAP028	18.72	28	317 83,742	600 158,503	600 158,503	889 234,848	1,175 310,402	1,461 385,955	1,748 461,772	2,034 537,325	2,320 612,879
EKAP029	19.39	29	340 89,818	644 170,127	644 170,127	954 252,020	1,261 333,120	1,568 414,221	1,875 495,322	2,182 576,423	2,489 657,524
EKAP030	20.05	30	363 95,894	688 181,750	688 181,750	1,020 269,455	1,348 356,104	1,677 443,016	2,005 529,665	2,333 616,313	2,662 703,226

QUICK SHIPMENT: Yellow painted tanks will be shipped from our stock as soon as possible.



Saudi Arabia 1000 Tons (2) Apollo Series.

Specifically designed for all weather and demanding conditions our Apollo® liquid storage tank is entirely Turkish made and available in a wide range of sizes from 6.000 to 248.000 liters in a standard or can be custom built up to 2.662.000 liters.

Easy Transportation!



Carrying 2 tanks with a capacity of almost 3.000.000 liters on a trailer.



A standard truck can carry 30 Apollo® tanks for international export.



A helicopter is bringing a tank to a remote area. The size of the tank allows for installation in isolated or difficult areas like islands.

Easy to Erect!



Marking out the tank diameter



Completion of the first ring



Fitting on the dome truss



Laying and fitting on the roof sheets across the truss



Fitting on and securing the flexible liners



Finished EKAP021KK3-499 tons of tanks (with aggregate)

Applications!



Community water supply



Industrial water supply



Fire Protection



Agricultural water supply



Elevated Installations



Water supply for mining



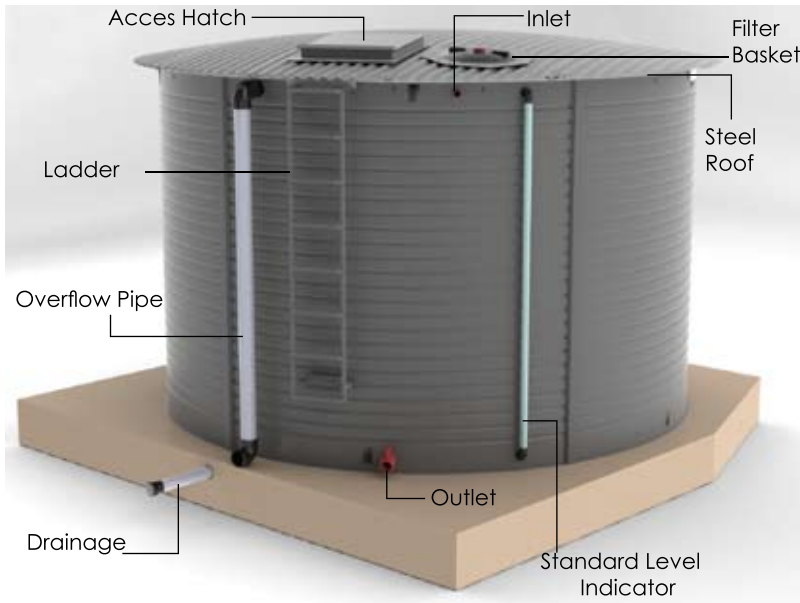
Aid organizations



Wine storage

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- General Water Supply (residential or public use)
- Storage for Special Industrial Liquid (Diesel, Jet A1, fuel, crude oil, unleaded and normal fuel)
- Fish Ponds, Fresh Water Fishery
- Schools, hospitals, fire departments
- Army camps, UN organizations and its sister teams (UNICEF, WHO, WFP...)
- Military operations
- Theme parks, hotels, resorts
- Mega malls
- Offices, factory plants, municipal districts
- Remote working sides



Tank Elevator Montage System

Allows you to build your tank easily without ladder or staging. For your own safety and a practical installation we recommend this piece when you have a tank that's taller than 3 meters. With applying the elevator onto tank, montage session should be start from top to bottom panels. Installation will end after a level-by-level elevation. Each elevator has a carrying capacity of up to 2000 kilos.

Extra Accersory



Apollo® Inlet / Outlet Connection

EKOTANK® APOLLO® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	Optional
5"	
6"	
8"	

Advantages

- Statically designed by engineers, invented after a hard reseach and development for many years.
- Fully enclosed bolt cover is tamper-proof and protected against a possible external harm.
- The special coated Galvanized panels are extremely durable.
- The modular design makes relocation in an easy and inexpensive way.
- The variety of membrane lets you to store any kinds of different liquids.
- The highest quality of membrane lets you to collect drinkning water and use it safely. It's also protects the liquid from external harms.

The Geotextile PES coated membrane has a certicate from Turkish Food Codex.

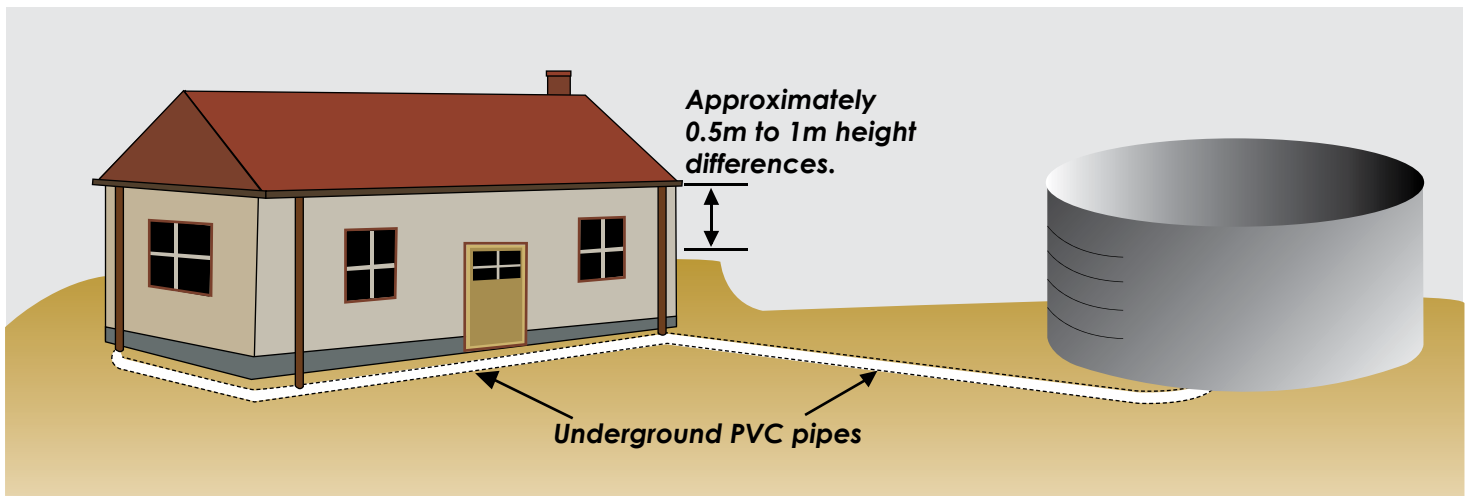
- Provides a selection of RAL colours for option.
- The rprofile of the tank's steel wall is designed strong for earth conditions and minimize the likelihood distortion after the load.
- By attaching magnesium anodes and painting with RAL colors the Apollo®, tank life is significantly extended.
- Whether you have Apollo® around your house or office, with using rainwater colection technique, you'll save money.

Two Different Ways to Collect Rainwater with APOLLO®

Rainwater collection from roof-top Underground system

This is the most popular method because of the neat appearance. Water is channelled via the PVC storm water pipe below ground and up into the tank via the filter basket. It is important that the tank entry point is minimum 500 mm lower than the roof gutter and the PVC pipe is sealed and watertight.

Attention: The height difference between the gutter and the tank will vary according to the distance from the house or shed. Consult to your Ekotank® distributor or construction team to determine the height difference.



Rain collection from the shed Overhead system

All PVC storm water pipes are channeled (as shown) by the filter basket which is mounted to the roof.

The diagram shows a green shed with a white gutter system leading to a grey tank. A white pipe runs from the gutter down to the tank.

Calculation of rainwater collection
Square meters of roof x annual rainfall in millimeters = Collectable liters per year
Example: 10.000m²x526mm= 5260 litres (219 tons)



SAUDI ARABIA / APOLLO® GALVANIZED STEEL TANK

Code : EKAP026KK4
Diameter \varnothing : 17.38
Height (m) : 4.27
Volume (m³) : 1013

SAUDI ARABIA / INSTALLATION OF GALVANIZED STEEL TANK APOLLO®

Code : EKAP026KK4 Height (m) : 4.27
Diameter \varnothing : 17.38 Volume (m³) : 1013



Looking for **COMPETITIVE**

Liquid Storage System?

MARS® is the Obvious Choice!



From 9 up to 3.000 tons of capacity!



New Generation Liquid Storage Systems

Competitive Price • Durable • Modular Design • Aesthetically Appealing • Larger Customer Base

EKOTANK®
MARS®

About

The Galvanized Steel Tank MARS®, the newest product of EKOTANK® that has been designed to be a cost effective alternative to Apollo® Series.

Mars® specifically fills the market need where budget and performance need to be as close as possible to each other. The roof system has been redesigned for the Mars® series to include a soft top, replacing the conventional truss roof systems up to a diameter of 11,64 m.

Product Info

Use of 76.2/18mm Corrugated Galvanized Steel Sheeting forms Mars® into a flexible system. The steel panels of the tank are coated with hot dip Galvanizing on both sides to ensure long lasting performance in outdoor weather conditions. Mars® is produced from **9.000** liters up to **3.000.000** liters (**3.000 M3**) in-house using corrugated steel galvanized technology.

Mars® has a special geomembrane liner inside to ensure the liquid stored in the tank does not contact with the steel parts. The standard geomembrane used in our tanks is certified for drinking water and can also be used to store other types of liquids. Fuel, industrial liquids and related chemicals can be stored using Ekotank® Mars® with membranes specially developed for purpose use. Please contact our sales team to inquire about storing industrial chemicals. The liner is produced using high frequency ultrasonic welding machines to ensure a perfect weld and water tightness. Standard Mars® liner is UV protected and prevents aquatic organisms such as mould, fungi etc... to form in our tanks.

The tank offers 2 different steel roof systems. A triangle modular roof system and a truss based steel dome roof just like the Apollo® Series. In the Triangle system the roof is separated in a number of panels, which are fitted together with watertight connection technology. In the truss dome system, the roof is first retrofitted with galvanized steel trusses, and then the roof area is covered by galvanized steel panels to complete the process.

Ekotank® Mars® also has 2 soft top solutions for applications that do not require steel domes. The indoor flat cover is made out of high-quality synthetic fabric which is fixed on to the roof-top to make

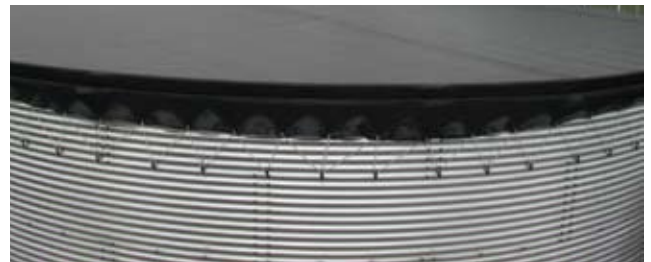
sure that the quality of water or the liquid inside is preserved. For outdoor applications, the conical shaped cover is specifically designed to offload rain and snow loads making sure that the water or liquid keeps its quality without contamination. Ekotank® Mars® soft covers provide the perfect balance between budget and performance, making the product more attractive to a larger customer base.

All Ekotank® Mars® systems come with a standard level indicator placed outside the tank. Digital and manual pulley type level indicators are available as optional accessories upon request.



Mars®
Inlet / Outlet Connection

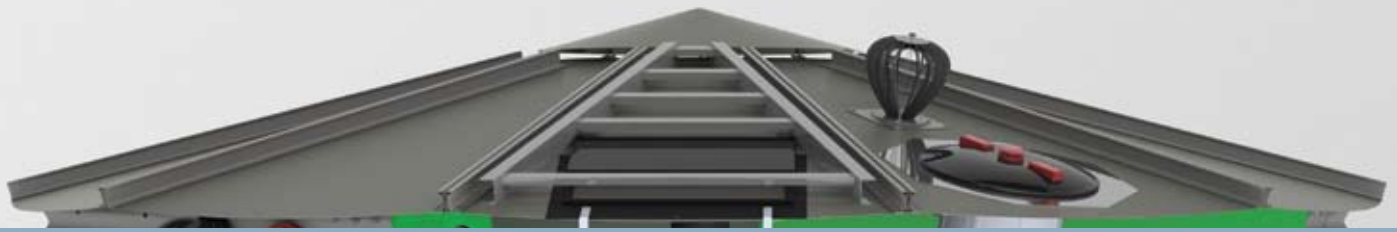
Indoor Flat Cover



Outdoor Conical Cover



EKOTANK® MARS® INLET/OUTLET TYPES	
Inlet/Outlet (inch)	
3"	Each tank has one in standard.
4"	
5"	Optional
6"	
8"	



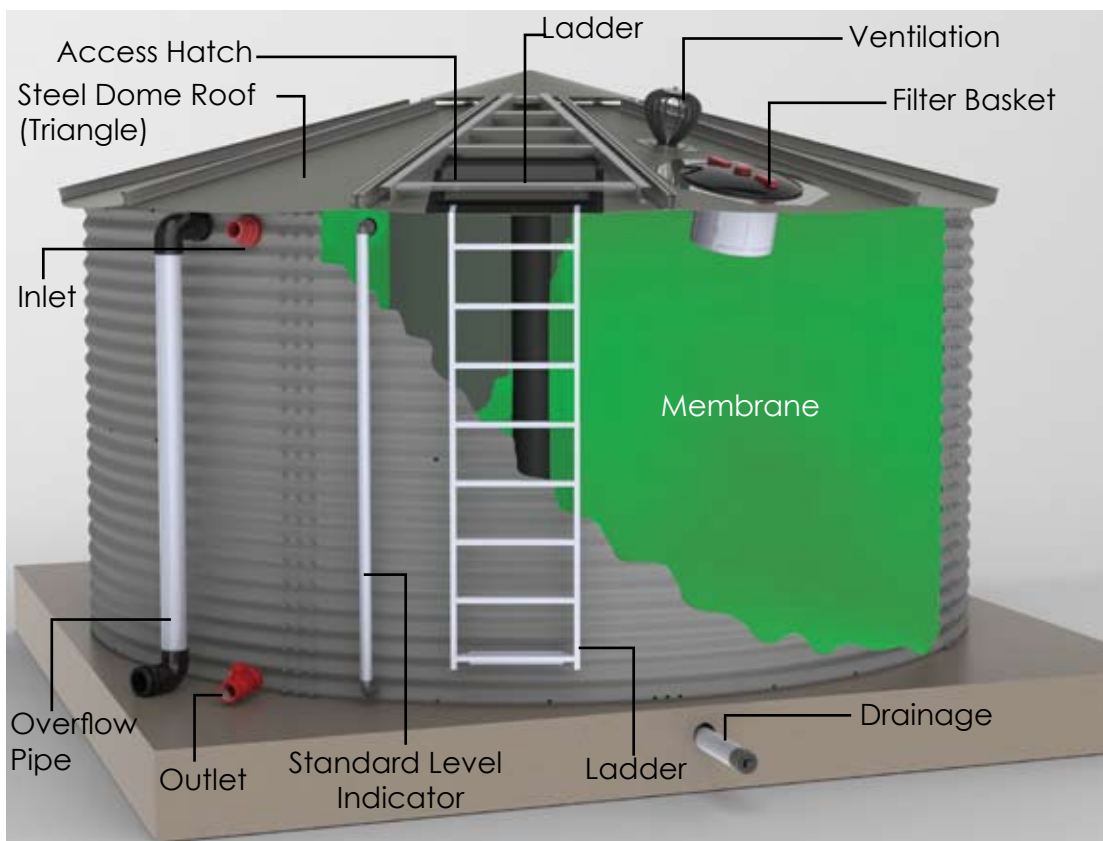
Triangle Modular Roof System

Prime Applications

- Storage of potable and raw water
- Storage of industrial liquids
- Agriculture, Farms, Plantations (Manure Storage)
- Industrial Applications
- General Water Supply (residential or public use)
- Fish Ponds and Fish-hatcheries
- Schools, Hospitals, Fire Departments
- Army Camps, Military operations
- UN Organizations and its sister agencies (UNICEF,WHO,WFP...ETC.),
- Recreational/ Theme Parks, Hotels, Resorts
- Mega-mall, Shopping centers
- Offices, Factory Plants, Municipal Districts (theme parks, offices)
- Housing Properties, Remote Working Sites

Advantages

- Thanks to its corrugated shell and hot dip galvanizing technology, Ekotank® Mars® is very durable both indoor and outdoor conditions.
- Using the latest in geomembrane technology, Mars® makes sure that the liquid stored inside is not contaminated
- Having a modular design, Ekotank® Mars® can be shipped anywhere in the world and erected on site very easily.
- Ekotank® Mars®, when produced in optional powder coated colors can easily blend into any environment.
- Mars® is designed to withstand thunderstorms and earthquakes.



EKOTANK® MARS® CAPACITY AND DIMENSION CHART

ROOF WITH TRIANGLE MUDULAR SYSTEM

Code No. >>		EKMA04	EKMA05	EKMA06	EKMA07	EKMA08	EKMA09	EKMA10	EKMA11	EKMA12	EKMA13
No of Rings	Wall Height (m.)	Diameter (m.)									
		3.58m	4.48m	5.37m	6.27m	7.16m	8.06m	8.95m	9.85m	10.74m	11.64m
		Capacity (M ³ / Gallon)									
R1	0.88	9 2,378	14 3,698	20 5,283	27 7,133	35 9,246	45 11,888	55 14,529	67 17,700	79 20,870	93 24,568
R2	1.62	16 4,227	25 6,604	37 9,774	50 13,209	65 17,171	82 21,662	102 26,946	123 32,493	146 38,569	172 45,438
R3	2.36	24 6,340	37 9,774	53 14,001	73 19,285	95 25,096	120 31,701	148 39,097	179 47,287	213 56,269	250 66,043
R4	3.10	31 8,189	49 12,944	70 18,492	95 25,096	125 33,022	158 41,739	195 51,514	236 62,345	280 73,968	329 86,913
R5	3.84	39 10,303	60 15,850	87 22,983	118 31,172	154 40,682	195 51,514	241 63,665	292 77,138	347 91,668	408 107,782
R6	4.58	46 12,152	72 19,020	104 27,474	141 37,248	184 48,608	233 61,552	288 76,082	348 91,932	415 109,631	487 128,652
R7	5.32	54 14,265	84 22,190	120 31,701	164 43,324	214 56,533	271 71,591	334 88,233	405 106,990	482 127,331	565 149,257
R8	6.06	61 16,114	95 25,096	137 36,192	187 49,400	244 64,458	309 81,629	381 100,652	461 121,783	549 145,030	644 170,127
R9	6.80	68 17,964	107 28,266	154 40,682	210 55,476	274 72,383	346 91,404	428 113,066	517 136,577	616 162,730	723 190,996
R10	7.54	76 20,077	119 31,436	171 45,173	232 61,288	303 80,044	384 101,442	474 125,218	574 151,635	683 180,430	801 211,632
R11	8.28	83 21,926	130 34,342	187 49,400	255 67,364	333 87,969	422 111,481	521 137,634	630 166,428	750 198,129	880 232,471
R12	9.02	91 24,040	142 37,512	204 53,891	278 73,440	363 95,894	459 121,255	567 149,786	686 181,222	817 215,829	959 253,341

ROOF WITH TRUSS DOME

Code No. >>		EKMA14	EKMA15	EKMA16	EKMA17	EKMA18	EKMA19	EKMA20	EKMA21	EKMA22	EKMA23
No of Rings	Wall Height (m.)	Diameter (m.)									
		12.53m	13.43m	14.32m	15.22m	16.11m	17.01m	17.90m	18.80m	19.69m	20.59m
		Capacity (M ³ / Gallon)									
R1	0.88	108 28,531	124 32,757	141 37,248	159 42,003	178 47,023	199 52,570	220 58,118	243 64,194	266 70,270	291 76,874
R2	1.62	199 52,570	229 60,495	260 68,685	294 77,667	329 86,913	367 96,951	406 107,254	448 118,349	492 129,973	538 142,125
R3	2.36	290 76,610	333 87,969	379 100,121	428 113,066	480 126,803	535 141,332	593 156,654	654 172,769	717 189,411	784 207,111
R4	3.10	382 100,914	438 115,707	499 131,822	563 148,729	631 166,693	703 185,713	779 205,790	859 226,924	943 249,114	1,030 272,097
R5	3.84	473 124,953	543 143,445	618 163,258	697 184,128	782 206,583	871 230,094	965 254,926	1,064 281,079	1,168 308,553	1,277 337,348
R6	4.58	564 148,993	648 171,183	737 194,695	832 219,791	933 246,473	1,039 274,475	1,152 304,326	1,270 335,449	1,393 367,992	1,523 402,334
R7	5.32	656 173,297	753 198,922	856 226,131	967 255,454	1,084 286,363	1,207 318,856	1,338 353,462	1,475 389,654	1,619 427,695	1,769 467,320
R8	6.06	747 197,337	857 226,395	975 257,568	1,101 290,853	1,234 325,988	1,375 363,237	1,524 402,598	1,680 443,809	1,844 487,133	2,016 532,571
R9	6.80	838 221,376	962 544,434	1,095 289,268	1,236 326,517	1,385 365,878	1,544 407,882	1,710 451,734	1,886 498,228	2,069 546,572	2,262 597,557
R10	7.54	929 245,416	1,067 281,872	1,214 320,705	1,370 361,916	1,536 405,768	1,712 425,263	1,897 501,134	2,091 552,384	2,295 606,275	2,508 662,544
R11	8.28	1,021 269,720	1,172 309,610	1,333 352,141	1,505 397,579	1,687 445,658	1,880 496,643	2,083 550,270	2,296 606,539	2,520 665,714	2,755 727,794
R12	9.02	1,112 293,759	1,276 337,084	1,452 383,578	1,639 432,978	1,838 485,548	2,048 541,024	2,269 599,406	2,502 669,958	2,746 725,416	3,001 792,780

GALAXY[®]!

Where Mobility Matters...



From 3 up to 300 tons of Capacity!



New Generation Liquid Storage Systems

UV & Weather Resistant • Collapsible & Compact • Easy Installation • Easy Transportation • Durable

EKOTANK[®]
GALAXY[®]

About Pillow / Bladder Galaxy® Tanks

Ekotank® produces a wide variety of collapsible fabric tanks also known as pillow bladders both for temporary and long-term liquid storage. Our latest product Galaxy®, is made out of a special PVC coated polyester fabric. Thanks to new developments in technology, all Galaxy® products are flexible, foldable, certified for drinking water, strong and resistant to bad weather conditions. Our tanks hold water, various chemicals, oil, gasses, effluents and slurries. The raw material used inside the tank blocks UV rays which makes it resistant to bacteria, mould and moss growth. Presently, fiberglass and polyethylene tanks are known to be popular but most of us are not aware of its disadvantages. These tanks are not healthy because the water inside is exposed to UV rays directly, therefore unsanitary substances can occur such as moss and bacteria which are harmful for human health. Since the fiberglass and polyethylene tanks are not compact they cover a large area which makes it more difficult and expensive to install. When it comes to repair these tanks they can not be repaired without professional help and they need outrageous transportation costs. Unlike these regular tanks, Galaxy® is invented for practical and easy storage with approved sanitary conditions. They have endless applications and typically used by military and municipality operations, hospitals, schools, hotels, relief efforts, agriculture cooperatives, rural construction sites, Red Cross, civil rescue organizations, fire departments, and many other commercial areas... Galaxy® products are not only useful for industrial solutions, they can also be used in residences, roof areas, gardens, green houses, boats as well. In other

words these pillow tanks can be used in anywhere wherever you need to store liquid products. Capacities from **300 liters to 300.000 liters** are available. The tanks are easily transported and installed quickly with little or no on-site preparation. Specialized materials are available for a variety of applications. Please consult our sales team to choose the best material and types of fittings for your needs.



Strong



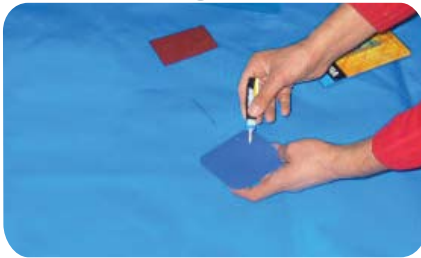
Collapsible & Compact



Easy Transportation



Can be repaired w/out moving the tank



Passes through quality Control test



Climate resistant



Applications

Terraces



Factories



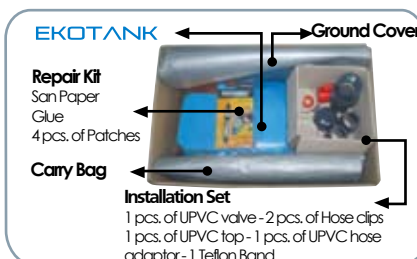
Liquid Transportation



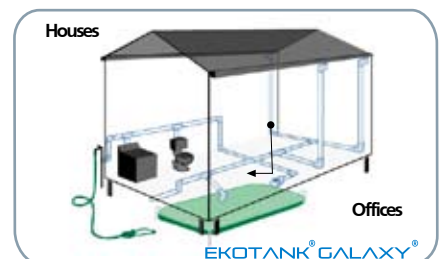
Agriculture



Delivery package



Recycling of rain and snow water





As the tank begins to fill with water, its unique design allows it to rise automatically.



UPVC valves are hygienic and long lasting.



Open top (Onion) tanks design allows for easy filling of liquids and protects the water source from outside contamination. The open top reservoirs are low profile circular shape tanks with a collar made of closed cell foam. As the tank begins to fill, its unique design allows it to rise automatically. These tanks are used for spill recovery, fire-fighting, storage of potable water, aquaculture, sewage, rain water accumulation, drilling and many other types of industrial liquids.



EKO Yatay 1/2" - 3/4" - 1" - 1 1/2"



Float Valve Reservoir

Float Types			
Product Code	Explanation	Outlet (Inch)	Float Reservoir
UREKOTKEYSAMYRMPARMAK	EKO YATAY 1/2"	1/2"	Includes
UREKOTKEYSAMUCCPARMAK	EKO YATAY 3/4"	3/4"	Includes
UREKOTKEYSAMBIRPARMAK	EKO YATAY 1"	1"	Includes
UREKOTKEYSAMBCKPARMAK	EKO YATAY 1 1/2"	1 1/2"	Includes

Capacity and Dimension Chart of Open Top Ekotank® Galaxy®						
Product Code	Ton	Bottom Diameter	Top Diameter	Height	Inlet / Outlet	Gallon (USA)
EKOA001000	1	192	150	44	1"	264
EKOA002000	2	250	195	52	1 1/2"	528
EKOA003000	3	310	242	52	1 1/2"	792
EKOA004000	4	310	242	67	1 1/2"	1.056
EKOA005000	5	310	242	84	1 1/2"	1.321
EKOA006000	6	370	289	71	2"	1.585
EKOA008000	8	370	289	94	2"	2.113
EKOA010000	10	443	346	82	2"	2.642
EKOA015000	15	503	392	96	2"	3.962
EKOA020000	20	613	478	86	2"	5.283
EKOA025000	25	690	538	85	2"	6.604
EKOA030000	30	735	573	90	2"	7.925
EKOA040000	40	848	661	90	2 1/2"	10.567
EKOA050000	50	918	716	96	2 1/2"	13.209

Capacity and Dimension Chart of Pillow Tanks Ekotank® Galaxy®									
Product Code	Ton	Empty Width	Empty Length	Full Width	Full Length	Full Height	Inlet Outlet	Float Valve System	Gallon (USA)
EKOK000300	0.3	117	145	101	129	30	1"	EKO YATAY1/2"	79
EKOK000500	0.5	145	168	125	150	33	1"	EKO YATAY1/2"	132
EKOK000750	0.75	145	214	125	195	43	1"	EKO YATAY1/2"	198
EKOK001000	1	145	261	128	235	50	1"	EKO YATAY1/2"	264
EKOK001500	1.5	177	274	153	250	60	1 1/2"	EKO YATAY1/2"	396
EKOK002000	2	211	274	182	244	67	1 1/2"	EKO YATAY1/2"	528
EKOK002500	2.5	246	274	222	247	69	1 1/2"	EKO YATAY 3/4"	660
EKOK003000	3	274	283	247	255	67	1 1/2"	EKO YATAY 3/4"	792
EKOK004000	4	274	337	236	300	81	1 1/2"	EKO YATAY 3/4"	1.057
EKOK005000	5	274	404	236	368	79	1 1/2"	EKO YATAY 3/4"	1.320
EKOK006000	6	274	455	236	415	88	2"	EKO YATAY 1"	1.585
EKOK007000	7	274	510	242	459	92	2"	EKO YATAY 1"	1.849
EKOK008000	8	274	571	242	515	91	2"	EKO YATAY 1"	2.113
EKOK009000	9	274	623	242	561	96	2"	EKO YATAY 1"	2.377
EKOK010000	10	274	676	242	609	99	2"	EKO YATAY 1"	2.642
EKOK015000	15	419	570	361	508	100	2"	EKO YATAY 1"	3.962
EKOK020000	20	523	570	471	513	101	2"	EKO YATAY 1"	5.283
EKOK025000	25	570	629	513	566	101	2"	EKO YATAY 1"	6.604
EKOK030000	30	570	734	491	654	101	2"	EKO YATAY 1"	7.925
EKOK040000	40	570	945	491	860	101	2 1/2"	EKO YATAY 1"	10.567
EKOK050000	50	748	866	674	777	101	2 1/2"	EKO YATAY 1 1/2"	13.209
EKOK060000	60	866	878	780	760	101	2 1/2"	EKO YATAY 1 1/2"	15.850
EKOK070000	70	866	1007	780	906	101	2 1/2"	EKO YATAY 1 1/2"	18.492
EKOK080000	80	866	1136	745	1011	101	2 1/2"	EKO YATAY 1 1/2"	21.133
EKOK100000	100	866	1395	745	1270	101	2 1/2"	EKO YATAY 1 1/2"	26.417
EKOK120000	120	1162	1221	1046	1099	101	3"	EKO YATAY 1 1/2"	31.700
EKOK150000	150	1162	1501	1000	1336	101	3"	EKO YATAY 1 1/2"	39.626
EKOK200000	200	1458	1560	1312	1404	101	3"	EKO YATAY 1 1/2"	52.834
EKOK250000	250	1458	1925	1254	1713	101	3"	EKO YATAY 1 1/2"	66.043
EKOK300000	300	1458	2290	1254	2084	101	3"	EKO YATAY 1 1/2"	79.251

Package Sizes

Product Code	Width	Length	Height	Weight
EKOK000300	40	50	30	7.4
EKOK000500	40	50	30	9.4
EKOK000750	40	50	30	11
EKOK001000	40	50	40	12.8
EKOK001500	40	50	40	15.2
EKOK002000	40	60	30	17.6
EKOK002500	40	60	30	20.3
EKOK003000	50	60	40	22.7
EKOK004000	50	60	40	26.6
EKOK005000	60	75	30	31
EKOK006000	60	75	30	35.2
EKOK007000	60	75	30	38
EKOK008000	60	75	40	42.4
EKOK009000	60	75	40	46.2
EKOK010000	60	75	40	49.5
EKOK015000	60	75	40	63.4
EKOK020000	60	100	50	81
EKOK025000	60	100	50	93.1
EKOK030000	60	100	50	103.6
EKOK040000	80	100	60	138
EKOK050000	80	100	60	195

The Most Cost-Effective Liquid Storage System in the World!



From 25 up to 1.072 tons of capacity!



New Generation Liquid Storage Systems

Ideal for Agriculture • Easy Installation • Cost Effective • Modular Structure • Easy Transportation



ABOUT

Ekotank Star® is based on 4 main components. Affordability, easy montage, lightweight and long lasting. Whether you have a small or large profit business, Ekotank Star® will perfectly suit your needs while saving your budget. These tanks are made out of galvanized steel mesh panels which is extremely durable and light at the same time. Star® mesh panels offer many different storage solutions between 25m³- 1.072m³. Another great thing about this tank is, its flexibility. In case you'll need it smaller or bigger in the future, the standard panels will allow you to adjust it upon your request

any time you wish. The special PVC membrane that is used through the tank is UV resistant and prevents the water from humidity, bacteria and moss growth. This PVC membrane is approved by the Turkish Ministry of Health and Turkish Ministry of Agriculture. This tank can be also a perfect alternative solution to traditional underground irrigation systems with its economical price. Ekotank Star® offers 2 optional top lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions such as freezing and evaporation.



REVOLUTION

Modular structured MESH PANELLED TANK is a brand new type of liquid storage system in agriculture field, where mostly concrete or underground storages are being used. Unlike the old ones, Ekotank Star® is extremely easy to use and install at the same time.

The height of the tank (2.20 cm) protects the liquid inside from the contaminations dragged by the wind. That way the tank's dripping system is always clean, never gets clogged.

Thanks to modular structure of Star®; it's always easy to move it around. Where ever you need to store water, Ekotank Star® lets you to collect without hassle. It's perfectly designed to last longer, so you can use it for many years. Because of the modular design it's easy to install, and demount. Since the material that's being used for the tank is lightweight, there will only be very low cost for the transportation. Mounting can be simply done by end-user with only 2 tools.

Ekotank Star® is radically changing the traditional liquid storage habits. It's obvious that there is going to be a huge necessity for a storage system solution which lets you to keep your water without losing its quality, also perfectly fits your budget and easy to carry around.



LOOKING FOR THE BEST PRICE IN LIQUID STORAGE? STAR MEETS YOUR NEEDS...

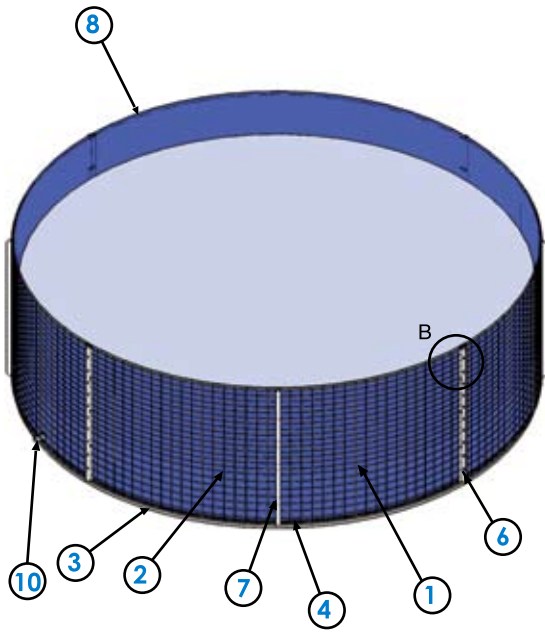


THE ADVANTAGES OF STAR® STEEL PANEL TANKS:

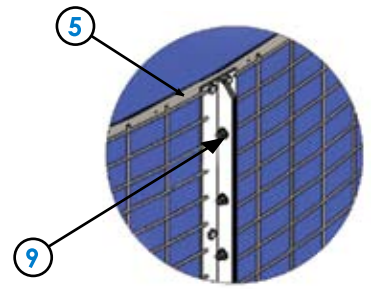
- ▶ Ekotank® Star®, offers the **MOST COST EFFECTIVE** solution for irrigation of agricultural fields as well as storing other types of liquids.
- ▶ Star® **CAN BE USED IN MANY AREAS** such as irrigation, agriculture, fishing industry, and in many other areas requiring temporary and permanent storage of liquids.
- ▶ Ekotank® Star® is especially **DESIGNED FOR EASY AND HASSLE-FREE INSTALLATION**. Mounting can be simply done by the end user with only 2 tools. Star® can be installed and demounted very easily so the end user can change the location of the tank whenever needed.
- ▶ Star® is made out of very strong steel mesh panels both **DURABLE AND LIGHT** at the same time.
- ▶ Having a modular structure, the tank can be **EASILY TRANSPORTED** and exported.
- ▶ Star® **SAVES MONEY** in transportation due to the light nature of its mesh steel panels.
- ▶ Ekotank® Star® is produced using high quality S-500 construction grade steel. Produced panels are treated with hot dip galvanizing for **DURABILITY**.
- ▶ When needed, the membrane of Ekotank® Star® can **EASILY BE REPAIRED** with the repair kit provided in standard packaging.
- ▶ Star® is **RESISTANT TO EXTREME WEATHER CONDITIONS**. The special PVC membrane protects the liquid from UV rays and the tanks can be operated in rough conditions from -30° C to +70° C. When used with the optional lid, Star® prevents freezing and evaporation of the liquids inside the tank.
- ▶ Thanks to the special PVC membrane that is used through the tank; the **LIQUID INSIDE DOES NOT CONTACT WITH STEEL PARTS OF THE TANK**. The open mesh structure of the Ekotank® Star® prevents humidity, therefore extending the life of the steel structure. Since the liquid does not touch the steel parts of the tank, corrosion won't occur. Ekotank® Star® offers 2 optional Top Lids that can be used outdoor and indoor. Both lid systems prevent contamination of the stored liquid from outdoor conditions.

Star® mesh Steel Panel Tanks are produced with a capacity of **25 to 1072 m³**.

THE EXPLANATION OF STAR® STEEL PANELS



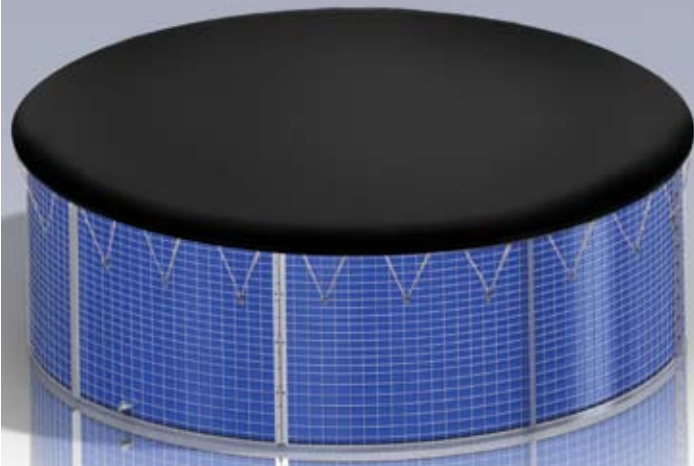
1. Steel Mesh Panel Module
2. Protective Ground Cloth
3. PVC Membrane
4. Bottom Steel Ring
5. Top Steel Ring
6. Corner Pieces for Module Joints
7. Corner Piece for Top Protection
8. Plastic Profile for Top Protection
9. Screw, Bolt, Washer
10. Valve



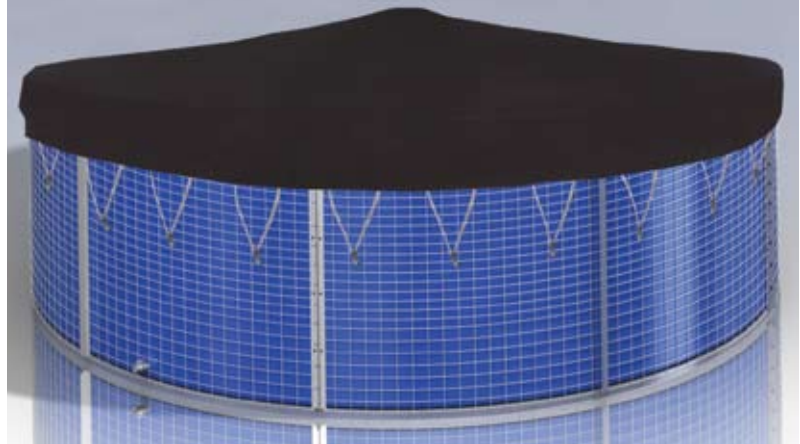
Star® Inlet- Outlet Connection

EXTRA ACCESSORIES

INDOOR FLAT COVER



OUTDOOR FLAT COVER



EKOTANK® - STAR® - CAPACITY and DIMENSION CHART

Code No	Number of Models	Weight (Kg.)	Diameter ø (M.)	Outlet	Height (M.)	Volume (M ³)	Gallon (USA)
EKST02	2	345	3.83	3"	2.20	25	6604
EKST03	3	526	5.75	3"	2.20	57	15.080
EKST04	4	714	7.66	3"	2.20	102	26.955
EKST05	5	909	9.58	3"	2.20	159	42.003
EKST06	6	1.110	11.50	3"	2.20	228	60.231
EKST07	7	1.317	13.41	3"	2.20	311	82.151
EKST08	8	1.530	15.33	3"	2.20	406	107.285
EKST09	9	1.750	17.25	3"	2.20	514	135.784
EKST10	10	1.976	19.16	3"	2.20	634	167.485
EKST11	11	2.209	21.08	3"	2.20	768	202.884
EKST12	12	2.448	22.99	3"	2.20	914	241.453
EKST13	13	2.693	24.91	3"	2.20	1.072	283.192

For a Fast and Economical Storage Solution



From 3 up to 100 tons of Capacity!



New Generation Liquid Storage Systems

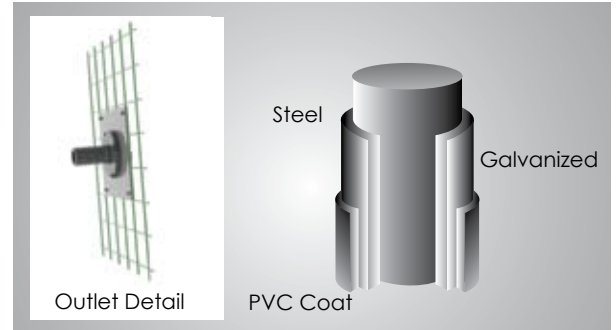
Economical • Light • Practical • Easy to Assemble • Aesthetically Appealing





ABOUT

Ekotank®, the manufacturer leader in liquid storage systems has opened another new era with its unique and most innovative tank known to be Quick Star®. Being the 20th century storage solution, quick tanks are inexpensive, lightweight and easy to assemble. With these special features now everyone can own a storage tank. Quick tanks have a wide variety of applications from personal to general use. They have a capacity of storage starting from 3 m³ to 100 m³ and the standard height of the tanks are 122 cm.



Advantages

- Shipped As a Kit
- Inexpensive
- Lightweight
- Easy To Assemble
- Practical

Prime Applications

FISHING

- Fish Hatchery
- Pisciculture
- Fresh Water Fishery

RAIN WATER COLLECTION

- Roof Rainwater Collection

EMERGENCY STORAGE

MILITARY / CIVIL RESCUE TEAM

- Residential & Public use
- Army & Civil rescue org.

IRRIGATION

- Orchard Irrigation
- Garden Irrigation
- Plantation Irrigation
- Green House
- Winter Garden
- Farms
- Agriculture

SEAWATER STORAGE

PORTABLE SWIMMING POOL

Capacity and Dimension Chart of Ekotank® QUICK-STAR®

Product Code	Weight (Kgs.)	Diameter (m.)	Height (m.)	Volume (m ³)	Outlet (inch)	Gallon (USA)
EKQST003	22	1,77	1,22	3	1 ½"	792
EKQST004	26	2,05	1,22	4	1 ½"	1.056
EKQST005	29	2,29	1,22	5	1 ½"	1.320
EKQST008	37	2,89	1,22	8	1 ½"	2.113
EKQST010	42	3,24	1,22	10	2"	2.641
EKQST012	47	3,54	1,22	12	2"	3.170
EKQST015	53	3,96	1,22	15	2"	3.962
EKQST020	63	4,57	1,22	20	2"	5.283
EKQST025	72	5,11	1,22	25	2"	6.604
EKQST030	80	5,60	1,22	30	2"	7.925
EKQST040	96	6,47	1,22	40	2"	10.566
EKQST050	111	7,23	1,22	50	2"	13.208
EKQST060	125	7,92	1,22	60	2 ½"	15.850
EKQST070	138	8,55	1,22	70	2 ½"	18.492
EKQST080	151	9,14	1,22	80	2 ½"	21.133
EKQST090	163	9,70	1,22	90	2 ½"	23.775
EKQST100	175	10,22	1,22	100	2 ½"	26.417

The most convenient water tank: EKOTANK® QuickStar®



- 1- Tie a rope or cord around the fence roll using a sliding knot.
Caution: The fence roll is wound extremely tight.
 - 2- Holding the rope or cord snug, cut the wires securing the roll. The roll will begin to open; loosen the rope gradually until the roll loses its tension.
 - 3- Once the roll has lost its tension remove the rope and continue unrolling the fence.
- Dikkat:** It is recommended that leather work gloves be used to avoid cuts or burns.



4. Mark a circle the size of the tank's diameter on the exact area the fence will be placed.



5. Place the fence on the circle as shown in this picture.
Important: One person should remain inside of the fenced area.
6. Using a measuring tape, verify the diameter of the fence is correct.



- 7- Connect the two ends of the fence. The ends should overlap each other approximately 25 cm (5 holes).



8. Using the 2 (One attachment), 4 (Two attachments) spiral locker wires provided with the QUICK STAR® kit anchor each end of the fence.
 - The anchors should be twisted down the mesh of the fence until they span from top to bottom.



9. Begin by placing the Geotextile Pre-Liner on the floor and any excess on the wall of the fence. Overlap minimum 10 cm. at the joining sections. Turn at least 15 cm. the outer side of the fence at the top. Fix the outer (15 cm.) geotextile to the fence using the plastic clips.

10. Unfold the liner inside the tank. The liner will have wrinkles when unfolded. These wrinkles will not affect performance of the liner and will most likely disappear once the geomembrane is filled with water.



11. Position the perimeter of the bottom of the Geomembrane against the perimeter of the tank. Remove all fold overs and make sure any slack is positioned along the perimeter of the fence.



12. Position the wall section of the Geomembrane over the top of the fence. DO NOT fold over the fence, as the walls of the Geomembrane will be drawn down the inside of the tank while being filled with water.

13. Begin filling the tank with water.

Completed EKOTANK® Quick Star®



Tools necessary for installation

- Measuring tape
- Scissors or knife
- Leather work gloves
- Rope or cord
- Leather
- Adhesive tape

Included items

- A. Fence
- B. Pre-liner Geotextile (200 gr/m²)
- C. Geomembrane
- D. Spiral locker wires (PVC coated)

SAMPLE PROJECTS



CYPRUS / GALVANIZED STEEL
TANK MARS®

Code : EKMA08R7

Diameter \varnothing : 7.16

Height (m) : 5.32

Volume (Ton) : 216



AFGHANISTAN / GALVANIZED
STEEL TANK APOLLO®

Code : EKAP025KK3

Diameter \varnothing : 16.72

Height (m) : 3.23

Volume (Ton) : 709



IRAQ/ PILLOW TANK GALAXY®

Code : EKOK050000

Volume (m³) : 50



CHAD / FUEL PILLOW TANK GALAXY®

Code : EKOK100000F

Volume (m³) : 100



KONYA - TURKEY / GALVANIZED
STEEL TANK APOLLO®

Code : EKAP018KK2

Diameter \varnothing : 12.04

Height (m) : 2.18

Volume (Ton) : 248



KIRKLARELI - TURKEY / GALVANIZED
STEEL TANK APOLLO®

Code : EKAP021KK3

Diameter \varnothing : 14.02

Height (m) : 3.23

Volume (Ton) : 499

SAMPLE PROJECTS



SUDAN / APOLLO® GALVANIZED STEEL FUEL TANK

Code : EKAP012KK2
Diameter \varnothing : 8.01
Height (m) : 2.18
Volume (m³) : 110



KONYA- TATKOY / APOLLO® GALVANIZED STEEL WATER TANK

Code : EKAP016KK2
Diameter \varnothing : 10.70
Height (m) : 2.18
Volume (m³) : 196



MALDIVES / APOLLO® SERIES

MALDIVES ISLAND HOTEL IN 7 DIFFERENT SIZES OF POTABLE AND WASTE WATER TANKS

Volume (m³) : Between 76 -150 Tons

SAMPLE PROJECTS



IRAQ/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP015KK3
Diameter \varnothing : 10.03
Height (m) : 3.23
Volume (m³) : 255



ROMANIA / GALVANIZED STEEL TANK APOLLO®

Code : EKAP017KK3
Diameter \varnothing : 11.38
Height (m) : 3.23
Volume (m³) : 227

PROCTER&GAMBLE-IZMIR - TURKEY/ GALVANIZED STEEL TANK APOLLO®

Code : EKAP07KK2
Diameter \varnothing : 4.68
Height (m) : 2.18
Volume (m³) : 38



SUDAN / GALVANIZED STEEL TANK TOWER APOLLO®

Code : EKAP008KK2
Diameter \varnothing : 5.35
Height (m) : 2.18
Volume (m³) : 49



TRABZON - TURKEY / GALVANIZED STEEL TANK APOLLO®

Code : EKAP021KK3
Diameter \varnothing : 14.02
Height (m) : 3.23
Volume (m³) : 499

Our Certificates

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU

Sayfa No: 1/2

Sayı : B.10.1.RSH.0.09.00/10/2353
Konu : PVC analizi
Protokol No : 39792
19.09.2008

Numunenin Geliş Sebebi : Kimyasal analiz
Numunenin Gönderen Kişisi/Kurum/Kuruluş : Hisaş Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
İlgili Yazı Tarihi/Sayı : 23.07.2008 / Bila sayı
Numunenin Alındığı Adres⁽¹⁾ ve Tarih : Yukarı Dudullu Org. San. Böl. 1.Cad.No:6 34776 Ümraniye-İST. ve 23.07.2008
Numunenin Sahibi : Hisaş Hisar İnşaat Turizm Sanayi ve Ticaret A.Ş.
Numunenin Cinsi - Miktar⁽²⁾ : PVC Membran - 13x16 cm'lik 6 adet
Tutanak Tarihi ve No. : Yok
Numunenin Geliş Şekli ve Mühür Durumu : Poğet içerisinde ve mühürlü
Makbuz / Dekont Tarihi ve No. : 21.08.2008 ve 82618541
Numunenin Laboratuvara Geliş Tarihi ve Saati : 23.07.2008 ve 16.30
Analiz Başlama ve Bitiş Tarihi : 22.08.2008 ve 18.09.2008

YAPILAN MUAYENE VE ANALİZLER

Hammaddenin Ticari Adı : PVC membran
Hammaddenin Kimyasal Adı : Polivinilklorür

FİZİKSEL VE ORGANOLEPTİK MUAYENE

Renk ve Görünüş : Mavi renkli plastik
Koku : Koksuz

KİMYASAL MUAYENELER

Yöntem	Mevzuat Limiti ⁽³⁾⁽⁴⁾	Analiz Sonucu
1- Plastik Türünün Tespiti	Infrared Spektroskopisi	PVC özelliğindedir
2- Boya Geçirgenliği ; Damıtık Suda (5 saat 50 °C'de)	Ekstraksiyon	Geçirgenlik vermemeli Geçirgenlik vermedi
3- Toplam Migrasyon ; Damıtık suda (40°C'de 10 gün)	Gravimetrik	10 mg/dm ² 9.2 mg/dm ²
4- Kurgun miktar ; Damıtık su (gıda sasında)	ICP-OES	2.5 mg/m ² 2.15 mg/m ²
1.gün (24 saat)		2.5 mg/m ² 1.04 mg/m ²
2.gün (24 saat)		0.3 mg/m ² 0.15 mg/m ²
3.gün (24 saat)		

Adres: Cemal Gürsel Cad.No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
Web adresi: www.rshm.gov.tr e-mail: rgida@rshm.gov.tr
Form No: R05/ GGBM/ 00

T.C. SAĞLIK BAKANLIĞI
Refik Saydam Hıfzısıhha Merkezi Başkanlığı
Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü
ANALİZ RAPORU

Sayfa No: 2/2

SONUÇ DEĞERLENDİRME

Yukarıdaki analiz sonuçlarına göre PVC membran numunesi Türk Gıda Kodeksi Yönetmeliğinin plastik esaslı ambalaj maddeleri kısmına ve Alman Yönetmeliğine uygundur.

⁽¹⁾ Numune tarafınca alınmış olup, Gıda Güvenliği ve Beslenme Araştırma Müdürlüğü Numune Kabul Kriterleri Talimatına (GT01-GGBM) uygun olarak kabul edilmiştir.
⁽²⁾ 15.11.1997 tarih ve 23172 sayılı Resmî Gazete'de yayımlanan Türk Gıda Kodeksi Yönetmeliği.
⁽³⁾ Alman Yönetmeliği (Kunststoffe im Lebensmittelverkehr).

ANALİZ YAPAN : Zir.Yük.Müh.Gönlü KANGAL
LABORATUVAR SORUMLUSU : Zir.Müh.Atila ÖZÜDOĞRU
Dr.Kıymışer TÜLİN ÇELİK

Zir.Yük.Müh.Gönlü KANGAL
Zir.Müh.Atila ÖZÜDOĞRU

Gıda Müdürlüğü Başkanlığı

Adres: Cemal Gürsel Cad.No:18 06100 Sıhhiye/ ANKARA Tel: (312) 458 20 00 faks:(312) 458 23 83
Web adresi: www.rshm.gov.tr e-mail: rgida@rshm.gov.tr
Form No: R05/ GGBM/ 00

All Ekotanks have Turkish Food Codex Certificate from Ministry of Health.

T.C. TARIM VE KÖYİŞLERİ BAKANLIĞI
Ankara İl Kontrol Laboratuvarı
TÜRKAK TÜRK AKREDİTASYON KURUMU
ÖZEL İSTEK MUAYENE VE ANALİZ RAPORU

AB-0025-T
2008G-0428
08-08

Rapor No: 2008G-0428
Rev: 00 Bu Rapor ABN - İdari İşlemlerde ve Risklerin Anamlılığı Kullanılmamıştır.

Analiz Amacı : Genel İstek
Num.Gıda.Yarımın Tarihi : 05.08.2008
Numunenin Sayısı : -
Cins : Kapalı Tip Elaznak (Su Deposu Tankı)
Anahatlar : Karton Kutu
Çevrim Tarihi : -
Sını Kullanma Tarihi : -
Seri-Parç. No : -
Miktarı (Net) : -

Yapılan Analizler

Yöntem	D	Analiz Metodu
1- Toplam Migrasyon	✓	EN 1180-1-11
1- Damıtık suda (FT) (5gün)	✓	
2- FT-88 Spektrometrisi	✓	Analiz FT-88 Spektrometrisi ile yapılmıştır.
3- Boya Geçirgenliği	✓	Kamyonlar ile taşıma sırasında B-1-B
Damıtık suda (kaynama su-3 saat)	✓	Geçirgenlik vermemelidir.

Açıklamalar : *Attest edilmiş analizdir. *Çizim - A, Üzeri (24)

Uyarılar : Türk Gıda Kodeksi'ne göre uygundur.

Yapılan muayene ve analiz sonucunda yukarıdaki belirtilen değerler rapor edilmiştir.
Not : 1. Bu analiz raporunun bir kopyası 15.08.2008 tarihinde hazırlanmıştır.
2. Bu rapor çıkarıldıktan sonraki işlemler için geçerlidir.
3. Bu rapor 3. ve 4. maddelerle değiştirilmiştir.
4. Bu rapor laboratuvarımızca yapılmış olduğundan geçerlidir.

Analiz Sorumlusu : **Şahin ÇELİK**
Analiz Labor. Şefi

Namune Kabul ve Rapor Durumunu Şif : **Şahin ÇELİK**
Müdür

TERCÜMEDİR
20080919433
17. EYLÜL 2008
ACİL TERCÜME
#18570

REPUBLIC OF TURKEY
MINISTRY OF AGRICULTURE AND RURAL AFFAIRS
Directorate of Ankara Provincial Control Laboratory
Çayır Mh. Selim Çam Ersoy Cad. No:12 Yenimahalle / ANKARA
Tel: (312) 2157934 e-mail: gida@ankara.gov.tr

TURKAK
Accredited by
TURKISH ACCREDITATION INSTITUTION
SPECIAL REQUEST INSPECTION AND ANALYSIS REPORT

Report No: 2008G-0428
Rev: 00

This Report is not allowed to be used in procedural-administrative acts and for the purpose of advertising.

Purpose of the analysis	Special Request	Sample Dispatched by	Method of analysis
Date of the Letter by which the samples were dispatched : 05.08.2008	Address : Ümraniye/İSTANBUL	By The A.S.	EN 1180-1-11
The Number of the Sample(s)	Date and Time the Sample was received : 05.08.2008 - 09.42	Start and Finish Dates of the Analysis : 05.08.2008 - 20.08.2008	The Analysis is made by FT-88 spectrometry
Type : Closed Type Elaznak (Water Depos Tank)	Manufacturer : -	Address : -	Kamyonlar ile taşıma sırasında B-1-B
Package : Paper Box	Address : -		
Expiry Date : -			
Serial-Part No : -			
Quantity (Net) : -			

Analizler Yapılan D Metodu

Analizler Yapılan D Metodu	Result	D	Method of analysis
1- Total Migration	✓	✓	EN 1180-1-11
1- In Distilled Water (40°C, 50 days)	✓	✓	
2- Leach of FT-88 Specimens	✓	✓	The Analysis is made by FT-88 spectrometry
3- The Permeability in Distilled Water (Boiling tem. - 5 hours)	✓	✓	Kamyonlar ile taşıma sırasında B-1-B

Abbreviations : *Attested analysis D: Evaluation ✓: suitable ✗: Not Suitable

Remarks: Complies with the Turkish Food Codex

The values shown here have been determined as a result of the examination and analysis.
Note : 1. Any of the parts of this analysis report can not be used solely and separately.
2. This report is valid for the sample shown.
3. This report has been drawn up in two languages.
4. This Report can not be duplicated without the approval of the laboratory.

Responsible of the Analysis : **Şahin ÇELİK**
Chief of Analyzing Lab.
Signature : **Şahin ÇELİK**

Chief of Sample Acceptance and Report Preparation : **Şahin ÇELİK**
Signature : **Şahin ÇELİK**

Signature which do not have a signature and seal are invalid.

Adres: Çayır Mah. Selim Çam Ersoy Cad. No:12 Yenimahalle / ANKARA
Tel: (312) 2157934 e-mail: gida@ankara.gov.tr

All Ekotanks have Turkish Food Codex Certificate from Ministry of Agriculture.

Certificate of Guarantee



All Ekotanks have Conformance to Criteria Certificate from Turkish Standard Institute.



All Ekotanks have ISO 9001:2000 Certificates



All Ekotanks are Under 5 Years of Guarantee.



All Ekotanks have Service Compliance Certificate.



EKOTANK[®]

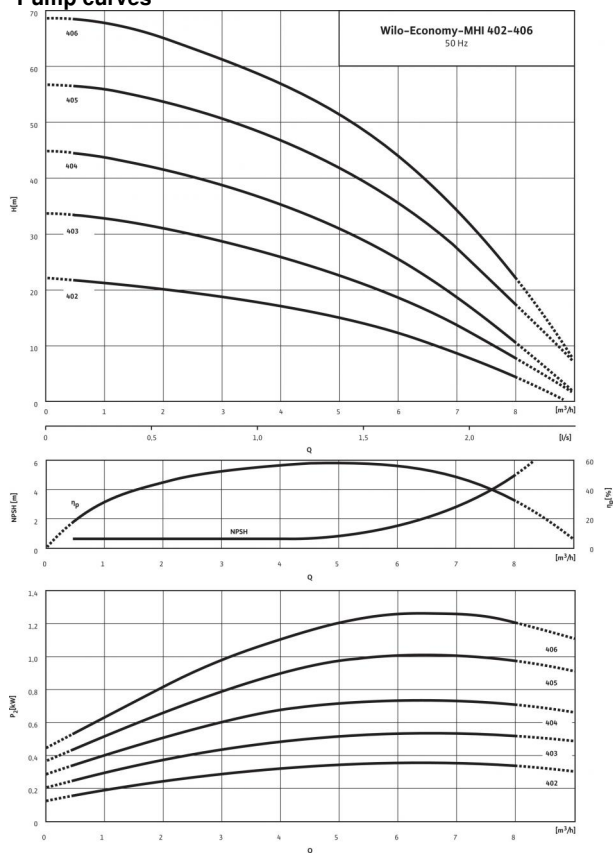
LIQUID STORAGE SYSTEMS

www.ekotank.net www.pillowtanks.net www.ekotank.com.tr



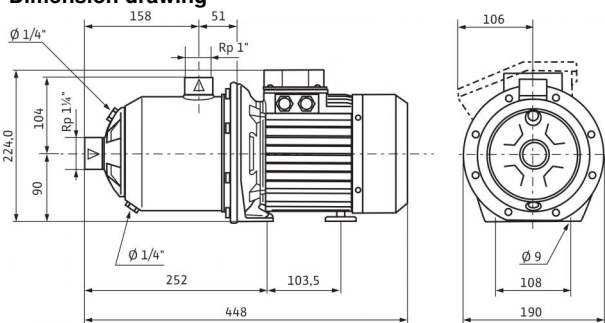
Data sheet: Economy MHI 405 (1~230 V, FKM)

Pump curves

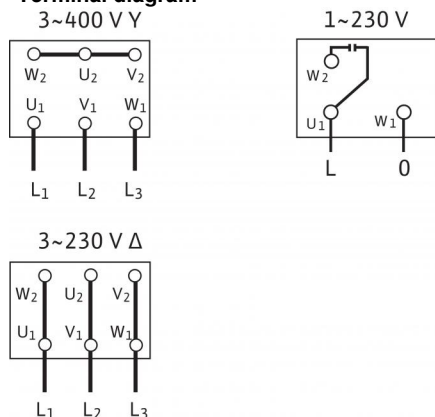


Pump curves in accordance with ISO 9906: 2012 3B

Dimension drawing



Terminal diagram



Power

Fluid temperature <i>T</i>	-15 ... 90 °C
Max. ambient temperature <i>T</i>	40 °C
Rated pressure	PN bar
Inlet pressure max. <i>H</i>	6 bar
Maximum operating pressure <i>p</i> _{max}	10 bar

Motor

Insulation class	F
Protection class	X4
Mains connection	1~230 V, 50 Hz
Rated power <i>P</i> ₂	1.10 kW
Power consumption <i>P</i> ₁	1.51 kW
Nominal current 1~230 V, 50 Hz <i>I</i> _N	7.2 A
Motor efficiency <i>η</i> _{m 50%}	56.9 %
Motor efficiency <i>η</i> _{m 75%}	64.3 %
Motor efficiency <i>η</i> _{m 100%}	67.2 %

Connections

Rated pressure level (on the pressure side) <i>PN</i>	PN 10
Rated pressure level (on the suction side) <i>PN</i>	PN 10

Materials

Impeller	1.4404 [AISI316L]
Pump housing	1.4404 [AISI316L]
Pump shaft	1.4404 [AISI316L]
Static seal	FKM
Mechanical seal	Q1BVG

Information for order placements

Make	Wilo
Type	MHI 405
Art no.	4015692
Weight approx. <i>m</i>	15.2 kg

• = available, - = not available

Note on inlet pressure

The maximum inlet pressure is calculated by subtracting the maximum delivery head of the pump at Q= 0 from the maximum operating pressure of the system.

Note on materials

1.4301 corresponds to AISI 304, 1.4404 corresponds to AISI 316L.

Features

- **Sizes Available (Nominal):** 3/4" (DN20) through 3" (DN80) pipe diameters, with a Standard Dimension Ratio (SDR) of 13.5 as specified in ASTM F442.
- **Environmental Specifications:** Indoor use only.
Maximum Ambient Temperature: 150°F (65°C)
- **Hazen-Williams C Value:** 150
- **Pressure Data: Working Pressure:** 175 PSI (12.1 bar) at 150°F (65°C)
- **Specifications:**
 - Meets NFPA 13R and 13D standards for residential occupancies as well as NFPA 13 standards for light hazard occupancies.
 - Pipe meets or exceeds ASTM F442.
 - Certified by NSF International for potable water services.
 - CPVC pipe from Viking Plastics use compound cell class 23547 (demonstrated highest structural properties).
 - cULus Listed, FM Approved, New York City (MEA) Approved, LPCB Approved.



CPVC PIPE PHYSICAL DATA

Nominal Pipe Size		Actual Outside Diameter		Average Inside Diameter		*Weight per 15' (4,6 m) length		Length		Approvals	Part Number
Inch	DN	Inch	mm	Inch	mm	Lb.	Kg.	Feet	M		
3/4"	DN20	1.050	26,670	0.874	22,199	2.52	1,14	15	4.6	cULus, FM, NSF	34PIPE
1"	DN25	1.315	33,401	1.101	27,965	3.93	1,78	15	4.6		1PIPE
1 1/4"	DN32	1.660	42,164	1.394	35,408	6.27	2,84	15	4.6		114PIPE
1 1/2"	DN40	1.900	48,260	1.598	40,589	8.22	3,73	15	4.6		112PIPE
2"	DN50	2.375	60,325	2.003	50,876	12.89	5,85	15	4.6		2PIPE
2 1/2"	DN65	2.875	73,000	2.423	61,500	18.86	8,55	15	4.6		212PIPE
3"	DN80	3.500	88,900	2.950	74,900	28.01	12,71	15	4.6		3PIPE
Nominal Pipe Size		Actual Outside Diameter		Average Inside Diameter		*Weight per 10' (3,05 m) length		Length		Approvals	Part Number
Inch	DN	Inch	mm	Inch	mm	Lb.	Kg.	Feet	M		
3/4"	DN20	1.050	26,670	0.874	22,199	1.68	0,76	10	3,05	cULus, FM, NSF	34PIPE10
1"	DN25	1.315	33,401	1.101	27,965	2.62	1,19	10	3,05		1PIPE10
1 1/4"	DN32	1.660	42,164	1.394	35,408	4.18	1,90	10	3,05		114PIPE10
1 1/2"	DN40	1.900	48,260	1.598	40,589	5.48	2,49	10	3,05		112PIPE10
2"	DN50	2.375	60,325	2.003	50,876	8.59	3,90	10	3,05		2PIPE10
2 1/2"	DN65	2.875	73,000	2.423	61,500	12.57	5,70	10	3,05		212PIPE10
3"	DN80	3.500	88,900	2.950	74,900	18.67	8,47	10	3,05		3PIPE10

NOTE: CPVC Pipe is produced in SDR 13.5 Dimensions in accordance with ASTM F442. Standard Dimension Ratio is the ratio of the outside pipe diameter to the wall thickness of the pipe.

Blazemaster® is a registered trademark of Lubrizol.

Specifications subject to change without notice

*Empty pipe weights

IMPORTANT: Installers should receive thorough hands-on training in the proper methods of assembly and installation of CPVC products.

CPVC Pipe Product Specifications

Corrosion resistant CPVC fire sprinkler pipe, when installed in strict accordance with the manufacturer's design and installation instructions, is UL and c-UL Listed by Underwriters Laboratories for use in the following:

- Meets NFPA 13R and 13D standards for residential occupancies as well as NFPA 13 standards for light hazard occupancies.
- Residential occupancies up to and including four stories in height as defined by NFPA 13R.
- Residential occupancies as defined in the Standard for Sprinkler Systems in One and Two Family Dwellings, NFPA 13D.
- Installation of private fire service mains and their appurtenances, NFPA 24.

CPVC fire sprinkler pipe from Viking Plastics shall be employed in wet pipe systems only and are not listed for outdoor use. CPVC pipe must never be used in a system using compressed air or other gases.

CPVC pipe from Viking Plastics also carries the following enhanced listings and approvals:

- According to UL Listing
 - Can be flush at return air plenums
 - Exposed system risers NFPA 13D, 13R
 - Exposed basement NFPA 13D (solid wood joist)
 - Extended coverage (exposed)
 - 20' spacing on pendent in lieu of 15'
 - 18' spacing on sidewall in lieu of 14'
 - Use with combustible concealed sprinklers
 - UL Listed attic sprinkler head (to protect the floor below)
 - UL Listed attic sprinkler head with wet system piping (feed main and ridge installation)
- Exposed sidewall sprinkler listing for exposed pipe & fittings
 - 24' extended coverage sidewall sprinkler, 12" drop, 155°F sprinkler head
 - 18' extended coverage sidewall sprinkler, 12" drop, 165°F sprinkler head
 - 16' extended coverage sidewall sprinkler, 12" drop, 175°F sprinkler head
 - 14' standard coverage sidewall sprinkler, 12" drop, 200°F sprinkler head
- Factory Mutual Approved*
 - Factory Mutual Approval exposed
 - Factory Mutual Approval above drop-in ceilings
 - Factory Mutual Approval exposed w/Soffi-Steel soffit covering system

New and enhanced listings and approvals are being pursued. Always check with the appropriate Listing and Approval agency for details on current listing parameters.

CPVC pipe meets all applicable standards for pressure rated application as required in ANSI-NSF Standard 14 and complies with ANSI-NSF Standard 61 for health effects and are marked with the NSF-pw end use marking.

All CPVC fire sprinkler pipe shall be Listed by Underwriters Laboratories for wet pipe systems, and shall carry a rated working pressure of 175 psi @ 150°F (12 bar @ 65.5°C). *The FM Approval is limited to use in wet pipe fire protection sprinkler systems for light hazard occupancies in both concealed and exposed applications with certain restrictions.

Piping must always be installed in strict accordance to the manufacturer's DESIGN AND INSTALLATION GUIDE, including product storage and handling, joining methods, supporting and bracing, expansion and contraction allowance and testing, etc. National Fire Protection Association (NFPA) Standards 13, 13D, and 13R must be referenced for design and installation requirements in conjunction with the installation instructions.

All CPVC fire sprinkler pipe from Viking Plastics is manufactured in the USA. All CPVC pipe shall be packaged immediately after its manufacture to prevent damage and shall be stored indoors after production, at the manufacturing site, until shipped from the factory. The pipe shall bear the logo of the listing agencies, and shall carry the National Sanitation Foundation (NSF) seal of approval for potable water applications.

CPVC products are intended for use in areas where the maximum ambient temperature does not exceed 150°F (65.5°C). If the ambient temperature is expected to exceed this limitation, refer to the manufacturer's DESIGN AND INSTALLATION GUIDE for additional information on methods to reduce the pipe exposure temperatures. CPVC pipe is not intended to be installed in outdoor applications. CPVC pipe is intended to be used in wet pipe systems only and have not been investigated for use in dry pipe systems. Special installation and design criteria relative to pipe hanger spacings, piping and sprinkler restraint, sprinkler temperature rating, piping locations, testing procedures and friction loss characteristics are specified in the manufacturer's installation instructions provided with the pipe. The manufacturer's installation instructions should be reviewed and the Authority Having Jurisdiction consulted before installation.



TECHNICAL DATA

MICROMATIC® STANDARD RESPONSE PENDENT SPRINKLER VK102 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

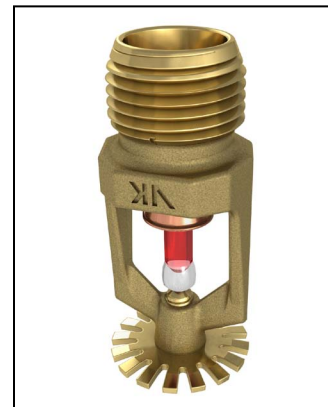
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

1. DESCRIPTION

The Viking Micromatic® Standard Response Pendent VK102 Sprinkler is a small, thermostatic, glass-bulb spray sprinkler available in several different finishes and temperature ratings to meet design requirements. The special Polyester, and Electroless Nickel PTFE (ENT) coatings can be used in decorative applications where colors are desired. In addition, these coatings have been investigated for installation in corrosive atmospheres and are listed/approved as corrosion resistant as indicated in the Approval Charts. (Note: **FM Global approves the ENT coating as corrosion resistant.** FM Global has no approval classification for Polyester coatings as corrosion resistant.)

Viking standard response sprinklers may be ordered and/or used as open sprinklers (glass bulb and pip cap assembly removed) on deluge systems. Refer to Ordering Instructions.



2. LISTINGS AND APPROVALS



cULus Listed: Category VNIV



FM Approved: Class Series 2000



VdS Approved: Certificate G414006 & G414004



LPCB Approved



CE Certified: Standard EN 12259-1, EC-certificate of conformity 0832-CPD-2021



CCC Approved: Approved by the China Certification Center for Fire Products (CCC)

NOTE: Other International approval certificates are available upon request.

Refer to Approval Chart 1 and UL Design Criteria on page 4 for cULus Listing requirements, and refer to Approval Chart 2 and FM Design Criteria on page 5 for FM Approval requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: 7 psi (0.5 bar)†
 Maximum Working Pressure: 175 psi (12 bar) wwp
 Factory tested hydrostatically to 500 psi (34.5 bar)
 Thread size: 1/2" NPT, 15 mm BSP
 Nominal K-Factor: 5.6 U.S. (80.6 metric**)
 Glass-bulb fluid temperature rated to -65 °F (-55 °C)
 Overall Length: 2-1/4" (57 mm)

† cULus Listing, FM Approval, and NFPA 13 installs require a minimum of 7 psi (0.5 bar). The minimum operating pressure for LPCB and CE Approvals ONLY is 5 psi (0.35 bar).

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass
 Deflector: Phosphor Bronze UNS-C51000†† or Copper UNS-C19500
 Bulb: Glass, nominal 5 mm diameter
 Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape
 Screw: Brass UNS-C36000
 Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400
For Polyester Coated Sprinklers: Belleville Spring-Exposed
For ENT coated Sprinklers: Belleville Spring - Exposed, Screw and Pipcap - ENT plated.

††Not for FM Approval.

Ordering Information: (Also refer to the current Viking price list.)

Order Micromatic® Standard Response Pendent VK102 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, Wax Coated = C, Wax Over Polyester = V-/W, ENT = JN



TECHNICAL DATA

MICROMATIC® STANDARD RESPONSE PENDENT SPRINKLER VK102 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

Temperature Suffix: 135 °F (57 °C) = A, 155 °F (68 °C) = B, 175 °F (79 °C) = D, 200 °F (93 °C) = E, 212 °F (100 °C) = M, 286 °F (141 °C) = G, 360 °F (182 °C) = H, 500 °F (260 °C) = L, OPEN = Z (PTFE only).

For example, sprinkler VK102 with a 1/2" thread, Brass finish and a 155 °F (68 °C) temperature rating = Part No. 12987AB

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000).

B. Wrench for Recessed Pendent Sprinklers: Part No. 13655W/B* (available since 2006)

C. Optional Protective Sprinkler Cap Remover/Escutcheon Installer Tool** Part No. 15915 (available since 2010.)

D. Wrench for Wax Coated Sprinklers: Part No. 13577W/B* (available since 2006)

*A 1/2" ratchet is required (not available from Viking).

**Allows use from the floor by attaching a length of 1" diameter CPVC tubing to the tool. Ideal for sprinkler cabinets. Refer to Bulletin F_051808.

Sprinkler Cabinets:

A. Six-head capacity: Part No. 01724A (available since 1971)

B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Micromatic® Standard Response Pendent Sprinkler VK102 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

	TECHNICAL DATA	MICROMATIC® STANDARD RESPONSE PENDENT SPRINKLER VK102 (K5.6)
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The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
 Visit the Viking website for the latest edition of this technical data page.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	135 °F (57 °C)	100 °F (38 °C)	Orange
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow
Intermediate	200 °F (93 °C)	150 °F (65 °C)	Green
High	286 °F (141 °C)	225 °F (107 °C)	Blue
Extra High	360 °F (182 °C)	300 °F (149 °C)	Mauve
Ultra High ³	500 °F (260 °C)	465 °F (240 °C)	Black

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and ENT

Corrosion-Resistant Coatings⁴: White Polyester and Black Polyester in all temperature ratings. ENT in all temperature ratings except 135 °F (57 °C). Wax-Coated Brass and Wax over Polyester⁵ for sprinklers with the following temperature ratings:

155 °F (68 °C) Lt. Brown Wax 175 °F (79 °C) Brown Wax 200 °F (93 °C) Brown Wax
 212 °F (100 °C) Dk. Brown Wax⁵ 286 °F (141 °C) Dk. Brown Wax⁵

Footnotes

- ¹ The sprinkler temperature rating is stamped on the deflector.
- ² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.
- ³ Sprinklers of Ultra-High temperature rating are intended for use inside ovens, dryers, or similar enclosures with normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the Ultra-High temperature rated sprinkler is significantly reduced below 300 °F (149 °C), response time may be severely retarded.
- ⁴ The corrosion-resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the coatings indicated are applied to the exposed exterior surfaces only. Note that the spring is exposed on sprinklers with Polyester and ENT coatings. For ENT coated automatic sprinklers, the waterway is coated.
- ⁵ Wax melting point is 170 °F (76 °C) for 212 °F (100 °C) and 286 °F (141 °C) temperature rated sprinklers.

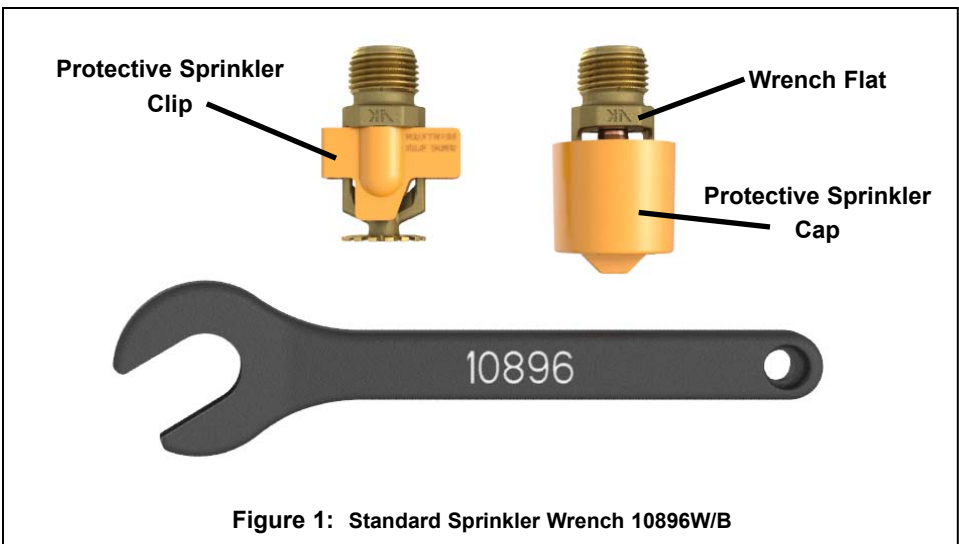




Figure 1: Standard Sprinkler Wrench 10896W/B

	<h2 style="margin: 0;">TECHNICAL DATA</h2>	<h3 style="margin: 0;">MICROMATIC® STANDARD RESPONSE PENDENT SPRINKLER VK102 (K5.6)</h3>
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The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
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Approval Chart 1 (UL) Micromatic® Standard Response Pendent Sprinkler VK102 Maximum 175 PSI (12 bar) WWP													
Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		Listings and Approvals ³ (Refer also to UL Design Criteria.)					
		NPT	BSP	U.S.	metric ²	Inches	mm	cULus ⁴	VdS	LPCB	CE ⁸		
Standard Orifice													
12987	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B4, B1Y, C5, D3, E6, G6Z	A2	A2, B4, B2Y	F2, G2Y	--	--
12989	VK102	--	15 mm	5.6	80.6	2-1/4"	57	A1, B4, B1Y, C5, D3, E6, G6Z	A2	A2, B4, B2Y	F2, G2Y	--	--
19776	VK102	1/2"	--	5.6	80.6	2-1/4"	57	--	--	--	--	--	E7
20229	VK102	--	15 mm	5.6	80.6	2-1/4"	57	--	--	--	--	--	E7
NOTICE - Product Below - Limited Availability (Contact Local Viking Office)													
10139	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B4, B1Y, C5, D3, E6, G6Z	--	--	--	--	--
10173	VK102	--	15 mm	5.6	80.6	2-1/4"	57	A1, B4, B1Y, C5, D3, E6, G6Z	A2	A2, B4, B2Y	--	--	--
18020	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B4, B1Y, C5, D3, E6, G6Z	A2	A2, B4, B2Y	F2, G2X	F2 ^{9, 10}	--
Approved Temperature Ratings A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) C - 286 °F (141 °C) D - 500 °F (260 °C) ⁷ E - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), 360 °F (182 °C), and 500 °F (260 °C) ⁷ F - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), and 360 °F (182 °C) G - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)				Approved Finishes 1 - Brass, Chrome, White Polyester ^{5,6} , and Black Polyester ^{5,6} 2 - Brass, Chrome, White Polyester ⁶ , and Black Polyester ⁶ 3 - Brass and Chrome 4 - Wax-Coated Brass and Wax Over Polyester ⁵ 5 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); maximum ambient temperature allowed at ceiling = 150 °F (65 °C) 6 - ENT ⁹ 7 - Chrome				Approved Escutcheons X - Recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1					
Footnotes													
¹ Base part number is shown. For complete part number, refer to Viking's current price schedule. ² Metric K-factor shown is for use when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0. ³ This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. ⁴ Listed by Underwriters Laboratories Inc. for use in the U.S. and Canada. ⁵ cULus Listed as corrosion resistant. ⁶ Other colors are available on request with the same Listings and Approvals as the standard colors. ⁷ Sprinklers of Ultra-High temperature rating are intended for use inside ovens, dryers, or similar enclosures with normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the Ultra-High temperature rated sprinkler is significantly reduced below 300 °F (149 °C), the response time of the Ultra-High temperature rated sprinkler may be severely retarded. ⁸ CE Certified, Standard EN 12259-1, EC-certificate of conformity 0832-CPD-0021. ⁹ MED Certified, Standard EN 12259-1, EC-certificate of conformity 0832-MED-1003 and 0832-MED-1008. ¹⁰ MED Certified, RINA Certificate No. MED497705C5.													

DESIGN CRITERIA - UL

(Also refer to Approval Chart 1.)

cULus Listing Requirements:

The Viking Micromatic® Standard Response Pendent Sprinkler VK102 is cULus Listed as indicated in Approval Chart 1 for installation in accordance with the latest edition of NFPA 13 for standard spray sprinklers.

- Designed for use in Light, Ordinary, and Extra Hazard occupancies.
- The sprinkler installation rules contained in NFPA 13 for standard spray pendent sprinklers must be followed.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

MICROMATIC® STANDARD RESPONSE PENDENT SPRINKLER VK102 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Visit the Viking website for the latest edition of this technical data page.

Approval Chart 2 (FM)								
Micromatic® Standard Response Pendent Sprinkler VK102 Maximum 175 PSI (12 bar) WWP								
Sprinkler Base Part Number ¹	SIN	Thread Size		Nominal K-Factor		Overall Length		FM Approvals ³ (Refer also to Design Criteria below.)
		NPT	BSP	U.S.	metric ²	Inches	mm	
Standard Orifice								
12987	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B2, C3, D1, E4, G1Y, G4Z
12989	VK102	--	15 mm	5.6	80.6	2-1/4"	57	A1, B2, C3, D1, E4, G1Y, G4Z
NOTICE - Product Below - Limited Availability (Contact Local Viking Office)								
10139	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B2, C3, D1, E4, G1Y, G4Z
10173	VK102	--	15 mm	5.6	80.6	2-1/4"	57	A1, B2, C3, D1, E4, G1Y, G4Z
18020	VK102	1/2"	15 mm	5.6	80.6	2-1/4"	57	A1, B2, C3, D1, G1Y
Approved Temperature Ratings		Approved Finishes				Approved Escutcheons		
A - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 212 °F (100 °C), 286 °F (141 °C), and 360 °F (182 °C) B - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), and 212 °F (100 °C) C - 286 °F (141 °C) D - 500 °F (260 °C) ⁵ E - 155 °F (68 °C), 175 °F (79 °C), 200 °F (93 °C), 286 °F (141 °C), 360 °F (182 °C), and 500 °F (260 °C) ⁵ F - 135 °F (57 °C), 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C) G - 155 °F (68 °C), 175 °F (79 °C), and 200 °F (93 °C)		1 - Brass, Chrome, White Polyester ⁴ , and Black Polyester ⁴ 2 - Wax-Coated Brass (corrosion resistant) 3 - High Temperature 200 °F (93 °C) Wax Coating (corrosion resistant); maximum ambient temperature allowed at the ceiling = 150 °F (65 °C) 4- ENT ⁶				Y - Standard surface-mounted escutcheon or the Viking Microfast® Model F-1 Adjustable Escutcheon or recessed with the Viking Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon Z - Standard surface-mounted escutcheon or recessed with the Viking Micromatic® Model E-1		
Footnotes								
¹ Base part number is shown. For complete part number, refer to Viking's current price schedule. ² Metric K-factor shown is for use when pressure is measured in bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0. ³ This table shows the listings and approvals available at the time of printing. Check with the manufacturer for any additional approvals. ⁴ Other colors are available on request with the same Approvals as the standard colors. ⁵ Sprinklers of Ultra-High temperature rating are intended for use inside ovens, dryers, or similar enclosures with normal operating temperatures above 300 °F (149 °C). Where the ambient temperature around the Ultra-High temperature rated sprinkler is significantly reduced below 300 °F (149 °C), the response time of the Ultra-High temperature rated sprinkler may be severely retarded. ⁶ FM approved as corrosion resistant.								

DESIGN CRITERIA - FM

(Also refer to Approval Chart 2.)

FM Approval Requirements:

The Viking Micromatic® Standard Response Pendent Sprinkler VK102 is is FM Approved as standard response **Non-Storage** pendent sprinkler as indicated in the FM Approval Guide. For specific application and installation requirements, reference the latest applicable FM Loss Prevention Data Sheets (including Data Sheet 2-0). FM Global Loss Prevention Data Sheets contain guidelines relating to, but not limited to: minimum water supply requirements, hydraulic design, ceiling slope and obstructions, minimum and maximum allowable spacing, and deflector distance below the ceiling.

NOTE: The FM installation guidelines may differ from cULus and/or NFPA criteria.

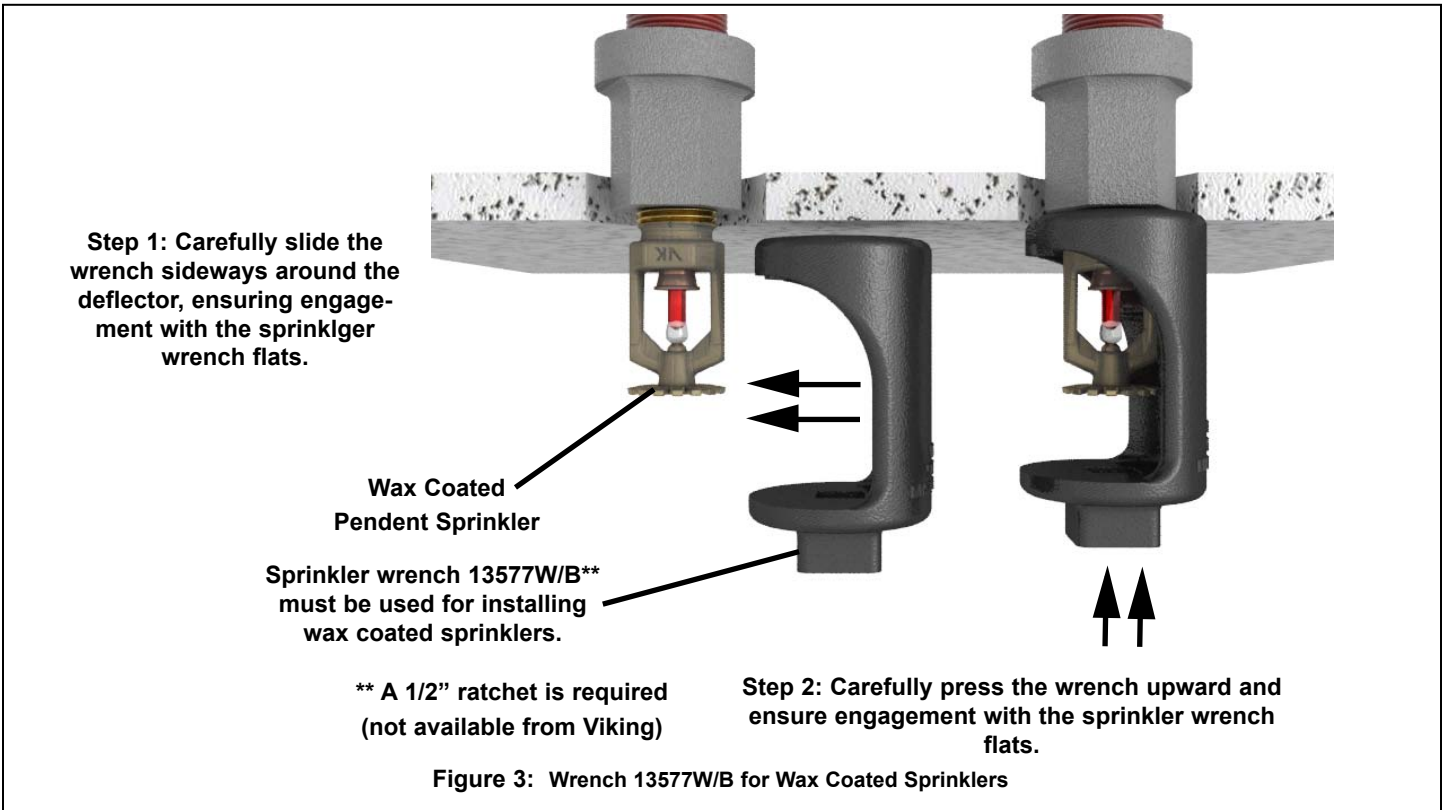
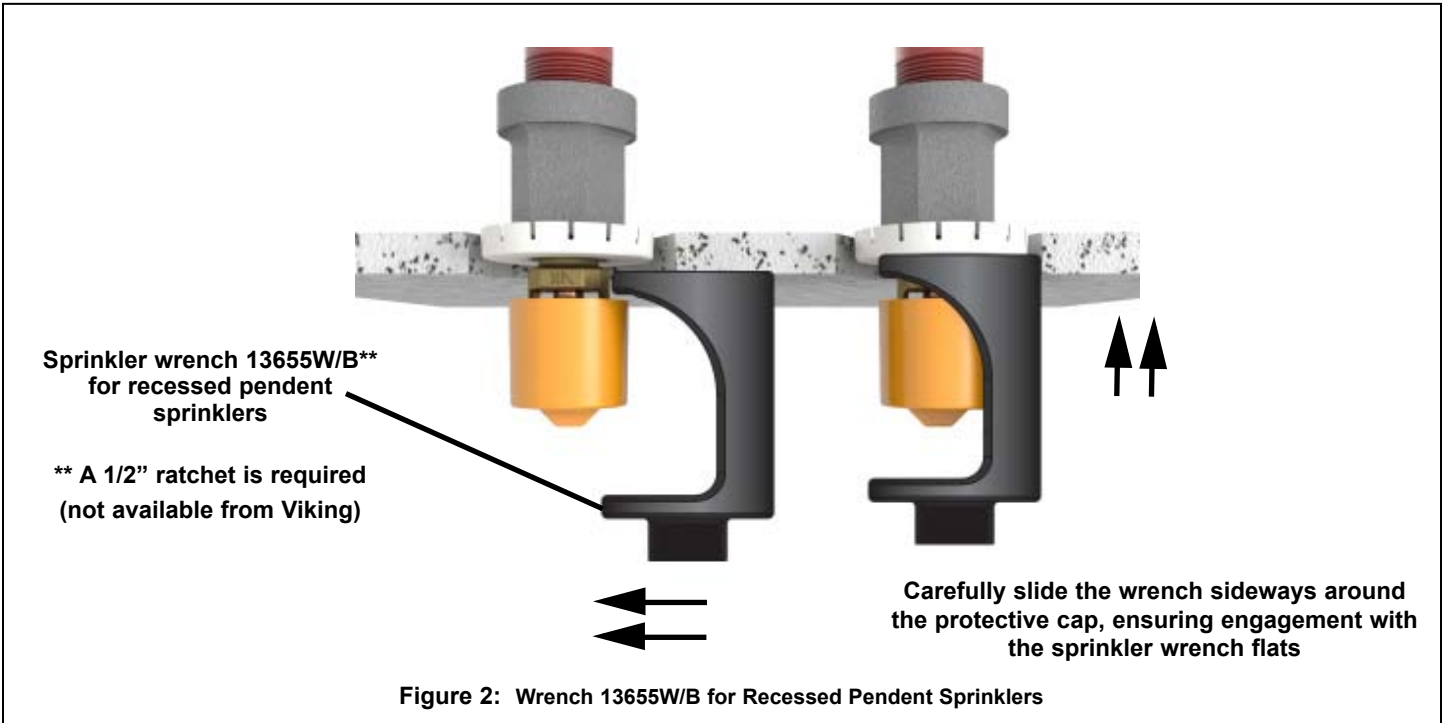
IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to page F_080614 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA, FM Global, LPCB, APSAD, VdS or other similar organizations, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable.



TECHNICAL DATA

MICROMATIC® STANDARD
RESPONSE PENDENT
SPRINKLER VK102 (K5.6)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com
Visit the Viking website for the latest edition of this technical data page.





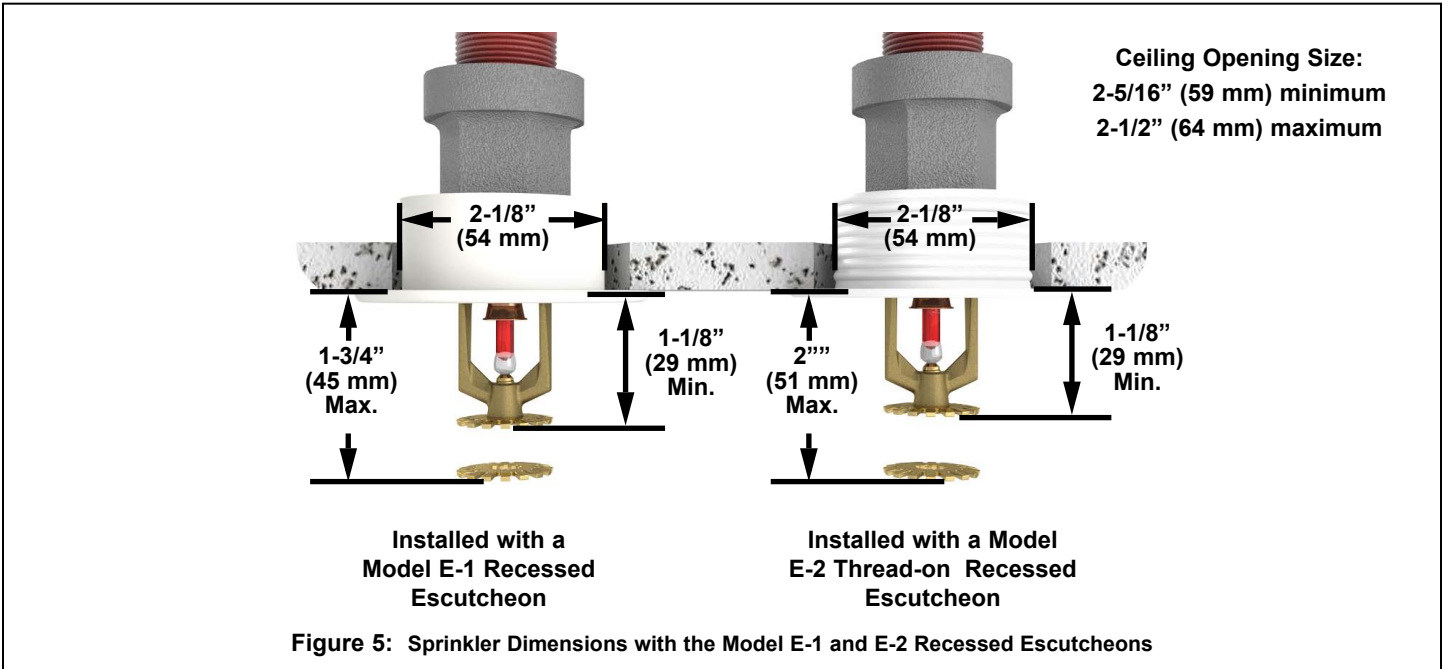
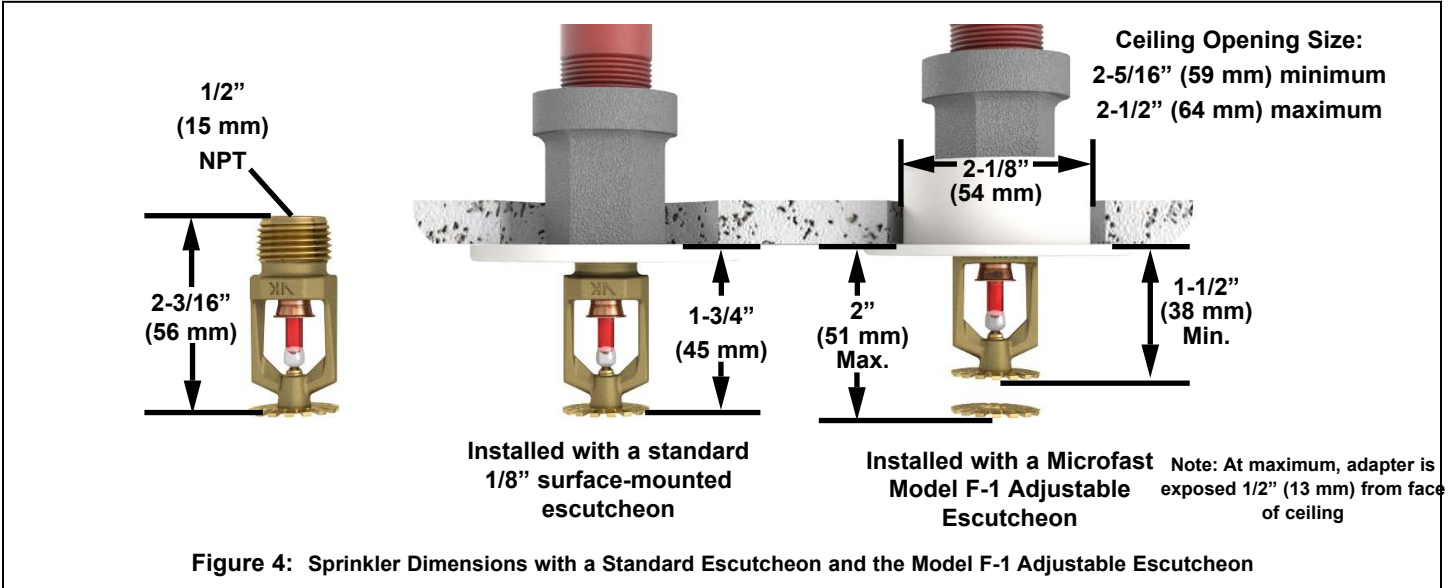
TECHNICAL DATA

**MICROMATIC® STANDARD
RESPONSE PENDENT
SPRINKLER VK102 (K5.6)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

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TECHNICAL DATA

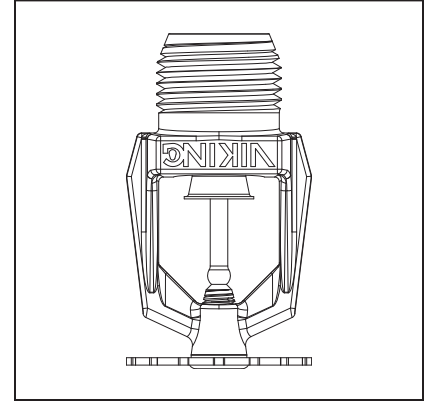
FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK430 (K4.3)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Freedom® Residential Pendent Sprinkler VK430 is a thermosensitive, glass-bulb residential sprinkler available in several different finishes and temperature ratings to meet varying design requirements. The Electroless Nickel PTFE (ENT) coating has been investigated for installation in corrosive atmospheres and is C-UL-US-EU Listed as corrosion resistant as indicated in the Approval Chart. The orifice design, with a K-Factor of 4.3 (62 metric*), allows efficient use of available water supplies for the hydraulically designed fire-protection system. The fast response type glass bulb and special deflector combine speed of operation and area of coverage to meet residential sprinkler standards while being aesthetically pleasing.



2. LISTINGS AND APPROVALS



UL Listed (C-UL-US-EU): Category VKKW

NYC Approved: MEA 89-92-E, Volume 24

Refer to the Approval Chart on and Design Criteria for C-UL-US-EU Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.3 U.S. (62 metric*)

* Metric K-factor measurement shown is for when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Glass-bulb fluid temperature rated to -65 °F (-55 °C)

Overall Length: 2-1/4" (58 mm)

Material Standards:

Frame Casting: Brass UNS-C84400 or QM Brass

Deflector: Brass UNS-C26000

Bulb: Glass, nominal 3 mm diameter

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with Teflon Tape

Compression Screw: Brass UNS-C36000

Pip Cap and Insert Assembly: Copper UNS-C11000 and Stainless Steel UNS-S30400

Pip Cap Attachment (for QM Brass sprinklers only): Brass UNS-C36000

For ENT coated sprinklers: Belleville spring - Exposed, Screw and Pipcap - ENT plated.

Ordering Information: (Also refer to the current Viking price list.)

Sprinkler: Base Part No. 09530

Order Sprinkler VK430 by first adding the appropriate suffix for the sprinkler finish and then the appropriate suffix for the temperature rating to the sprinkler base part number.

Finish Suffix: Brass = A, Chrome = F, White Polyester = M-/W, Black Polyester = M-/B, and ENT = JN

Temperature Suffix: 155 °F (68 °C) = B, 175 °F (79 °C) = D

For example, sprinkler VK430 with a Brass finish and a 155 °F (68 °C) temperature rating = Part No. 09530AB.

Available Finishes And Temperature Ratings:

Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrenches:

A. Standard Wrench: Part No. 10896W/B (available since 2000)

B. Wrench for Recessed Pendent Sprinklers: Part No. 13655W/B** (available since 2006)

**A 1/2" ratchet is required (not available from Viking).

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.



TECHNICAL DATA

FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK430 (K4.3)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Sprinkler Cabinets:

- A. Six-head capacity: Part No. 01724A (available since 1971)
- B. Twelve-head capacity: Part No. 01725A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, the heat-sensitive liquid in the glass bulb expands, causing the glass to shatter, releasing the pip cap and sealing spring assembly. Water flowing through the sprinkler orifice strikes the sprinkler deflector, forming a uniform spray pattern to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

The Viking Model VK430 Sprinkler is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Bulb Color
Ordinary	155 °F (68 °C)	100 °F (38 °C)	Red
Intermediate	175 °F (79 °C)	150 °F (65 °C)	Yellow

Sprinkler Finishes: Brass, Chrome, White Polyester, Black Polyester, and ENT

Corrosion Resistant Coatings³: ENT

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

³ The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Chart. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For ENT coated sprinklers, the waterway is coated. Note that the spring is exposed on sprinklers with ENT coating.




TECHNICAL DATA

FREEDOM® RESIDENTIAL PENDENT SPRINKLER VK430 (K4.3)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058
Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Approval Chart Viking VK430, 4.3 K-Factor Residential Pendent Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria on page 5. For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure	Overall Length			
		Inches	mm	U.S.	metric ²		Inches	mm		
09530	VK430	1/2	15	4.3	62	175 psi (12 bar)	2-1/4	58		
Max. Coverage Area ⁴ Ft. X Ft. (m X m)	Ordinary Temp Rating (155 °F/68 °C)		Intermediate Temp Rating (175 °F/79 °C)		Deflector to Ceiling	Installation Type	Listings and Approvals ³			Minimum Spacing Ft. (m)
	Flow ⁴ GPM (L/min)	Pressure ⁴ PSI (bar)	Flow ⁴ GPM (L/min)	Pressure ⁴ PSI (bar)			 US ⁵ EU	NYC ⁷	NSF ⁸	
12 X 12 (3.7 X 3.7)	12 (45.4)	7.8 (0.54)	12 (45.4)	7.8 (0.54)	1-1/8 to 2 inch	Standard surface-mounted escutcheons, the Microfast® Model F-1 Adjustable Escutcheon, or recessed with the Micromatic® Model E-1, E-2, or E-3 Recessed Escutcheon	See Foot-note 6 and 10	See Foot-note 6	See Foot-note 6	8 (2.4)
14 X 14 (4.3 X 4.3)	13 (49.2)	9.1 (0.63)	13 (49.2)	9.1 (0.63)						
16 X 16 (4.9 X 4.9)	13 (49.2)	9.1 (0.63)	13 (49.2)	9.1 (0.63)						
18 X 18 (5.5 X 5.5)	17 (64.4)	15.6 (1.08)	17 (64.4)	15.6 (1.08)						
20 X 20 (6.1 X 6.1)	21 (79.5)	23.9 (1.64)	21 (79.5)	23.9 (1.64)						

Footnotes

¹ Part number shown is the base part number. For complete part number, refer to Viking's current price schedule.

² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

³ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. Refer also to Design Criteria on page 5.

⁴ For areas of coverage smaller than shown, use the "Flow" and "Pressure" for the next larger area listed. Flows and pressures listed are per sprinkler.

⁵ Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.

⁶ Approved Finishes are: Brass, Chrome, White Polyester, and Black Polyester⁹.

⁷ Accepted for use, City of New York Department of Buildings, MEA Number 89-92-E, Vol. 24.

⁸ UL Classified to: NSF/ANSI Standard 61, Drinking Water System Components (MH48034).

⁹ Other paint colors are available on request with the same C-UL-US-EU listings as the standard finish colors.

¹⁰ Approved finish is Electroless Nickel PTFE (ENT). ENT is C-UL-US-EU Listed as corrosion resistant. ENT is available with standard surface-mounted escutcheons or the Micromatic Model E-1 Recessed Escutcheon.



TECHNICAL DATA

FREEDOM® RESIDENTIAL
PENDENT SPRINKLER
VK430 (K4.3)

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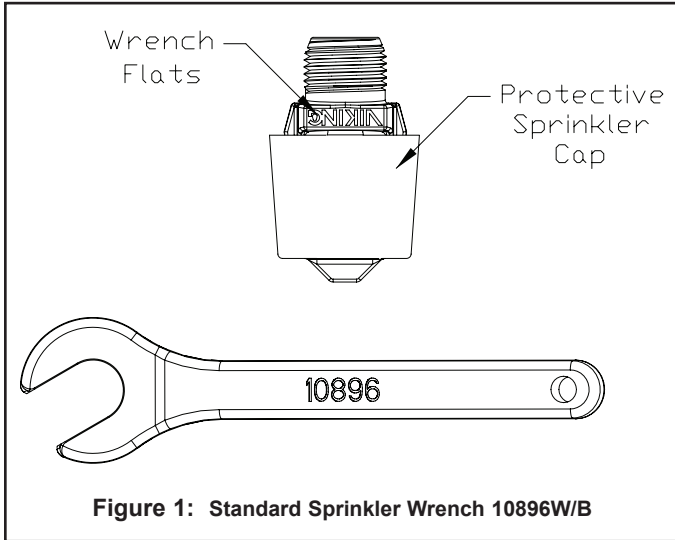


Figure 1: Standard Sprinkler Wrench 10896W/B

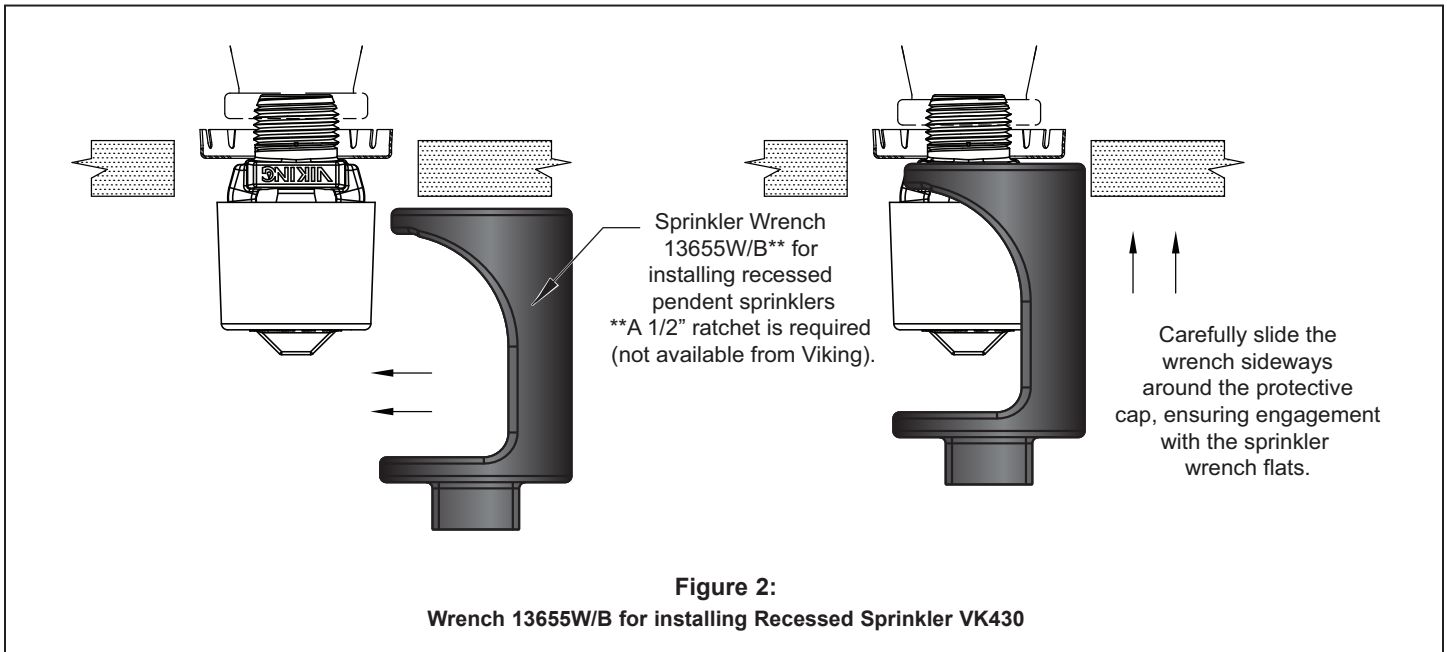


Figure 2:

Wrench 13655W/B for installing Recessed Sprinkler VK430



TECHNICAL DATA

**FREEDOM® RESIDENTIAL
PENDENT SPRINKLER
VK430 (K4.3)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

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DESIGN CRITERIA

(Also refer to the Approval Chart on page 3.)

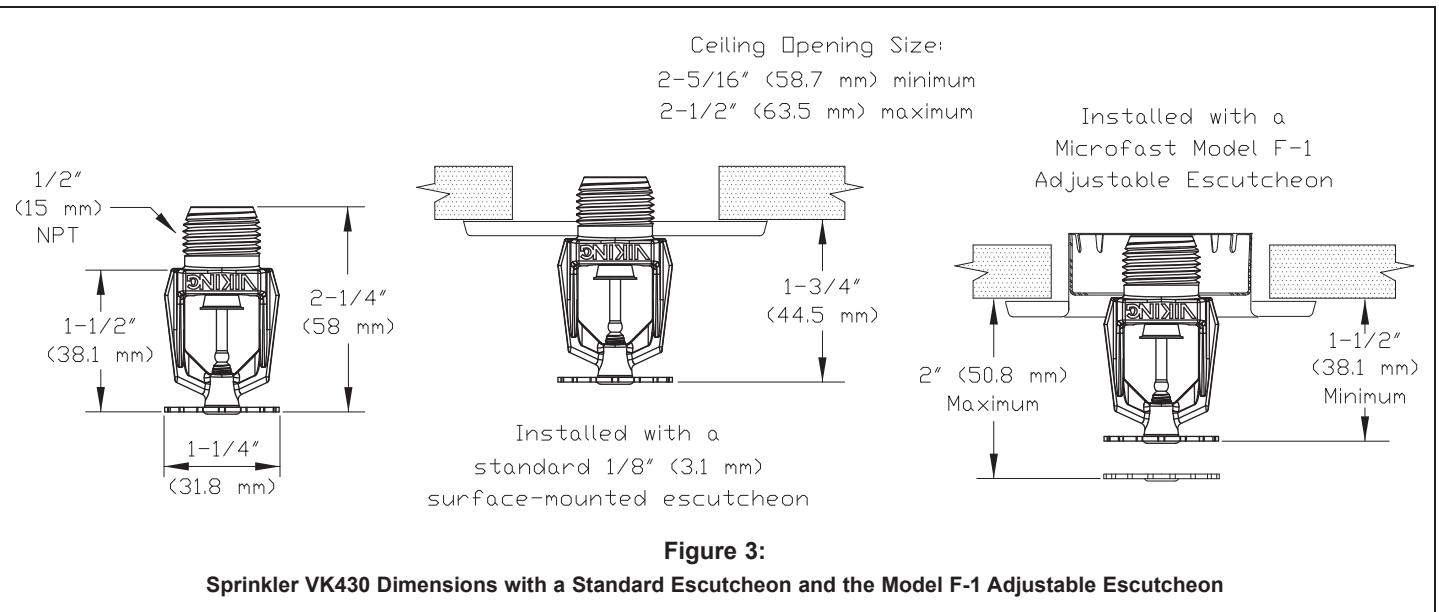
UL Listing Requirements (C-UL-US-EU):

When using Viking Residential Pendent Sprinkler VK430 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Chart on page 3.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Chart on data page 3 for NFPA 13D and NFPA13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the "design area" in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.



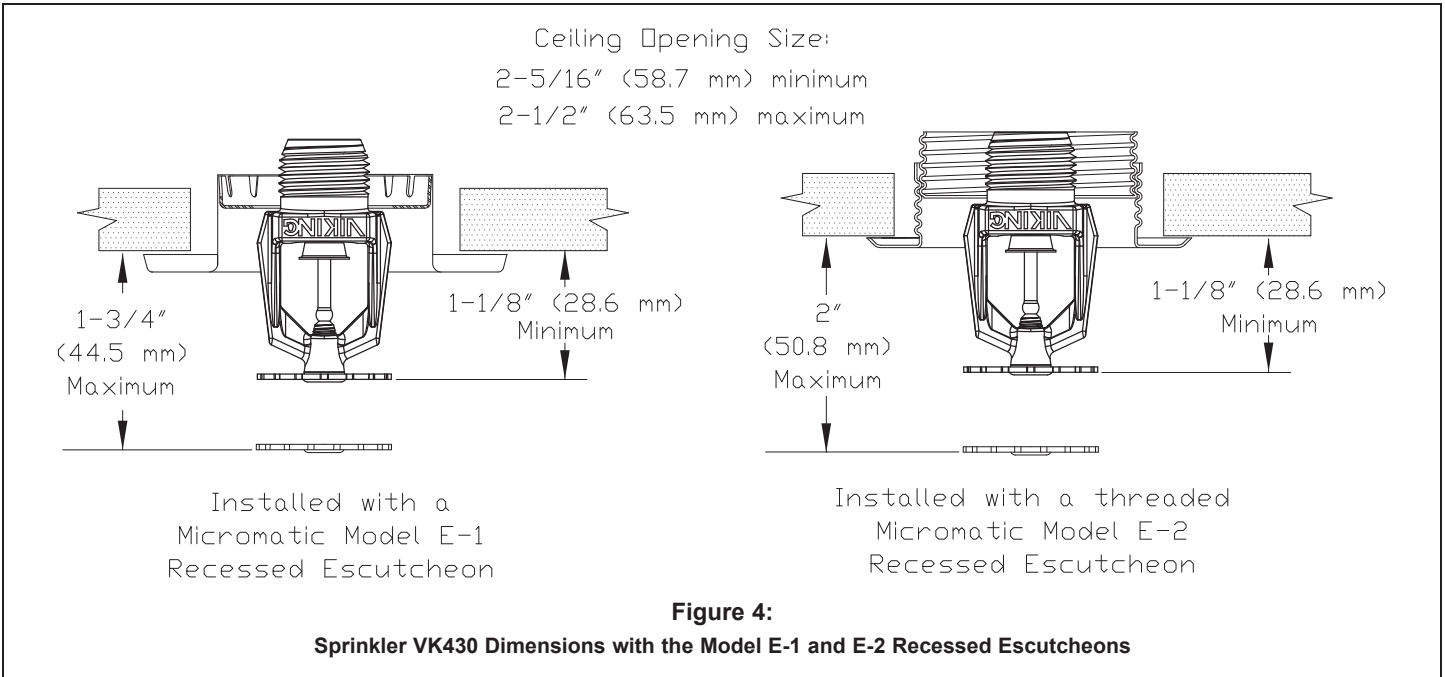


TECHNICAL DATA

FREEDOM® RESIDENTIAL
PENDENT SPRINKLER
VK430 (K4.3)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com





TECHNICAL DATA

FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK457 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

1. DESCRIPTION

Viking Freedom® Residential Concealed Pendent Sprinkler VK457 is a small high-sensitivity solder link and lever residential sprinkler designed for installation on concealed pipe systems where the appearance of a smooth ceiling is desired. The orifice design, with a K-Factor of 4.9 (70.6 metric*), allows the sprinkler's efficient use of available water supplies for the hydraulically designed fire-protection system. The operating element and special deflector characteristics meet the challenges of residential sprinkler standards.

The sprinkler is pre-assembled with a threaded adapter for installation with a low-profile small-diameter cover assembly installed flush to the ceiling. The two-piece design allows installation and testing of the sprinkler prior to installation of the cover plate. The "push-on", "thread-off" design of the concealed cover plate assembly allows easy installation of the cover plate after the system has been tested and the ceiling finish has been applied, while also providing up to 1/2" (12.7 mm) of vertical adjustment. The cover assembly can be removed and reinstalled, allowing temporary removal of ceiling panels without taking the sprinkler system out of service or removing the sprinkler. The Electroless Nickel PTFE (ENT) coating has been investigated for installation in corrosive atmospheres and is C-UL-US-EU Listed as corrosion resistant as indicated in the Approval Charts. The ENT finish is only available for the sprinkler assembly, the cover plate is not plated.



2. LISTINGS AND APPROVALS



UL Listed (C-UL-US-EU): Category VKKW

Refer to the Approval Charts and Design Criteria on for C-UL-US-EU Listing requirements that must be followed.

3. TECHNICAL DATA

Specifications:

Available since 2008.

Minimum Operating Pressure: Refer to the Approval Chart.

Maximum Working Pressure: 175 psi (12 bar). Factory tested hydrostatically to 500 psi (34.5 bar).

Thread size: 1/2" (15 mm) NPT

Nominal K-Factor: 4.9 U.S. (70.6 metric*)

* Metric K-factor measurement shown is in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

Material Standards:

Sprinkler Body: Brass UNS-C84400 or QM Brass

Deflector: Phosphor Bronze UNS-C51000

Deflector Pins: Stainless Steel UNS-S30200

Button: Brass UNS-C36000

Seat Assembly: Brass UNS-C31600

Compression Screw: Brass UNS-C36000

Fusible Element Assembly: Beryllium Nickel, coated with black acrylic paint

Levers: Stainless Steel UNS-S31600

Lever Bar: Copper Alloy UNS-C72500

Belleville Spring Sealing Assembly: Nickel Alloy, coated on both sides with PTFE Tape

Cover Adapter: Cold Rolled Steel UNS-G10080, Finish: Clear Chromate over Zinc Plating

Shipping Cap: Polyethylene

Cover Plate Materials:

Cover Plate Assembly: Copper UNS-C11000 and Brass UNS-C26800

Spring: Beryllium Nickel

Solder: Eutectic

Ordering Information: (Also refer to the current Viking price list.)

Viking Freedom® Residential Concealed Pendent Sprinkler VK457 and Cover Plate Assembly must be ordered separately:

Sprinkler: Part No. 14694AC for Brass finish and 14694JNC for ENT finish (includes a 165°F (74°C) rated sprinkler with a protective plastic cap covering the unit).

Cover Plate Assembly: Base Part No. 13504 (2-3/4" diameter), Base Part No. 13642 (3-5/16" diameter), or Base Part No. 15394 (square cover plate, 3-5/16" diameter)

Viking Technical Data may be found on
The Viking Corporation's Web site at
<http://www.vikinggroupinc.com>.
The Web site may include a more recent
edition of this Technical Data Page.



TECHNICAL DATA

FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK457 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Specify finish and temperature rating of the cover plate assembly by adding the appropriate suffixes for the finish and the cover temperature rating to the base part number:

Finish Suffix: Polished Chrome = F, Brushed Chrome = F-/B, Bright Brass = B, Antique Brass = B-/A, Brushed Brass = B-/B, Brushed Copper = E-/B, Painted White = M-/W, Painted Ivory = M-/I, Painted Black = M-/B

Temperature Suffix: 135 °F/57 °C = A

For example, cover 13504 with a Polished Chrome finish and a 135 °F/57 °C temperature rating = 13504FA.

Available Finishes And Temperature Ratings: Refer to Table 1.

Accessories: (Also refer to the "Sprinkler Accessories" section of the Viking data book.)

Sprinkler Wrenches:**

A. Heavy Duty Part No. 13623W/B (available since 2006), or

B. Head Cabinet Wrench Part No. 13619*** (available since 2006)

C. Optional Concealed Cover Plate Installer Tool Part No. 14412 (available since 2007)

D. Optional Large Concealed Cover Plate Installer Tool Part No. 14867 (available since 2007)

Requires a 1/2" ratchet (not available from Viking). *Also optional for removal of the protective cap. Ideal for sprinkler cabinets.

Sprinkler Cabinet: Part No. 01731A (available since 1971)

4. INSTALLATION

Refer to appropriate NFPA Installation Standards.

5. OPERATION

During fire conditions, when the temperature around the sprinkler approaches its operating temperature, the cover plate detaches, releasing the deflector. Continued heating of the exposed sprinkler causes the fusible element to disengage releasing the sealing assembly. Water flowing through the sprinkler orifice strikes the deflector, forming a uniform spray pattern over a specific area of coverage determined by the water supply pressure at the sprinkler to extinguish or control the fire.

6. INSPECTIONS, TESTS AND MAINTENANCE

Refer to NFPA 25 for Inspection, Testing and Maintenance requirements.

7. AVAILABILITY

Viking Sprinkler Model VK457 is available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

8. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.

TABLE 1: AVAILABLE SPRINKLER TEMPERATURE RATINGS AND FINISHES

Sprinkler Temperature Classification	Sprinkler Nominal Temperature Rating ¹	Maximum Ambient Ceiling Temperature ²	Temperature Rating of the Cover Assembly (Required)	Cover Plate Base Part Number ³	Large Cover Plate Base Part Number ³	Square Cover Plate Base Part Number ³
Ordinary	165 °F (74 °C)	100 °F (38 °C)	135 °F (57 °C)	13504	13642	15394

Sprinkler Finishes: Brass and ENT

Cover Plate Finishes: Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black

Corrosion Resistant Coatings⁴: ENT

Footnotes

¹ The sprinkler temperature rating is stamped on the deflector.

² Based on NFPA-13, NFPA 13R, and NFPA 13D. Other limits may apply, depending on fire loading, sprinkler location, and other requirements of the Authority Having Jurisdiction. Refer to specific installation standards.

³ Part number shown is the base part number. For complete part number, refer to current Viking price list schedule.

⁴ The corrosion resistant coatings have passed the standard corrosion test required by the approving agencies indicated in the Approval Charts. These tests cannot and do not represent all possible corrosive environments. Prior to installation, verify through the end-user that the coatings are compatible with or suitable for the proposed environment. For automatic sprinklers, the ENT coating is applied to all exposed exterior surfaces, including the waterway. For ENT coated sprinklers, the Belleville spring is exposed.



TECHNICAL DATA

FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK457 (K4.9)


The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Approval Chart 1

Viking VK457, 4.9 K-Factor Residential Concealed Pendent Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria. For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure		
		Inches	mm	U.S.	metric ²			
14694AC	VK457	1/2	15	4.9	70.6	175 psi (12 bar)		
Max. Coverage Area ⁶ Width X Length Ft. X Ft. (m X m)	Ordinary Temp Rating (165 °F/74 °C)		Deflector to Ceiling	Installation Type	Listings and Approvals ³			Minimum Spacing Ft. (m)
	Flow ⁶ GPM (L/min)	Pressure ⁶ PSI (bar)			 ⁴	NYC	NSF ⁸	
12 X 12 (3.7 X 3.7)	13 (49.2)	7.0 (0.48)	Refer to Figure 2	Concealed with Cover Plate Assembly	See Foot- note 7 and 10	See Foot- note 5	See Foot- note 7 and 10	8 (2.4)
14 X 14 (4.3 X 4.3)	13 (49.2)	7.0 (0.48)						
16 X 16 (4.9 X 4.9)	13 (49.2)	7.0 (0.48)						
18 X 18 (5.5 X 5.5)	17 (64.4)	12.0 (0.83)						
20 X 20 (6.1 X 6.1)	20 (75.7)	16.7 (1.15)						

Footnotes

¹ Part number shown is the base part number. For complete part number, refer to current Viking price schedule.

² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

³ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. Refer also to Design Criteria.

⁴ Listed by Underwriter's Laboratories, Inc. for use in the U.S., Canada, and European Union.

⁵ Meets New York City requirements, effective July 1, 2008.

⁶ For areas of coverage smaller than shown, use the "Flow" and "Pressure" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum "Flow" and "Pressure" used.

⁷ Cover Temperature Rating is 135 °F (57 °C). Cover Part No. 13504¹, 13642¹ (large diameter), or 15394¹ (square cover plate).

⁸ UL Classified to: NSF/ANSI Standard 61, Drinking Water System Components (MH48034).

⁹ Other paint colors are available on request with the same listings as the standard finish colors. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.

¹⁰ Accepted Cover Plate Finishes are: Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black ⁹.



TECHNICAL DATA

FREEDOM® RESIDENTIAL CONCEALED PENDENT SPRINKLER VK457 (K4.9)

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

Approval Chart 2

Viking VK457, 4.9 K-Factor Residential Concealed Pendent Sprinkler

For systems designed to NFPA 13D or NFPA 13R. For systems designed to NFPA 13, refer to the design criteria. For Ceiling types refer to NFPA 13, 13R or 13D 2013 Editions

Sprinkler Base Part Number ¹	SIN	NPT Thread Size		Nominal K-Factor		Maximum Water Working Pressure		
		Inches	mm	U.S.	metric ²			
14694JNC	VK457	1/2	15	4.9	70.6	175 psi (12 bar)		
Max. Coverage Area ⁵ Width X Length Ft. X Ft. (m X m)	Ordinary Temp Rating (165 °F/74 °C)		Deflector to Ceiling	Installation Type	Listings and Approvals ³			Minimum Spacing Ft. (m)
	Flow ⁵ GPM (L/min)	Pressure ⁵ PSI (bar)			C-UL-US-EU ⁴	NYC	NSF	
12 X 12 (3.7 X 3.7)	13 (49.2)	7.0 (0.48)	Refer to Figure 2	Concealed with Cover Plate Assembly	See Footnotes 6, 8, and 9	--	--	8 (2.4)
14 X 14 (4.3 X 4.3)	13 (49.2)	7.0 (0.48)						
16 X 16 (4.9 X 4.9)	13 (49.2)	7.0 (0.48)						
18 X 18 (5.5 X 5.5)	17 (64.4)	12.0 (0.83)						
20 X 20 (6.1 X 6.1)	20 (75.7)	16.7 (1.15)						

Footnotes

¹ Part number shown is the base part number. For complete part number, refer to current Viking price schedule.

² Metric K-factor measurement shown is when pressure is measured in Bar. When pressure is measured in kPa, divide the metric K-factor shown by 10.0.

³ This chart shows the listings and approvals available at the time of printing. Other approvals may be in process. Check with the manufacturer for any additional approvals. Refer also to Design Criteria.

⁴ Listed by Underwriter's Laboratories, Inc. for use in the U.S. and Canada.

⁵ For areas of coverage smaller than shown, use the "Flow" and "Pressure" for the next larger area listed. Flows and pressures listed are per sprinkler. The distance from sprinklers to walls shall not exceed one-half the sprinkler spacing indicated for the minimum "Flow" and "Pressure" used.

⁶ Cover Temperature Rating is 135 °F (57 °C). Cover Part No. 13504¹, 13642¹ (large diameter), or 15394¹ (square cover plate).

⁷ Other paint colors are available on request with the same listings as the standard finish colors. Listings and approvals apply for any paint manufacturer. Contact Viking for additional information. Custom colors are indicated on a label inside the cover assembly. Refer to Figure 3.

⁸ Accepted Cover Plate Finishes are: Polished Chrome, Brushed Chrome, Bright Brass, Antique Brass, Brushed Brass, Brushed Copper, Painted White, Painted Ivory, or Painted Black ⁷.

⁹ C-UL-US-EU Listed as corrosion resistant.



TECHNICAL DATA

**FREEDOM® RESIDENTIAL
CONCEALED PENDENT
SPRINKLER VK457 (K4.9)**

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

DESIGN CRITERIA

(Also refer to the Approval Chart on page 4.)

UL Listing Requirements (C-UL-US-EU):

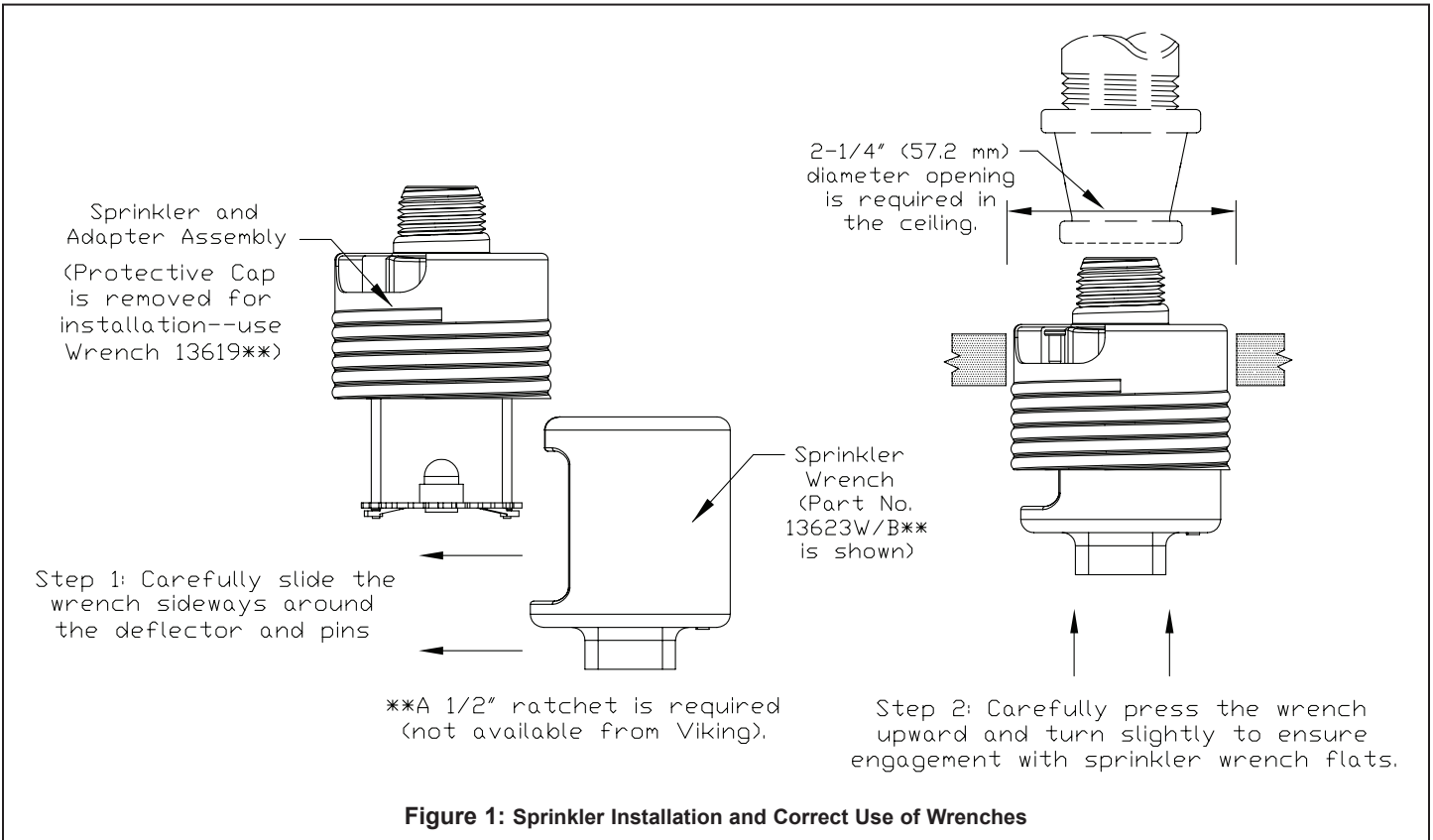
When using Viking Residential Concealed Pendent Sprinkler VK457 for systems designed to NFPA 13D or NFPA 13R, apply the listed areas of coverage and minimum water supply requirements shown in the Approval Charts.

For systems designed to NFPA 13: The number of design sprinklers is to be the four contiguous most hydraulically demanding sprinklers. The minimum required discharge from each of the four sprinklers is to be the greater of the following:

- The flow rates given in the Approval Charts for NFPA 13D and NFPA 13R applications for each listed area of coverage, **or**
- Calculated based on a minimum discharge of 0.1 gpm/sq. ft. over the “design area” in accordance with sections 8.5.2.1 or 8.6.2.1.2 of NFPA 13.
- Minimum distance between residential sprinklers: 8 ft. (2.4 m).

NOTE: Concealed sprinklers must be installed in neutral or negative pressure plenums only.

IMPORTANT: Always refer to Bulletin Form No. F_091699 - Care and Handling of Sprinklers. Also refer to pages RES1-17 for general care, installation, and maintenance information. Viking sprinklers are to be installed in accordance with the latest edition of Viking technical data, the appropriate standards of NFPA and any other similar Authorities Having Jurisdiction, and also with the provisions of governmental codes, ordinances, and standards, whenever applicable. Final approval and acceptance of all residential sprinkler installations must be obtained from the Authorities Having Jurisdiction.



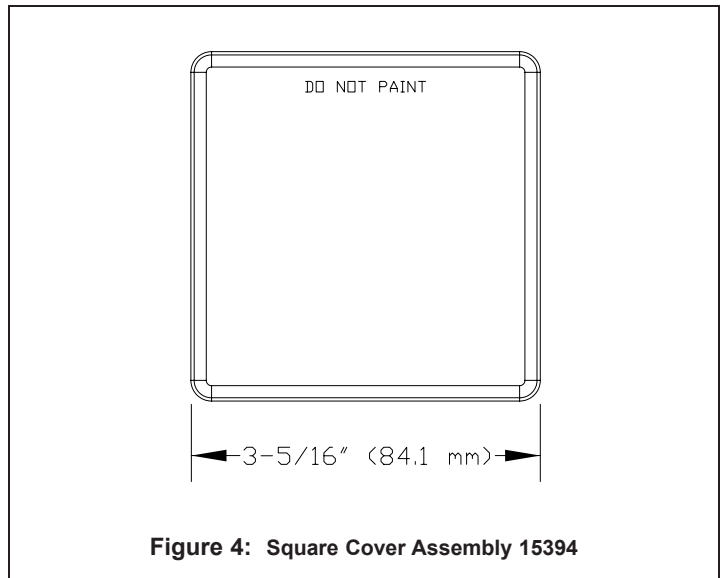
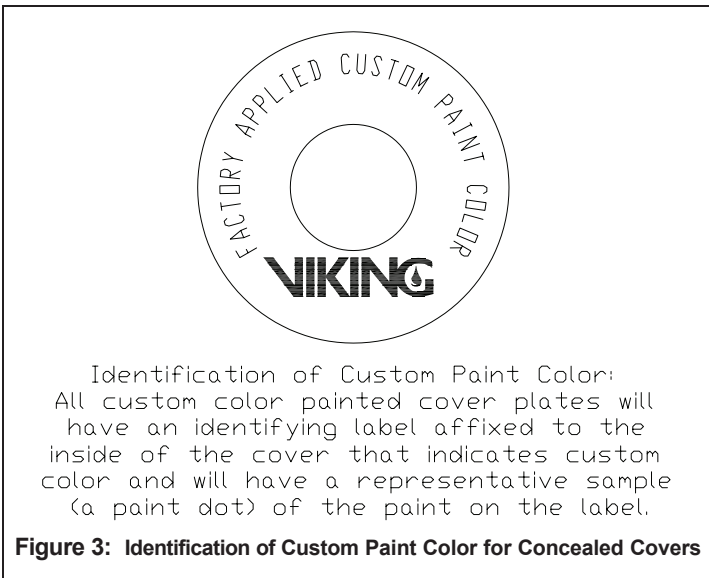
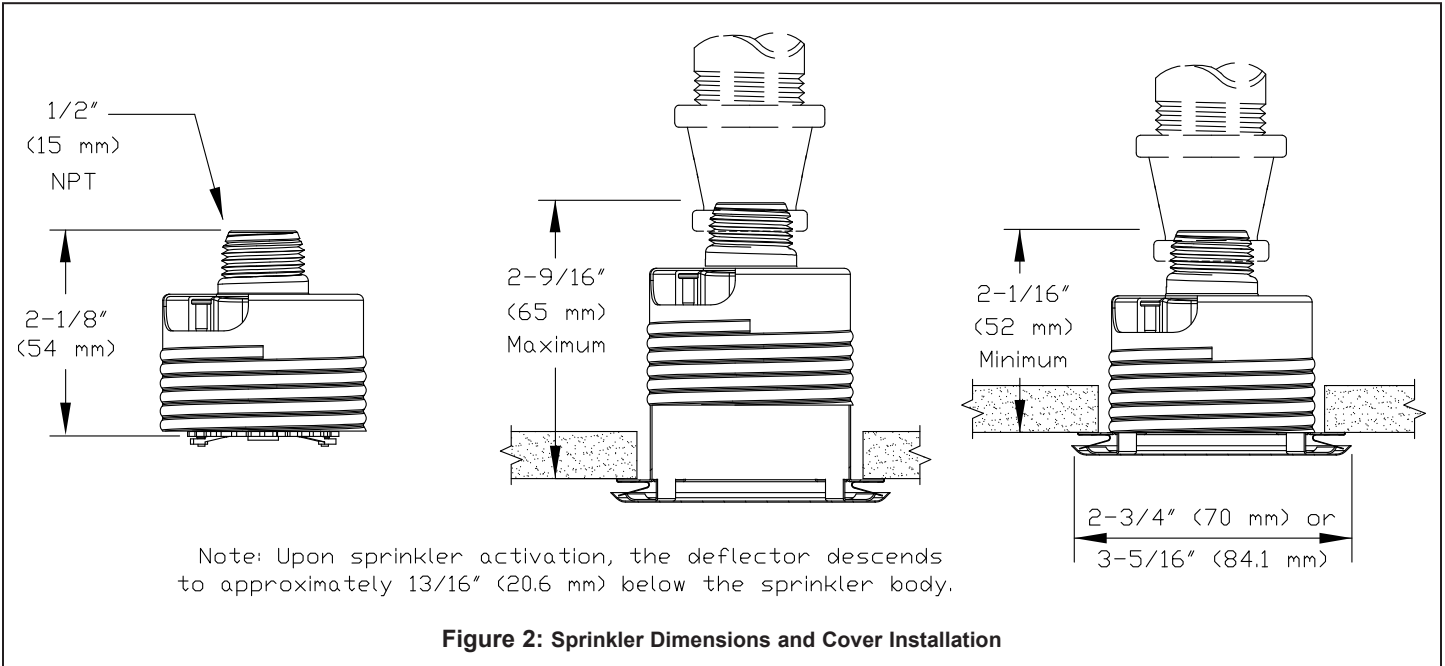


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www.lg.com www.lgeaircon.com
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Distributed by



THERMA V™

Air-to-water Heat Pump

**High Efficient
Heating
Solution**



Focus on Energy & Environment

Continuous Challenges

The EU has set a target to cut emissions by 40% by 2030 with 27% of energy being produced by renewable sources. Plans are in place to move each country to a more energy efficient, low-carbon economy to help meet this target.

The UK's example

- The UK "Green Deal" and the "CRC Energy Efficiency Scheme" to assist investing in low carbon technologies
- All properties (homes, commercial and public buildings) must have an "Energy Performance Certificate (EPC)" when sold, built or rented.
- Larger public buildings over 500m² must display a "Display Energy Certificate (DEC)."

The Renewable Heat Incentive (RHI)

The RHI is the UK Government financial incentive scheme to encourage a switch from fossil fuel heating systems to renewable heating systems.

Renewable heat is defined as the heat generated minus the electrical input. (If the output is 10 kW, and the input is 3 kW, then the renewable output is 7kW, or 7kWh every hour of operation.)

- **The domestic RHI for Air to Water Heat Pump (launched 9 April 2014) :**
RHI pays 7.3p/kWhr to homeowners, private landlords, social landlords and self-builders.
- **Non-domestic RHI for Air to Water Heat Pump (launched 28 May 2014) :**
RHI pays 2.5p/kWhr to industry, businesses and public sector organization.

In order to claim for the RHI you will need a Green Deal Assessment and a MCS approved product and an MCS approved installer.

Microgeneration Certified Scheme (MCS)

Before applying

- A Green Deal Assessment must be carried out.
- Install loft or cavity wall insulation if it's recommended in the Green Deal Advice Report.
- Get an updated EPC (Energy Performance Certificate) to verify you've installed the loft or cavity wall insulation.

How to apply

The end-user must complete an online application form and supply

- MCS Certificate (or equivalent) Number
This is at the top of the certificate and looks like : MCS 01 234567-A
- EPC Number
This is at the top of your certificate and looks like : 12345-5678-9012-3456
- Green Deal Advice Report Number
This is at the top of your report and looks like : 12345-6789-0123-4567

Save money and pay-back

- Domestic RHI Claimable for 7 years (this can be backdated) Tariff 7.3pkWhr
- Non-domestic RHI Claimable for 20 years Tariff 2.5pkWhr

*Further Information

<https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive>
<https://gdcashback.decc.gov.uk/>
<https://www.gov.uk/crc-energy-efficiency-scheme-qualification-and-registration>

European Standards

LG THERMA V has adopted for the energy certification to correspond with the market demand for the each country. THERMA V has been validated for its reliability and efficiency by acquiring these certifications under strict conditions.

Certification benefit

- MCS (UK) : RHI (Renewable Heat Incentive) tariff 7.3 Pence / kWh for 7 years
- NF PAC (France) : Promoted in the context of Thermal Regulation RT 2012. Tax Refund (15%-25% of product cost)
- EUROVENT (EU) : Model registration at the EUROVENT website



LG Energy Lab

LG THERMA V has passed through the severe testing condition at the Energy Lab which is located in northern France. It can prove LG THERMA V is designed to make sure the steady performance and reliability under European winter condition.

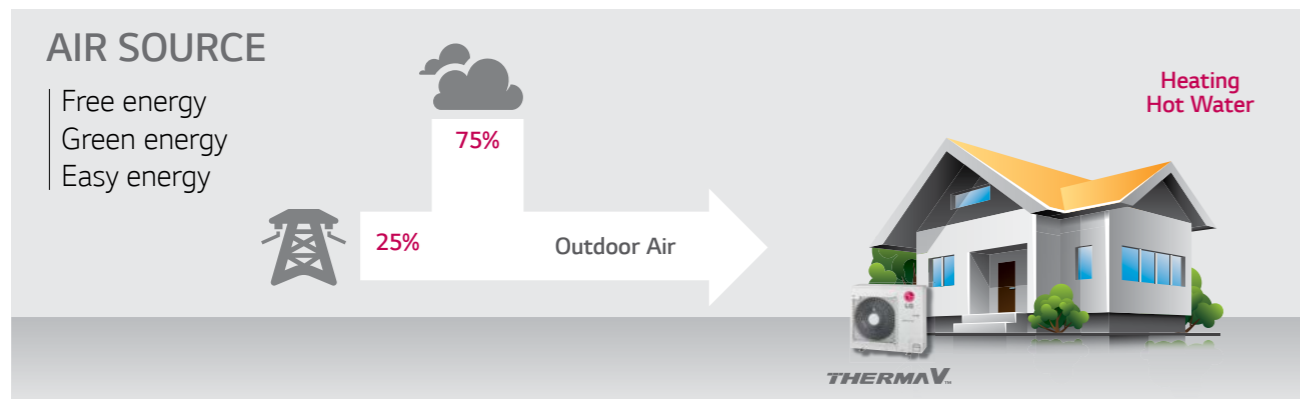


What is LG THERMA V?

THERMA V is LG's newest Air to Water Heat Pump system, especially designed for new housing and renovation by LG's advanced heating technology with energy saving. THERMA V can be used as various heating solution from floor heating to hot water supply with multiple heat sources.

Energy Efficient Application

THERMA V offers the best solution for home heating and hot water supply with LG's inverter technology. It is 4 times more energy efficient than boiler system by absorbing energy from the outdoor environment.



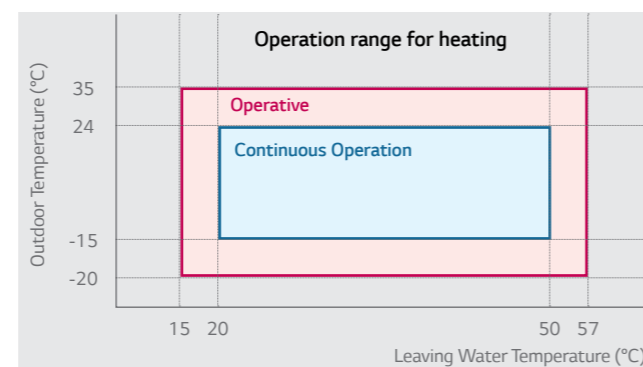
Optimal Application

Advanced model selection software enables designers to choose optimal THERMA V model based on the location and environmental factors.

- Model selection screen
- Monthly energy simulation
- Heat load & heat pump capacity
- System comparison chart

Reliable Application

Heating range for outdoor temperature is down to -20°C and leaving water temperature can reach max. 57 degree.



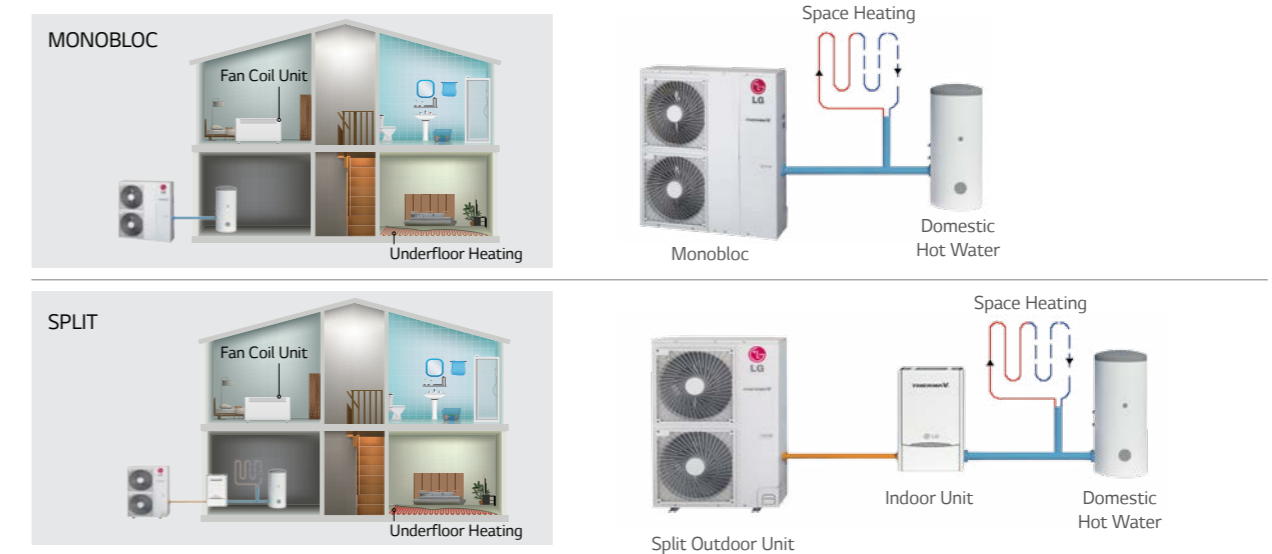
* In case of Monobloc models.

Various Application

Various kinds of application is possible with THERMA V units including new house also renovation house.

New House

With low temp. monobloc & split model, heating and cooling can be done.



Renovation House

THERMA V can be connected to existing boiler system to optimize energy efficiency and heating capacity for renovation house. Also THERMA V High Temperature can replace completely existing boiler by providing 80°C hot water.



Why LG THERMA V?

The LG Therma V is designed to create incomparable customer values like energy saving, comforts, easy controls and services by applying the advanced technologies.

The LG inverter technology provides excellent energy efficiency with optimal components such as water pump, heat exchanger and fan motor.

Moreover, the pressure control technology provides stable heating capacity at low temperature and reaches target performance without difficulties.

Additionally, the differentiated structure like all-in-one type, gold-fin and users-oriented functions enhance professionals reputations as well as end-users happiness by experiencing the LG's full line-up from 3kW to 16kW in heating capacity.

1 ENERGY EFFICIENCY



P.08

- Highly efficient inverter compressor
- Savings from energy efficient water pump
- Energy efficiency at -2°C
- Optimized components

2 CONVENIENCE & COMFORT



P.10

- Stable heating capacity with refrigerant pressure control
- Low operating noise
- Convenient control for end-users

3 EASY INSTALLATION & SVC



P.12

- Compact size & light weight for easy installation
- All-in-one type for quick and reliable installation
- Improved structure for easy service
- Emergency operation mode
- Service & Warranty support

1 ENERGY EFFICIENCY

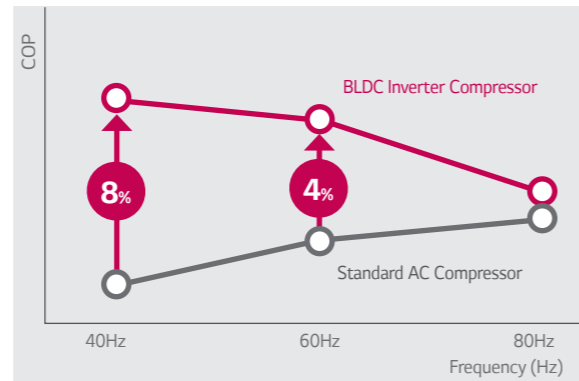
Powerful BLDC* Compressor

*BLDC : Brushless DC Motor

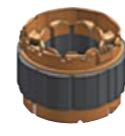
THERMA V is equipped with a BLDC* compressor that uses a strong neodymium magnet. The compressor has improved efficiency compared to standard AC inverter product and it is optimized for seasonal efficiency.



- Minimized oil circulation
- High efficiency motor
- Optimized compression
- Optimized vibration, noise
- High reliability



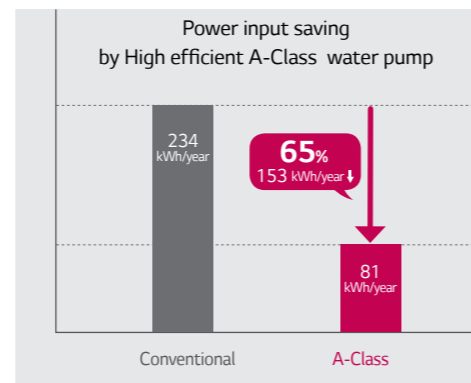
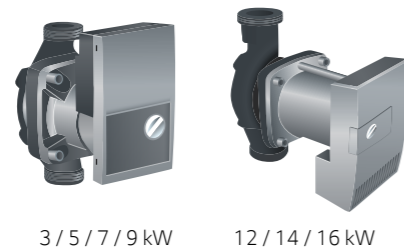
Conventional Distributed Winding



New Concentrated Winding

High Efficient Water Pump

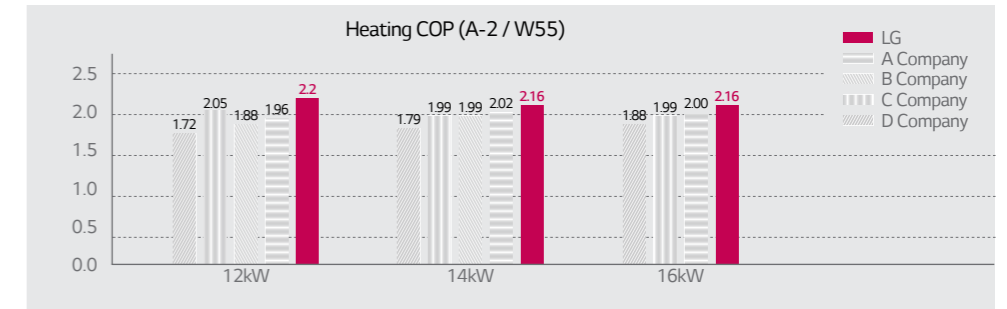
THERMA V is equipped with a high efficiency A-Class water pump. The pump pressure is adjustable, to suit design conditions.



* Condition : 12 hours x 30 days x 5 month (estimated value)

Energy Efficiency at -2°C

Energy efficiency is higher than others. (Condition : Ambient temp. -2°C / Leaving water temp. 55°C)



* Peak value / Monobloc models.

Heat Exchanger Improvement

Efficiency and performance are improved by increased heat exchange rate of wide louver fin & new optimal distributor design applied to the heat exchanger.

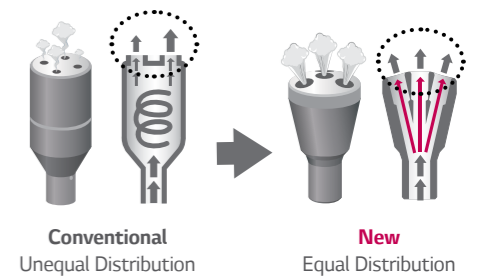
Wide Louver Fin

Improved heat exchanger efficiency of up to 28%.

Optimized Heat Exchanger Path

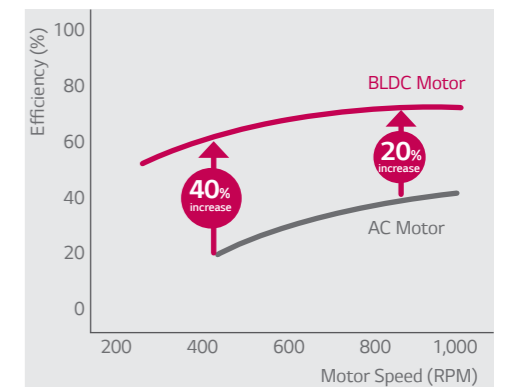
Improved cycle efficiency up to 5% with equal distribution.

Heat Exchange Rate (%)



Inverter BLDC Fan Motor

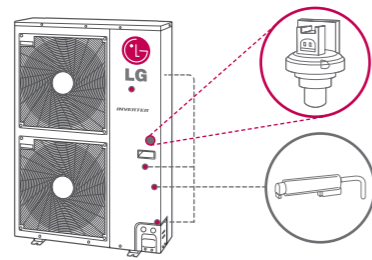
LG BLDC fan motor offers additional energy savings up to 40% at low speed and 20% at high speed compared to an AC motor.



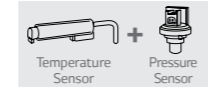
2 CONVENIENCE & COMFORT

Reliability at Low Temperature

Pressure control reinforces heating performance by operating in stable condition at low ambient temperature.

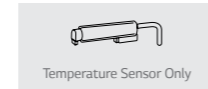


Pressure Control



This ensures to reach target performance point without failing to keep a reliable operation.

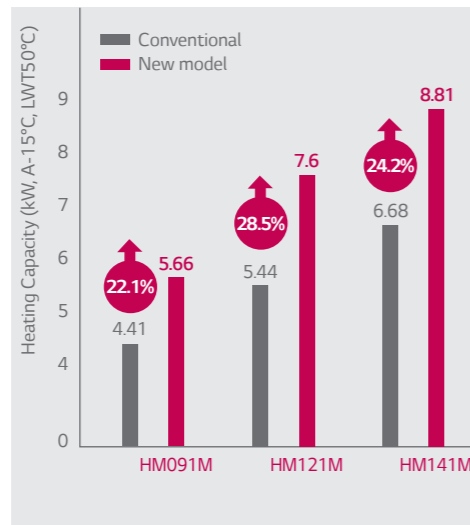
Temperature Control



This algorithm is more likely to be affected by temperature change and it takes more time to calculate proper operation range of compressor to target point.

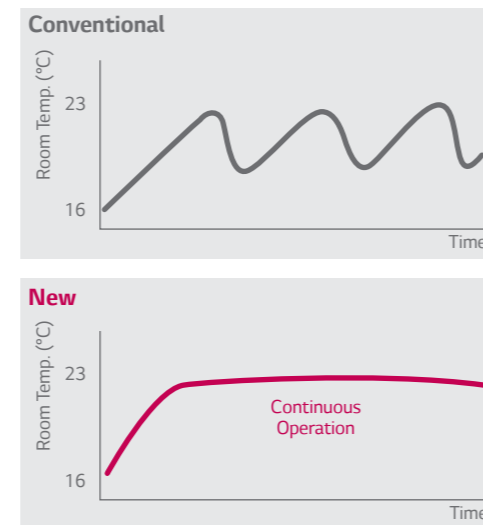
Heating Capacity at Low Temperature

High and stable performance at low temperatures.



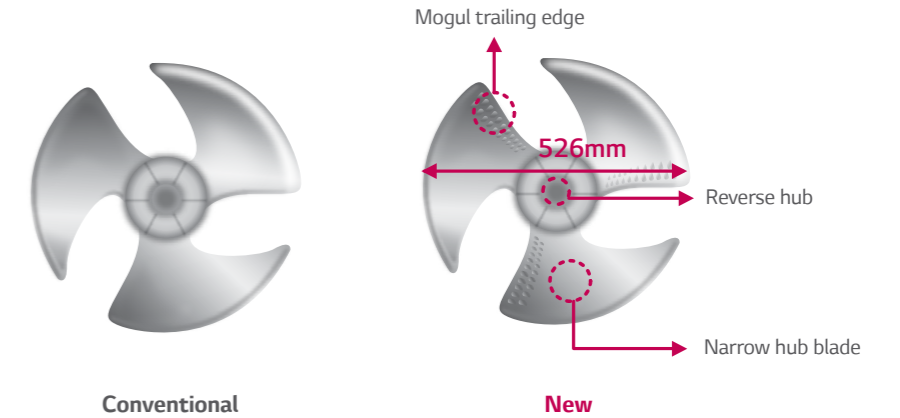
Stable Operation

High and stable heating performance at low temperatures.



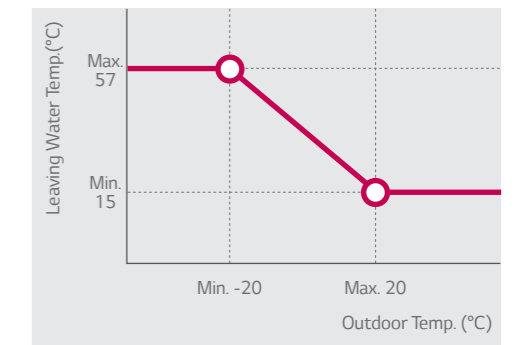
Improved Fan for Low Noise

The New Axial Fan has a narrow hub blade and mogul trailing edge, this provides a high efficiency, low noise as well as improving the air flow rate.



Weather Dependent Operation

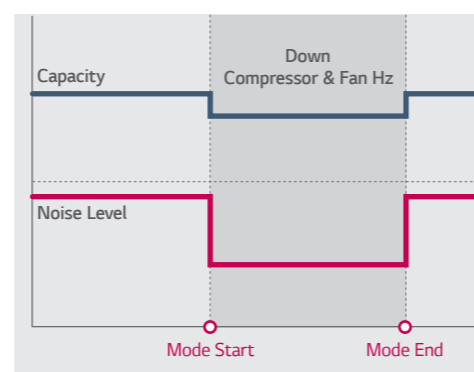
If users choose this mode, setting temperature will follow outdoor temperature automatically. If outdoor temperature decreases, heating capacity for the house will increase automatically in order to keep comfortable heating performance according to weather.



Silent Mode & Scheduler

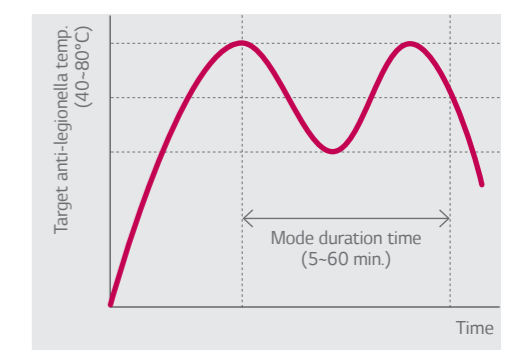
Silent mode operation can reduce the noise level specially during the setting time by remote controller and users can set the weekly on/off schedule also.

Heating Capacity (kW)	Heating Sound Pressure (dBA)	
	Normal	Silent Mode
3	47	43
5	51	48
7	52	48
9	52	48
12	53	50
14	53	50
16	53	50



Anti-Legionella Function

By setting Anti-legionella operation mode on, THERMA V heats the whole water tank automatically once a week until water temperature reach up to 80°C.

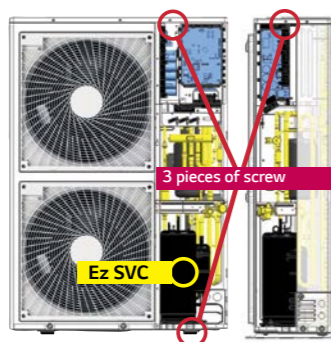
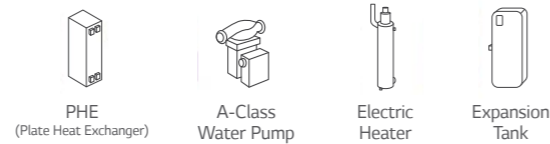


3 EASY INSTALLATION & SVC

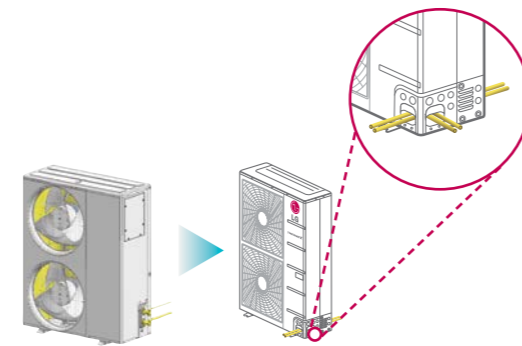
Ez Installation & SVC



All-in-one concept
 LG will provide fully packaged monobloc with 4 main component. (except 3kW monobloc) basically.
 No need to work refrigerant piping, easier and quicker installation.



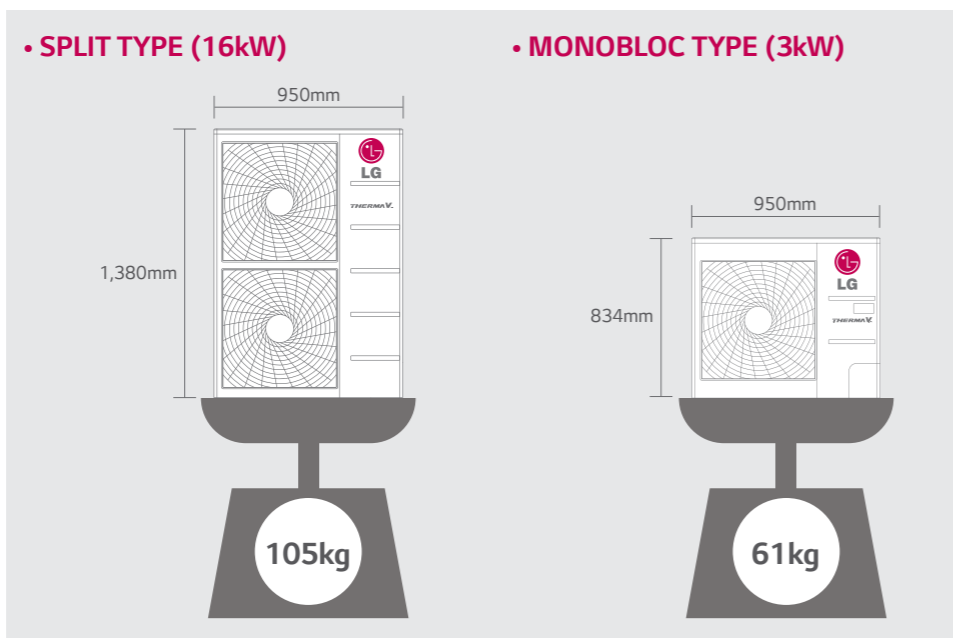
Compact design & Ez SVC
 - Remove 3 pieces of screw for SVC
 - Front panel removal system



3-Way charging pipe (Split type only)
 Refrigerating connection is possible in three directions.

Compact & Slim

THERMA V is shaped to minimize the size and weight in order to help easy and efficient work condition for installation.



Emergency Operation

Even in case of sudden product error, THERMA V ensures stable heating operation by applying 2 steps of emergency control.

INFORMATION

- In case of **Minor Error** (Mainly caused by sensor)
 - THERMA V = ON, Electric Heater = ON/OFF
- In case of **Major Error** (Mainly caused by cycle parts)
 - THERMA V = OFF, Electric Heater = ON

Comparison: Conventional (person in bed) vs LG THERMA V (person reading).

Corrosion Resistant Heat Exchanger

LG's Outdoor Heat Exchanger is coated with a gold-colored anti-corrosive epoxy treatment on the aluminum coil, to prevent corrosion. This maintains excellent heat transfer properties of the coil for an extended time, whereas non-Gold Fin™ coils progressively lose efficiency due to surface corrosion. Gold Fin™ fin is perfect for areas with high pollution or locations exposed to saltwater spray from the sea.

Composition of Fin screens

[Salt Spray Test for 15 Days]

• Gold Fin is long lasting, durable and makes the Outdoor Unit look prestigious.

Service and Warranty

LG provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.

3 Levels of Technical Service

- 1 Level BEFORE INSTALLATION**
 - Model selection
 - Energy simulation
 - Life time cost simulation
 - Quotation
- 2 Level ON-SITE SUPPORT**
 - Engineers visit (on demand)
 - Consultative support
 - LG Hot-line support
 - Installation assistance
- 3 Level COMMISSIONING & WARRANTY VALIDATION**
 - Pre commissioning
 - Commissioning
 - Post commissioning
 - Spare parts
 - Warranty SVC

LG Warranty Package (The UK Example)

PRE-PREVENTIVE ACTION	POST-CONTROL ACTION
<ul style="list-style-type: none"> - Free technical training - Free AWP health check* - Dedicated spare parts division - TM44 CIBSE Energy inspections 	<ul style="list-style-type: none"> - 3 years warranty for all parts and a contribution towards labor. - Optional 5 year warranty on parts with the LG Approved Installer Scheme. - On-site attendance within 48 hours.** - SMS or email fault code diagnostics.

* If 3 warranty issues are claimed within the warranty period.
 ** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

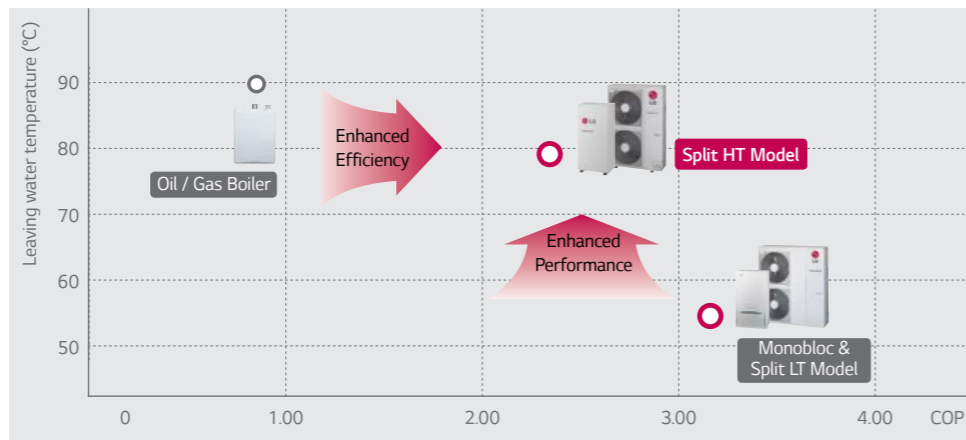
NEW

THERMA V HIGH TEMPERATURE



Enhanced Efficiency & Performance

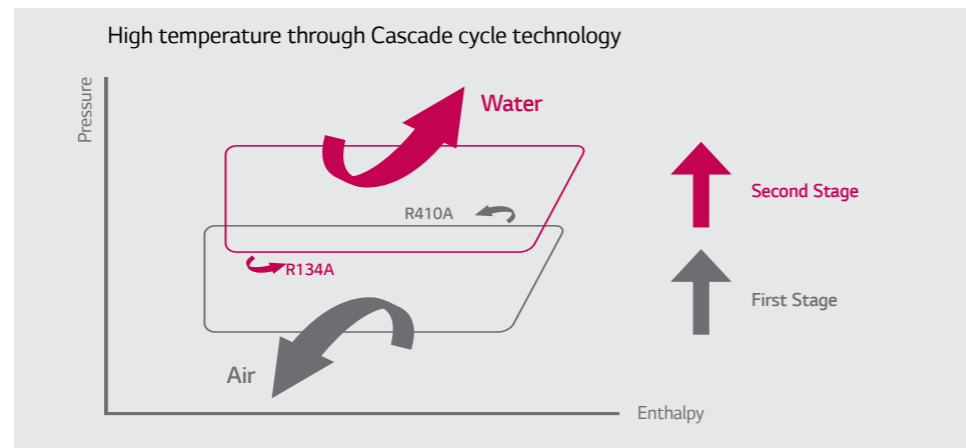
THERMA V high temp. can produce Max. 80°C hot water with high efficiency (Max. COP 4.06 at 24°C ODT & 40/45 EWT/LWT) through cascade 2 stage compression technology.



*Condition for HT model : Outdoor air temp. 18°C, entering water temp. 70°C
*Condition for LT model : Outdoor air temp. 18°C, entering water temp. 50°C

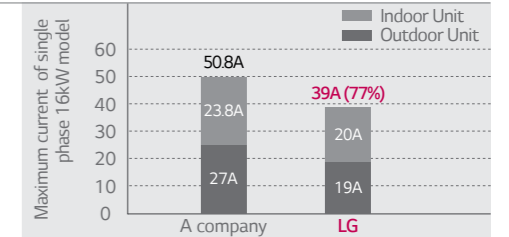
Cascade 2 Stage Compression Technology

Max. 80°C hot water can be generated through Cascade R410A to R134A BLDC compressor technology and applicable for existing old boiler heating system which demands hot water supply.



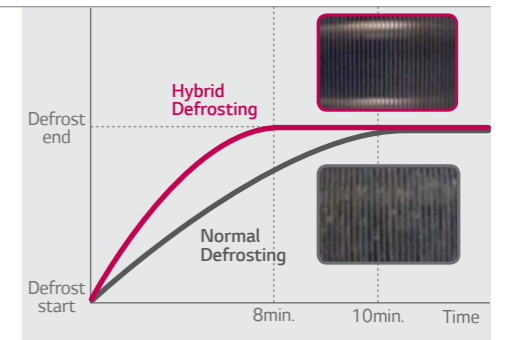
Low Maximum Current Level

LG High Temperature THERMA V can be easily installed without any additional electric connection cost.

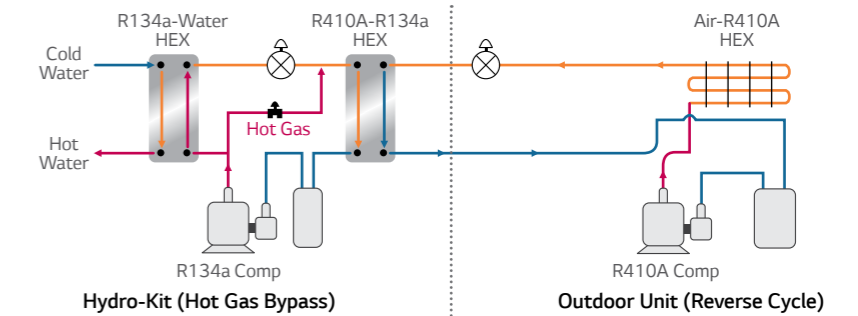


Quick Defrosting

Through R134A compressor controlling technology, necessary time for defrost operation has been minimized effectively. (LG Patent)

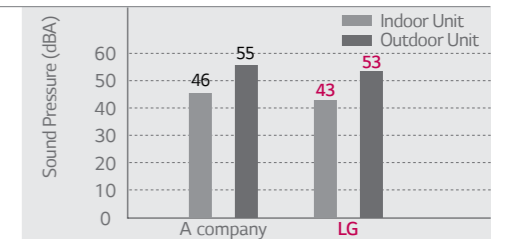


As compared to normal reverse cycle defrost, 25% reduction in defrost time, and 10% increase of integrated heating capacity is achieved using hybrid defrosting.



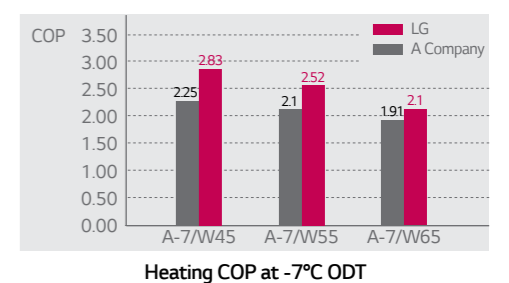
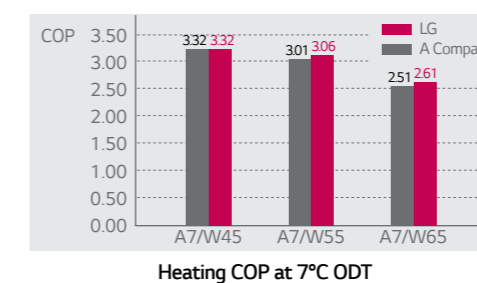
Low Noise Level

Through cutting edge technology for DC inverter compressor, operating noise level of indoor & outdoor unit has been reduced and serves more comfort.



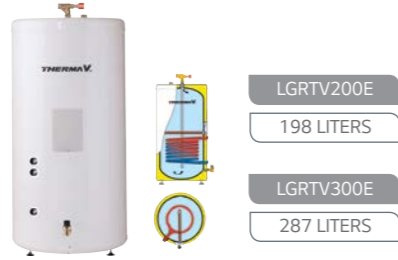

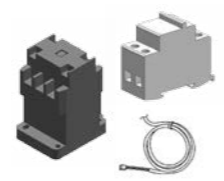




Higher Energy Efficiency

By applying efficient compressor and optimally designed structure, the more energy saving, the lower operating cost make sooner return on initial investment.













ACCESSORY

Accessories provided by LG

Accessory	Feature
Domestic Hot Water Tank	 <p>LGRTV200E 198 LITERS</p> <p>LGRTV300E 287 LITERS</p> <p>Single Coil</p>  <p>LGRTV200VE 198 LITERS</p> <p>LGRTV300VE 287 LITERS</p> <p>Double Coil</p>
Domestic Hot Water Tank Kit	<ul style="list-style-type: none"> • PHLTA (1Φ, Split) • PHLTC (3Φ, Split) • PHLTB (Monobloc) <p><i>* The sensor (PHRSTA0) can be purchased separately in case of using other brand's Domestic tank.</i></p>  <p>PHLTA / PHLTC</p>  <p>PHLTB</p> <p>Features Easy to install the domestic hot water for monobloc. There is a MCCB to protect the product. Dimension(mm) (HxWxD) : 250x170x110 Weight(kg) : 2.1</p> <p>To extend THERMA V functionality in generating domestic hot water.</p>
Remote Temperature Sensor	<ul style="list-style-type: none"> • PQRSTA0  <p>Features It can help to detect the exact room temperature. Applied to ceiling cassette, ceiling concealed duct, AWHP and Hydro Kit.</p> <p>Parts Included Remote temperature sensor / Extension cable (15m) / Manual</p>
Solar Thermal Kit	<ul style="list-style-type: none"> • PHLLA  <p>Features To interface solar-thermal system with THERMA V and double coil Domestic tank. Installed at the water pipe, between Domestic tank and solar-thermal system. Dimension(mm) (HxWxD) : 110x55x22</p>
Dry Contact	<ul style="list-style-type: none"> • PQDSA  <p>Features For connection with boiler(Bivalent scene)</p>

Optional accessories supplied in the fields

No.	Accessory	Picture	Purpose	Specification
1	Domestic Hot Water Tank		Store and provide hot water for sanitation	Volume : 200-400 l Enamelled or stainless-steel tank / Insulating foam (e.g. PUR - polyurethane) heat-exchanger surface ≥ 3 m²
2	3-Way-Valve		Switch between heating and domestic hot water circuit	230V AC SPDT (Single Pole Double Throw) / opening time 30-90 sec / final position switch Internal leakage rate < 0,1%
3	Electrical Tank Heater		Supports heating of domestic hot water, when heat pump is blocked or capacity is limited	2-6 kW Connector dimension suitable for DHW tank
4	Buffer Tank		Prevents cycling, when water volume is low and/or heating demand is low; secures enough heat for defrosting cycle	Insulating foam (e.g. PUR - polyurethane) Volume : 100-200 l (installation in series with heat pump) 500-1,000 l (installation in parallel with heat pump)
5	Bypass Valve		Ensures minimum water flow rate, when flow through heating circuits is limited due to closed valves	Dimensioning according manufacturer adjustable opening pressure
6	2-Way-Valve		Blocks heating circuits, that are not suitable for cooling during cooling operation	230V AC NO or NC type final position switch
7	Expansion Vessel		Absorption of pressure differences in the heating circuits due to temperature increase/decrease of the water	Dimensioning on-site required
8	Strainer		Protects plate-heat-exchanger from blocking particles	1 inch / 25.4mm, Mesh size ~ 1x1mm for HM03M1.U42 only (other models are included)
9	Heating Cable		Prevents the condensate pan and the drainage pipe from icing	Thermostatic control depending on outdoor temperature
10	Condensate Pan		Collects condensate water (when dropping to the base is not possible) and drains the water to a pipe	Diameter of drainage at least 3/4" Minimum dimensions according to chassis sizes (refer to specification) plus 5-10cm in width and length
11	Antifreeze		Prevents the heating water from freezing, when heat pump is out of order	Monoethyleneglycole Concentration according to lowest possible outdoor temperature
12	Noise Damper		Prevents that structure-born noise is transported via the water piping	EPDM; Operating temperature according climate region (at least -10 - +90°C)
13	Anti-Noise Sockets		Prevents that structure-born noise is transported to the base or to the brackets	Dimensioning on-site required
14	Thermostat		When thermostatic room temperature control is preferred by customer	230V AC When heat pumps operates in heating and cooling mode: thermostat with mode selection
15	Refrigerant Tubes		Pre-fabricated double-pipe to connect split indoor and outdoor unit	Diameter: Please refer to Specification
16	Water Tubes		Pre-fabricated double-pipe to connect monobloc outdoor unit with heating system	When heat pump is used for cooling: diffusion-resistant tubes
17	Bushing Sleeve		Protecting the building against pressing water coming through the duct of the heating tubes	Dimensioning on-site required
18	Insulation Material		Mandatory when heat pump is used for cooling; prevents condensate water on cold pipes and assemblies	Diffusion-resistant

FLEXIBLE APPLICATIONS

Table of the Hydraulic Applications

This shows some examples of how to integrate the THERMA V into the heating system according to each customer needs. Each application is accompanied with the representative connection and installation explanations with symbol icons.

Case	Heating	DHW	Heating & Cooling	Bivalent with boiler	Double Zone Heating
1	•				
2	•	•			
3	•	•	•		
4	•	•			•
5	•	•		•	•
6	•*	•	•		

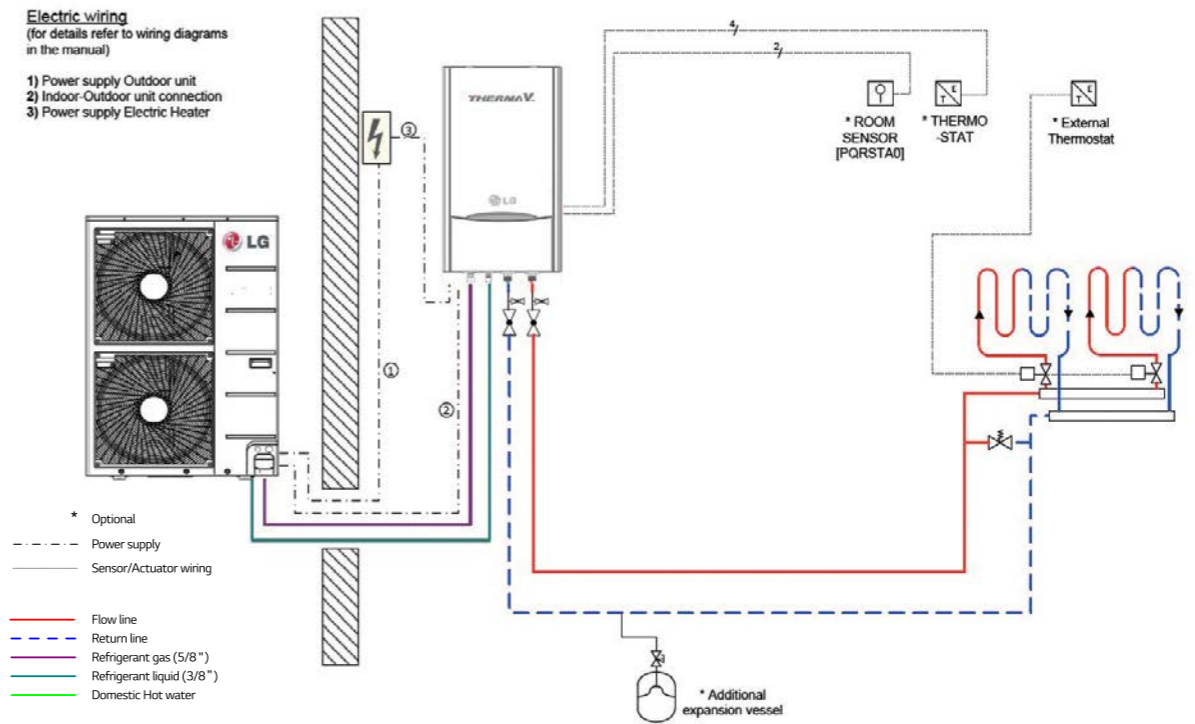
Combinations of these systems might be possible. Please refer to your local LG heating specialist.

* High Temperature 80°C

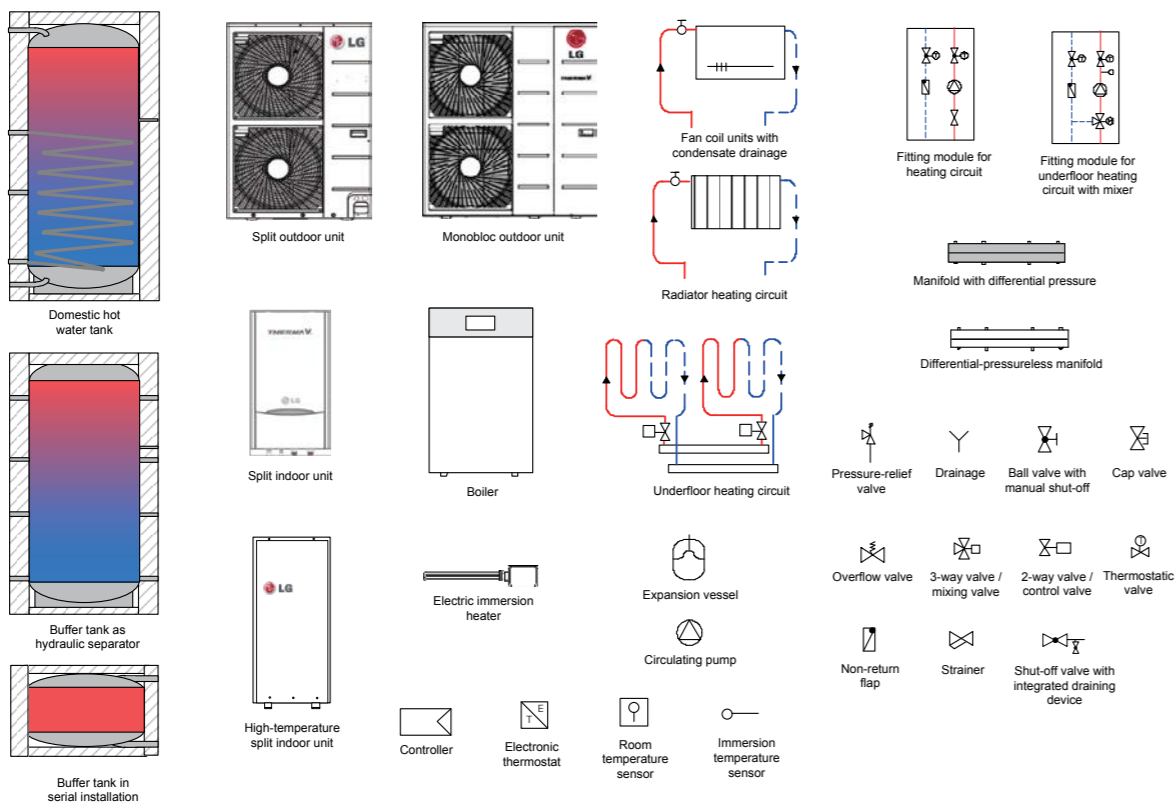
Case 1. Split _ for Floor Heating

Electric wiring
(for details refer to wiring diagrams in the manual)

- 1) Power supply Outdoor unit
- 2) Indoor-Outdoor unit connection
- 3) Power supply Electric Heater



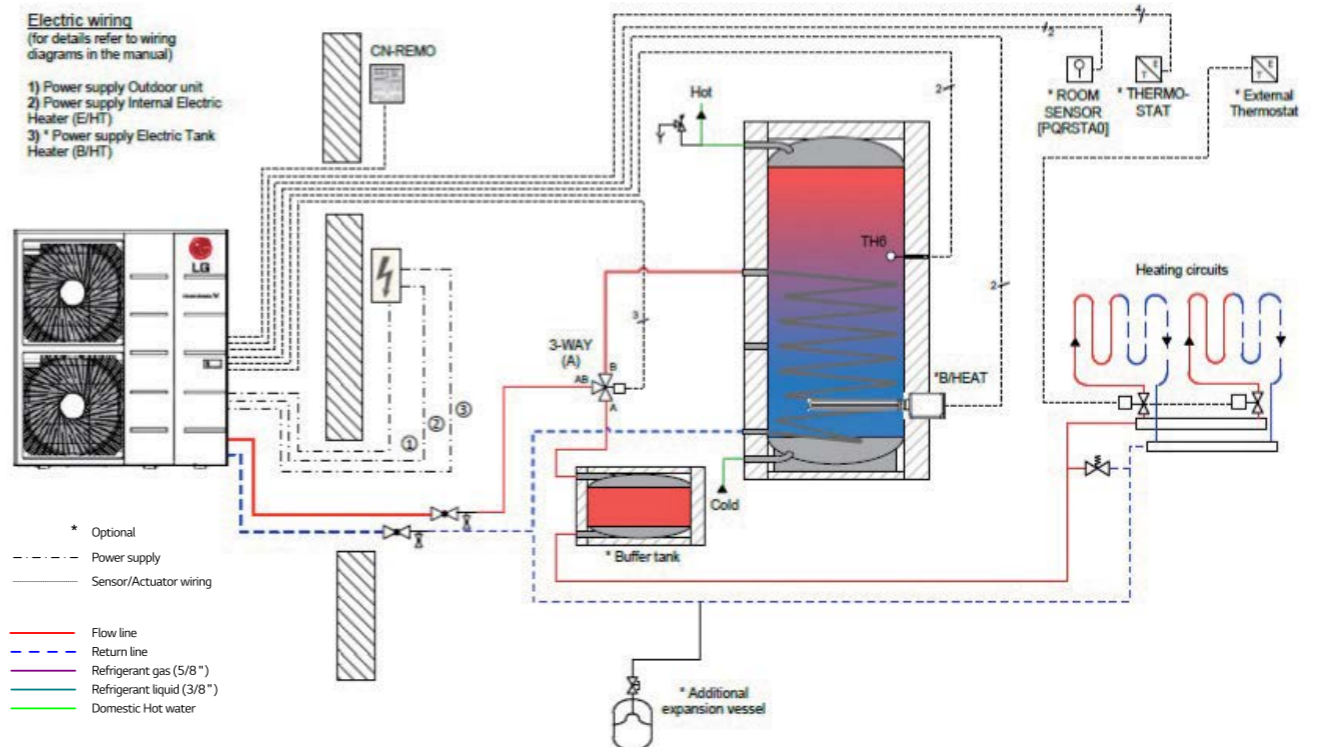
Used Symbols



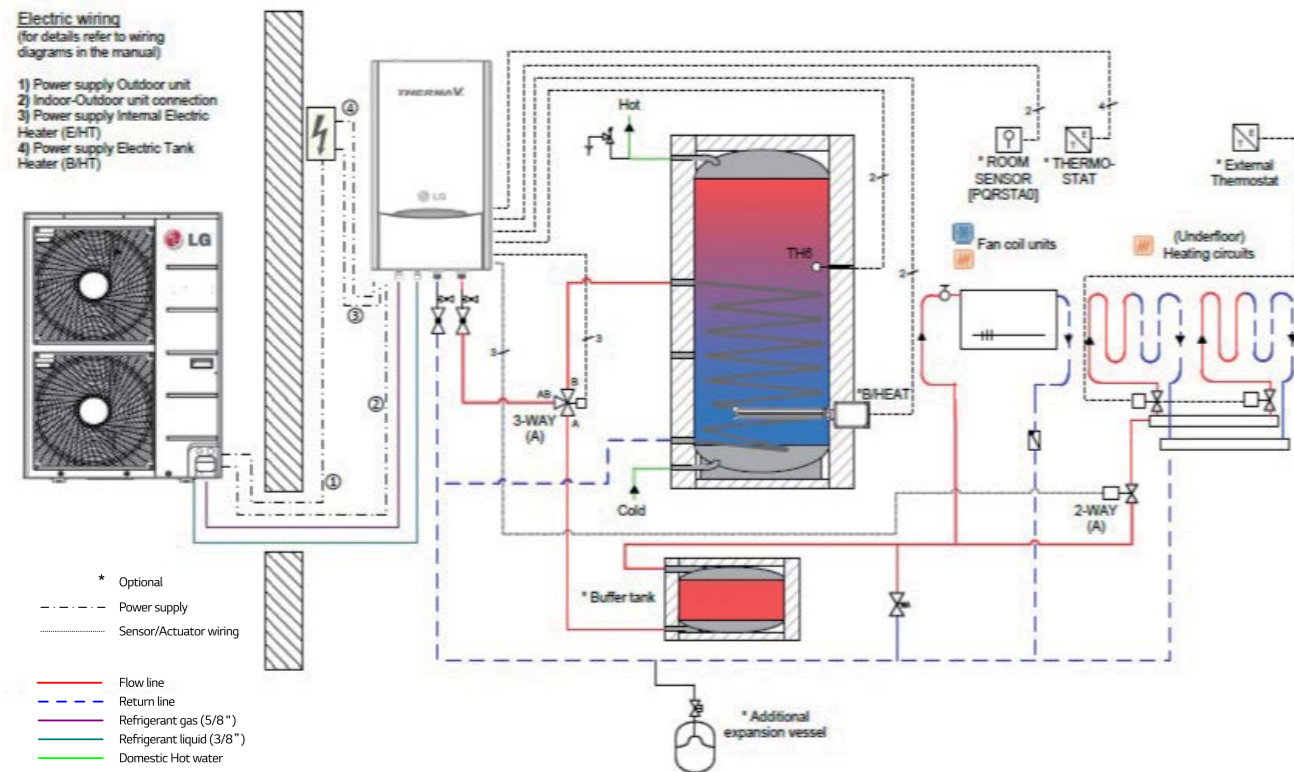
Case 2. Monobloc _ for Floor Heating & DHW

Electric wiring
(for details refer to wiring diagrams in the manual)

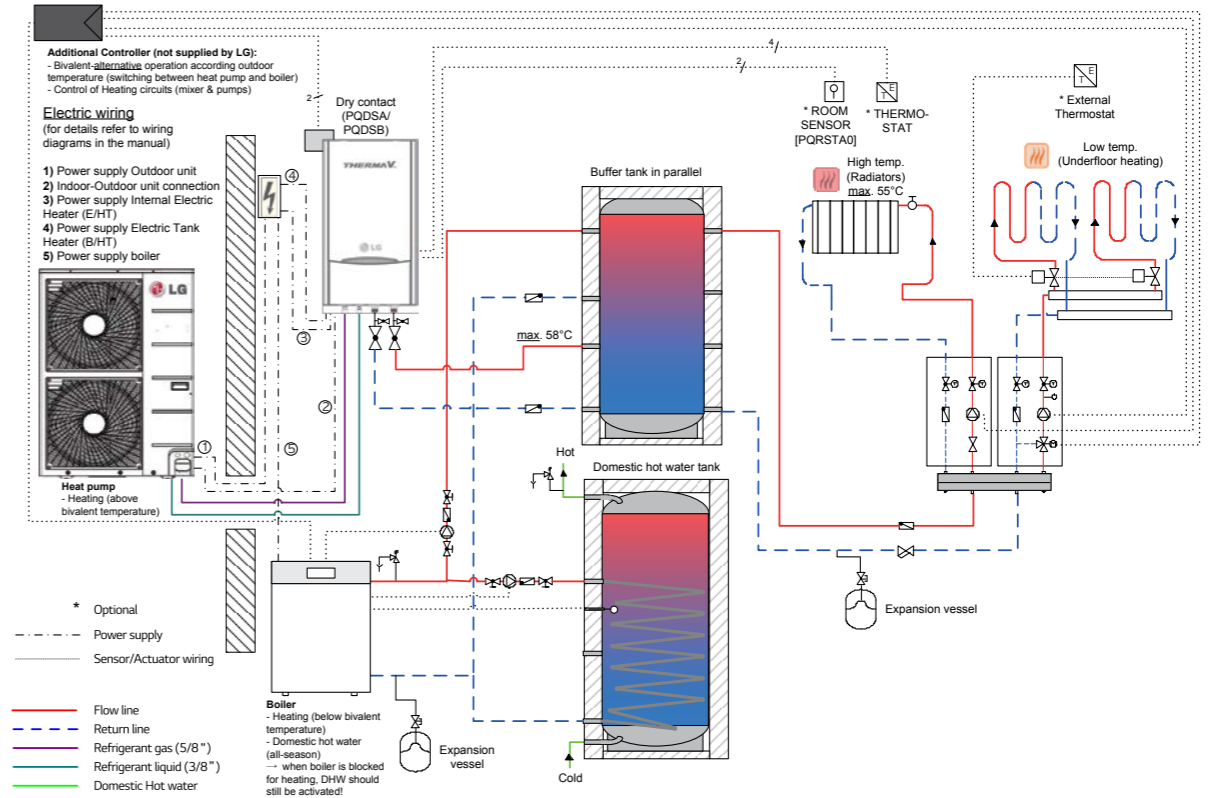
- 1) Power supply Outdoor unit
- 2) Power supply Internal Electric Heater (E/HT)
- 3) * Power supply Electric Tank Heater (B/HT)



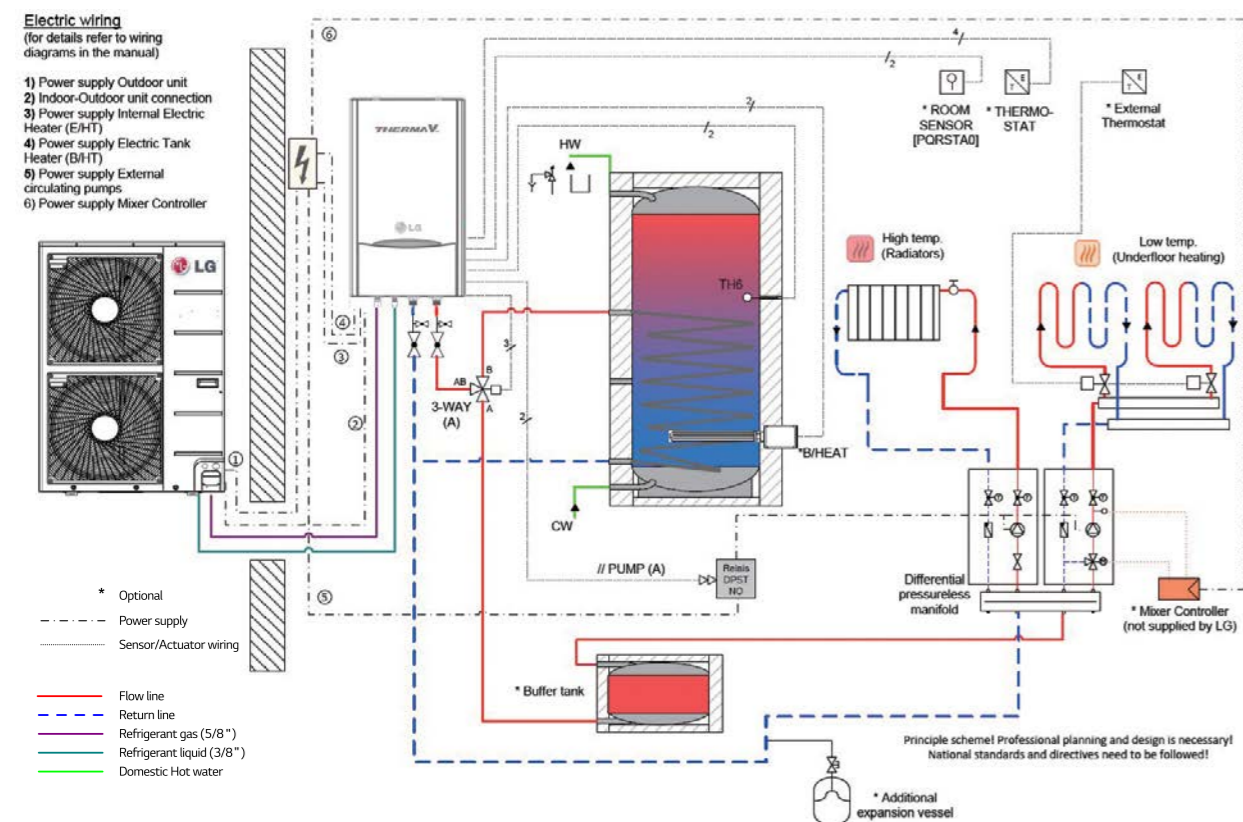
Case 3. Split _ for Floor Heating & DHW & Cooling with Fan Coil Unit



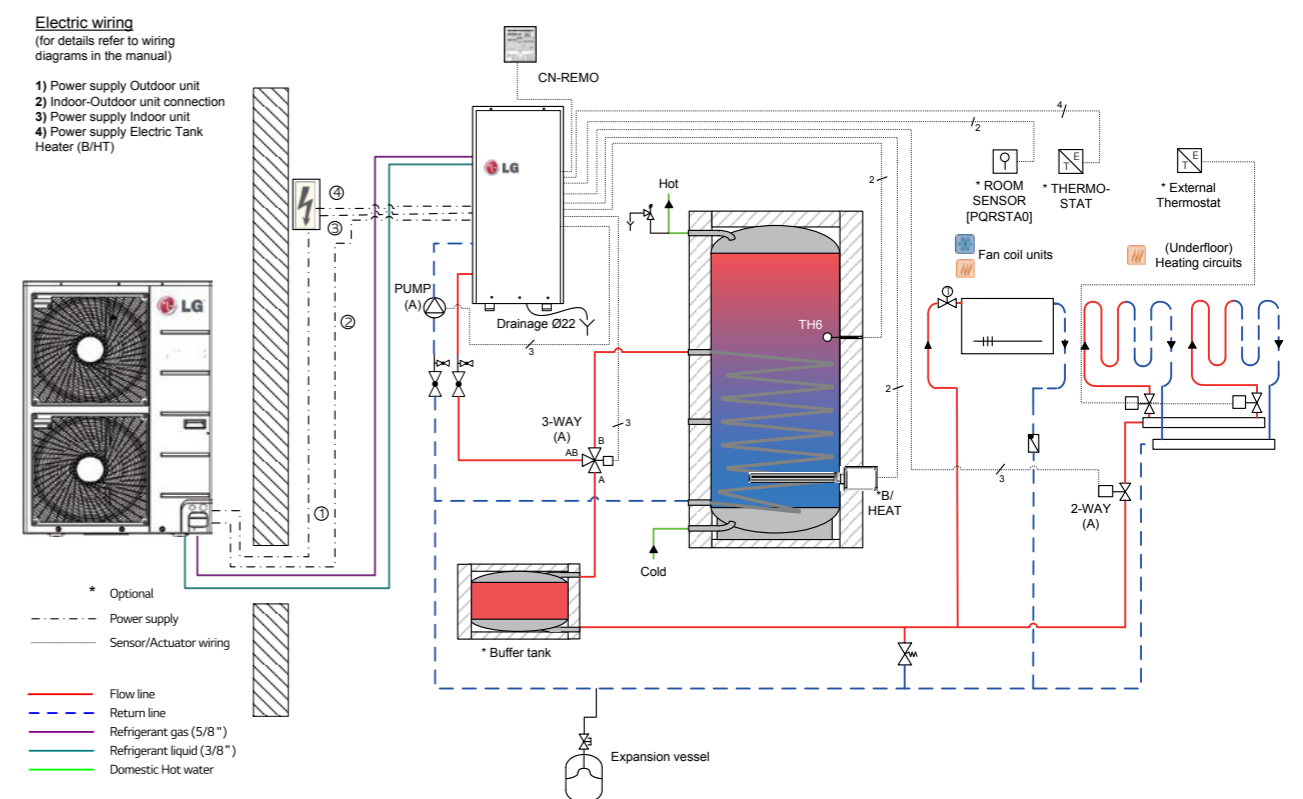
Case 5. Split _ for Floor Heating & Radiator & DHW with Boiler (Bivalent Scene)



Case 4. Split _ for Floor Heating & Radiator & DHW (2 Zone Heating)



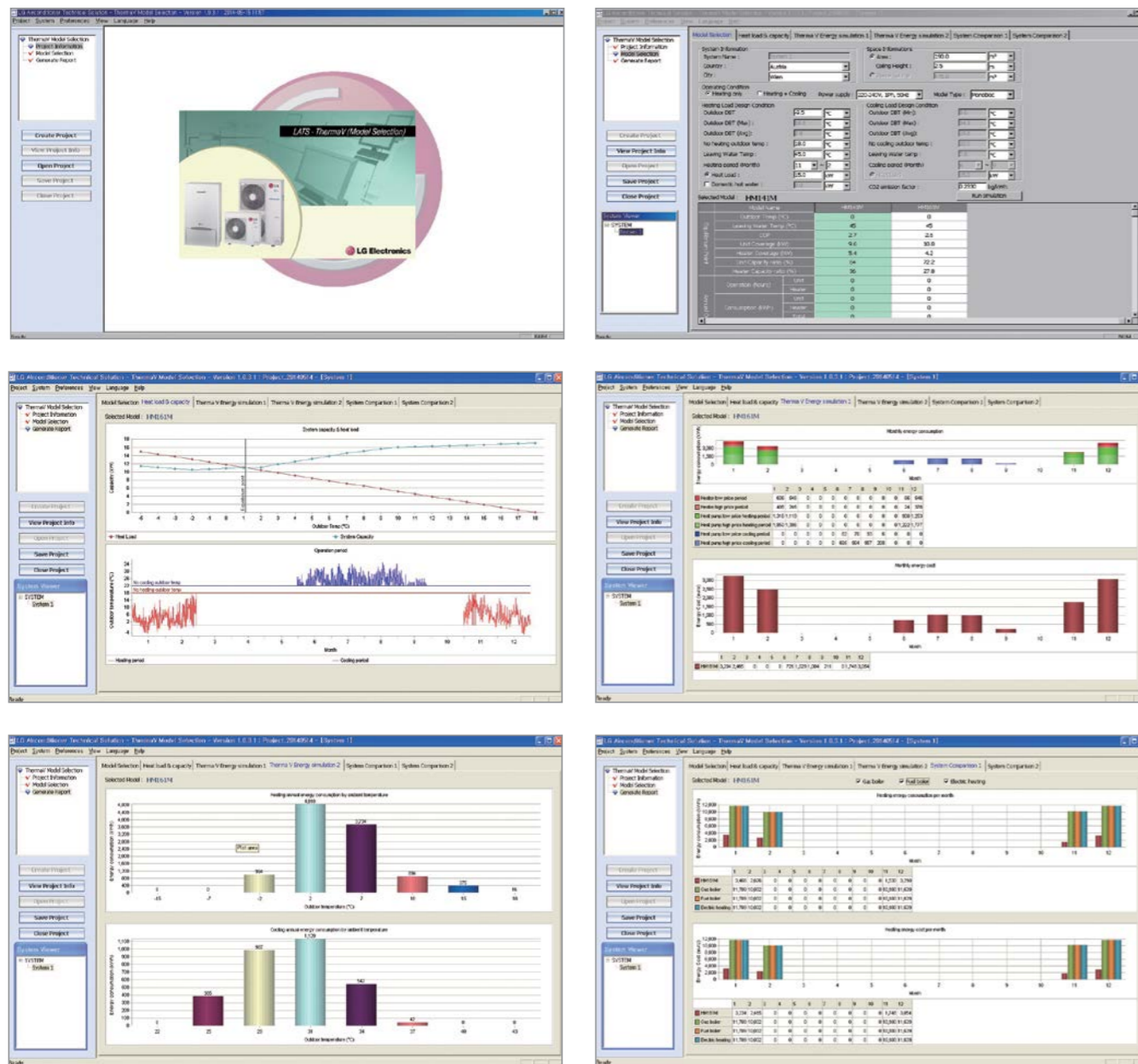
Case 6. Split (High Temp.) _ for Floor Heating & DHW & Fan Coil Units



BEFORE SALES & AFTER SALES SERVICE

THERMA V Selection Program

LATS THERMA V simulates quick and easy result of THERMA V's economic benefits. By specifying a number of parameters, this program shows annual energy cost compared with conventional heating system and CO2 annual amount, monthly energy amount and cost, total amount of thermal energy in kWh as the outside temperature.



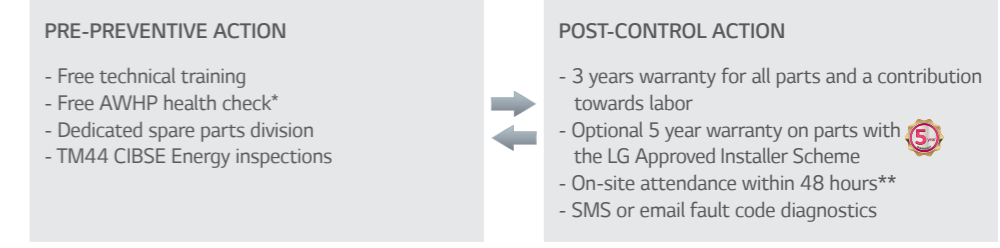
Service and Warranty

A dedicated Technical Service department and LG's authorized Service Centers provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.

3 Levels of Technical Service



LG Warranty Package (The UK Example)



* If 3 warranty issues are claimed within the warranty period.
** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

SMS 24/7
Just text the 1,2 or 3 digital fault code to : 07624 818 794
Available 24 hours a day, 365 days per year.

Telephone
Speak to an LG engineer call :
08448 471 402 and select 'Option 4'
Available Monday to Friday between 09:00 and 17:00

E-mail support
Send your question by e-mail to : uk.aircon@lge.com
Available Monday to Friday between 09:00 and 17:00

For specific enquiries please email
Spare parts : aircon.spares@lge.com
Warranty queries : aircon.warranty@lge.com
Commissioning : aircon.commissioning@lge.com
Training : aircon.training@lge.com

LG Training and CPD Seminars (The UK Example)



Two Training Academies positioned in the South and North of England – Slough and Leeds, both equipped with the latest THERMA V, LG Air to Water Heat Pump. Installers can gain hands-on practical experience of the product range as well as theory in the purpose built classroom. Training courses are free of charge. LG also offer CPD accredited seminars, which can be held at your offices or at our own premises.

2014 Full Line-up of LG AWHP

Type	Capacity	φ	Product	European Certificate	Performance at Low Ambient				Reliability & Comfort								Convenience						
					A7 / W35		A-2 / W55		Heating Operating Range		BLDC Inverter Compressor	Control Sensor	Embedded Component	Water Pump	Heat Exchanger Coating	Electric Heater		Timer	Emergency Operation	Dry Contact Connectivity	Weather Dependant Operation	PHEX Anti-Freezing Control	
					COP	Capacity	COP	Capacity	Outdoor Temp.	Leaving Water Temp.						Size	Capacity Control						
Monobloc Type	3kW	1φ			4.10	3.00	1.94	1.80	-20°C ~ 35°C	20°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A			1 LEVEL			
	5kW	1φ			4.42	4.99	2.08	3.01	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	7kW	1φ			4.30	7.00	2.03	4.21	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	9kW	1φ			4.09	9.00	2.04	5.41	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL			
		3φ			4.49	12.00	2.04	7.31															
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL			
3φ				4.44	14.00	2.03	8.40																
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57																
Split Type	3kW*	1φ		Work in Progress	4.62	3.00	2.16	2.19	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A			1 LEVEL			
	5kW*	1φ		Work in Progress	4.55	5.00	2.11	4.11	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	7kW*	1φ		Work in Progress	4.40	7.00	2.17	5.20	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	9kW*	1φ		Work in Progress	4.23	9.00	2.00	5.85	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW	1 2 [STEP]			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL			
		3φ			4.41	12.00	2.04	7.31															
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL			
		3φ			4.32	14.00	2.03	8.40															
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW	1 2 [STEP]			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57																
Split High Temp. Type	16kW	1φ			2.61 (A7/W65)	16.00	2.62	16.60	-15°C ~ 35°C	25°C ~ 80°C	LG Twin Rotary			N/A	gold™ Gold-fin	N/A	N/A			1 LEVEL			

* These models will be available in Q1 2015

* NF-PAC / MCS certification is work in progress. Expected release Q2 2015.

* Split 12,14,16kW certified only single phase for MCS certification.

SPECIFICATION

MONOBLOC TYPE



Monobloc (Outdoor Unit)			Capacity Reference	NEW 3kW 1Φ HMO31M.U42	NEW 5kW 1Φ HMO51M.U42	NEW 7kW 1Φ HMO71M.U42	NEW 9kW 1Φ HMO91M.U42
Nominal Capacity	Heating (A7/W35)	kW		3.00	4.99	7.00	9.00
	Heating (A2/W50)	kW		2.10	3.49	4.89	6.29
	Heating (A-2/W50)	kW		1.96	3.26	4.57	5.88
	Heating (A-7/W35)	kW		2.83	4.72	6.61	8.61
Nominal Power Input	Cooling (A35/W18)	kW		-	4.99	7.00	9.00
	Heating (A7/W35)	kW		0.73	1.13	1.63	2.20
	Heating (A2/W50)	kW		0.90	1.40	2.01	2.57
	Heating (A-2/W50)	kW		0.89	1.39	1.98	2.65
COP	Heating (A-7/W35)	kW		1.10	1.72	2.45	3.19
	Cooling (A35/W18)	kW		-	1.39	2.00	2.65
	Heating (A7/W35)			4.10	4.42	4.30	4.09
	Heating (A2/W50)			2.33	2.49	2.43	2.45
EER	Heating (A-2/W50)			2.20	2.35	2.31	2.22
	Heating (A-7/W35)			2.57	2.74	2.70	2.70
Dimension	W*H*D	mm		950 x 834 x 330	1,239 x 907 x 390		
	Weight	kg		61	99		
Sound Pressure Level (Heating)		dB(A)		47	51	52	52
Outdoor Air Operation Range	Heating	°CDB		-20 - 35			
	Cooling	°CDB		5 - 48			
Leaving Water Temp. Range	Heating	°C		20 - 57	15 - 57		
	Cooling	°C		-	6 - 35		
Water Pipe Connection	Inlet	mm(inch)		Female PT 25(1)			
	Outlet	mm(inch)		Female PT 25(1)			
Electric Heater	Power Supply	P/V/Hz		-	1 / 220-240 / 50		
	Capacity	kW		-	4		
Water Flowrate Limit		LPM		Min. 15			
Max. Water Head		m		6	7		
Power Supply		P/V/Hz		1 / 220-240 / 50			
Recommended Fuse		A		20			

Monobloc (Outdoor Unit)			Capacity Reference	NEW 12kW 1Φ HM121M.U32	NEW 14kW 1Φ HM141M.U32	NEW 16kW 1Φ HM161M.U32	NEW 12kW 3Φ HM123M.U32	NEW 14kW 3Φ HM143M.U32	NEW 16kW 3Φ HM163M.U32
Nominal Capacity	Heating (A7/W35)	kW		12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW		8.50	9.78	11.03	8.55	9.83	11.29
	Heating (A-2/W50)	kW		7.94	9.14	10.30	7.99	9.18	10.54
	Heating (A-7/W35)	kW		11.48	13.11	14.80	11.48	13.11	14.92
Nominal Power Input	Cooling (A35/W18)	kW		14.50	15.50	16.10	14.50	15.50	16.10
	Heating (A7/W35)	kW		2.67	3.15	3.81	2.67	3.15	3.81
	Heating (A2/W50)	kW		3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW		3.30	3.95	4.63	3.40	4.00	4.63
COP	Heating (A-7/W35)	kW		4.16	4.85	5.61	4.16	4.85	5.95
	Cooling (A35/W18)	kW		4.00	4.69	5.07	4.00	4.69	5.07
	Heating (A7/W35)			4.49	4.44	4.20	4.49	4.44	4.20
	Heating (A2/W50)			2.49	2.45	2.40	2.45	2.42	2.39
EER	Heating (A-2/W50)			2.41	2.31	2.22	2.35	2.30	2.28
	Heating (A-7/W35)			2.76	2.70	2.64	2.76	2.70	2.51
Dimension	W*H*D	mm		1,239 x 1,450 x 390					
	Weight	Kg		141					
Sound Pressure Level (Heating)		dB(A)		53					
Outdoor Air Operation Range	Heating	°CDB		-20 - 35					
	Cooling	°CDB		5 - 48					
Leaving Water Temp. Range	Heating	°C		15 - 57					
	Cooling	°C		6 - 35					
Water Pipe Connection	Inlet	mm(inch)		Female PT 25(1)					
	Outlet	mm(inch)		Female PT 25(1)					
Electric Heater	Power Supply	P/V/Hz		1 / 220-240 / 50					
	Capacity	kW		6					
Water Flowrate Limit		LPM		Min. 15					
Max. Water Head		m		8					
Power Supply		P/V/Hz		1 / 220-240 / 50			3 / 380-415 / 50		
Recommended Fuse		A		32			10		

SPECIFICATION

SPLIT TYPE



Split (Outdoor Unit)		Capacity	NEW 3kW 1φ	NEW 5kW 1φ	NEW 7kW 1φ	NEW 9kW 1φ
		Reference	HU031.UE2*	HU051.U42*	HU071.U42*	HU091.U42*
Nominal Capacity	Heating (A7/W35)	kW	3.00	5.00	7.00	9.00
	Heating (A2/W50)	kW	2.25	4.08	5.19	6.04
	Heating (A-2/W50)	kW	2.26	4.16	5.25	5.98
	Heating (A-7/W35)	kW	2.89	4.92	6.70	8.11
	Cooling (A35/W18)	kW	3.00	5.00	7.00	9.00
Nominal Power Input	Heating (A7/W35)	kW	0.65	1.10	1.59	2.13
	Heating (A2/W50)	kW	0.89	1.59	2.07	2.59
	Heating (A-2/W50)	kW	0.93	1.73	2.18	2.64
	Heating (A-7/W35)	kW	1.02	1.69	2.31	3.03
COP	Heating (A7/W35)		4.62	4.55	4.40	4.23
	Heating (A2/W50)		2.53	2.57	2.51	2.33
EER	Heating (A-2/W50)		2.44	2.40	2.41	2.27
	Heating (A-7/W35)		2.83	2.91	2.90	2.68
	Cooling (A35/W18)		4.00	3.70	3.41	3.10
Dimension	W*H*D	mm	870 x 655 x 320	950 x 834 x 330	950 x 834 x 330	950 x 834 x 330
Weight		kg	46	64	64	64
Sound Pressure Level (Heating)		dB(A)	51	54	54	54
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30	-20~30	-20~30	-20~30
	Cooling	°CDB	5 ~ 48	5~48	5~48	5~48
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	φ 6.35(1/4)	9.52(3/8)	9.52(3/8)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	φ 12.7(1/2)	15.88(5/8)	15.88(5/8)	15.88(5/8)
	Pre-Charged Amount	kg	1	1.55	1.55	1.55
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5
	Additional Charging Volume	g/m	20	40	40	40
Ref. Pipe Length	Minimum	m	-	-	-	-
	Standard	m	7.5	7.5	7.5	7.5
	Maximum	m	40	50	50	50
Power Supply	P/V/Hz		1/220-240/50	1/220-240/50	1/220-240/50	1 / 220-240 / 50
Recommended Fuse	A		20	20	20	20

Split (Indoor Unit)		Capacity	NEW 3kW	NEW 5,7, 9kW
		Reference	HN0314.NK2	HN0914.NK2
Dimension	W*H*D	mm	490*850*315	490*850*315
Weight		kg	47	48
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	1 / 220-240 / 50
	Capacity	kW	4	4
Leaving Water Temp. Range	Heating	°C	15~55	15~55
	Cooling	°C	6~30	6~30
Water Flowrate Limit	LPM		Min. 8	Min. 15
Max. Water Head	m		6	7
Water Pipe Connection	Inlet	mm(inch)	Male PT 25(1)	Male PT 25(1)
	Outlet	mm(inch)	Male PT 25(1)	Male PT 25(1)

* Combination Table

Outdoor Unit (1φ) Indoor Unit	3kW	5kW	7kW	9kW
	HU031.UE2	HU051.U42	HU071.U42	HU091.U42
	HN0314.NK2	HN0914.NK2	HN0914.NK2	HN0914.NK2

* These models will be available in Q1 2015

Split (Outdoor Unit)		Capacity	12kW 1φ	14kW 1φ	16kW 1φ	12kW 3φ	14kW 3φ	16kW 3φ
		Reference	HU121. U31	HU141. U31	HU161. U31	HU123. U31	HU143. U31	HU163. U31
Nominal Capacity	Heating (A7/W35)	kW	12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW	8.50	9.78	11.03	8.55	9.83	11.30
	Heating (A-2/W50)	kW	7.94	9.14	10.30	7.99	9.18	10.50
	Heating (A-7/W35)	kW	11.48	13.11	14.80	11.66	12.72	14.92
	Cooling (A35/W18)	kW	14.50	15.50	16.10	14.60	15.50	16.80
Nominal Power Input	Heating (A7/W35)	kW	2.67	3.15	3.81	2.72	3.24	3.81
	Heating (A2/W50)	kW	3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW	3.30	3.95	4.63	3.40	4.00	4.63
	Heating (A-7/W35)	kW	4.16	4.85	5.61	4.31	4.98	5.95
COP	Cooling (A35/W18)	kW	4.00	4.69	5.07	4.02	4.65	5.09
	Heating (A7/W35)		4.49	4.44	4.20	4.41	4.32	4.20
EER	Heating (A2/W50)		2.49	2.45	2.40	2.45	2.42	2.39
	Heating (A-2/W50)		2.41	2.31	2.22	2.35	2.30	2.27
	Heating (A-7/W35)		2.76	2.70	2.64	2.71	2.55	2.51
	Cooling (A35/W18)		3.63	3.30	3.18	3.63	3.33	3.30
Dimension	W*H*D	mm	950 x 1,380 x 330					
Weight		kg	105					
Sound Pressure Level (Heating)		dB(A)	53					
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30					
	Cooling	°CDB	5 ~ 48					
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)					
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)					
	Pre-Charged Amount	Kg	2.85	2.85	2.85	2.98	2.98	2.98
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5	7.5	7.5
	Additional Charging Volume	g/m	60	60	60	60	60	60
Ref. Pipe Length	Minimum	m	3					
	Standard	m	7.5					
	Maximum	m	50					
Power Supply	P/V/Hz		1 / 220-240 / 50			3 / 380-415 / 50		
Recommended Fuse	A		32			16		

Split (Indoor Unit)		Capacity	12~16kW				
		Reference	HN1616.NK1	HN1626.NK1	HN1629.NK1	HN1636.NK1	HN1639.NK1
Dimension	W*H*D	mm	490 x 850 x 315				
Weight		kg	54.5				
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	3 / 220 / 50			3 / 380-415 / 50
	Capacity	kW	6	6	9	6	9
Leaving Water Temp. Range	Heating	°C	15 ~ 55				
	Cooling	°C	6 ~ 30				
Water Flowrate Limit	LPM		Min. 15				
Max. Water Head	m		7				
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)				
	Outlet	mm(inch)	Male PT 25 (1)				

* Combination Table

Outdoor Unit (1φ) Indoor Unit	HU121.U31	HU141.U31	HU161.U31	Outdoor Unit (3φ) Indoor Unit	HU123.U31	HU143.U31	HU163.U31
	12kW	14kW	16kW		12kW	14kW	16kW
	HN1616. NK1	HN1616. NK1	HN1616. NK1		HN1616. NK1	HN1616. NK1	HN1616. NK1
	HN1626. NK1	HN1626. NK1	HN1626. NK1		HN1626. NK1	HN1626. NK1	
	HN1636. NK1	HN1636. NK1	HN1636. NK1		HN1636. NK1	HN1636. NK1	
	HN1629. NK1	HN1629. NK1	HN1629. NK1		HN1629. NK1	HN1629. NK1	
	HN1639. NK1	HN1639. NK1	HN1639. NK1		HN1639. NK1	HN1639. NK1	

SPECIFICATION

HIGH TEMPERATURE TYPE



High Temp. Split (Outdoor Unit)		Capacity Reference	NEW 16kW 1φ HU161H.U32
Nominal Capacity	Heating (A7/W65)	kW	16
	Heating (A2/W65)	kW	14.6
	Heating (A-2/W65)	kW	15.7
	Heating (A-7/W65)	kW	15.1
Nominal Power Input	Heating (A7/W65)	kW	6.13
	Heating (A2/W65)	kW	6.81
	Heating (A-2/W65)	kW	6.96
	Heating (A-7/W65)	kW	7.2
COP	Heating (A7/W65)		2.61
	Heating (A2/W65)		2.14
	Heating (A-2/W65)		2.26
	Heating (A-7/W65)		2.10
Dimension	W*H*D	mm	950 x 1,380 x 330
Weight		Kg	105
Sound Pressure Level (Heating)		dB(A)	53
Outdoor Air Operation Range	Heating	°CDB	-15 - 35
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	Kg	3.5
	Chargeless Pipe Length	m	10
Additional Charging Volume		G/m	60
	Minimum	m	5
	Standard	m	7.5
Ref. Pipe Length	Maximum	m	50
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

High Temp. Split (Indoor Unit)		Capacity Reference	NEW 16kW 1φ HN1610H.NK2
Dimension	W*H*D	mm	520 x 1,080 x 330
Weight		kg	94
Sound Pressure Level (Heating)		dB(A)	43
Nominal Power Input	Heating	kW	6.13
Leaving Water Temp. Range	Heating	°C	25 - 80
Water Flowrate Limit		LPM	Min. 15
Refrigerant (R134a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	kg	2.3
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)
	Outlet	mm(inch)	Male PT 25 (1)
Draining Pipe Connection		mm(inch)	Male PT 25 (1)
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

DOMESTIC HOT WATER TANK



Domestic Hot Water Tank – Double Coil

Domestic Hot Water Tank			LGRTV200VE	LGRTV300VE
General Characteristics	Water Volume	L	198	287
	Diameter	mm	580	580
	Height	mm	1,230	1,680
	Empty Weight	kg	50	64
	Tank – Materials		Stainless Steel	Stainless Steel
	Outer Skin – Materials		Paint Epoxy	Paint Epoxy
Characteristics of Electrical Back-Up	Color – White RAL		White NC	White NC
	Additional Electric Heater	kW	3	3
Characteristics of Exchanger	Adjustable Thermostat	°C	60 - 90	60 - 90
	Exchanger Type		Double	Double
	Material Exchanger		LDX 2101 – Stainless Steel	LDX 2101 – Stainless Steel
	Maximum Water Temperature	°C	80 (With an Heat Pump)	80 (With an Heat Pump)
Hydraulic Connections – Heat Pump	Coil Surface	mm	0.94	0.94
	THERMA V Entry	mm	25	25
Hydraulic Connections – Domestic Hot Water Tank	THERMA V Exit	mm	25	25
	City Water Entry	mm	22	22
Electric Connection	Hot water Exit	mm	22	22
	Supply	φ/V/Hz	1φ / 220-240V 50Hz	1φ / 220-240V 50Hz

MANDATORY OPTIONAL ACCESSORIES

Domestic Hot Water Tank Installation Kit	PHLTA	PHLTA

Technical Sheet

Heat recovery appliance Renovent Excellent 400 (Plus)



The Brink Renovent Excellent is a ventilation unit with heat recovery with an efficiency of 95%, a maximum ventilation capacity of 300 or 400 m³/h and low-energy fans. Features Renovent Excellent:

- steplessly adjustable air flow rates through a control panel;
- filter indication on the appliance and the possibility for filter indication on the multiple switch;
- a completely new intelligent frost protection system which ensures that also at low outdoor temperatures the appliance's performance remains optimal and that, if necessary, it activates the standard preheater.
- low sound level
- comes as standard with automatic bypass valve
- constant flow control
- low energy consumption
- high efficiency

Renovent Excellent 300/400 is available in two types:

- **Renovent Excellent™**
- **Renovent Excellent Plus™**

Compared to the Renovent Excellent, the Renovent Excellent Plus has a more extensive control board which increases the connection options.

These installation instruction describe both the standard Renovent Excellent and the Renovent Excellent Plus.

The Renovent Excellent (Plus) is available in the left-handed or right-handed version. A left-handed version has the filters on the left behind the filter door; a right-handed version has the filters on the right behind the filtered door. The position of the air ducts differs for these two versions! For the correct position of the connection ducts and dimensions see page 5.

When ordering an appliance always state the correct type; subsequent conversion to a different version is not possible.


The Renovent Excellent comes ready to plug in with a 230 V mains plug and a connection for a low-voltage multiple switch on the outside of the appliance.

Note: When replacing a Renovent Large by a Renovent Excellent, do realise that the positions of the ducts "From dwelling" and "From atmosphere" are different! (only for type 4/0 & 3/1) Carefully check the position of these ducts on the basis of the connection drawings on page 5.

Version types Renovent Excellent 300/400

Type	Version L of R	Position air ducts	Power supply	Type code
Renovent Excellent	Left-handed version	4 top connections	Power plug	4/0 L
		2 top connections & 2 bottom connections	Power plug	2/2 L
		3 top connections & 1 bottom connection	Power plug	3/1 L
	Right-hand version	4 top connections	Power plug	4/0 R
		2 top connections & 2 bottom connections	Power plug	2/2 R
		3 top connections & 1 bottom connection	Power plug	3/1 R
Renovent Excellent Plus	Left-handed version	4 top connections	Power plug	4/0 L+
		2 top connections & 2 bottom connections	Power plug	2/2 L+
		3 top connections & 1 bottom connection	Power plug	3/1 L+
	Right-hand version	4 top connections	Power plug	4/0 R+
		2 top connections & 2 bottom connections	Power plug	2/2 R+
		3 top connections & 1 bottom connection	Power plug	3/1 R+

Technical information

	Renovent Excellent 400			
Supply voltage [V/Hz]	230/50			
Protection degree	IP30			
Dimensions (w x h x d) [mm]	675 x 765 x 564			
Duct diameter [mm]	Ø180			
External diameter condensate discharge [mm]	Ø32			
Weight [kg]	38			
Filter class	G3 (F7 optional for supply)			
Fan setting (factory setting)		1	2	3
Ventilation capacity [m³/h]	50	100	200	300
Permissible resistance ducts system [Pa]	3 - 6	6 - 20	25 - 49	56 - 178
Rated power (excl. preheater)[W]	8,6	9.5 - 15	29 - 40	72 - 98
Rated current (excl. preheater)[AA]	0,10	0.12 - 0.14	0.24 - 0.31	0.51 - 0.7
Max. rated current (with preheater switched on) [A]	6			
Cos φ	0,38	0.45 - 0.40	0.56 - 0.58	0.60 - 0.61

Packaging

Packaging unit per pallet
2

Warranty period

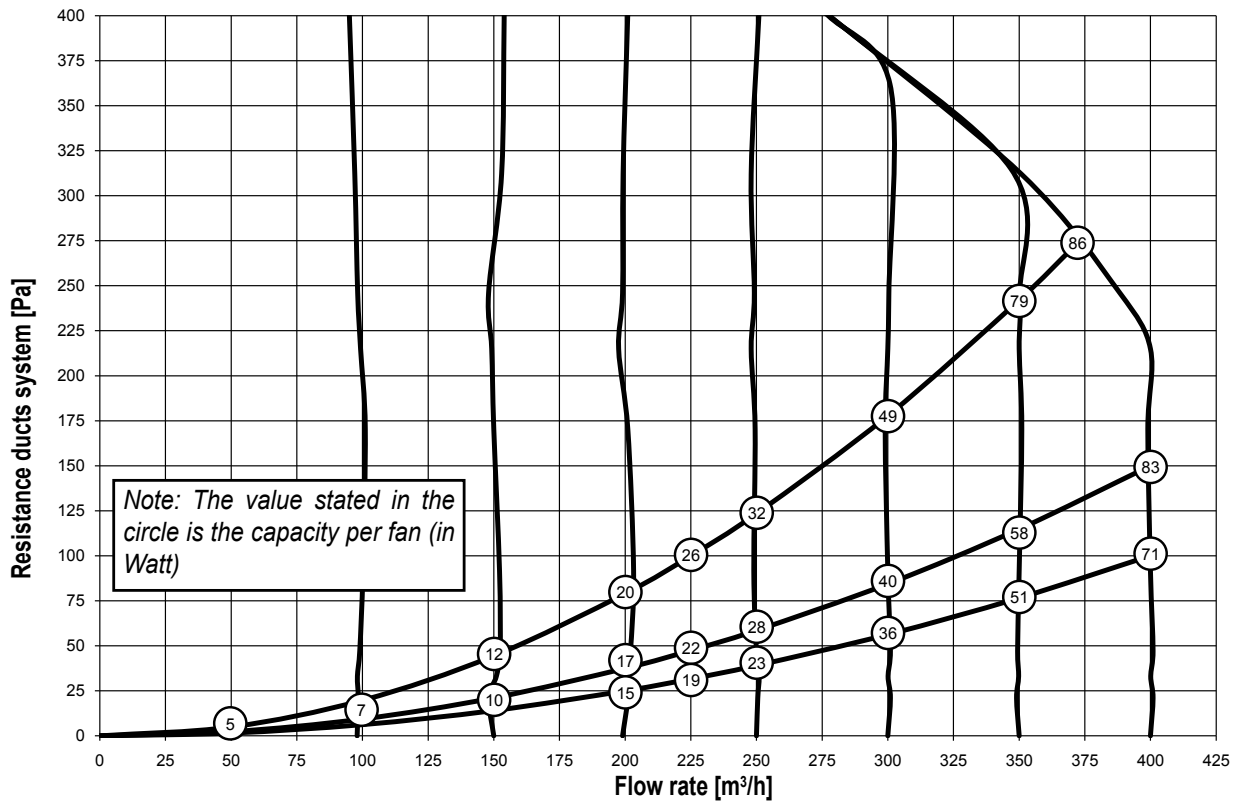
2 years on parts and 5 years on the heat exchanger.

Sound power

Sound power Excellent 400												
Ventilation capacity [m³/h]		100		200		225		300			400	
Sound power level L _w (A)	Static pressure [Pa]	9	40	38	80	47	100	84	175	240	150	225
	Housing emission [dB(A)]	28.5	31.5	39.5	40.5	42.5	46.5	50.0	52.0	53.0	53.5	56.0
	Duct "from dwelling" [dB(A)]	30.5	33.5	45.5	47.0	47.5	49.0	55.5	56.0	57.0	58.0	59.0
	Duct "to dwelling" [dB(A)]	41.5	46.5	56.0	58.0	59.5	61.5	65.0	67.5	68.5	69.5	70.5

In practice, the value may deviate 1 dB(A) as a result of measuring tolerances

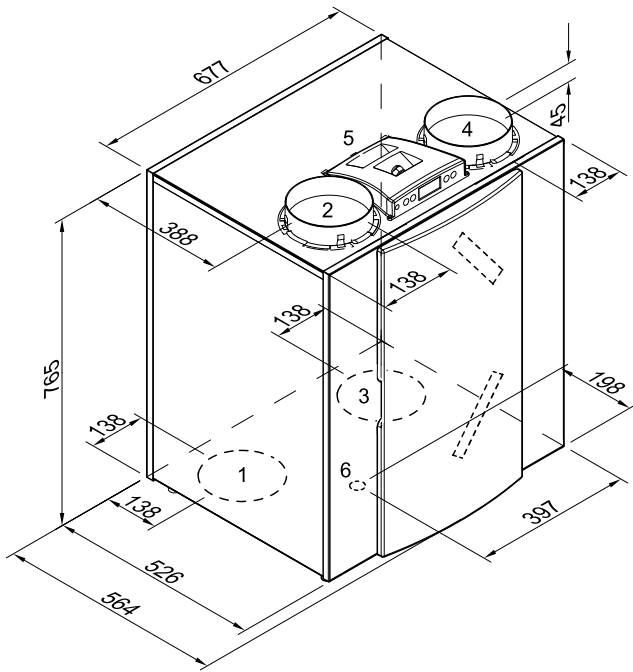
Fan graphs



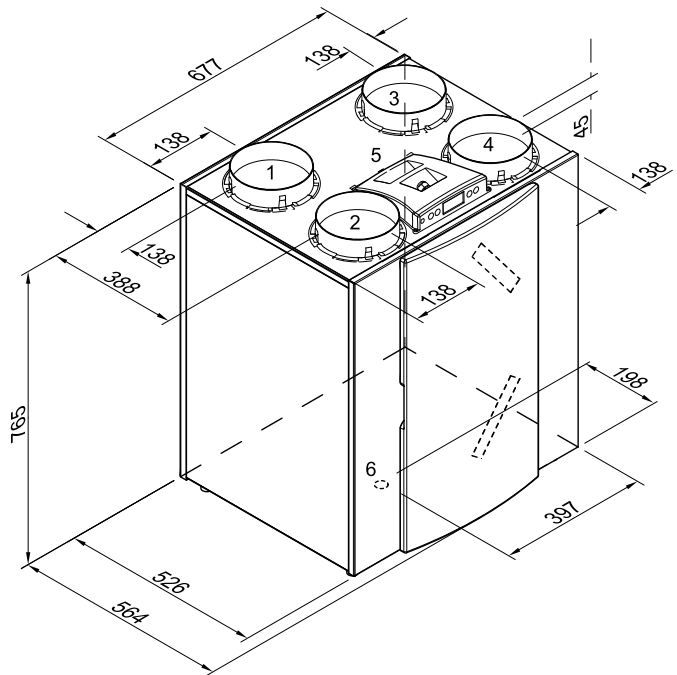
Fan graph Renovent Excellent 400

Connections and dimensions Renovent Excellent 300/400

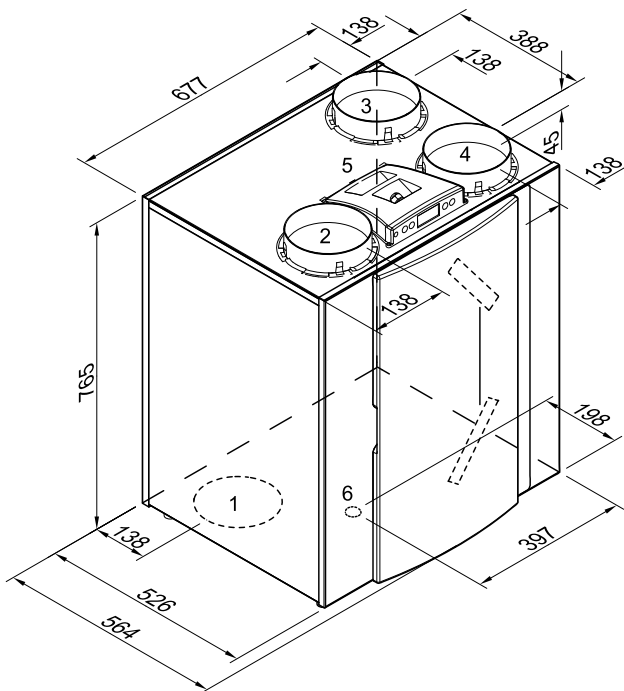
Renovent Excellent right-handed version



Renovent Excellent Right-handed 2/2



Renovent Excellent Right-handed 4/0

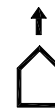


Renovent Excellent Right-handed 3/1

1 = To dwelling



2 = To atmosphere



3 = From dwelling



4 = From atmosphere

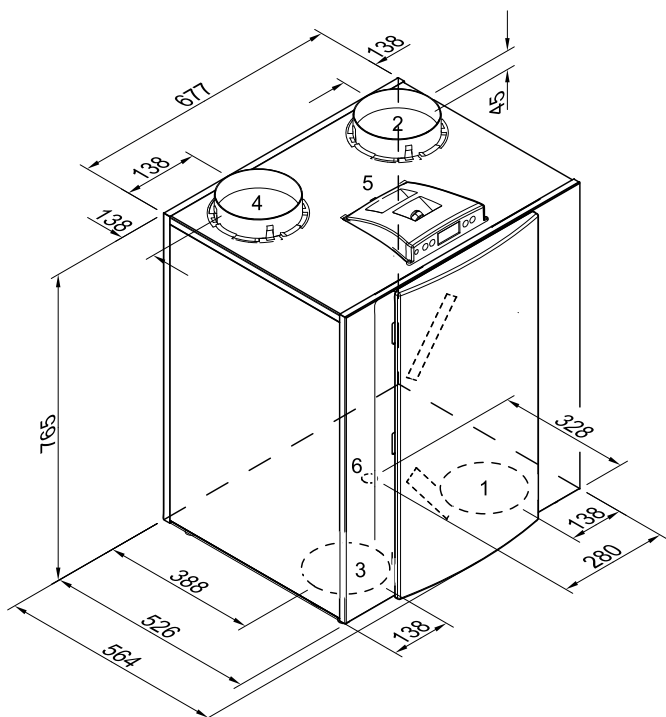


5 = Electric connections

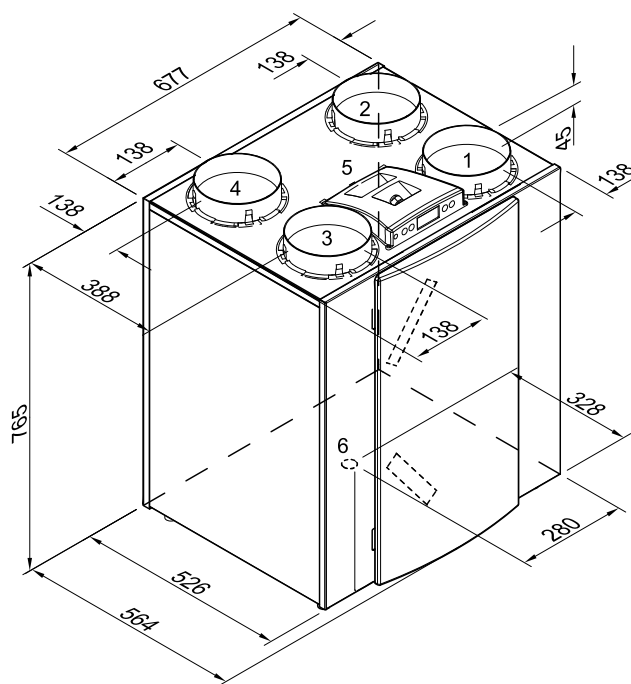
6 = Connection condensate discharge

7 = Wall mounting bracket (note the correct position of the rubber strip, washers and caps)

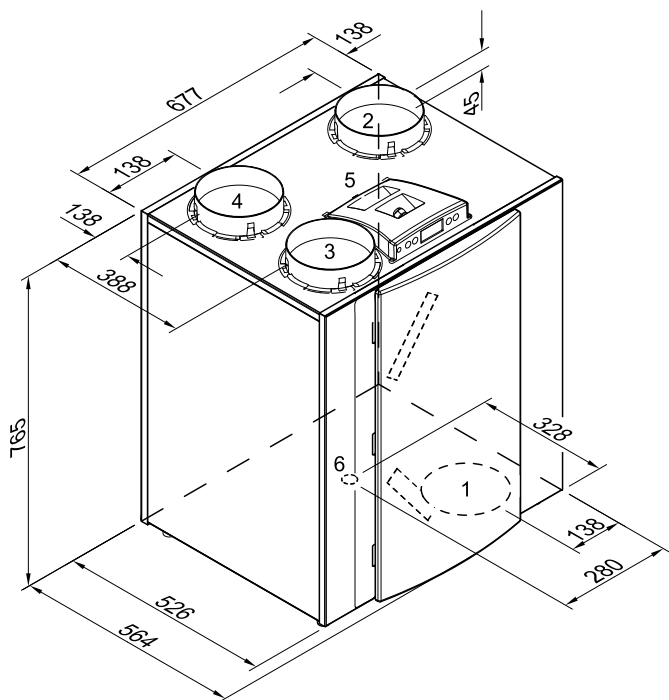
Renovent Excellent left-handed version



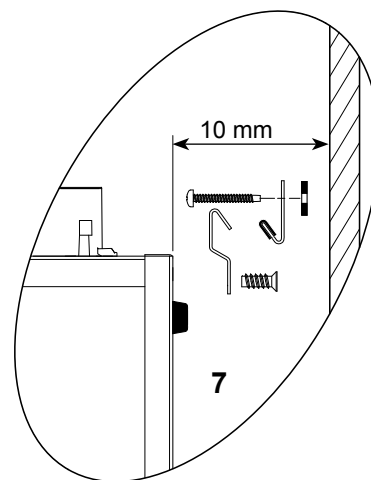
Renovent Excellent left-handed 2/2



Renovent Excellent left-handed 4/0



Renovent Excellent left-handed 3/1



Mounting wall suspension kit

Exploded view

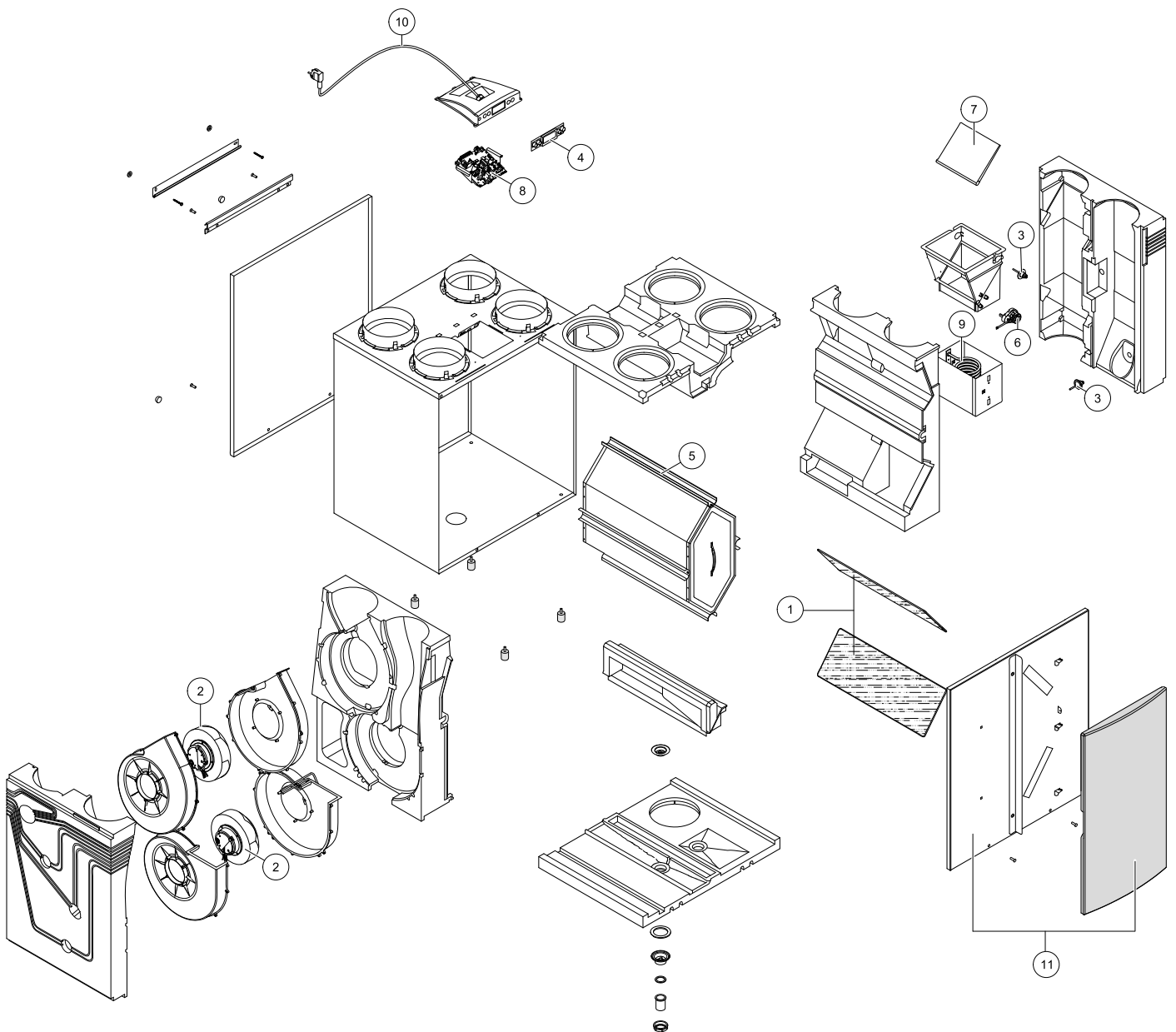
When ordering parts, in addition to the article code number (see exploded view), please state the type of the heat recovery appliance, the serial number, the year of production and the name of the part:

N. B.:

Appliance type, serial number and year of production are stated on the identification plate on the top of the appliance.

Example	
Appliance type	: Renovent Excellent 4/0 R
Serial number	: 420020113201
Year of production	: 2013
Part	: Fan
Article code	: 531774
Qty	: 1

Service parts



Service parts

No.	Article description	Article code
1	Filter kit 2x G3 filter (standard version)	531770
2	Fan Excellent 300 (1 pcs)	532003
	Fan Excellent 4300 (1 pcs)	531774
3	Temperature sensor	531775
4	Control panel	531776
5	Heat exchanger Excellent 300	531840
	Heat exchanger Excellent 400	531777
6	Motor bypass valve	531778
7	Bypass valve	531779
8	Control board (Plus version) When replacing, note the correct dip switch settings; see §8.1	531780
9	Heating coil 1000 W preheater	531781
10	Cable with power plug 230 volt with display cover*	531782
11	Filter door left	531934
	Filter door right	531935

* The mains cable has a print connector.

When replacing it, always order a replacement mains cable Brink

To avoid dangerous situations, a damaged mains should only be replaced by a qualified person!

DIBt: Renovent Excellent 400

EN 308/EN 13141-7: Renovent Excellent 400

NEN 5138: Renovent Excellent 400

Passive House Certificate: Renovent Excellent 400

SAP-Appendix-Q: Renovent Excellent 400

Declaration of Conformity Renovent Excellent 400

Certificate
Certified Passive House Component
 For cool, temperate climates, valid until 31 December 2013

Passive House Institute
 Dr. Wolfgang Feist
 64283 Darmstadt
 GERMANY

Category: **Heat recovery unit**
 Manufacturer: **Brink Climate Systems B.V.**
 7851 -DA Staphorst, NETHERLANDS
 Product name: **Renovent Excellent 300 4/0 (3/1) (Plus)**

This certificate was awarded based on the following criteria:

Thermal comfort	$\phi_{Supply} \geq 16.5\text{ }^\circ\text{C}$ at $\phi_{Substr} \text{ air} = +10\text{ }^\circ\text{C}$
Effective heat recovery ratio	$\eta_{\text{heat}} \geq 75\%$
Electric power consumption	$P_e \leq 0.45\text{ Wh/m}^3$
Airtightness	Interior and exterior air leakage (after less than 3 % of nominal air flow rate)
Balancing and adjustability	Air flow balancing possible: yes Automated air flow balancing: yes
Sound insulation	Sound pressure level $L_p \leq 35\text{ dB(A)}$ based on a 4 m ² equivalent absorption area not met Here $L_p = 47\text{ dB(A)}$ Unit should be installed so that it is acoustically separated from living areas
Indoor air quality	Outdoor air filter at least F7 Extract air filter at least G4
Frost protection	Frost protection for the heat exchanger with continuous fresh air supply down to $\phi_{Substr} \text{ air} = -15\text{ }^\circ\text{C}$ (1)

1) Only with additional and freezing protection.

Further information can be found in the appendix of this certificate.

www.passivehouse.com 0532v003

Certified for air flow rates of
59 – 235 m³/h

η_{heat}
84 %
 (88% at 74 m³/h)

Electric power consumption
0.26 Wh/m³

CERTIFIED COMPONENT
 Passive House Institute

DECLARATION OF CONFORMITY

Manufacture: Brink Climate Systems B.V.
 Address: R.D. Buijsstraat 3
 7851 DA Staphorst, The Netherlands
 Product: Heat recovery unit type:
 Renovent Excellent 300-400
 Renovent Excellent 300-400 Plus

The product described above complies with the following directives:
 2006/95/EC (low voltage directive)
 2004/108/EC (EMC directive)
 RoHS 2002/95/EC (substances directive)

The product bears the CE label:

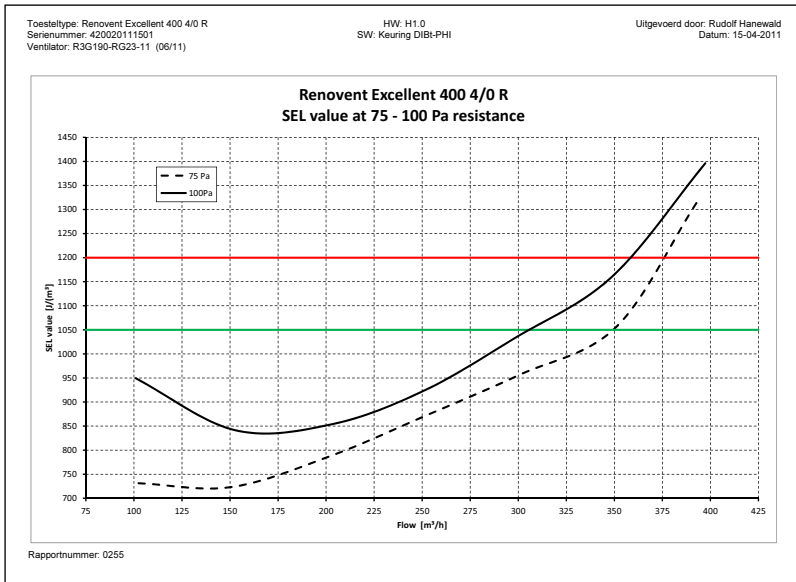
CE

Staphorst, 24-03-11

Mr. Althausen,
 managing director

42 Renovent Excellent

Renovent Excellent 400 - SEL-waarde 75+100 Pa



Modifications reserved

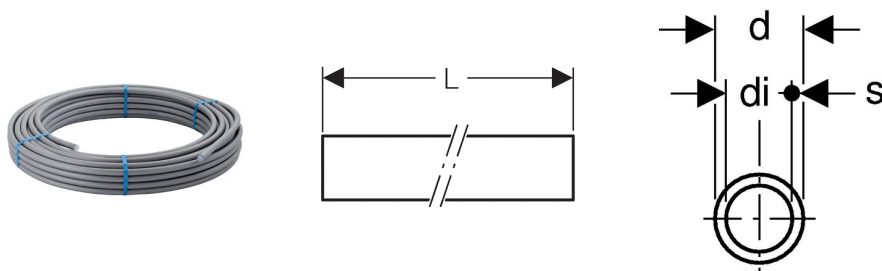
Brink Climate Systems B. V. continuously strives after improvement of products and reserves the right to change the specifications without prior notice.



BRINK CLIMATE SYSTEMS B.V.

P.O. Box 11 7950 AA Staphorst
Tel. +31 (0) 522 46 99 44
Fax +31 (0) 522 46 94 00
info@brinkclimatesystems.nl
www.brinkclimatesystems.nl

Geberit PushFit systeembuis ML, op rol



Toepassing

- Voor gebouwtechniek, industrie en scheepsbouw
- Toepassingsoverzicht: Geberit PushFit

Eigenschappen

- Vormvast
- Met de hand buigbaar
- Diffusiedicht
- Uitwendig zilvergrijs RAL 7001
- Buiseinde met transparante beschermstop

Technische gegevens

Materiaal	PE-RT II / Al / PE-RT II
Oppervlakteruwheid	7 µm
Warmte-uitzetting	0,029 mm/(m · K)
Thermische geleidbaarheid buis	0,41 W/(m · K)

Artikel

Art. nr.	DN	d, ø [mm]	di, ø [mm]	s [mm]	L [m]
650.101.00.1	12	16	12	2	50
650.102.00.2	12	16	12	2	120
650.103.00.3 N	12	16	12	2	250
651.101.00.1	15	20	16	2	50
651.102.00.1	15	20	16	2	100
652.101.00.1	20	25	20	2,5	50

i N: Nieuw, beschikbaar vanaf januari 2017

Product en systeem overzicht | Product overview

Vanaf Oktober 2016 | Status oktober 2016



Berekening aantallen systeem onderdelen vloerverwarming / -koeling

Determining the quantities of floor heating / cooling

De opgegeven aantallen dienen als richt hoeveelheden > 100 m². bij kleinere oppervlaktes kunnen er grotere afwijkingen ontstaan.

The quantities indicated are given as estimates for buildings > 100 m². For smaller areas, the accuracy of the results are slightly reduced.

Systeem Ideaal EPS 30 Systeem Ideaal NEO 20 Systeem Ideaal NEO TS 32/30		Legpatroon MIX (HoH 125 + 250)	Legpatroon AZ (HoH 250)	Legpatroon RZ (HoH 125)	Systeem Ideaal OKO 30		Legpatroon MIX (HoH 125 + 250)	Legpatroon AZ (HoH 250)	Legpatroon RZ (HoH 125)
		Laying method MIX (VA 125 + 250)	Laying method AZ (VA 250)	Laying method RZ (VA 125)			Laying method MIX (VA 125 + 250)	Laying method AZ (VA 250)	Laying method RZ (VA 125)
Artikel Article	Materiaal gebruik per m ² Material requirements per m ²			Artikel Article	Materiaal gebruik per m ² Material requirements per m ²				
Algemene zone AZ (HoH = 250 mm) Central zone AZ (VA = 250 mm)	1,26 st. 1.26 pcs.	1,46 st. 1.46 pcs.	–	Algemene zone AZ (HoH = 250 mm) Central zone AZ (VA = 250 mm)	1,26 st. 1.26 pcs.	1,46 st. 1.46 pcs.	–		
Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	0,30 st. 0.30 pc.	–	1,46 st. 1.46 pcs.	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	0,30 st. 0.30 pc.	–	1,46 st. 1.46 pcs.		
Kopelement met aluminium K/AZ Alu (4 bochten) Head element with aluminium K/AZ ALU (four-fold)	0,19 st. 0.19 pc.	0,24 st. 0.24 pc.	–	Kopelement met aluminium K/AZ Alu (4 bochten) Head element with aluminium K/AZ ALU (four-fold)	0,76 st. 0.76 pc.	0,96 st. 0.96 pc.	–		
Kopelement met aluminium K/RZ Alu (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	0,05 st. 0.05 pc.	–	0,24 st. 0.24 pc.	Kopelement met aluminium K/RZ Alu (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	0,20 st. 0.20 pc.	–	0,96 st. 0.96 pc.		
Kopelement K/BG (1 bocht) Head element K/BG (single)	= Aantal te gebruiken groepen = Number of combined heating circuits	–	–	Kopelement K/BG (1 bocht) Head element K/BG (single)	= Aantal te gebruiken groepen = Number of combined heating circuits	–	–		
Blanco element RA Blank element RA	0,15 st. 0.15 pc.	0,25 st. 0.25 pc.	0,25 st. 0.25 pc.	Blanco element RA Blank element RA	0,12 st. 0.12 pc.	0,22 st. 0.22 pc.	0,22 st. 0.22 pc.		
Randsisolatie Ideaal EPS ¹ Edge insulation strip IDEAL EPS ¹	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	Aanvoer element ZL Supply and return element ZL	0,20 st. 0.20 pc.	0,20 st. 0.20 pc.	0,10 st. 0.10 pc.		
MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	5,00 Mtr. 5.00 per m	4,00 Mtr. 4.00 per m	8,00 Mtr. 8.00 per m	Bocht 90° 90° Curve element	0,40 st. 0.40 pc.	0,20 st. 0.20 pc.	0,30 st. 0.30 pc.		
Randhout RH 30 / RH 20 ¹ Support batten RH 30 / RH 20 ¹	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	Randsisolatie Ideaal OKO Edge insulation strip IDEAL OKO	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m	1,00 Mtr. 1.00 per m		
Randhout RD 30 / RD 20 ¹ Threshold batten RD 30 / RD 20 ¹	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit			MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	5,00 Mtr. 5.00 per m	4,00 Mtr. 4.00 per m	8,00 Mtr. 8.00 per m		
Verdeler element VE 30 ^{1,2} Manifold element VE 30 ^{1,2}	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit			Randhout RH 30 Support batten RH 30	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.	1,20 st. 1.20 pcs.		
	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit			Randhout RD 30 Threshold batten RD 30	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit				
	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit			Verdeler element VE 30 Manifold element VE 30	1 st. per etage / verdeler 1 pc. per floor / manifold heating circuit Alternatieve oplossing: stalen lasten verdeel lamel 0,5 st. per groep Alternative solution: load distribution panel: 0.5 pc. per heating circuit				

















¹ voor systeem Ideaal NEO TS 32/30 dient de randsisolatie Ideaal NEO TS (zie pag. 13) gebruikt te worden. De rand hout delen RH 30 en RD 30 evenals het verdeler element VE 30 vervallen.

¹ For the material selection of System IDEAL NEO TS 32/30, the edge insulation strip IDEAL NEO TS 32/30 (p. 13) has to be used. Support batten RH 30, Threshold batten RD 30 and Manifold element VE 30 are not needed.

² Bij systeem IDEAL NEO 20 het stalen lasten verdeel lamel gebruiken.

² With system IDEAL NEO 20, use load bearing sheets (steel).



Systeem Ideaal TOP 15		Legpatroon 150 mm Installation gap 150 mm	Systeem BASIC EPS 30		Legpatroon 166 mm Installation gap 166 mm
Artikel Article		Materiaal gebruik per m ² Material requirements per m ²	Artikel Article		Materiaal gebruik per m ² Material requirements per m ²
	Verwarmingselement (HoH = 150 mm) Heating element (VA = 150 mm)	1,00 st. 1.00 pcs.		Verwarmingselement (HoH = 166 mm) Heating element (VA = 166 mm)	1,45 st. 1.45 pcs.
	Combi element (blanco en bocht element) (HoH = 150mm) Combined element (head and blank element) (VA = 150 mm)	0,17 st. 0.17 pc.		Kopfelement ohne Aluminium (6 Bögen) Head element without aluminium (6 arcs)	0,25 st. 0.25 pc.
	Randisolatie Ideaal EPS Edge insulation strip IDEAL EPS	1,00 Mtr. 1.00 per m		Randelement Blank element	0,30 st. 0.30 pc.
	MFH Systeembuis, PE-RT/AL/PE-RT, 12 mm MFH composite pipe, PE-RT/AL/PE-RT, 12 mm	6,66 Mtr. 6.66 per m		Randisolatie Ideaal EPS Edge insulation strip IDEAL EPS	1,00 Mtr. 1.00 per m
	Randhout RH 15 Support batten RH 15	1,20 st. 1.20 pcs.		MFH Systeembuis, PE-RT/AL/PE-RT, 16 mm MFH composite pipe, PE-RT/AL/PE-RT, 16 mm	6,00 Mtr. 6.00 per m
	Randhout RD 15 Threshold batten RD 15	2 st. per deur doorgang en groep 2 pcs. per doorway and heating circuit		Randhout RH Support batten RH	1,20 st. 1.20 pcs.
	Warmte verdeel lamel aluminium TOP 15 Heat distribution sheet TOP 15 (aluminium)	0,77 st. 0.77 pc.		Warmte verdeel lamel aluminium BASIC Heat distribution sheet (aluminium)	0,96 st. 0.96 pc.
	Lastverteilblech Stahl Load bearing sheet (steel)	0,5 Stk. pro Heizkreis 0.5 pc. per heating circuit		Lasten verdeel lamel staal Load bearing sheet (steel)	0,5 st. per groep. 0.5 pc. per heating circuit

Montage tijden | Installation Time

De genoemde montage tijden zijn praktisch waarden en dienen als calculatie hulp. De waardes gelden als richtlijn bij 1 man montage incl. buis verleggen. Indien er sprake is van verlijmen van EPS elementen en/of strongboard verhogen de tijden zich met 3 min/m² per laag.

The installation times mentioned are based on experience and serve as calculation aid. The information on the heating system relate to a fitter (1-man assembly) including the piping. If the System EPS or STRONGBOARD needs to be adhered (fixation), the times increase by about 3 min / m² per adhesive layer.

Systeem Ideaal EPS 30	Legpatroon MIX Laying method MIX	10 min / m ²	Systeem Ideaal NEO 20	Legpatroon MIX Laying method MIX	10 min / m ²	Lasten verdeel laag Thermal Conductive Layer	CompactFloor PRO	12 min / m ²
	Legpatroon AZ Laying method AZ	8 min / m ²		Legpatroon AZ Laying method AZ	8 min / m ²		CompactFloor EXPERT	20 min / m ²
	Legpatroon RZ Laying method RZ	12 min / m ²		Legpatroon RZ Laying method RZ	12 min / m ²		CompactFloor LIQUID	30 min / m ²
	Wand montage RZ Wall assembly RZ	18 min / m ²		Systeem Ideaal TOP 15	12 min / m ²		CompactFloor DIRECT	2 min / m ²
	Plafond montage Ceiling assembly	25 min / m ²		Legpatroon MIX Laying method MIX	11 min / m ²	FERMACELL droogbouw element FERMACELL dry screeds element	16 min / m ²	
Systeem Ideaal OKO 30	Legpatroon MIX Laying method MIX	14 min / m ²	Systeem Ideaal NEO TS 32/30	Legpatroon AZ Laying method AZ	9 min / m ²	Extra isolatie laag zonder rand isolatie Additional insulation without edge insulation strip		2,5 min / m ²
	Legpatroon AZ Laying method AZ	12 min / m ²		Legpatroon RZ Laying method RZ	13 min / m ²			
	Legpatroon RZ Laying method RZ	16 min / m ²		Systeem BASIC EPS 30	11 min / m ²	ESTRICHZIEGEL®	CREAPUR® zichtbaar CREAPUR® visibly	60 min / m ²
	Wand montage RZ Wall assembly RZ	22 min / m ²		STRONGBOARD FL lasten verdeel laag STRONGBOARD FL Load distribution layer	8 min / m ²		CREAPUR® onzichtbaar CREAPUR® invisibly	30 min / m ²
							KERATOP®	60 min / m ²

Aantallen wand verwarming / -koeling | Determining the quantities wall heating / cooling

Afbeelding A | Figure A **System Ideaal EPS 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

Deze tabel dient als calculatie hulp en richtlijn voor plafondhoogtes van 2,55 M. Voor hoeveelheden materiaal vult u volgende tabel in.

This table serves as calculation aid and applies to a room height of 2.55 m. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	4,5 st. x (b - 0,5 m) 4.5 pcs. x (b - 0.5 m)	=		
	Kopelement met aluminium K/RZ ALU (4 bochten) Head element with aluminium K/RZ ALU (four-fold)		=	1,625 st. 1.625 pcs.	
	Blanco element RA Blank element RA	0,15 st. x b = 0.15 pc. x b =	=	+ 0,625 st. + 0.625 pc.	=
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	18 m x b 18 m x b	=		=
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	6 m x b 6 m x b	=		=
			=		=
			=		=

Afbeelding B | Figure B **System Ideaal OKO 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

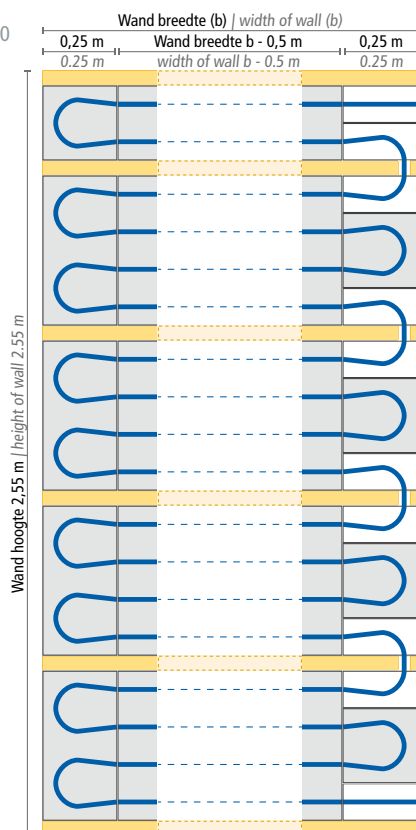
Deze tabel dient als calculatie hulp en richtlijn voor plafondhoogtes van 2,55 M. Voor hoeveelheden materiaal vult u volgende tabel in.

This table serves as calculation aid and applies to a room height of 2.55 m. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	4,5 st. x (b - 0,5 m) 4.5 pcs. x (b - 0.5 m)	=		
	Kopelement met aluminium K/RZ ALU (1 bocht) Head element with aluminium K/RZ ALU (single)		=	6,5 st. 6.5 pcs.	
	Kopelement zonder aluminium K/RZ (1 bocht) Head element without aluminium K/RZ (single)		=	2 st. 2 pcs.	
	Blanco element RA Blank element RA	0,15 st. x b 0.15 pc. x b	=		=
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	18 m x b 18 m x b	=		=
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	6 m x b 6 m x b	=		=
			=		=

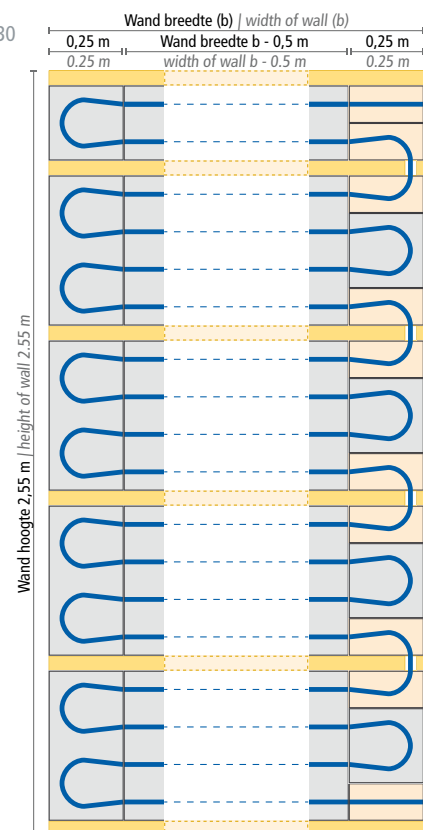
Systeme Ideaal EPS 30

Afbeelding A
Figure A



Systeme Ideaal OKO 30

Afbeelding B
Figure B











Aantallen wand/plafond verwarming / -koeling | Determining the quantities ceiling heating / cooling

Afbeelding C | Figure C **Systeem Ideaal EPS 30 – Legpatroon RZ (HoH 125) | Laying method RZ (VA 125)**

Deze tabel dient als calculatie hulp en richtlijn. Voor hoeveelheden materiaal vult u volgende tabel in.

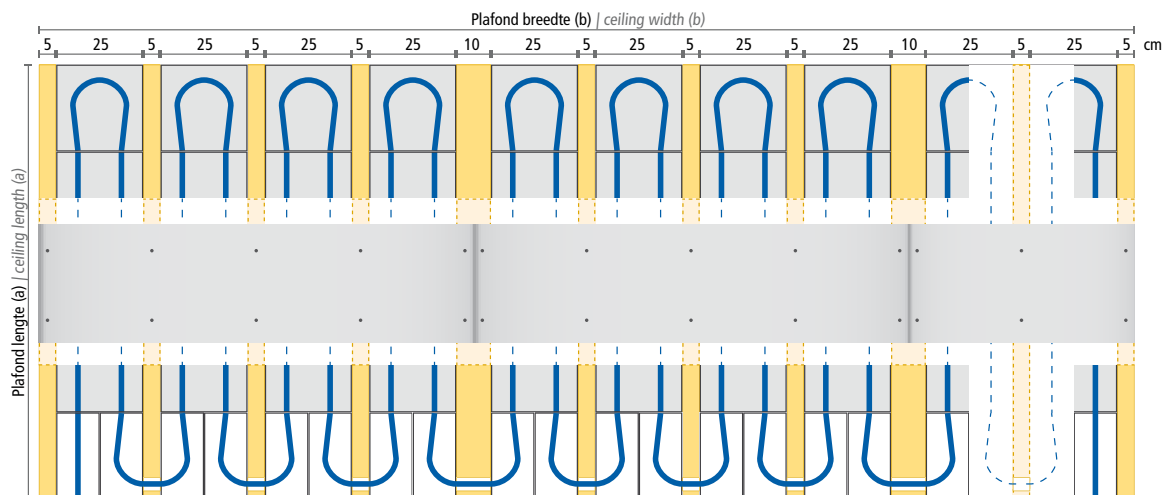
This table serves as calculation aid. Fill the table below for material requirements.

	Randzone RZ (HoH = 125 mm) Edge zone RZ (VA = 125 mm)	$1,6 \text{ st.} \times b \times (a - 0,5 \text{ m}) =$ $1,6 \text{ pcs.} \times b \times (a - 0,5 \text{ m}) =$	
	Kopelement met aluminium K/RZ ALU (4 bochten) Head element with aluminium K/RZ ALU (four-fold)	$0,4 \text{ st.} \times b =$ $0,4 \text{ pc.} \times b =$	
	Blanco element RA Blank element RA	$0,4 \text{ st.} \times b =$ $0,4 \text{ pc.} \times b =$	$+ 0,625 \text{ st.} =$ $+ 0,625 \text{ pc.} =$
	MFH Systeembuis, PE-RT/AL/PE-RT MFH composite pipe (rolled goods), PE-RT/AL/PE-RT	$6,4 \text{ m} \times \text{totaal oppervlak m}^2 =$ $6,4 \text{ m} \times \text{Gesamtläche m}^2 =$	
	Randhout 50 x 30 mm Counter battens, planed squared timber 50 x 30 mm	$(b / 1,25 \text{ m}) \times 4 \text{ st.} \times a =$ $(b / 1,25 \text{ m}) \times 4 \text{ pcs.} \times a =$! Resultaat afronden ! ! Round up the result !
	Randhout 100 x 30 mm Counter battens, planed squared timber 100 x 30 mm	$(b / 1,25 \text{ m}) \times a =$ $(b / 1,25 \text{ m}) \times a =$! Resultaat afronden ! ! Round off the result !

Systeem Ideaal EPS 30

Afbeelding C

Figure C



Aantal berekening lasten verdeel lagen voor vloerverwarming

Determining the quantities load distribution layers for underfloor heating

Artikel	Article	Materiaal gebruik per m ²	Material requirements per m ²
	STRONGBOARD FL voor tegels en laminaat STRONGBOARD FL for tiles + laminate		1,45 st. 1.45 pcs.
	Voegen plakband STRONGBOARD FL Joint tape for STRONGBOARD FL		2,5 Mtr. 2.5 per m
	Ultrabond ECO FIX	Verlijmen van elementen Fixation of heating elements	0,1 kg 0.1 kg
		Verlijmen van STRONGBOARD FL elementen Fixation of STRONGBOARD FL elements	0,15 kg 0.15 kg

Vermogens tabel | Thermal Output

Vermogens conform DIN EN Normering 1264

$\theta_m = 35^\circ\text{C}$ $\theta_i = 20^\circ\text{C}$ $\sigma = 5 \text{ K}$ $R_{a,b} = 0,00 \text{ m}^2\text{K/W}$

Systeem Ideaal EPS 30 Systeem Ideaal OKO 30 Systeem Ideaal NEO 20	Legpatroon Algemene zone AZ (HoH = 250 mm) Laying method central zone AZ (VA = 250 mm)	Legpatroon Randzone RZ (HoH = 125 mm) Laying method edge zone RZ (VA = 125 mm)	Legpatroon Mix (AZ & RZ) (HoH = 200 mm, gemittelt) Laying method mix (AZ & RZ) (VA = 200 mm, averaged)
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>	80,4 W/m ² 80.4 W/m ²	106,7 W/m ² 106.7 W/m ²	90,9 W/m ² 90.9 W/m ²
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>	77,0 W/m ² 77.0 W/m ²	101,9 W/m ² 101.9 W/m ²	86,9 W/m ² 86.9 W/m ²
Tegels op zand-cement laag <i>Tiles on flow screed</i>	83,0 W/m ² 83.0 W/m ²	106,6 W/m ² 106.6 W/m ²	92,8 W/m ² 92.8 W/m ²
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>	56,9 W/m ² 56.9 W/m ²	73,7 W/m ² 73.7 W/m ²	63,7 W/m ² 63.7 W/m ²

Systeem Ideaal TOP 15	Legpatroon = 150 mm Installation gap = 150 mm		
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>	93,3 W/m ² 93.3 W/m ²		
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>	88,7 W/m ² 88.7 W/m ²		
Tegels op zand-cement laag <i>Tiles on flow screed</i>	97,8 W/m ² 97.8 W/m ²		
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>	64,8 W/m ² 64.8 W/m ²		

Systeem Ideaal NEO TS 32/30	Legpatroon Algemene zone AZ (HoH = 250 mm) Laying method central zone AZ (VA = 250 mm)	Legpatroon Randzone RZ (HoH = 125 mm) Laying method edge zone RZ (VA = 125 mm)	Legpatroon Mix (AZ & RZ) (HoH = 200 mm, gemittelt) Laying method mix (AZ & RZ) (VA = 200 mm, averaged)
Tegels op dunne vloei vloeren (bijv.: weber.floor 4310) <i>Tiles on thin screed (weber.floor 4310)</i>	74,3 W/m ² 74.3 W/m ²	98,1 W/m ² 98.1 W/m ²	84,0 W/m ² 84.0 W/m ²
Tegels op vloei vloeren CAF-F5 <i>Tiles on flow screed CAF-F5</i>	83,0 W/m ² 83.0 W/m ²	106,6 W/m ² 106.6 W/m ²	92,8 W/m ² 92.8 W/m ²
Tegels op zand-cement CT <i>Tiles on cement screed CT</i>	73,4 W/m ² 73.4 W/m ²	93,9 W/m ² 93.9 W/m ²	82,1 W/m ² 82.1 W/m ²

Systeem BASIC EPS 30	Legpatroon = 166 mm Installation gap = 166 mm		
Tegels op CompactFloor PRO <i>Tiles on CompactFloor PRO</i>	95,1 W/m ² 95.1 W/m ²		
Tegels op STRONGBOARD FL <i>Tiles on STRONGBOARD FL</i>	90,8 W/m ² 90.8 W/m ²		
Tegels op zand-cement laag <i>Tiles on flow screed</i>	97,5 W/m ² 97.5 W/m ²		
Tegels op Fermacell (20 mm) <i>Tiles on Fermacell (20 mm)</i>	66,2 W/m ² 66.2 W/m ²		



Ontwikkeling | Productie | Documentatie

De hoogste eisen binnen Jupiter hebben de ontwikkeling van moderne en innovatieve systemen voor de inzet als oppervlakte verwarming en / of koeling mogelijk gemaakt. Alle systeem elementen worden hier ontwikkeld en geoptimaliseerd.

Sinds 1998 worden de producten in onze productielokatie te Vechta gemaakt. Gedurende deze periode werden meer dan 8,5 miljoen elementen geproduceerd.

De nieuwe geautomatiseerde productielijn zorgt voor een hoge productie en leverantie zekerheid. Met onze professionele foto en film uitrusting kunnen wij op locatie foto en film materiaal maken voor documentatie en andere instructie doeleinden. Voor onze klanten staat volledige commerciële en technische documentatie ter beschikking.

Development | Production | Documentation

The company's highest priority is the development of advanced and innovative systems around surface heating and surface cooling. All system components are internally developed and continuously optimized.

Since 1998, the products are manufactured at the production site in Vechta. During this time, over 8.5 million items have been manufactured. The high level of automation ensures customers a high degree of supply and production safety.

Due to our professional photo equipment, we can provide matching images to document the possible applications. This can be done on-site or in one of our studios. For our customers, the complete technical documentation is available for free.

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JUPITER
moderne vloerverwarming





Distributed by



THERMAV™

Air-to-water Heat Pump

**High Efficient
Heating
Solution**



Focus on Energy & Environment

Continuous Challenges

The EU has set a target to cut emissions by 40% by 2030 with 27% of energy being produced by renewable sources. Plans are in place to move each country to a more energy efficient, low-carbon economy to help meet this target.

The UK's example

- The UK "Green Deal" and the "CRC Energy Efficiency Scheme" to assist investing in low carbon technologies
- All properties (homes, commercial and public buildings) must have an "Energy Performance Certificate (EPC)" when sold, built or rented.
- Larger public buildings over 500m² must display a "Display Energy Certificate (DEC)."

The Renewable Heat Incentive (RHI)

The RHI is the UK Government financial incentive scheme to encourage a switch from fossil fuel heating systems to renewable heating systems.

Renewable heat is defined as the heat generated minus the electrical input. (If the output is 10 kW, and the input is 3 kW, then the renewable output is 7kW, or 7kWh every hour of operation.)

- **The domestic RHI for Air to Water Heat Pump (launched 9 April 2014) :**
RHI pays 7.3p/kWhr to homeowners, private landlords, social landlords and self-builders.
- **Non-domestic RHI for Air to Water Heat Pump (launched 28 May 2014) :**
RHI pays 2.5p/kWhr to industry, businesses and public sector organization.

In order to claim for the RHI you will need a Green Deal Assessment and a MCS approved product and an MCS approved installer.

Microgeneration Certified Scheme (MCS)

Before applying

- A Green Deal Assessment must be carried out.
- Install loft or cavity wall insulation if it's recommended in the Green Deal Advice Report.
- Get an updated EPC (Energy Performance Certificate) to verify you've installed the loft or cavity wall insulation.

How to apply

The end-user must complete an online application form and supply

- MCS Certificate (or equivalent) Number
This is at the top of the certificate and looks like : MCS 01 234567-A
- EPC Number
This is at the top of your certificate and looks like : 12345-5678-9012-3456
- Green Deal Advice Report Number
This is at the top of your report and looks like : 12345-6789-0123-4567

Save money and pay-back

- Domestic RHI Claimable for 7 years (this can be backdated) Tariff 7.3pkWhr
- Non-domestic RHI Claimable for 20 years Tariff 2.5pkWhr

*Further Information

<https://www.ofgem.gov.uk/environmental-programmes/domestic-renewable-heat-incentive>
<https://gdcashback.decc.gov.uk/>
<https://www.gov.uk/crc-energy-efficiency-scheme-qualification-and-registration>

European Standards

LG THERMA V has adopted for the energy certification to correspond with the market demand for the each country. THERMA V has been validated for its reliability and efficiency by acquiring these certifications under strict conditions.

Certification benefit

- MCS (UK) : RHI (Renewable Heat Incentive) tariff 7.3 Pence / kWh for 7 years
- NF PAC (France) : Promoted in the context of Thermal Regulation RT 2012.
Tax Refund (15%-25% of product cost)
- EUROVENT (EU) : Model registration at the EUROVENT website



LG Energy Lab

LG THERMA V has passed through the severe testing condition at the Energy Lab which is located in northern France. It can prove LG THERMA V is designed to make sure the steady performance and reliability under European winter condition.

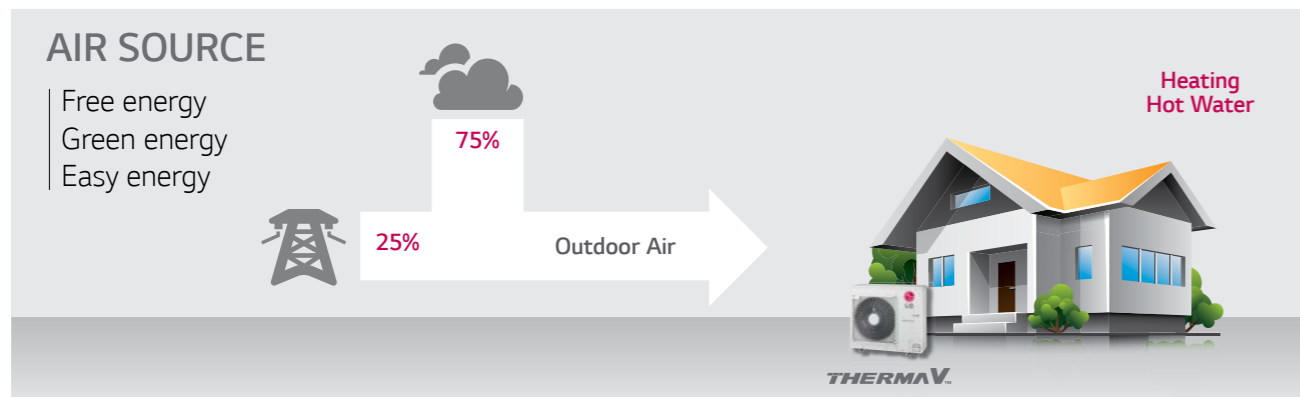


What is LG THERMA V?

THERMA V is LG's newest Air to Water Heat Pump system, especially designed for new housing and renovation by LG's advanced heating technology with energy saving. THERMA V can be used as various heating solution from floor heating to hot water supply with multiple heat sources.

Energy Efficient Application

THERMA V offers the best solution for home heating and hot water supply with LG's inverter technology. It is 4 times more energy efficient than boiler system by absorbing energy from the outdoor environment.



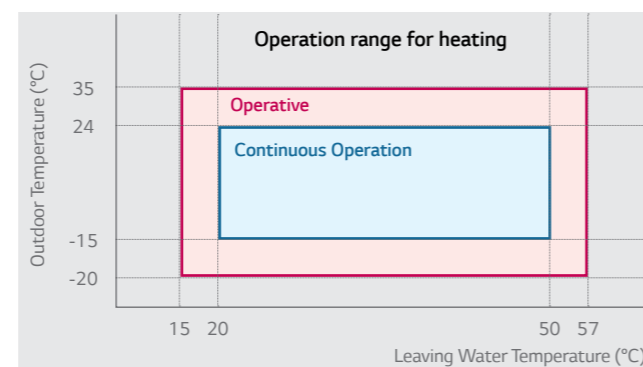
Optimal Application

Advanced model selection software enables designers to choose optimal THERMA V model based on the location and environmental factors.

- Model selection screen
- Monthly energy simulation
- Heat load & heat pump capacity
- System comparison chart

Reliable Application

Heating range for outdoor temperature is down to -20°C and leaving water temperature can reach max. 57 degree.



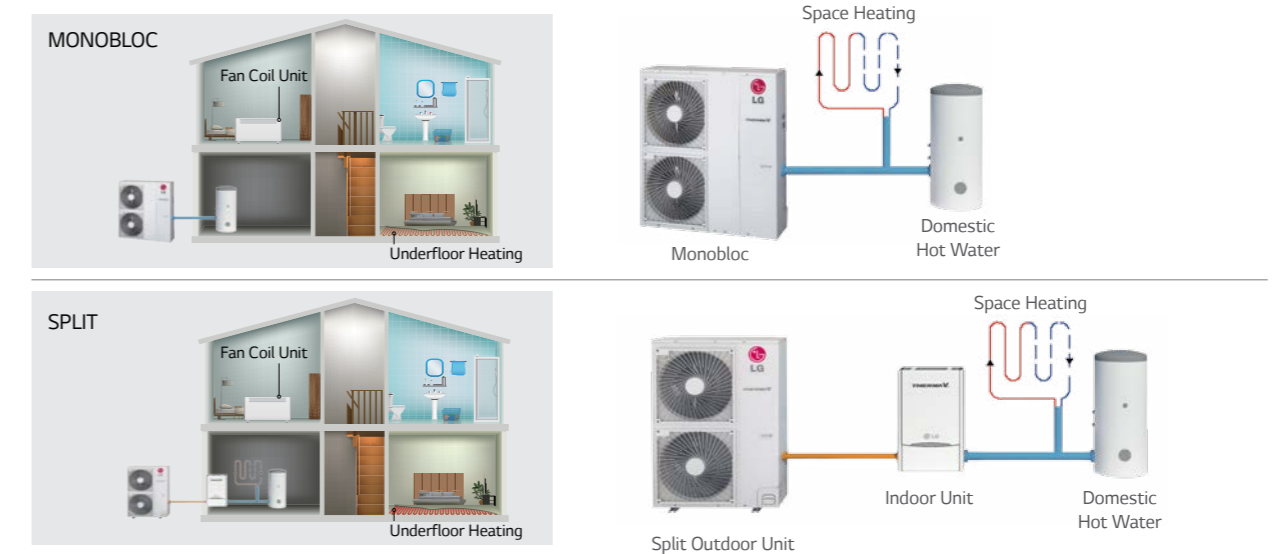
* In case of Monobloc models.

Various Application

Various kinds of application is possible with THERMA V units including new house also renovation house.

New House

With low temp. monobloc & split model, heating and cooling can be done.



Renovation House

THERMA V can be connected to existing boiler system to optimize energy efficiency and heating capacity for renovation house. Also THERMA V High Temperature can replace completely existing boiler by providing 80°C hot water.



Why LG THERMA V?

The LG Therma V is designed to create incomparable customer values like energy saving, comforts, easy controls and services by applying the advanced technologies.

The LG inverter technology provides excellent energy efficiency with optimal components such as water pump, heat exchanger and fan motor.

Moreover, the pressure control technology provides stable heating capacity at low temperature and reaches target performance without difficulties.

Additionally, the differentiated structure like all-in-one type, gold-fin and users-oriented functions enhance professionals reputations as well as end-users happiness by experiencing the LG's full line-up from 3kW to 16kW in heating capacity.

1 ENERGY EFFICIENCY



P.08

- Highly efficient inverter compressor
- Savings from energy efficient water pump
- Energy efficiency at -2°C
- Optimized components

2 CONVENIENCE & COMFORT



P.10

- Stable heating capacity with refrigerant pressure control
- Low operating noise
- Convenient control for end-users

3 EASY INSTALLATION & SVC



P.12

- Compact size & light weight for easy installation
- All-in-one type for quick and reliable installation
- Improved structure for easy service
- Emergency operation mode
- Service & Warranty support

1 ENERGY EFFICIENCY

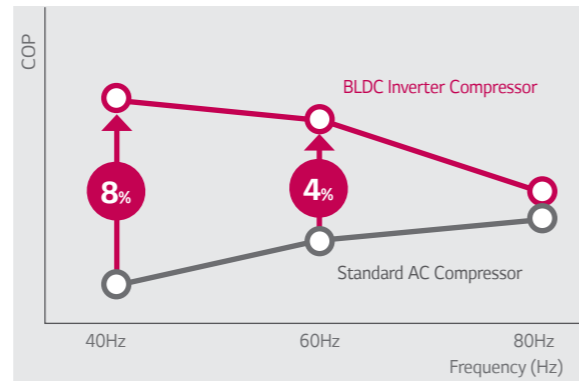
Powerful BLDC* Compressor

*BLDC : Brushless DC Motor

THERMA V is equipped with a BLDC* compressor that uses a strong neodymium magnet. The compressor has improved efficiency compared to standard AC inverter product and it is optimized for seasonal efficiency.

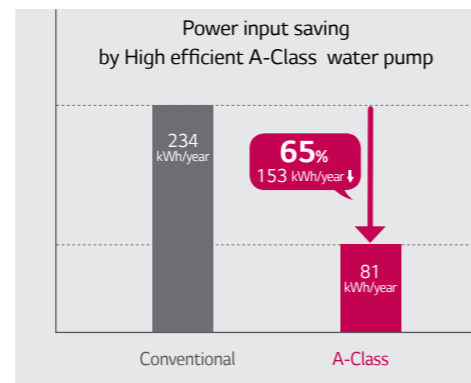
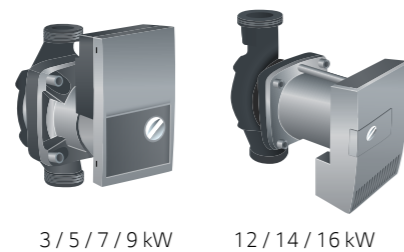


- Minimized oil circulation
- High efficiency motor
- Optimized compression
- Optimized vibration, noise
- High reliability



High Efficient Water Pump

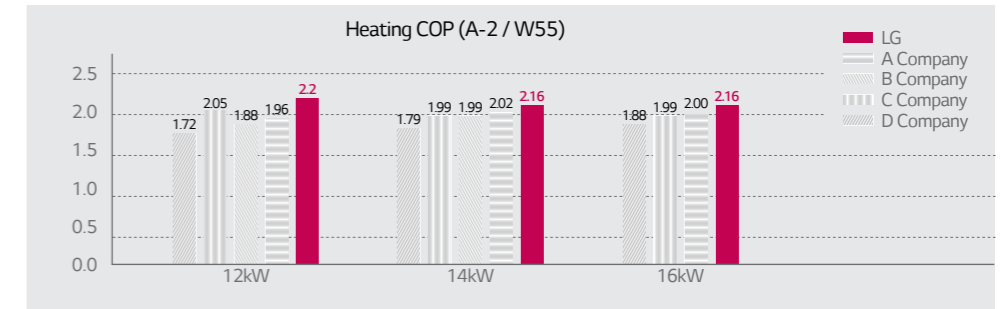
THERMA V is equipped with a high efficiency A-Class water pump. The pump pressure is adjustable, to suit design conditions.



* Condition : 12 hours x 30 days x 5 month (estimated value)

Energy Efficiency at -2°C

Energy efficiency is higher than others.
(Condition : Ambient temp. -2°C / Leaving water temp. 55°C)

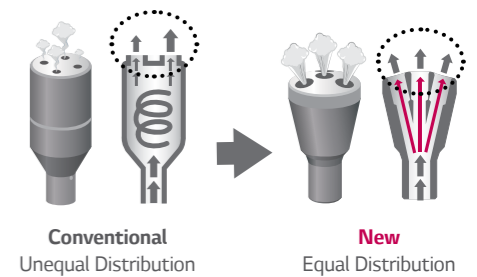
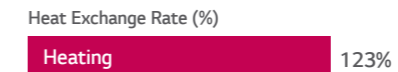


* Peak value / Monobloc models.

Heat Exchanger Improvement

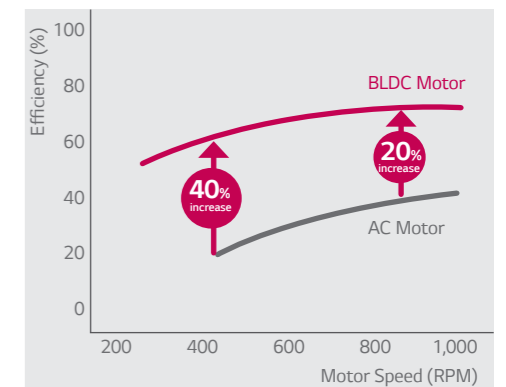
Efficiency and performance are improved by increased heat exchange rate of wide louver fin & new optimal distributor design applied to the heat exchanger.

- Wide Louver Fin**
Improved heat exchanger efficiency of up to 28%.
- Optimized Heat Exchanger Path**
Improved cycle efficiency up to 5% with equal distribution.



Inverter BLDC Fan Motor

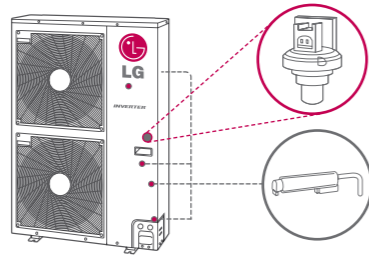
LG BLDC fan motor offers additional energy savings up to 40% at low speed and 20% at high speed compared to an AC motor.



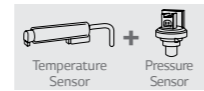
2 CONVENIENCE & COMFORT

Reliability at Low Temperature

Pressure control reinforces heating performance by operating in stable condition at low ambient temperature.

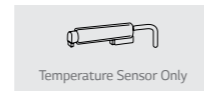


Pressure Control



This ensures to reach target performance point without failing to keep a reliable operation.

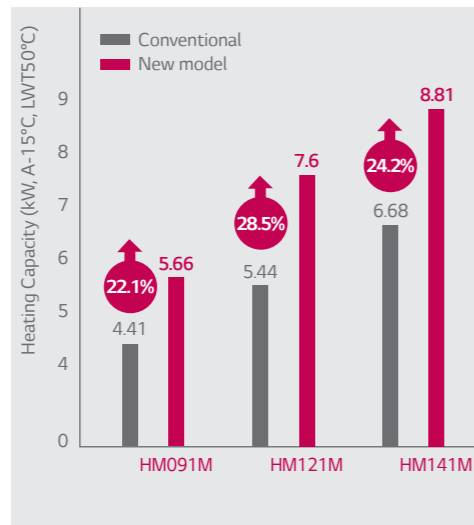
Temperature Control



This algorithm is more likely to be affected by temperature change and it takes more time to calculate proper operation range of compressor to target point.

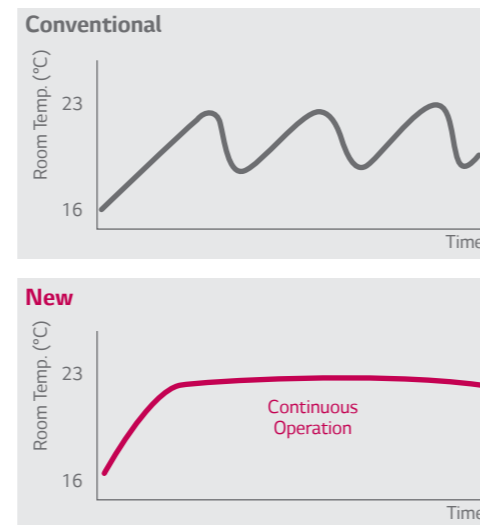
Heating Capacity at Low Temperature

High and stable performance at low temperatures.



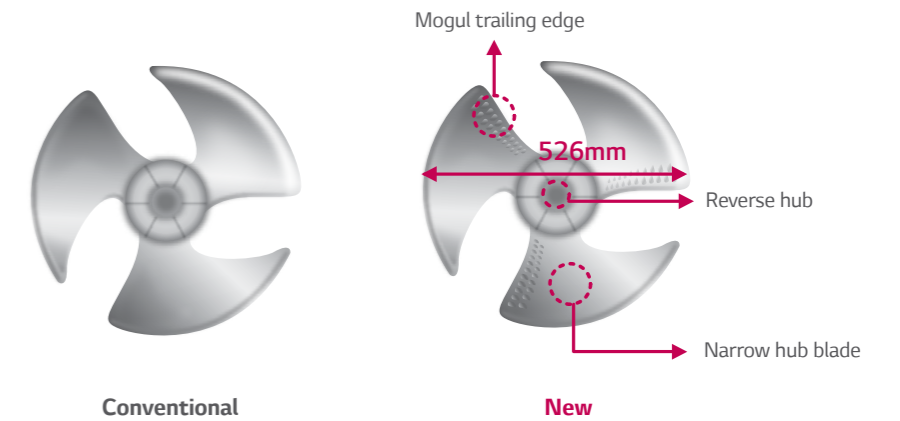
Stable Operation

High and stable heating performance at low temperatures.



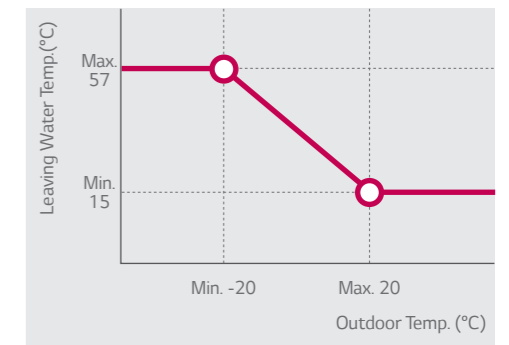
Improved Fan for Low Noise

The New Axial Fan has a narrow hub blade and mogul trailing edge, this provides a high efficiency, low noise as well as improving the air flow rate.



Weather Dependent Operation

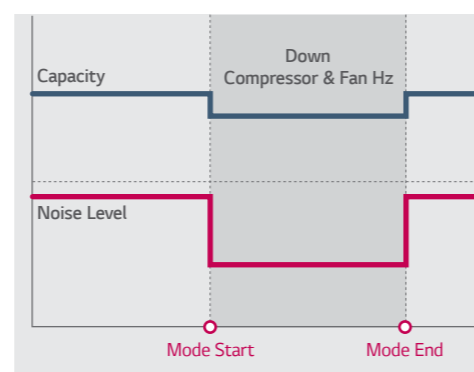
If users choose this mode, setting temperature will follow outdoor temperature automatically. If outdoor temperature decreases, heating capacity for the house will increase automatically in order to keep comfortable heating performance according to weather.



Silent Mode & Scheduler

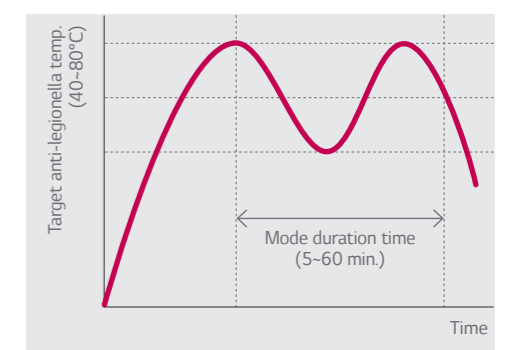
Silent mode operation can reduce the noise level specially during the setting time by remote controller and users can set the weekly on/off schedule also.

Heating Capacity (kW)	Heating Sound Pressure (dBA)	
	Normal	Silent Mode
3	47	43
5	51	48
7	52	48
9	52	48
12	53	50
14	53	50
16	53	50



Anti-Legionella Function

By setting Anti-legionella operation mode on, THERMA V heats the whole water tank automatically once a week until water temperature reach up to 80°C.

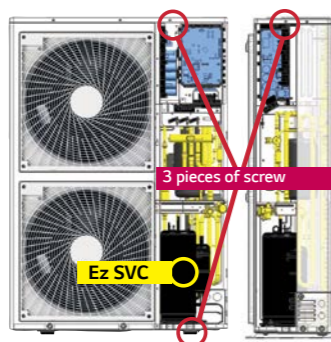
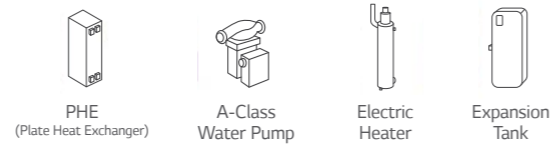


3 EASY INSTALLATION & SVC

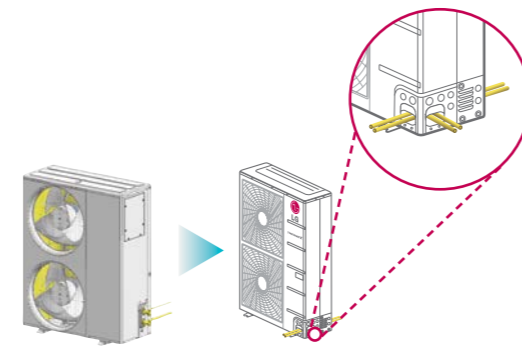
Ez Installation & SVC



All-in-one concept
 LG will provide fully packaged monobloc with 4 main component. (except 3kW monobloc) basically.
 No need to work refrigerant piping, easier and quicker installation.



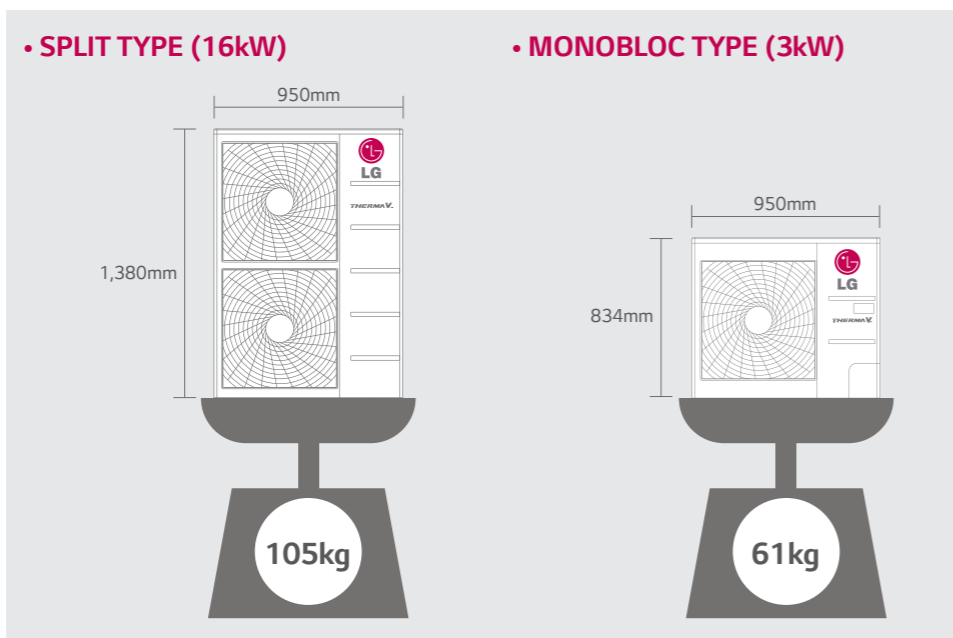
Compact design & Ez SVC
 - Remove 3 pieces of screw for SVC
 - Front panel removal system



3-Way charging pipe (Split type only)
 Refrigerating connection is possible in three directions.

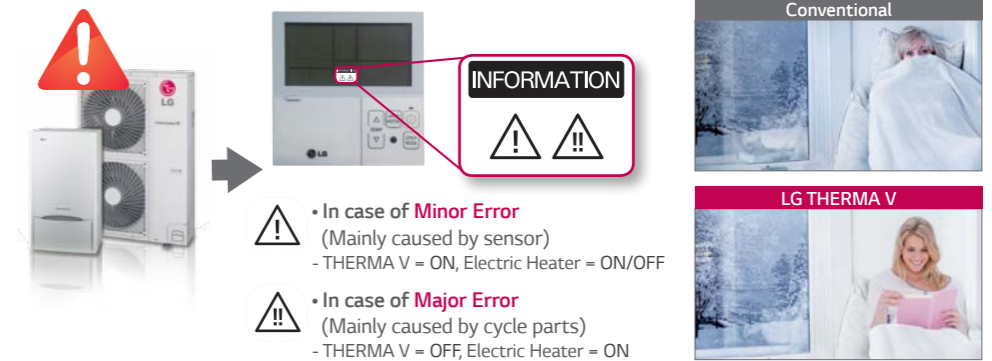
Compact & Slim

THERMA V is shaped to minimize the size and weight in order to help easy and efficient work condition for installation.



Emergency Operation

Even in case of sudden product error, THERMA V ensures stable heating operation by applying 2 steps of emergency control.



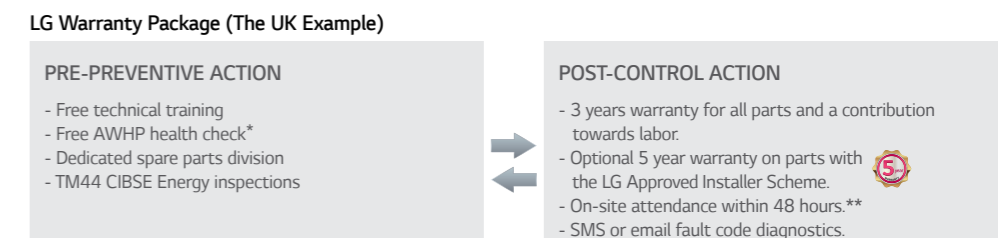
Corrosion Resistant Heat Exchanger

LG's Outdoor Heat Exchanger is coated with a gold-colored anti-corrosive epoxy treatment on the aluminum coil, to prevent corrosion. This maintains excellent heat transfer properties of the coil for an extended time, whereas non-Gold Fin™ coils progressively lose efficiency due to surface corrosion. Gold Fin™ fin is perfect for areas with high pollution or locations exposed to saltwater spray from the sea.



Service and Warranty

LG provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.



* If 3 warranty issues are claimed within the warranty period.
 ** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

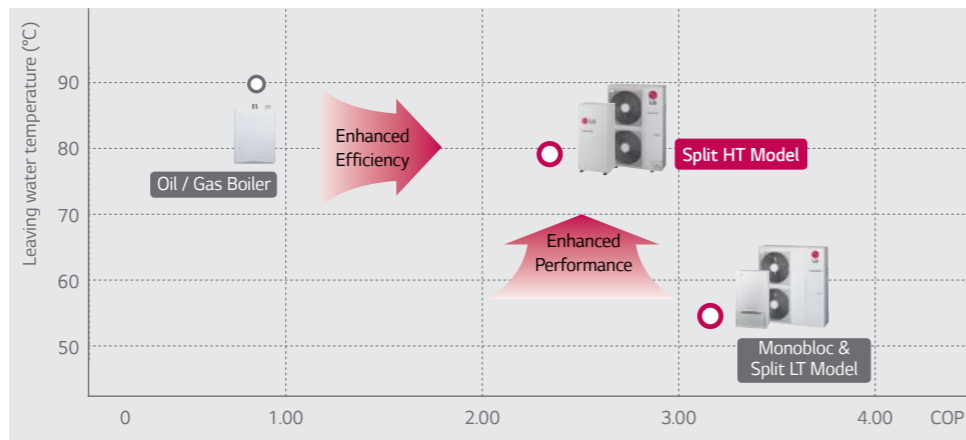
NEW

THERMA V HIGH TEMPERATURE



Enhanced Efficiency & Performance

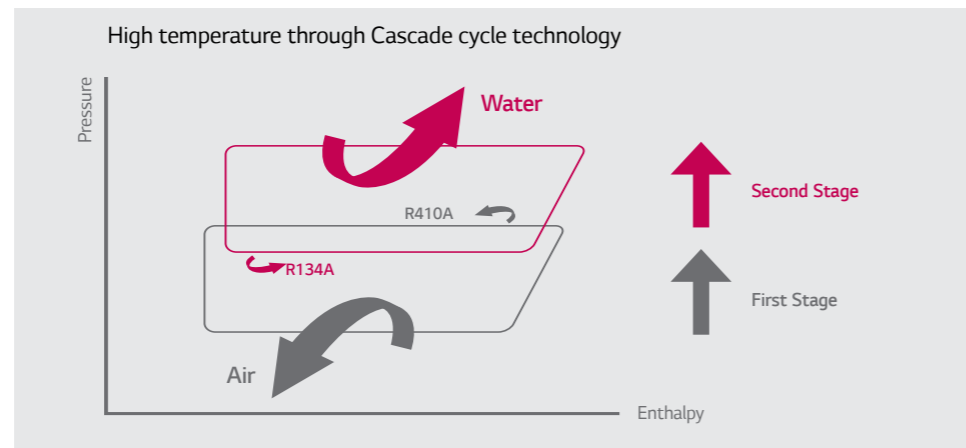
THERMA V high temp. can produce Max. 80°C hot water with high efficiency (Max. COP 4.06 at 24°C ODT & 40/45 EWT/LWT) through cascade 2 stage compression technology.



*Condition for HT model : Outdoor air temp. 18°C, entering water temp. 70°C
 *Condition for LT model : Outdoor air temp. 18°C, entering water temp. 50°C

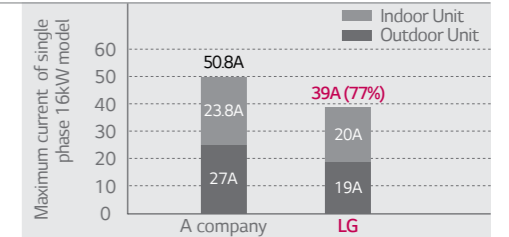
Cascade 2 Stage Compression Technology

Max. 80°C hot water can be generated through Cascade R410A to R134A BLDC compressor technology and applicable for existing old boiler heating system which demands hot water supply.



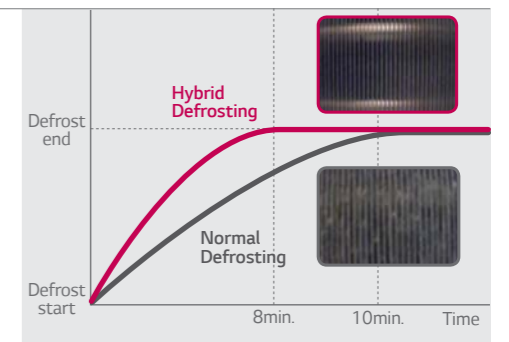
Low Maximum Current Level

LG High Temperature THERMA V can be easily installed without any additional electric connection cost.

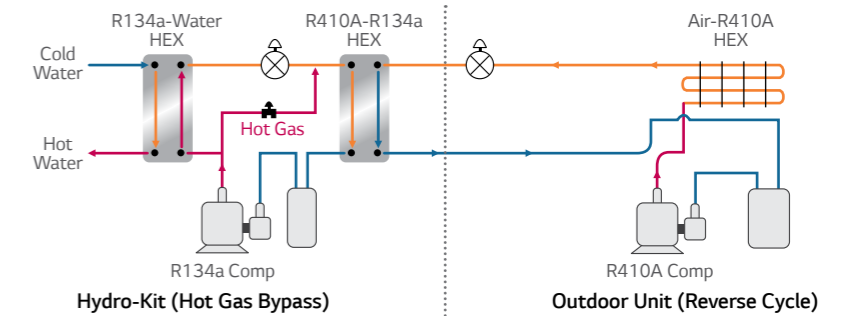


Quick Defrosting

Through R134A compressor controlling technology, necessary time for defrost operation has been minimized effectively. (LG Patent)

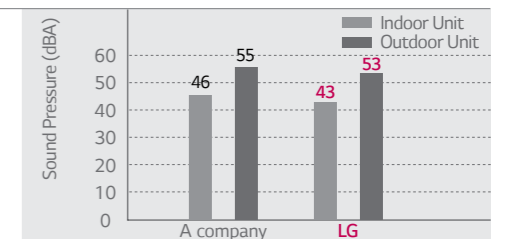


As compared to normal reverse cycle defrost, 25% reduction in defrost time, and 10% increase of integrated heating capacity is achieved using hybrid defrosting.



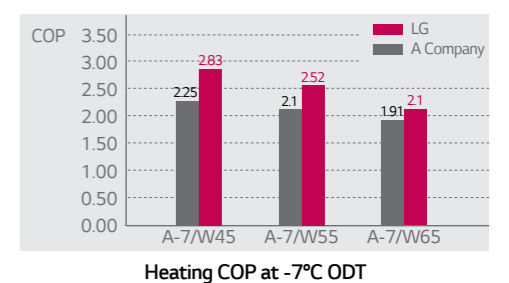
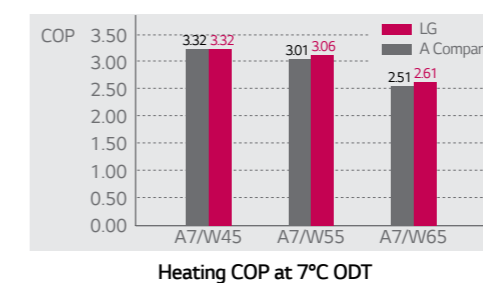
Low Noise Level

Through cutting edge technology for DC inverter compressor, operating noise level of indoor & outdoor unit has been reduced and serves more comfort.



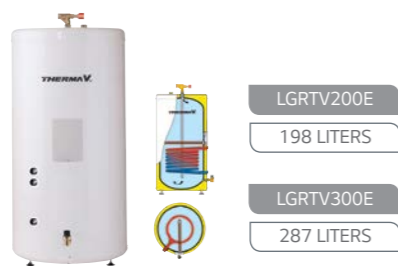
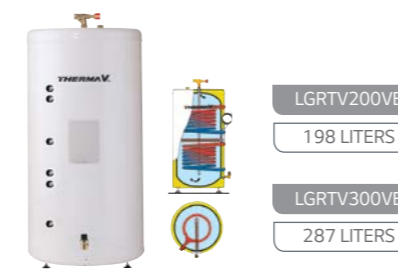




Higher Energy Efficiency

By applying efficient compressor and optimally designed structure, the more energy saving, the lower operating cost make sooner return on initial investment.





ACCESSORY

Accessories provided by LG

Accessory	Feature
Domestic Hot Water Tank	 <p>Single Coil</p> <ul style="list-style-type: none"> LGRTV200E (198 LITERS) LGRTV300E (287 LITERS)  <p>Double Coil</p> <ul style="list-style-type: none"> LGRTV200VE (198 LITERS) LGRTV300VE (287 LITERS)
Domestic Hot Water Tank Kit	<ul style="list-style-type: none"> • PHLTA (1Φ, Split) • PHLTC (3Φ, Split) • PHLTB (Monobloc) <p><i>* The sensor (PHRSTA0) can be purchased separately in case of using other brand's Domestic tank.</i></p>  <p>PHLTA / PHLTC PHLTB</p> <p>Features Easy to install the domestic hot water for monobloc. There is a MCCB to protect the product. Dimension(mm) (HxWxD) : 250x170x110 Weight(kg) : 2.1</p> <p>To extend THERMA V functionality in generating domestic hot water.</p>
Remote Temperature Sensor	<ul style="list-style-type: none"> • PQRSTA0  <p>Features It can help to detect the exact room temperature. Applied to ceiling cassette, ceiling concealed duct, AWHP and Hydro Kit.</p> <p>Parts Included Remote temperature sensor / Extension cable (15m) / Manual</p>
Solar Thermal Kit	<ul style="list-style-type: none"> • PHLLA  <p>Features To interface solar-thermal system with THERMA V and double coil Domestic tank. Installed at the water pipe, between Domestic tank and solar-thermal system. Dimension(mm) (HxWxD) : 110x55x22</p>
Dry Contact	<ul style="list-style-type: none"> • PQDSA  <p>Features For connection with boiler(Bivalent scene)</p>

Optional accessories supplied in the fields

No.	Accessory	Picture	Purpose	Specification
1	Domestic Hot Water Tank		Store and provide hot water for sanitation	Volume : 200-400 l Enameld or stainless-steel tank / Insulating foam (e.g. PUR - polyurethane) heat-exchanger surface ≥ 3 m²
2	3-Way-Valve		Switch between heating and domestic hot water circuit	230V AC SPDT (Single Pole Double Throw) / opening time 30-90 sec / final position switch Internal leakage rate < 0,1%
3	Electrical Tank Heater		Supports heating of domestic hot water, when heat pump is blocked or capacity is limited	2-6 kW Connector dimension suitable for DHW tank
4	Buffer Tank		Prevents cycling, when water volume is low and/or heating demand is low; secures enough heat for defrosting cycle	Insulating foam (e.g. PUR - polyurethane) Volume : 100-200 l (installation in series with heat pump) 500-1,000 l (installation in parallel with heat pump)
5	Bypass Valve		Ensures minimum water flow rate, when flow through heating circuits is limited due to closed valves	Dimensioning according manufacturer adjustable opening pressure
6	2-Way-Valve		Blocks heating circuits, that are not suitable for cooling during cooling operation	230V AC NO or NC type final position switch
7	Expansion Vessel		Absorption of pressure differences in the heating circuits due to temperature increase/decrease of the water	Dimensioning on-site required
8	Strainer		Protects plate-heat-exchanger from blocking particles	1 inch / 25.4mm, Mesh size ~ 1x1mm for HM03M1.U42 only (other models are included)
9	Heating Cable		Prevents the condensate pan and the drainage pipe from icing	Thermostatic control depending on outdoor temperature
10	Condensate Pan		Collects condensate water (when dropping to the base is not possible) and drains the water to a pipe	Diameter of drainage at least 3/4" Minimum dimensions according to chassis sizes (refer to specification) plus 5-10cm in width and length
11	Antifreeze		Prevents the heating water from freezing, when heat pump is out of order	Monoethyleneglycole Concentration according to lowest possible outdoor temperature
12	Noise Damper		Prevents that structure-born noise is transported via the water piping	EPDM; Operating temperature according climate region (at least -10 - +90°C)
13	Anti-Noise Sockets		Prevents that structure-born noise is transported to the base or to the brackets	Dimensioning on-site required
14	Thermostat		When thermostatic room temperature control is preferred by customer	230V AC When heat pumps operates in heating and cooling mode: thermostat with mode selection
15	Refrigerant Tubes		Pre-fabricated double-pipe to connect split indoor and outdoor unit	Diameter: Please refer to Specification
16	Water Tubes		Pre-fabricated double-pipe to connect monobloc outdoor unit with heating system	When heat pump is used for cooling: diffusion-resistant tubes
17	Bushing Sleeve		Protecting the building against pressing water coming through the duct of the heating tubes	Dimensioning on-site required
18	Insulation Material		Mandatory when heat pump is used for cooling; prevents condensate water on cold pipes and assemblies	Diffusion-resistant

FLEXIBLE APPLICATIONS

Table of the Hydraulic Applications

This shows some examples of how to integrate the THERMA V into the heating system according to each customer needs. Each application is accompanied with the representative connection and installation explanations with symbol icons.

Case	Heating	DHW	Heating & Cooling	Bivalent with boiler	Double Zone Heating
1	•				
2	•	•			
3	•	•	•		
4	•	•			•
5	•	•		•	•
6	•*	•	•		

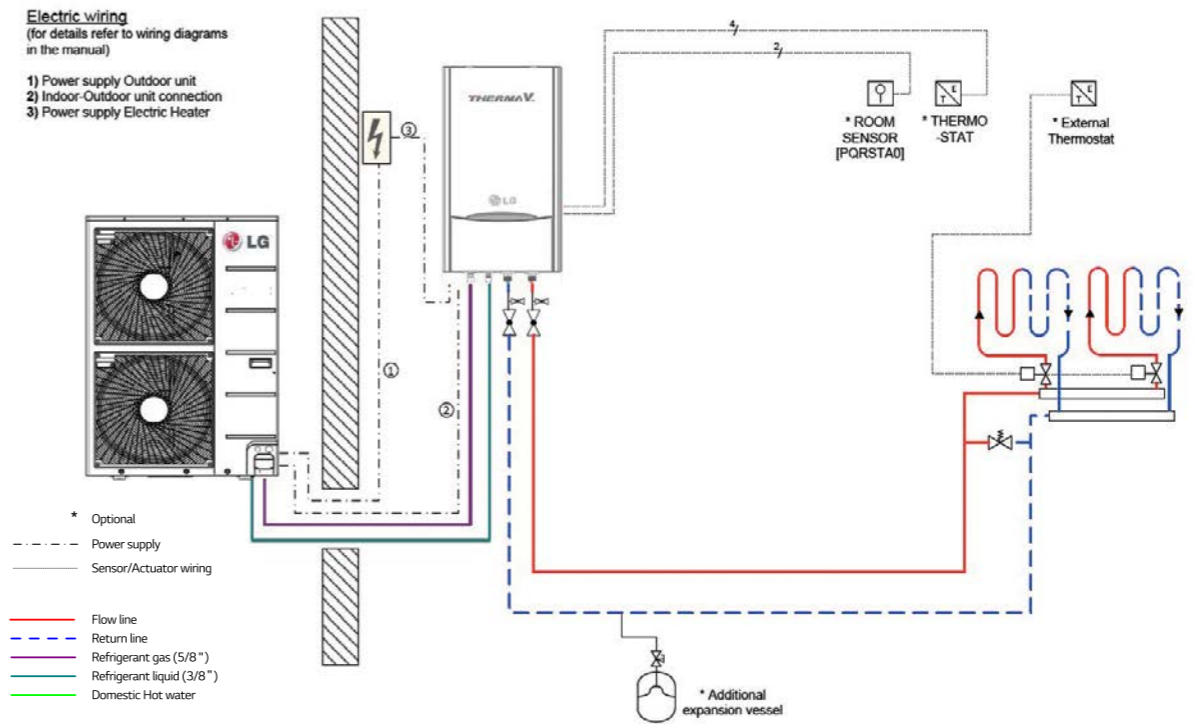
Combinations of these systems might be possible. Please refer to your local LG heating specialist.

* High Temperature 80°C

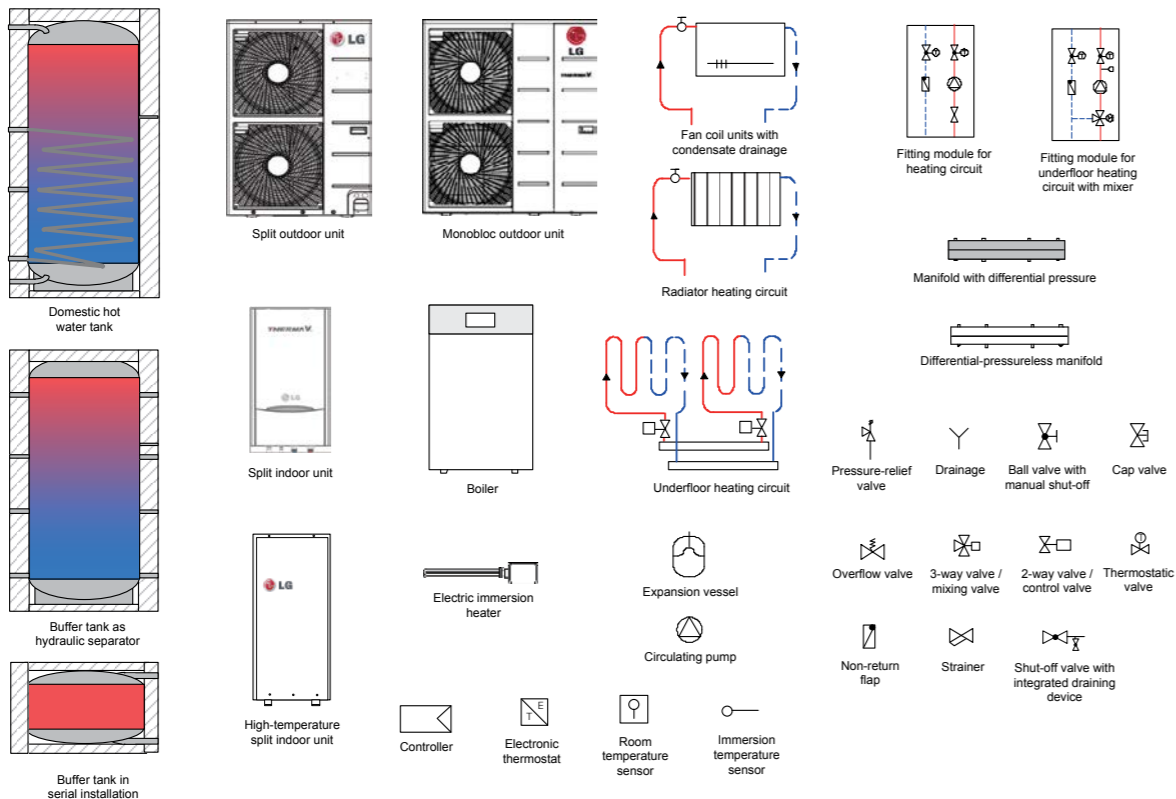
Case 1. Split _ for Floor Heating

Electric wiring
(for details refer to wiring diagrams in the manual)

- 1) Power supply Outdoor unit
- 2) Indoor-Outdoor unit connection
- 3) Power supply Electric Heater



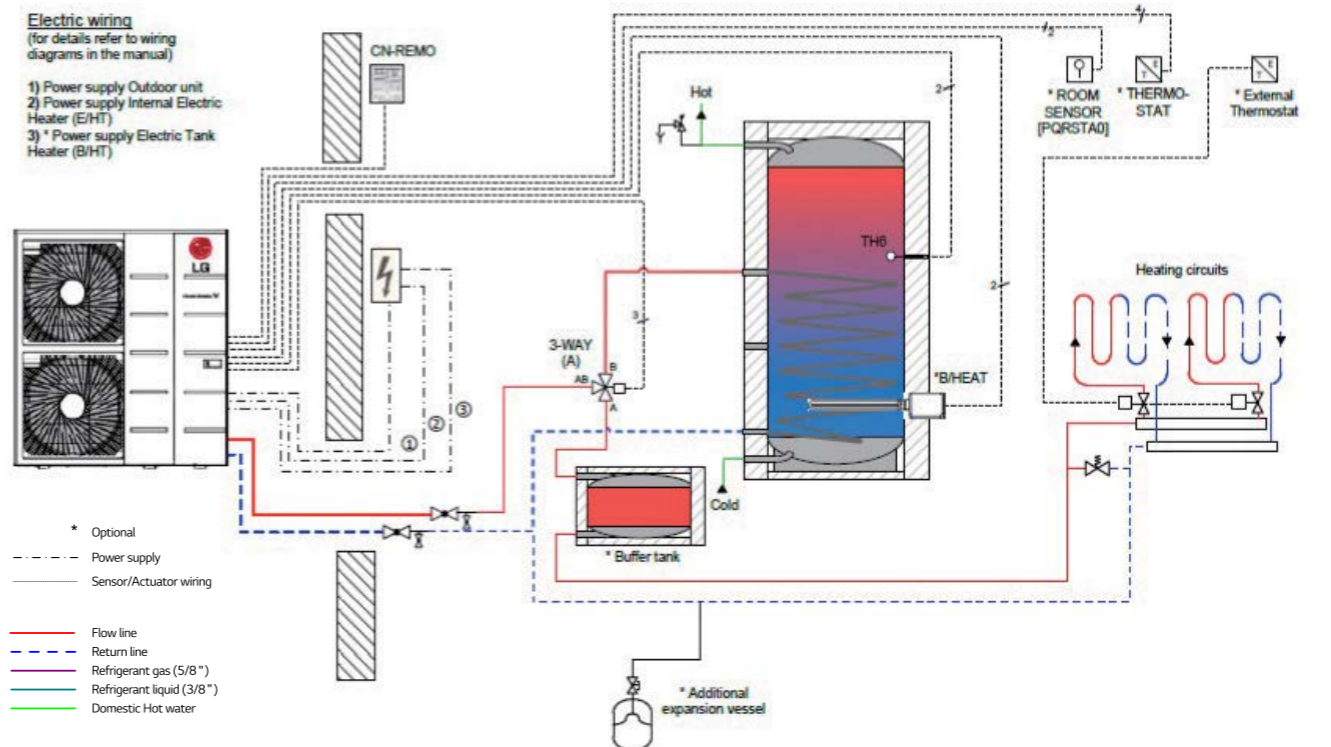
Used Symbols



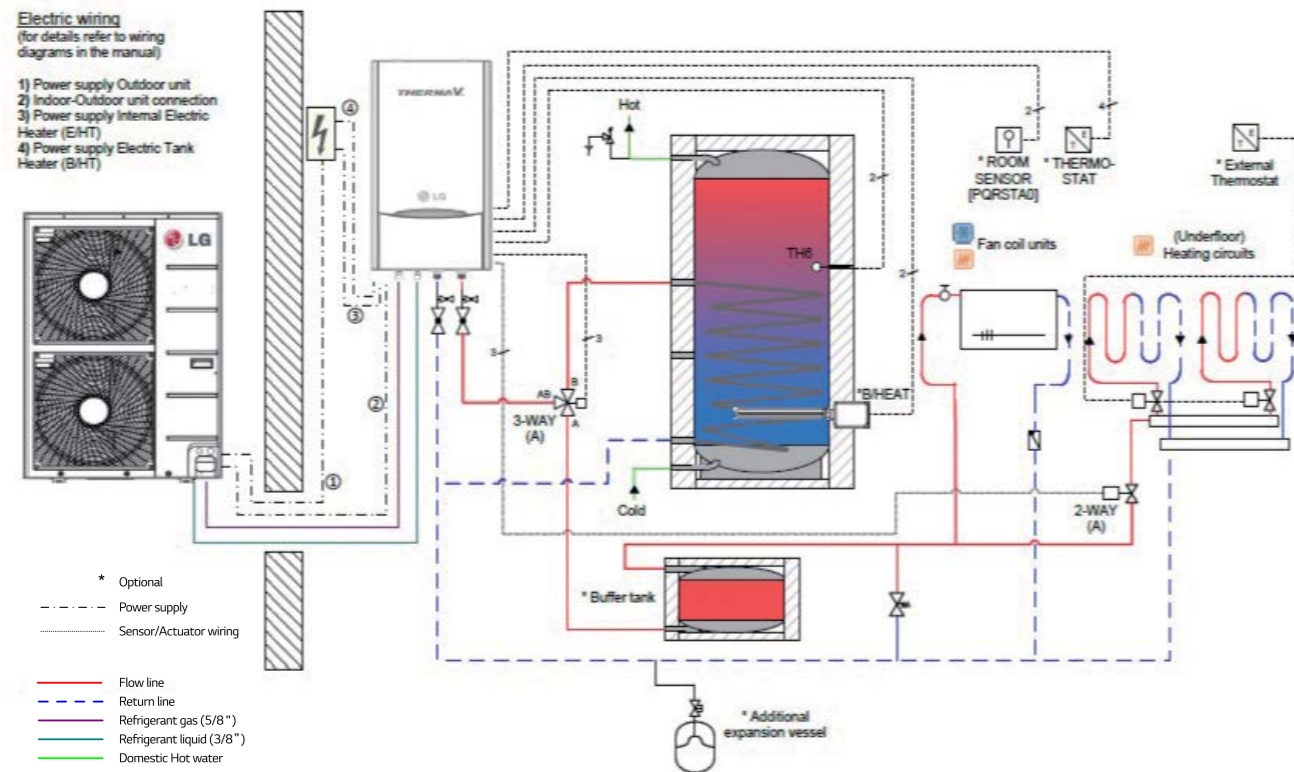
Case 2. Monobloc _ for Floor Heating & DHW

Electric wiring
(for details refer to wiring diagrams in the manual)

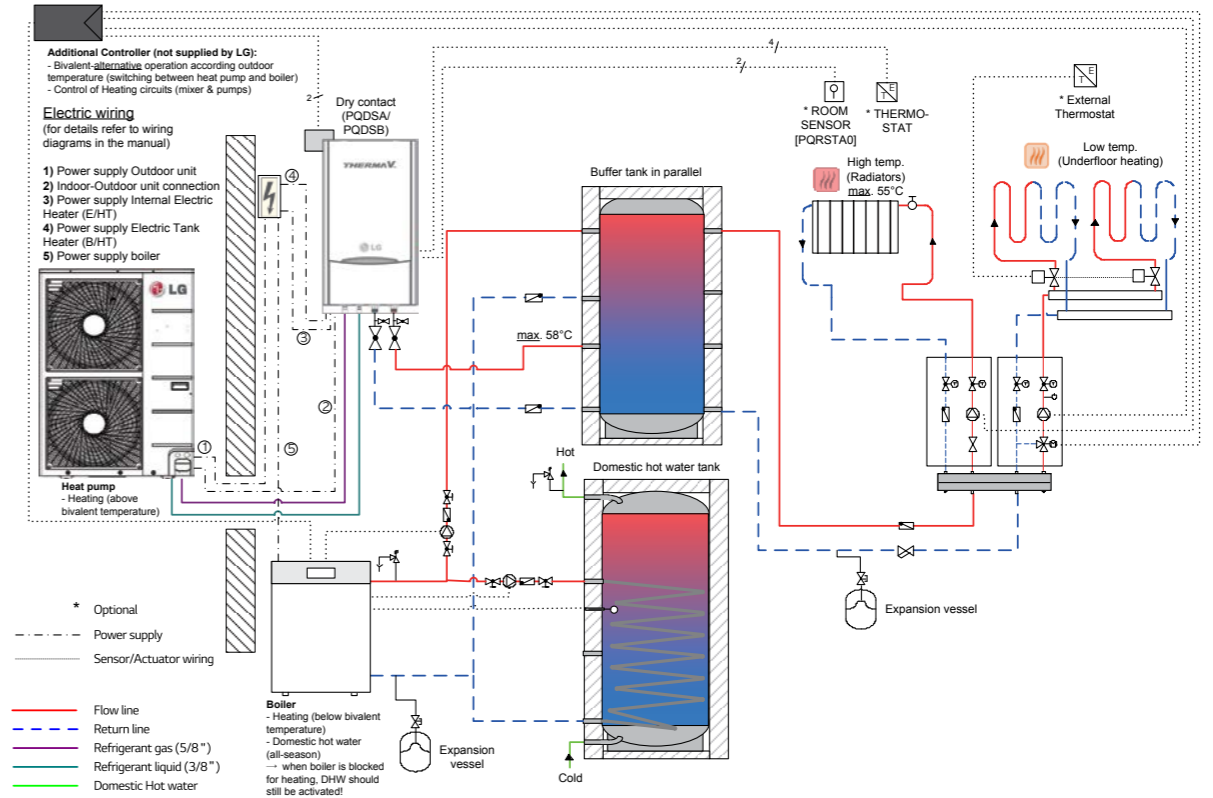
- 1) Power supply Outdoor unit
- 2) Power supply Internal Electric Heater (E/HT)
- 3) * Power supply Electric Tank Heater (B/HT)



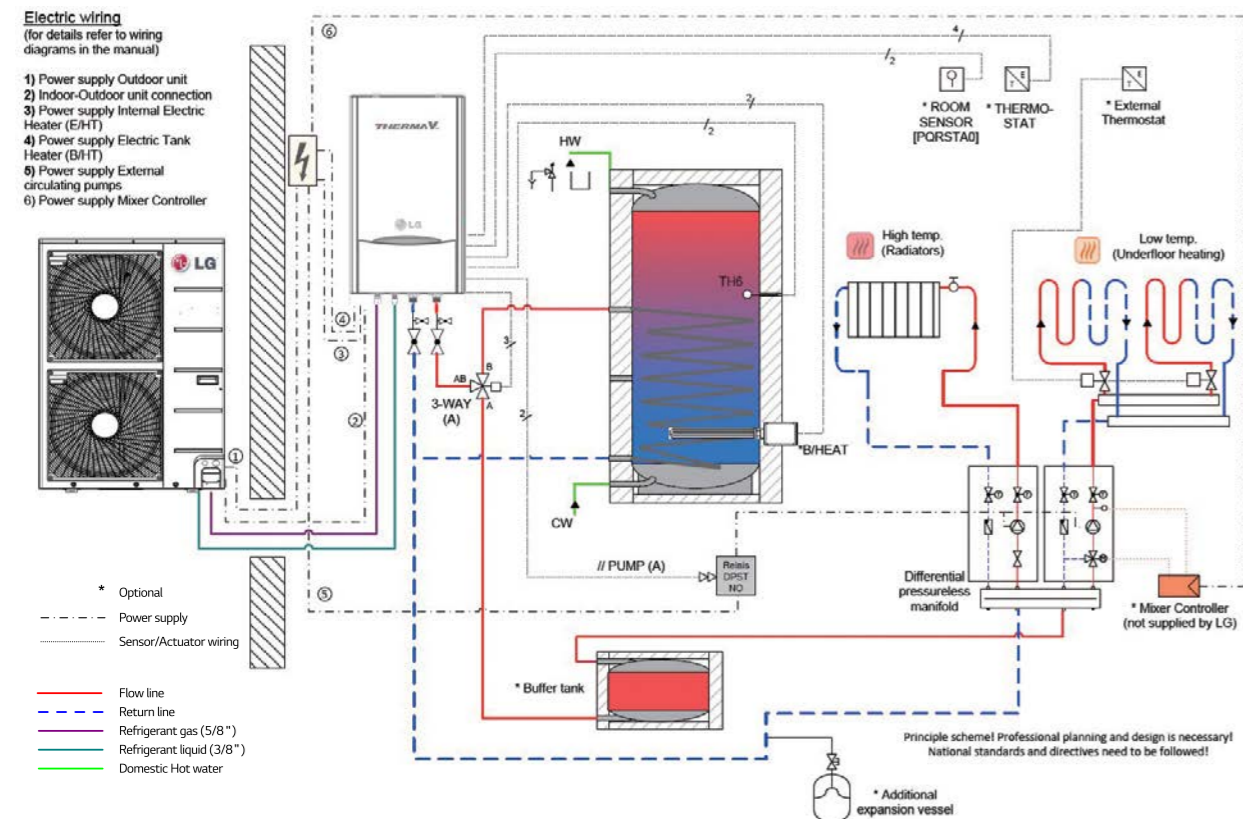
Case 3. Split _ for Floor Heating & DHW & Cooling with Fan Coil Unit



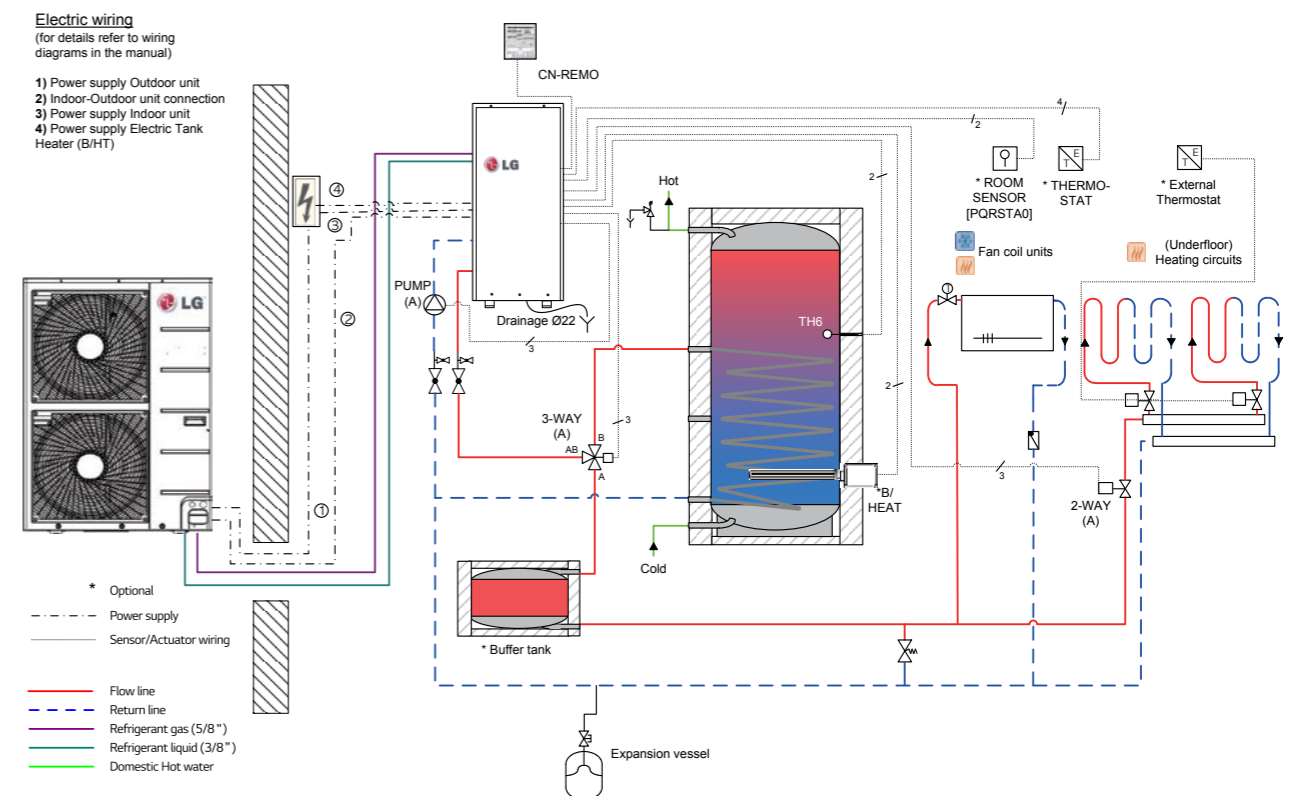
Case 5. Split _ for Floor Heating & Radiator & DHW with Boiler (Bivalent Scene)



Case 4. Split _ for Floor Heating & Radiator & DHW (2 Zone Heating)



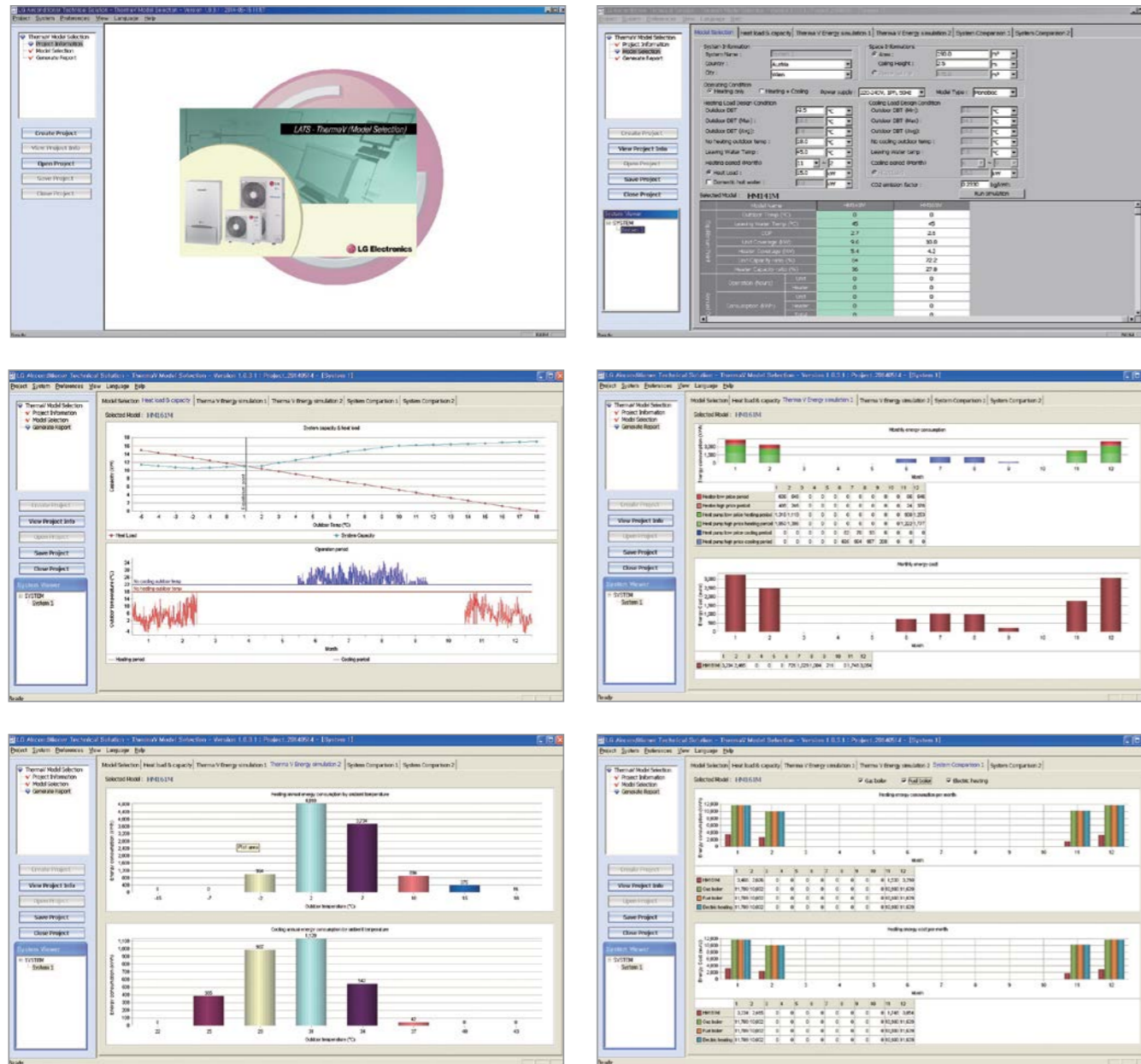
Case 6. Split (High Temp.) _ for Floor Heating & DHW & Fan Coil Units



BEFORE SALES & AFTER SALES SERVICE

THERMA V Selection Program

LATS THERMA V simulates quick and easy result of THERMA V's economic benefits. By specifying a number of parameters, this program shows annual energy cost compared with conventional heating system and CO2 annual amount, monthly energy amount and cost, total amount of thermal energy in kWh as the outside temperature.



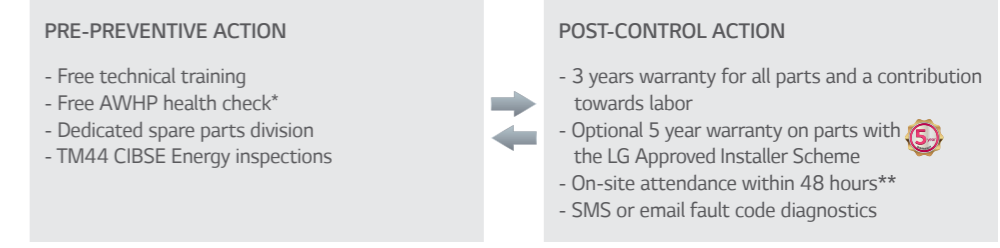
Service and Warranty

A dedicated Technical Service department and LG's authorized Service Centers provide various levels of technical support to cover model selection & quotation, installation, commissioning and spare parts & warranty.

3 Levels of Technical Service



LG Warranty Package (The UK Example)



* If 3 warranty issues are claimed within the warranty period.
** Mainland UK only, excluding Northern Ireland, Scottish Highlands and Islands, Eire (Monday-Friday).

SMS 24/7
Just text the 1, 2 or 3 digital fault code to : 07624 818 794
Available 24 hours a day, 365 days per year.

Telephone
Speak to an LG engineer call :
08448 471 402 and select 'Option 4'
Available Monday to Friday between 09:00 and 17:00

E-mail support
Send your question by e-mail to : uk.aircon@lge.com
Available Monday to Friday between 09:00 and 17:00

For specific enquiries please email
Spare parts : aircon.spares@lge.com
Warranty queries : aircon.warranty@lge.com
Commissioning : aircon.commissioning@lge.com
Training : aircon.training@lge.com

LG Training and CPD Seminars (The UK Example)



Two Training Academies positioned in the South and North of England – Slough and Leeds, both equipped with the latest THERMA V, LG Air to Water Heat Pump. Installers can gain hands-on practical experience of the product range as well as theory in the purpose built classroom. Training courses are free of charge. LG also offer CPD accredited seminars, which can be held at your offices or at our own premises.

2014 Full Line-up of LG AWHP

Type	Capacity	φ	Product	European Certificate	Performance at Low Ambient				Reliability & Comfort								Convenience					
					A7 / W35		A-2 / W55		Heating Operating Range		BLDC Inverter Compressor	Control Sensor	Embedded Component	Water Pump	Heat Exchanger Coating	Electric Heater		Timer	Emergency Operation	Dry Contact Connectivity	Weather Dependant Operation	PHEX Anti-Freezing Control
					COP	Capacity	COP	Capacity	Outdoor Temp.	Leaving Water Temp.						Size	Capacity Control					
Monobloc Type	3kW	1φ			4.10	3.00	1.94	1.80	-20°C ~ 35°C	20°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A		1 LEVEL			
	5kW	1φ			4.42	4.99	2.08	3.01	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	7kW	1φ			4.30	7.00	2.03	4.21	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	9kW	1φ			4.09	9.00	2.04	5.41	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL			
		3φ			4.49	12.00	2.04	7.31	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL			
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL			
3φ				4.44	14.00	2.03	8.40	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL				
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	6kW			2 LEVEL				
Split Type	3kW*	1φ		Work in Progress	4.62	3.00	2.16	2.19	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	N/A	N/A		1 LEVEL			
	5kW*	1φ		Work in Progress	4.55	5.00	2.11	4.11	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	7kW*	1φ		Work in Progress	4.40	7.00	2.17	5.20	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	9kW*	1φ		Work in Progress	4.23	9.00	2.00	5.85	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			A CLASS	gold™ Gold-fin	4kW			2 LEVEL			
	12kW	1φ			4.49	12.00	2.05	7.27	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL			
		3φ			4.41	12.00	2.04	7.31	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL			
	14kW	1φ			4.44	14.00	2.04	8.42	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL			
3φ				4.32	14.00	2.03	8.40	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL				
16kW	1φ			4.20	16.00	2.03	9.56	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL				
	3φ			4.20	16.00	2.02	9.57	-20°C ~ 30°C	15°C ~ 55°C	LG Twin Rotary			Normal	gold™ Gold-fin	6kW			2 LEVEL				
Split High Temp. Type	16kW	1φ			2.61 (A7/W65)	16.00	2.62	16.60	-15°C ~ 35°C	25°C ~ 80°C	LG Twin Rotary			N/A	gold™ Gold-fin	N/A	N/A		1 LEVEL			

* These models will be available in Q1 2015

* NF-PAC / MCS certification is work in progress. Expected release Q2 2015.

* Split 12,14,16kW certified only single phase for MCS certification.

SPECIFICATION

MONOBLOC TYPE



Monobloc (Outdoor Unit)			Capacity Reference	NEW 3kW 1Φ HMO31M.U42	NEW 5kW 1Φ HMO51M.U42	NEW 7kW 1Φ HMO71M.U42	NEW 9kW 1Φ HMO91M.U42
Nominal Capacity	Heating (A7/W35)	kW		3.00	4.99	7.00	9.00
	Heating (A2/W50)	kW		2.10	3.49	4.89	6.29
	Heating (A-2/W50)	kW		1.96	3.26	4.57	5.88
	Heating (A-7/W35)	kW		2.83	4.72	6.61	8.61
Nominal Power Input	Cooling (A35/W18)	kW		-	4.99	7.00	9.00
	Heating (A7/W35)	kW		0.73	1.13	1.63	2.20
	Heating (A2/W50)	kW		0.90	1.40	2.01	2.57
	Heating (A-2/W50)	kW		0.89	1.39	1.98	2.65
COP	Heating (A-7/W35)	kW		1.10	1.72	2.45	3.19
	Cooling (A35/W18)	kW		-	1.39	2.00	2.65
	Heating (A7/W35)			4.10	4.42	4.30	4.09
	Heating (A2/W50)			2.33	2.49	2.43	2.45
EER	Heating (A-2/W50)			2.20	2.35	2.31	2.22
	Heating (A-7/W35)			2.57	2.74	2.70	2.70
Dimension	W*H*D	mm		950 x 834 x 330	1,239 x 907 x 390		
	Weight	kg		61	99		
Sound Pressure Level (Heating)		dB(A)		47	51	52	52
Outdoor Air Operation Range	Heating	°CDB		-20 - 35			
	Cooling	°CDB		5 - 48			
Leaving Water Temp. Range	Heating	°C		20 - 57	15 - 57		
	Cooling	°C		-	6 - 35		
Water Pipe Connection	Inlet	mm(inch)		Female PT 25(1)			
	Outlet	mm(inch)		Female PT 25(1)			
Electric Heater	Power Supply	P/V/Hz		1 / 220-240 / 50			
	Capacity	kW		-	4		
Water Flowrate Limit		LPM		Min. 15			
Max. Water Head		m		6	7		
Power Supply		P/V/Hz		1 / 220-240 / 50			
Recommended Fuse		A		20			

Monobloc (Outdoor Unit)			Capacity Reference	NEW 12kW 1Φ HM121M.U32	NEW 14kW 1Φ HM141M.U32	NEW 16kW 1Φ HM161M.U32	NEW 12kW 3Φ HM123M.U32	NEW 14kW 3Φ HM143M.U32	NEW 16kW 3Φ HM163M.U32
Nominal Capacity	Heating (A7/W35)	kW		12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW		8.50	9.78	11.03	8.55	9.83	11.29
	Heating (A-2/W50)	kW		7.94	9.14	10.30	7.99	9.18	10.54
	Heating (A-7/W35)	kW		11.48	13.11	14.80	11.48	13.11	14.92
Nominal Power Input	Cooling (A35/W18)	kW		14.50	15.50	16.10	14.50	15.50	16.10
	Heating (A7/W35)	kW		2.67	3.15	3.81	2.67	3.15	3.81
	Heating (A2/W50)	kW		3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW		3.30	3.95	4.63	3.40	4.00	4.63
COP	Heating (A-7/W35)	kW		4.16	4.85	5.61	4.16	4.85	5.95
	Cooling (A35/W18)	kW		4.00	4.69	5.07	4.00	4.69	5.07
	Heating (A7/W35)			4.49	4.44	4.20	4.49	4.44	4.20
	Heating (A2/W50)			2.49	2.45	2.40	2.45	2.42	2.39
EER	Heating (A-2/W50)			2.41	2.31	2.22	2.35	2.30	2.28
	Heating (A-7/W35)			2.76	2.70	2.64	2.76	2.70	2.51
Dimension	W*H*D	mm		1,239 x 1,450 x 390					
	Weight	Kg		141					
Sound Pressure Level (Heating)		dB(A)		53					
Outdoor Air Operation Range	Heating	°CDB		-20 - 35					
	Cooling	°CDB		5 - 48					
Leaving Water Temp. Range	Heating	°C		15 - 57					
	Cooling	°C		6 - 35					
Water Pipe Connection	Inlet	mm(inch)		Female PT 25(1)					
	Outlet	mm(inch)		Female PT 25(1)					
Electric Heater	Power Supply	P/V/Hz		1 / 220-240 / 50					
	Capacity	kW		6					
Water Flowrate Limit		LPM		Min. 15					
Max. Water Head		m		8					
Power Supply		P/V/Hz		1 / 220-240 / 50				3 / 380-415 / 50	
Recommended Fuse		A		32				10	

SPECIFICATION

SPLIT TYPE



Split (Outdoor Unit)		Capacity	NEW 3kW 1φ	NEW 5kW 1φ	NEW 7kW 1φ	NEW 9kW 1φ
		Reference	HU031.UE2*	HU051.U42*	HU071.U42*	HU091.U42*
Nominal Capacity	Heating (A7/W35)	kW	3.00	5.00	7.00	9.00
	Heating (A2/W50)	kW	2.25	4.08	5.19	6.04
	Heating (A-2/W50)	kW	2.26	4.16	5.25	5.98
	Heating (A-7/W35)	kW	2.89	4.92	6.70	8.11
	Cooling (A35/W18)	kW	3.00	5.00	7.00	9.00
Nominal Power Input	Heating (A7/W35)	kW	0.65	1.10	1.59	2.13
	Heating (A2/W50)	kW	0.89	1.59	2.07	2.59
	Heating (A-2/W50)	kW	0.93	1.73	2.18	2.64
	Heating (A-7/W35)	kW	1.02	1.69	2.31	3.03
COP	Cooling (A35/W18)	kW	0.75	1.35	2.05	2.90
	Heating (A7/W35)		4.62	4.55	4.40	4.23
EER	Heating (A2/W50)		2.53	2.57	2.51	2.33
	Heating (A-2/W50)		2.44	2.40	2.41	2.27
	Heating (A-7/W35)		2.83	2.91	2.90	2.68
Dimension	W*H*D	mm	870 x 655 x 320	950 x 834 x 330	950 x 834 x 330	950 x 834 x 330
Weight		kg	46	64	64	64
Sound Pressure Level (Heating)		dB(A)	51	54	54	54
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30	-20~30	-20~30	-20~30
	Cooling	°CDB	5 ~ 48	5~48	5~48	5~48
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	φ 6.35(1/4)	9.52(3/8)	9.52(3/8)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	φ 12.7(1/2)	15.88(5/8)	15.88(5/8)	15.88(5/8)
	Pre-Charged Amount	kg	1	1.55	1.55	1.55
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5
	Additional Charging Volume	g/m	20	40	40	40
Ref. Pipe Length	Minimum	m	-	-	-	-
	Standard	m	7.5	7.5	7.5	7.5
Power Supply	Standard	m	40	50	50	50
	Maximum	m				
Power Supply	P/V/Hz		1/220-240/50	1/220-240/50	1/220-240/50	1 / 220-240 / 50
Recommended Fuse	A		20	20	20	20

Split (Indoor Unit)		Capacity	NEW 3kW	NEW 5,7, 9kW
		Reference	HN0314.NK2	HN0914.NK2
Dimension	W*H*D	mm	490*850*315	490*850*315
Weight		kg	47	48
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	1 / 220-240 / 50
	Capacity	kW	4	4
Leaving Water Temp. Range	Heating	°C	15~55	15~55
	Cooling	°C	6~30	6~30
Water Flowrate Limit	LPM		Min. 8	Min. 15
Max. Water Head	m		6	7
Water Pipe Connection	Inlet	mm(inch)	Male PT 25(1)	Male PT 25(1)
	Outlet	mm(inch)	Male PT 25(1)	Male PT 25(1)

* Combination Table

Outdoor Unit (1φ) Indoor Unit	3kW	5kW	7kW	9kW
		HU031.UE2 HN0314.NK2	HU051.U42 HN0914.NK2	HU071.U42 HN0914.NK2

* These models will be available in Q1 2015

Split (Outdoor Unit)		Capacity	12kW 1φ	14kW 1φ	16kW 1φ	12kW 3φ	14kW 3φ	16kW 3φ
		Reference	HU121. U31	HU141. U31	HU161. U31	HU123. U31	HU143. U31	HU163. U31
Nominal Capacity	Heating (A7/W35)	kW	12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW	8.50	9.78	11.03	8.55	9.83	11.30
	Heating (A-2/W50)	kW	7.94	9.14	10.30	7.99	9.18	10.50
	Heating (A-7/W35)	kW	11.48	13.11	14.80	11.66	12.72	14.92
	Cooling (A35/W18)	kW	14.50	15.50	16.10	14.60	15.50	16.80
Nominal Power Input	Heating (A7/W35)	kW	2.67	3.15	3.81	2.72	3.24	3.81
	Heating (A2/W50)	kW	3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW	3.30	3.95	4.63	3.40	4.00	4.63
	Heating (A-7/W35)	kW	4.16	4.85	5.61	4.31	4.98	5.95
COP	Cooling (A35/W18)	kW	4.00	4.69	5.07	4.02	4.65	5.09
	Heating (A7/W35)		4.49	4.44	4.20	4.41	4.32	4.20
EER	Heating (A2/W50)		2.49	2.45	2.40	2.45	2.42	2.39
	Heating (A-2/W50)		2.41	2.31	2.22	2.35	2.30	2.27
	Heating (A-7/W35)		2.76	2.70	2.64	2.71	2.55	2.51
Dimension	W*H*D	mm	950 x 1,380 x 330					
Weight		kg	105					
Sound Pressure Level (Heating)		dB(A)	53					
Outdoor Air Operation Range	Heating	°CDB	-20 ~ 30					
	Cooling	°CDB	5 ~ 48					
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)					
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)					
	Pre-Charged Amount	Kg	2.85	2.85	2.85	2.98	2.98	2.98
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5	7.5	7.5
	Additional Charging Volume	g/m	60	60	60	60	60	60
Ref. Pipe Length	Minimum	m	3					
	Standard	m	7.5					
Power Supply	Standard	m	50					
	Maximum	m						
Power Supply	P/V/Hz		1 / 220-240 / 50			3 / 380-415 / 50		
Recommended Fuse	A		32			16		

Split (Indoor Unit)		Capacity	12~16kW					
		Reference	HN1616.NK1	HN1626.NK1	HN1629.NK1	HN1636.NK1	HN1639.NK1	
Dimension	W*H*D	mm	490 x 850 x 315					
Weight		kg	54.5					
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50		3 / 220 / 50		3 / 380-415 / 50	
	Capacity	kW	6	6	9	6	9	
Leaving Water Temp. Range	Heating	°C	15 ~ 55					
	Cooling	°C	6 ~ 30					
Water Flowrate Limit	LPM		Min. 15					
Max. Water Head	m		7					
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)					
	Outlet	mm(inch)	Male PT 25 (1)					

* Combination Table

Outdoor Unit (1φ)	HU121.U31	HU141.U31	HU161.U31	Outdoor Unit (3φ)	HU123.U31	HU143.U31	HU163.U31
	12kW	14kW	16kW		12kW	14kW	16kW
Indoor Unit	HN1616. NK1	HN1616. NK1	HN1616. NK1	Indoor Unit	HN1616. NK1	HN1616. NK1	HN1616. NK1
	HN1626. NK1	HN1626. NK1	HN1626. NK1		HN1626. NK1	HN1626. NK1	HN1626. NK1
	HN1636. NK1	HN1636. NK1	HN1636. NK1		HN1636. NK1	HN1636. NK1	HN1636. NK1
	HN1629. NK1	HN1629. NK1	HN1629. NK1		HN1629. NK1	HN1629. NK1	HN1629. NK1
	HN1639. NK1	HN1639. NK1	HN1639. NK1		HN1639. NK1	HN1639. NK1	HN1639. NK1

SPECIFICATION

HIGH TEMPERATURE TYPE



High Temp. Split (Outdoor Unit)		Capacity Reference	NEW 16kW 1φ HU161H.U32
Nominal Capacity	Heating (A7/W65)	kW	16
	Heating (A2/W65)	kW	14.6
	Heating (A-2/W65)	kW	15.7
	Heating (A-7/W65)	kW	15.1
Nominal Power Input	Heating (A7/W65)	kW	6.13
	Heating (A2/W65)	kW	6.81
	Heating (A-2/W65)	kW	6.96
	Heating (A-7/W65)	kW	7.2
COP	Heating (A7/W65)		2.61
	Heating (A2/W65)		2.14
	Heating (A-2/W65)		2.26
	Heating (A-7/W65)		2.10
Dimension	W*H*D	mm	950 x 1,380 x 330
Weight		Kg	105
Sound Pressure Level (Heating)		dB(A)	53
Outdoor Air Operation Range	Heating	°CDB	-15 - 35
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	Kg	3.5
	Chargeless Pipe Length	m	10
Additional Charging Volume		G/m	60
	Minimum	m	5
	Standard	m	7.5
Ref. Pipe Length	Maximum	m	50
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

High Temp. Split (Indoor Unit)		Capacity Reference	NEW 16kW 1φ HN1610H.NK2
Dimension	W*H*D	mm	520 x 1,080 x 330
Weight		kg	94
Sound Pressure Level (Heating)		dB(A)	43
Nominal Power Input	Heating	kW	6.13
Leaving Water Temp. Range	Heating	°C	25 - 80
Water Flowrate Limit		LPM	Min. 15
Refrigerant (R134a)	Pipe Diameter (Liquid)	mm(inch)	9.52 (3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88 (5/8)
	Pre-Charged Amount	kg	2.3
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)
	Outlet	mm(inch)	Male PT 25 (1)
Draining Pipe Connection		mm(inch)	Male PT 25 (1)
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

DOMESTIC HOT WATER TANK



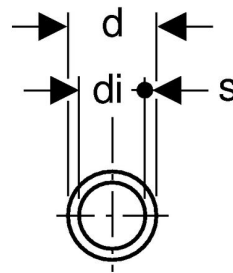
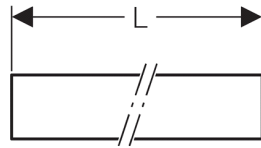
Domestic Hot Water Tank – Double Coil

Domestic Hot Water Tank			LGRTV200VE	LGRTV300VE
General Characteristics	Water Volume	L	198	287
	Diameter	mm	580	580
	Height	mm	1,230	1,680
	Empty Weight	kg	50	64
	Tank – Materials		Stainless Steel	Stainless Steel
	Outer Skin – Materials		Paint Epoxy	Paint Epoxy
Characteristics of Electrical Back-Up	Color – White RAL		White NC	White NC
	Additional Electric Heater	kW	3	3
Characteristics of Exchanger	Adjustable Thermostat	°C	60 - 90	60 - 90
	Exchanger Type		Double	Double
	Material Exchanger		LDX 2101 – Stainless Steel	LDX 2101 – Stainless Steel
	Maximum Water Temperature	°C	80 (With an Heat Pump)	80 (With an Heat Pump)
Hydraulic Connections – Heat Pump	Coil Surface	mm	0.94	0.94
	THERMA V Entry	mm	25	25
Hydraulic Connections – Domestic Hot Water Tank	THERMA V Exit	mm	25	25
	City Water Entry	mm	22	22
Electric Connection	Hot water Exit	mm	22	22
	Supply	φ/V/Hz	1φ / 220-240V 50Hz	1φ / 220-240V 50Hz

MANDATORY OPTIONAL ACCESSORIES

Domestic Hot Water Tank Installation Kit	PHLTA	PHLTA

Geberit PushFit systeembuis ML, op rol



Toepassing

- Voor gebouwtechniek, industrie en scheepsbouw
- Toepassingsoverzicht: Geberit PushFit

Eigenschappen

- Vormvast
- Met de hand buigbaar
- Diffusiedicht
- Uitwendig zilvergrijs RAL 7001
- Buiseinde met transparante beschermstop

Technische gegevens

Materiaal	PE-RT II / AI / PE-RT II
Oppervlakteruwheid	7 μm
Warmte-uitzetting	0,029 mm/(m · K)
Thermische geleidbaarheid buis	0,41 W/(m · K)

Artikel

Art. nr.	DN	d, \emptyset [mm]	di, \emptyset [mm]	s [mm]	L [m]
650.101.00.1	12	16	12	2	50
650.102.00.2	12	16	12	2	120
650.103.00.3 N	12	16	12	2	250
651.101.00.1	15	20	16	2	50
651.102.00.1	15	20	16	2	100
652.101.00.1	20	25	20	2,5	50

 N: Nieuw, beschikbaar vanaf januari 2017

Technical Sheet

Heat recovery appliance Renovent Excellent 400 (Plus)



The Brink Renovent Excellent is a ventilation unit with heat recovery with an efficiency of 95%, a maximum ventilation capacity of 300 or 400 m³/h and low-energy fans. Features Renovent Excellent:

- steplessly adjustable air flow rates through a control panel;
- filter indication on the appliance and the possibility for filter indication on the multiple switch;
- a completely new intelligent frost protection system which ensures that also at low outdoor temperatures the appliance's performance remains optimal and that, if necessary, it activates the standard preheater.
- low sound level
- comes as standard with automatic bypass valve
- constant flow control
- low energy consumption
- high efficiency

Renovent Excellent 300/400 is available in two types:

- **Renovent Excellent™**
- **Renovent Excellent Plus™**

Compared to the Renovent Excellent, the Renovent Excellent Plus has a more extensive control board which increases the connection options.

These installation instruction describe both the standard Renovent Excellent and the Renovent Excellent Plus.

The Renovent Excellent (Plus) is available in the left-handed or right-handed version. A left-handed version has the filters on the left behind the filter door; a right-handed version has the filters on the right behind the filtered door. The position of the air ducts differs for these two versions! For the correct position of the connection ducts and dimensions see page 5.

When ordering an appliance always state the correct type; subsequent conversion to a different version is not possible.


The Renovent Excellent comes ready to plug in with a 230 V mains plug and a connection for a low-voltage multiple switch on the outside of the appliance.

Note: When replacing a Renovent Large by a Renovent Excellent, do realise that the positions of the ducts "From dwelling" and "From atmosphere" are different! (only for type 4/0 & 3/1) Carefully check the position of these ducts on the basis of the connection drawings on page 5.

Version types Renovent Excellent 300/400

Type	Version L of R	Position air ducts	Power supply	Type code
Renovent Excellent	Left-handed version	4 top connections	Power plug	4/0 L
		2 top connections & 2 bottom connections	Power plug	2/2 L
		3 top connections & 1 bottom connection	Power plug	3/1 L
	Right-hand version	4 top connections	Power plug	4/0 R
		2 top connections & 2 bottom connections	Power plug	2/2 R
		3 top connections & 1 bottom connection	Power plug	3/1 R
Renovent Excellent Plus	Left-handed version	4 top connections	Power plug	4/0 L+
		2 top connections & 2 bottom connections	Power plug	2/2 L+
		3 top connections & 1 bottom connection	Power plug	3/1 L+
	Right-hand version	4 top connections	Power plug	4/0 R+
		2 top connections & 2 bottom connections	Power plug	2/2 R+
		3 top connections & 1 bottom connection	Power plug	3/1 R+

Technical information

	Renovent Excellent 400			
Supply voltage [V/Hz]	230/50			
Protection degree	IP30			
Dimensions (w x h x d) [mm]	675 x 765 x 564			
Duct diameter [mm]	Ø180			
External diameter condensate discharge [mm]	Ø32			
Weight [kg]	38			
Filter class	G3 (F7 optional for supply)			
Fan setting (factory setting)		1	2	3
Ventilation capacity [m³/h]	50	100	200	300
Permissible resistance ducts system [Pa]	3 - 6	6 - 20	25 - 49	56 - 178
Rated power (excl. preheater)[W]	8,6	9.5 - 15	29 - 40	72 - 98
Rated current (excl. preheater)[AA]	0,10	0.12 - 0.14	0.24 - 0.31	0.51 - 0.7
Max. rated current (with preheater switched on) [A]	6			
Cos φ	0,38	0.45 - 0.40	0.56 - 0.58	0.60 - 0.61

Packaging

Packaging unit per pallet
2

Warranty period

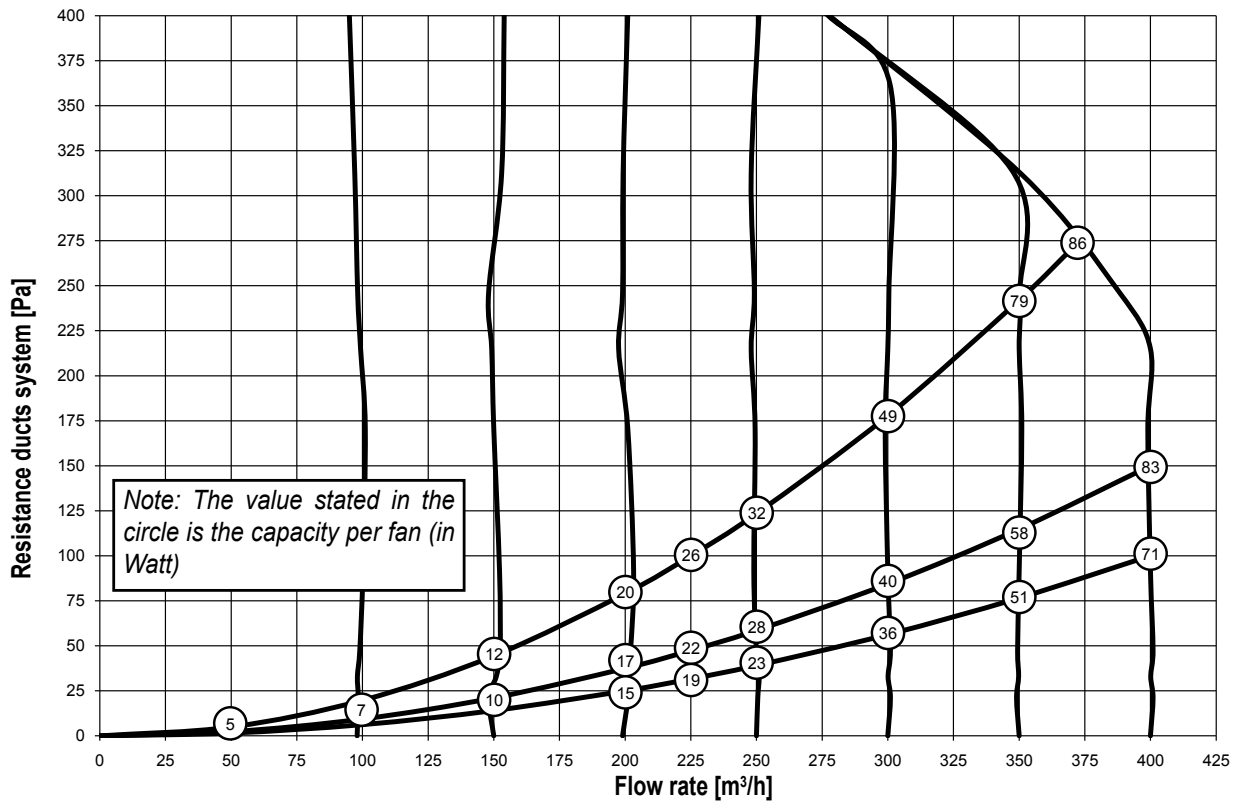
2 years on parts and 5 years on the heat exchanger.

Sound power

Sound power Excellent 400												
Ventilation capacity [m³/h]		100		200		225		300			400	
Sound power level Lw (A)	Static pressure [Pa]	9	40	38	80	47	100	84	175	240	150	225
	Housing emission [dB(A)]	28.5	31.5	39.5	40.5	42.5	46.5	50.0	52.0	53.0	53.5	56.0
	Duct "from dwelling" [dB(A)]	30.5	33.5	45.5	47.0	47.5	49.0	55.5	56.0	57.0	58.0	59.0
	Duct "to dwelling" [dB(A)]	41.5	46.5	56.0	58.0	59.5	61.5	65.0	67.5	68.5	69.5	70.5

In practice, the value may deviate 1 dB(A) as a result of measuring tolerances

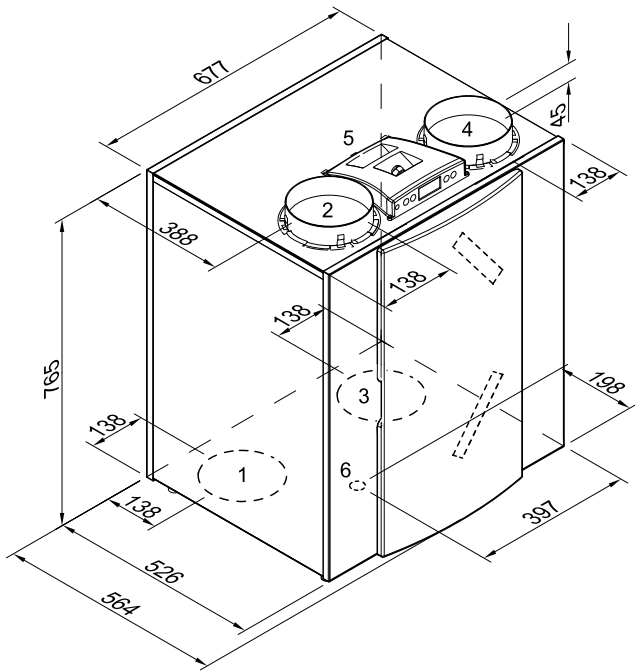
Fan graphs



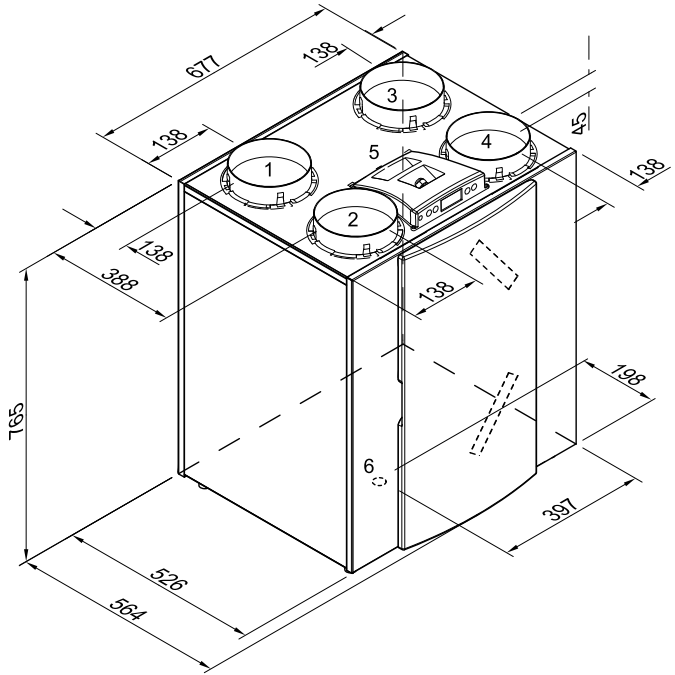
Fan graph Renovent Excellent 400

Connections and dimensions Renovent Excellent 300/400

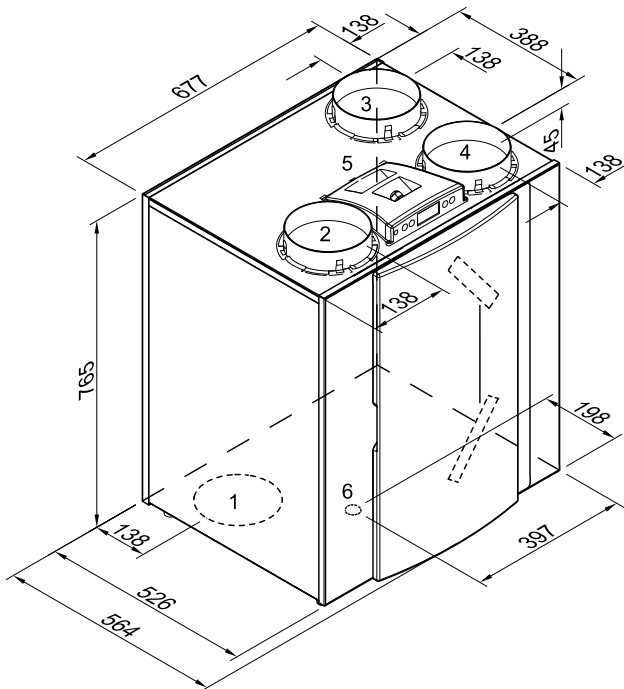
Renovent Excellent right-handed version



Renovent Excellent Right-handed 2/2



Renovent Excellent Right-handed 4/0

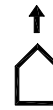


Renovent Excellent Right-handed 3/1

1 = To dwelling



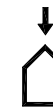
2 = To atmosphere



3 = From dwelling



4 = From atmosphere

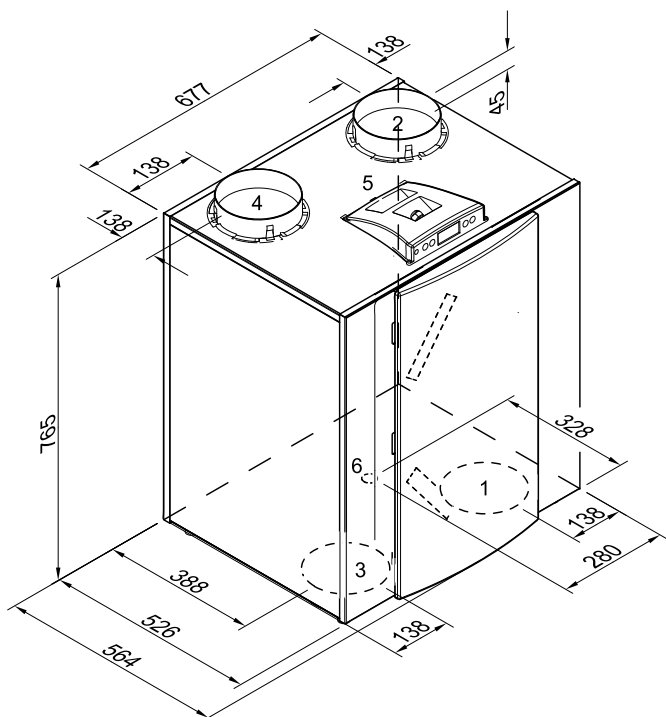


5 = Electric connections

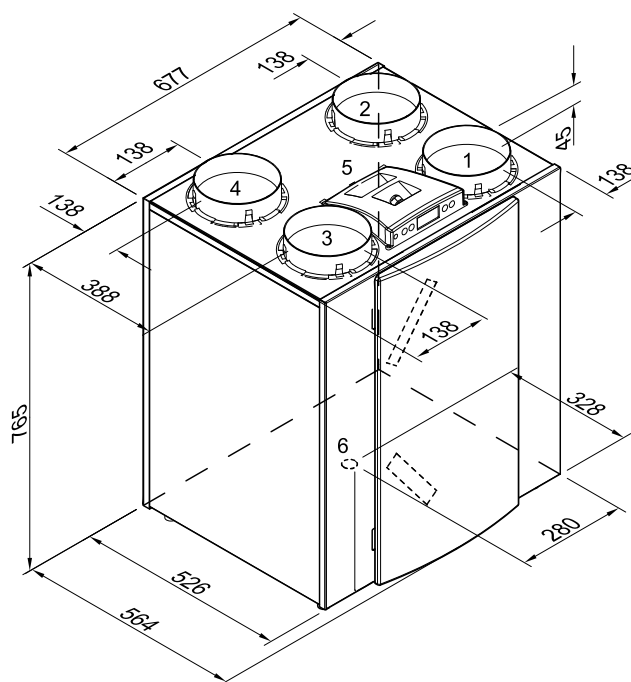
6 = Connection condensate discharge

7 = Wall mounting bracket (note the correct position of the rubber strip, washers and caps)

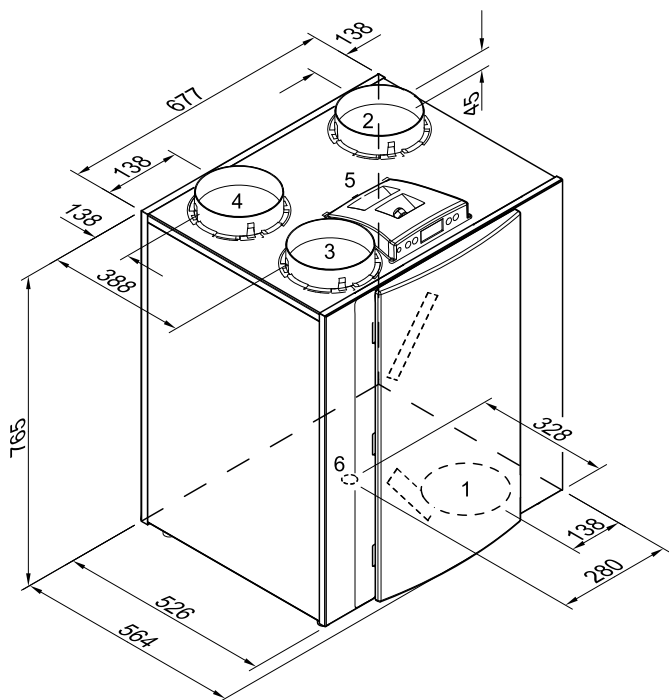
Renovent Excellent left-handed version



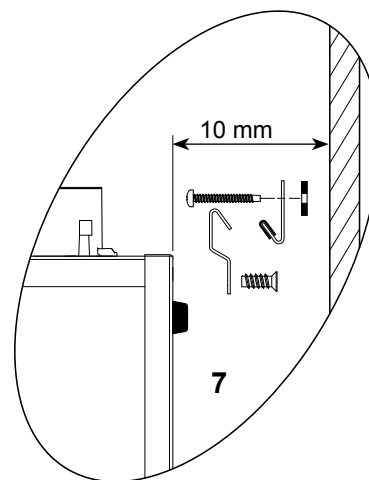
Renovent Excellent left-handed 2/2



Renovent Excellent left-handed 4/0



Renovent Excellent left-handed 3/1



Mounting wall suspension kit

Exploded view

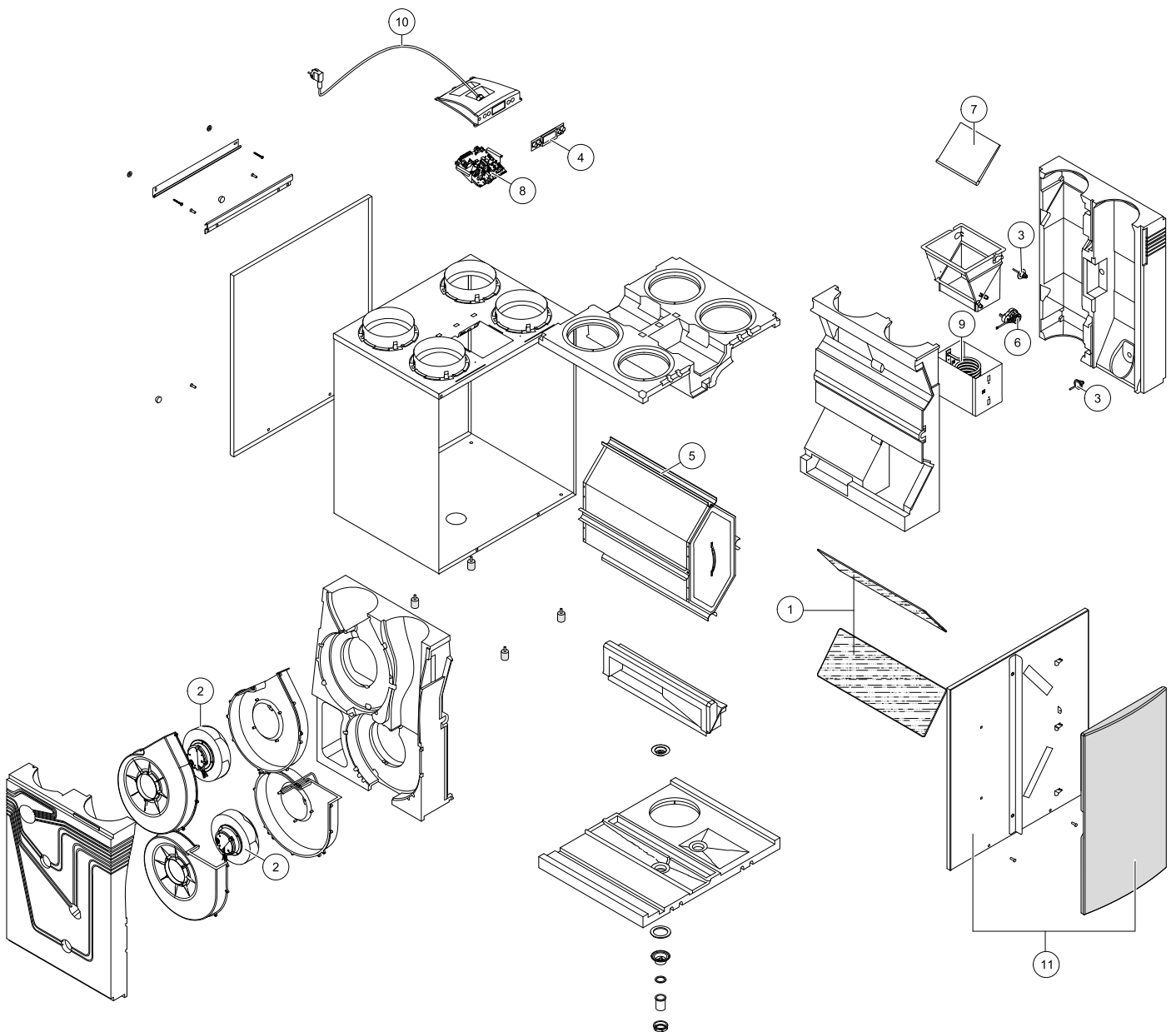
When ordering parts, in addition to the article code number (see exploded view), please state the type of the heat recovery appliance, the serial number, the year of production and the name of the part:

N. B.:

Appliance type, serial number and year of production are stated on the identification plate on the top of the appliance.

Example	
Appliance type	: Renovent Excellent 4/0 R
Serial number	: 420020113201
Year of production	: 2013
Part	: Fan
Article code	: 531774
Qty	: 1

Service parts



Service parts

No.	Article description	Article code
1	Filter kit 2x G3 filter (standard version)	531770
2	Fan Excellent 300 (1 pcs)	532003
	Fan Excellent 4300 (1 pcs)	531774
3	Temperature sensor	531775
4	Control panel	531776
5	Heat exchanger Excellent 300	531840
	Heat exchanger Excellent 400	531777
6	Motor bypass valve	531778
7	Bypass valve	531779
8	Control board (Plus version) When replacing, note the correct dip switch settings; see §8.1	531780
9	Heating coil 1000 W preheater	531781
10	Cable with power plug 230 volt with display cover*	531782
11	Filter door left	531934
	Filter door right	531935

- * The mains cable has a print connector.
 When replacing it, always order a replacement mains cable Brink
To avoid dangerous situations, a damaged mains should only be replaced by a qualified person!

DIBt: Renovent Excellent 400

EN 308/EN 13141-7: Renovent Excellent 400

NEN 5138: Renovent Excellent 400

Passive House Certificate: Renovent Excellent 400

SAP-Appendix-Q: Renovent Excellent 400

Declaration of Conformity Renovent Excellent 400

Certificate

Certified Passive House Component
For cool, temperate climates, valid until 31 December 2013

Category: **Heat recovery unit**

Manufacturer: **Brink Climate Systems B.V.**
7851 -DA Staphorst, NETHERLANDS

Product name: **Renovent Excellent 300 4/0 (3/1) (Plus)**

This certificate was awarded based on the following criteria:

Thermal comfort	$\phi_{Supply, air} \geq 16.5 \text{ }^\circ\text{C}$ at $\phi_{Substr, air} = +10 \text{ }^\circ\text{C}$
Effective heat recovery ratio	$\eta_{heat, air} = 75 \%$
Electric power consumption	$P_e = 0.45 \text{ Wh/m}^3$
Airtightness	Interior and exterior air leakage (after less than 3 % of nominal air flow rate)
Balancing and adjustability	Air flow balancing possible: yes Automated air flow balancing: yes
Sound insulation	Sound pressure level $L_p \leq 35 \text{ dB(A)}$ based on a 4 m ² equivalent absorption area not met Here $L_p = 47 \text{ dB(A)}$ Unit should be installed so that it is acoustically separated from living areas
Indoor air quality	Outdoor air filter at least F7 Extract air filter at least G4
Frost protection	Frost protection for the heat exchanger with continuous fresh air supply down to $\phi_{Substr, air} = -15 \text{ }^\circ\text{C}$ (1)

1) Only with additional and freezing protection.

Further information can be found in the appendix of this certificate.

www.passivehouse.com 0532v03

Passive House Institute
Dr. Wolfgang Feist
64283 Darmstadt
GERMANY

Certified for air flow rates of


59 – 235 m³/h

η_{heat}

84 %
(88% at 74 m³/h)

Electric power consumption

0.26 Wh/m³



CERTIFIED COMPONENT
Passive House Institute

DECLARATION OF CONFORMITY

Manufacture: **Brink Climate Systems B.V.**

Address: **R.D. Buijsstraat 3
7851 -DA Staphorst, The Netherlands**

Product: **Heat recovery unit type:
Renovent Excellent 300-400
Renovent Excellent 300-400 Plus**

The product described above complies with the following directives:

- 2006/95/EC (low voltage directive)
- 2004/108/EC (EMC directive)
- RoHS 2002/95/EC (substances directive)

The product bears the CE label:



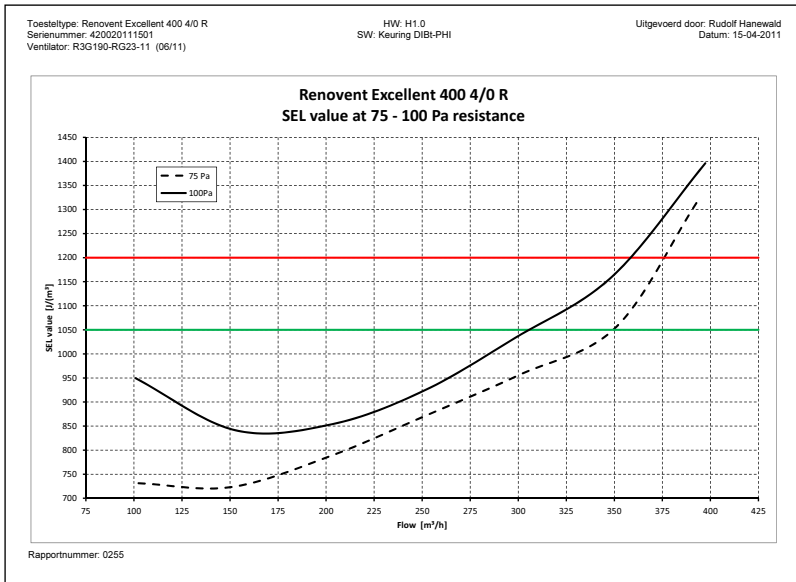
Staphorst, 24-03-11



Mr. Altmann,
managing director

42 Renovent Excellent

Renovent Excellent 400 - SEL-waarde 75+100 Pa



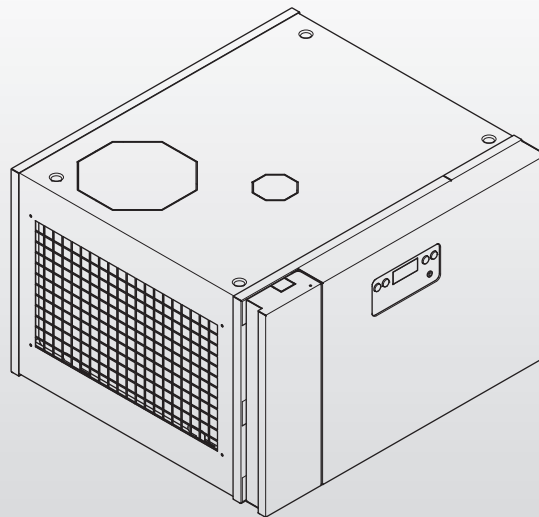
Modifications reserved

Brink Climate Systems B. V. continuously strives after improvement of products and reserves the right to change the specifications without prior notice.



BRINK CLIMATE SYSTEMS B.V.

P.O. Box 11 7950 AA Staphorst
Tel. +31 (0) 522 46 99 44
Fax +31 (0) 522 46 94 00
info@brinkclimatesystems.nl
www.brinkclimatesystems.nl



Installatievoorschriften (Nederlands)

Air for Life

BRINK

Air for Life

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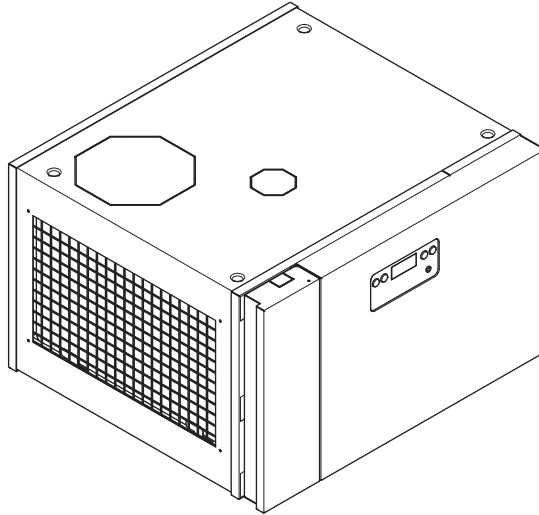
1.1 Leveromvang

De verpakking van het toestel bevat:

- Een indirect gestookte luchtverwarmer type Elan 4
- Een bewonersinstructie

Controleer, vóórdat het toestel wordt geïnstalleerd, of het Elan toestel compleet en onbeschadigd is geleverd.

Neem bij afwijkingen contact op met BRINK CLIMATE SYSTEMS B.V..



Elan 4 toestel

1.2 Accessoires

Onderstaande accessoires zijn te gebruiken in combinatie met het Elan 4 toestel.

Artikelomschrijving	Artikelcode
Akoestische retourplaat Elan 4 (d = 120 mm)	217051
Montagestoel Elan 4 (H = 200 mm)	217050
CO ₂ -sensor eBus	532126
4-Standenschakelaar met filterindicatie	540262
Set draadloze afstandbediening 4 standen	531789
Uitblaasmodule wit RAL 9016 (H = 250 mm)	217053
Sifon t.b.v. Renovent Excellent	217052

2.1 Toepassing

Het Elan 4 toestel is een indirect gestookte luchtverwarmer voor gebruik in woonhuizen. Om een perfect binnenklimaat met een gelijkmatige ruimtetemperatuur te realiseren wordt het luchtdebiet automatisch aangepast aan de uitblaastemperatuur. Indien gewenst kan het toestel (deels) buitenlucht aanzuigen.

Het Elan 4 toestel is geschikt voor:

- Installaties waarbij warmwater aanbod aanwezig is
- Stadsverwarming

Het toestel kan worden gecombineerd met de warmteterugwinunit Renovent Excellent type 4/0 of type 3/1.

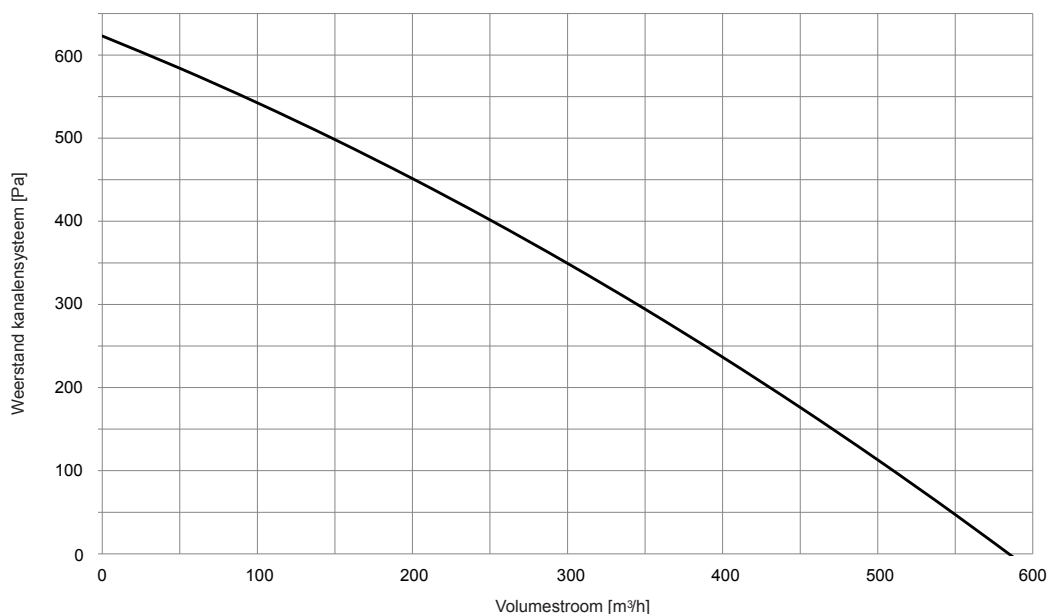
Om verschillende bedrijfssituaties in te stellen op het toestel kan gebruik gemaakt worden van een 4-standenschakelaar.

3.1 Technische informatie

3.1.1 Elan 4

Specificatie		Waarde	
		Nominaal	Maximaal
Voedingsspanning	[V/Hz]	230/50	
Afmetingen (l x b x h)	[mm]	676 x 640 x 429	
Gewicht	[kg]	40	
Filterklasse		G3	
Watersluiting (Ø)	[mm]	22	
Waterinhoud wisselaar	[l]	2	
Watertraject	[°C]	45/35	
Luchtaanzuigtemperatuur	[°C]	18	
Maximale bedrijfsdruk wisselaar	[bar]	16	
		Nominaal	Maximaal
Luchtverplaatsing	[m ³ /h]	400	450
Toelaatbare kanaalweerstand	[Pa]	100	126
Opgenomen elektrisch vermogen	[W]	55	72
Geluidsvermogen - kastuitstraling	[db(A)]	51,1	53,3
Geluidsvermogen - kanaal "naar woning"	[db(A)]	59,3	62,9
Verwarmingscapaciteit	[kW]	2,6	2,8
Watercapaciteit	[l/h]	225	249
Waterzijdige weerstand	[kPa]	1,47	1,78

3.1.2 Opvoerhoogte toestel



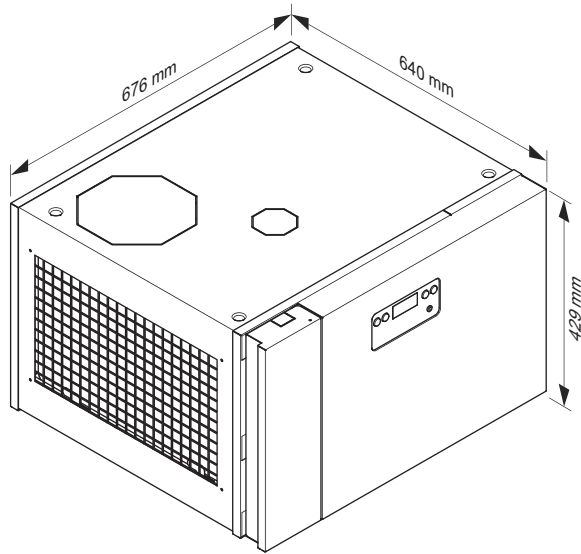
3.1.3 Verwarmingscapaciteit [kW] bij andere watertemperaturen

Watertraject [°C]	Luchtaanzuigtemperatuur [°C]							
	Nominaal				Maximaal			
	+16	+18	+20	+22	+16	+18	+20	+22
45/35	2,86	2,60	2,34	2,10	3,11	2,80	2,52	2,21
45/40	3,30	3,04	2,76	2,50	3,56	3,28	3,00	2,69
50/35	3,07	2,81	2,52	2,26	3,30	3,02	2,72	2,41
70/50	5,30	5,02	4,73	4,45	5,71	5,40	5,10	4,79

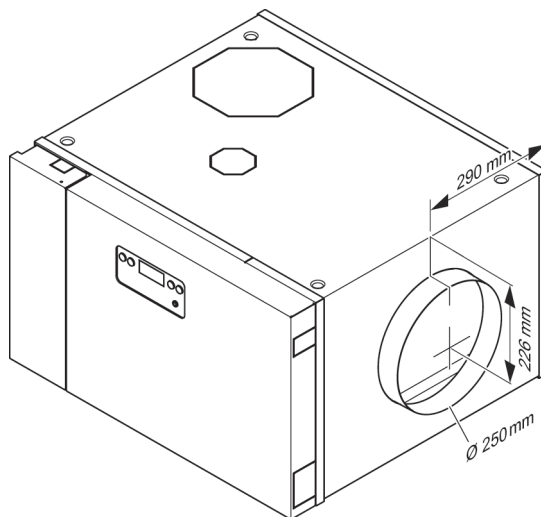
3.1.4 Koeling

Specificatie		Waarde	
Watertraject	[°C]	7/11	
Luchtaanzuigtemperatuur	[°C]	22	
		Nominaal	Maximaal
Debiet	[m ³ /h]	400	450
Koelcapaciteit	[kW]	1,49 / 1,59	1,65 / 1,75
Watercapaciteit	[l/h]	342	376
Waterzijdige weerstand	[kPa]	3,63	4,32

3.2 Aansluitingen en afmetingen



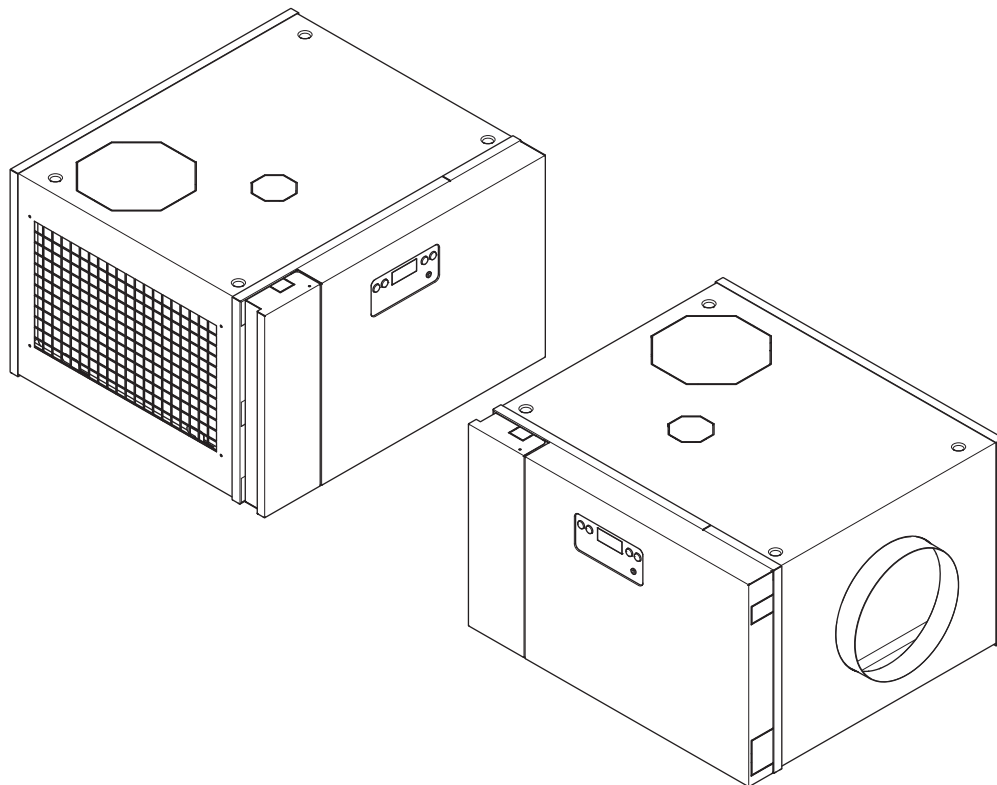
Hoofdmaten Elan 4



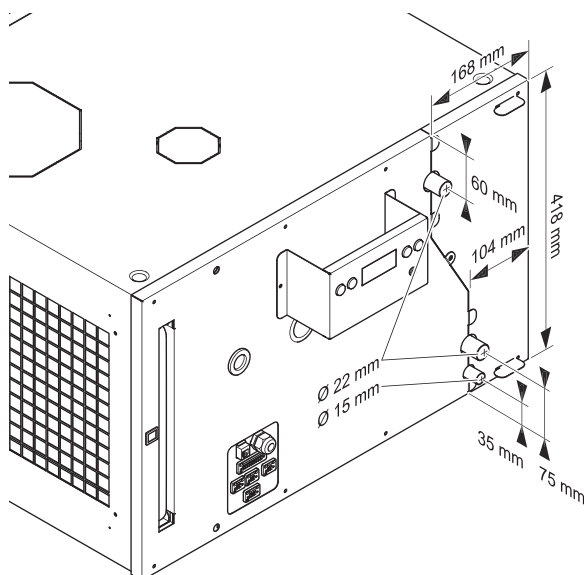
Positie kanaalaansluiting

3.2.1 Elan 4 rechter uitvoering

Bij een rechter uitvoering van de Elan 4 is de uitblaasopening aan de rechterkant geplaatst.



Elan 4 rechter uitvoering

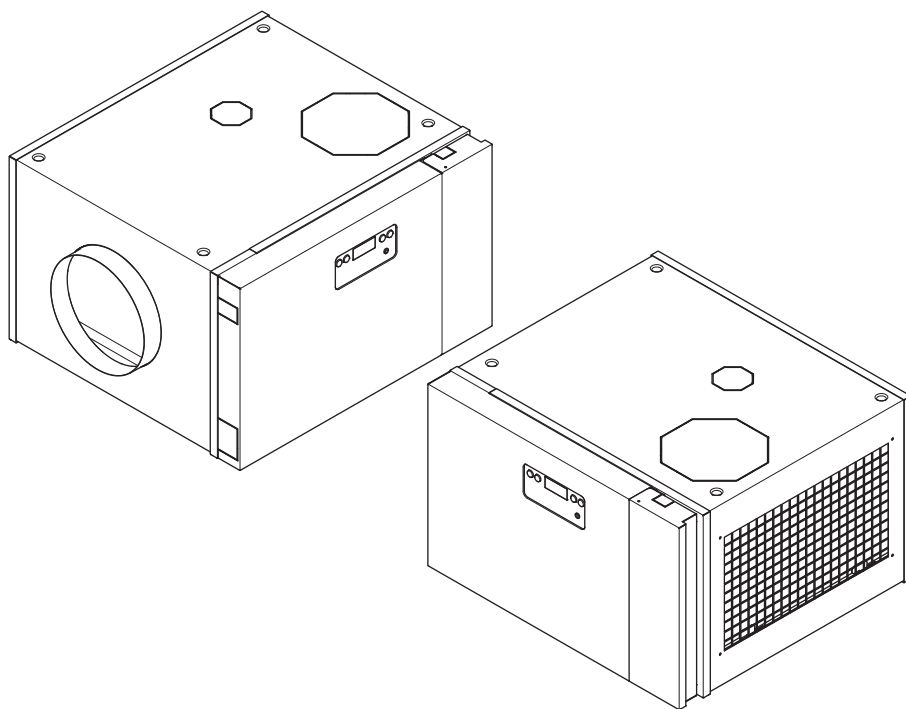


Positie wateraansluitingen en condensafvoeraansluiting rechter uitvoering

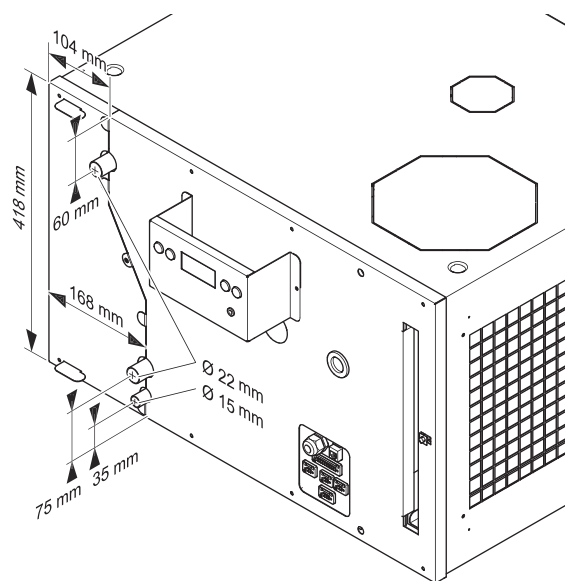
3.2.2 Elan 4 linker uitvoering

Bij een linker uitvoering van de Elan 4 is de uitblaasopening aan de linkerkant geplaatst.

De afmetingen van de rechter en linker uitvoering en de positie van de luchtuitlaat zijn identiek. De wateraansluitingen zijn niet gelijk, zie sectie Opengewerkt toestel, zie "Opengewerkt rechter toestel" op pagina 12.

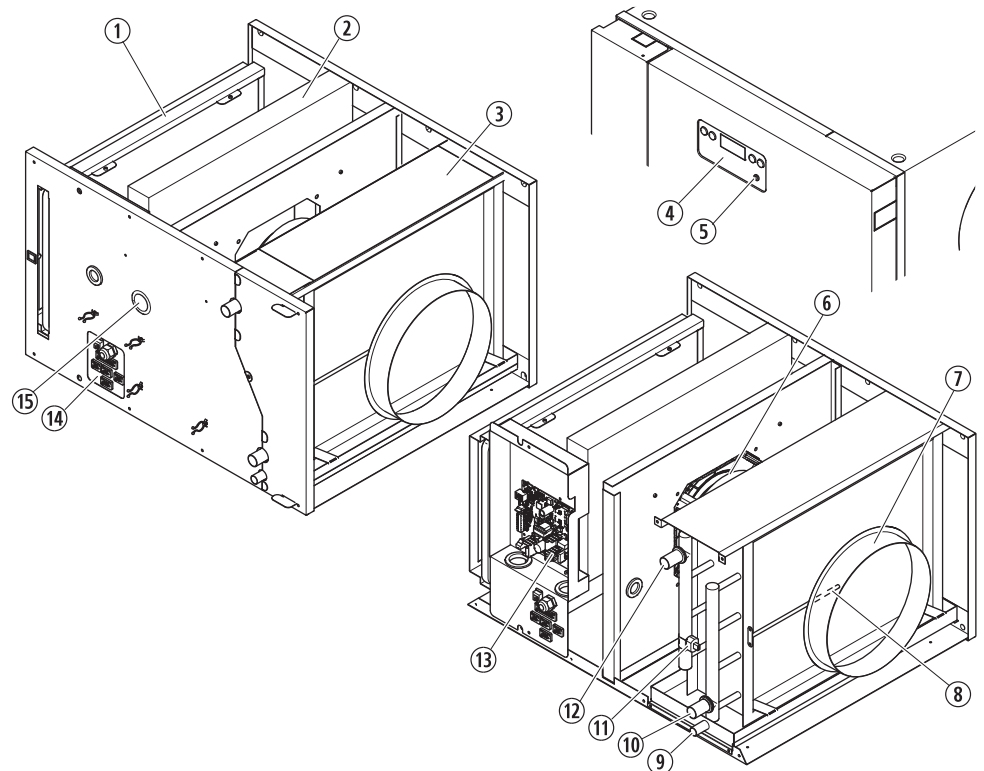


Elan 4 linker uitvoering



Positie wateraansluitingen en condensafvoeraansluiting linker uitvoering

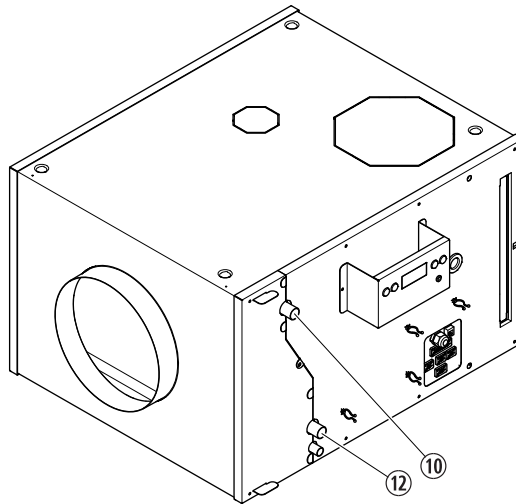
3.3 Opengewerkt rechter toestel



Opengewerkt toestel rechter uitvoering

1. *Luchtfilter* - Het luchtfilter filtert de luchtstroom uit de woning.
2. *Geluidempingsblokken* - Deze blokken dempen het geluid van de systeemventilator.
3. *Warmtewisselaar* - In de warmtewisselaar wordt de lucht verwarmt of gekoeld.
4. *Bedieningspaneel* - Met behulp van het display en de bedieningstoetsen op het bedieningspaneel wordt het toestel bediend.
5. *Service aansluiting* - Computeraansluiting voor de servicetool.
6. *Systeemventilator* - De ventilator transporteert de lucht naar de verschillende vertrekken en zuigt de retourlucht aan.
7. *Luchtuitlaat* - Via de luchtuitlaat wordt de warme/koude lucht in het luchtkanaal geblazen.
8. *Uitblaastemperatuursensor* - Deze sensor meet de luchtuitblaastemperatuur en stuurt het toerental van de systeemventilator aan.
9. *Condensafvoer* - Bij gebruik van het toestel in combinatie met koeling wordt hier de gevormde condens afgevoerd (Ø 15 mm).
10. *Watersaansluiting (Aanvoer)* - Deze aansluiting wordt gebruikt om de toevoerwaterleiding aan te sluiten (Ø 22 mm). Zie onderstaande figuur voor de watersaansluitingen van de linker uitvoering van het toestel.

11. *Watertemperatuursensor* - Deze sensor meet de watertemperatuur en start de ventilator als deze is uitgeschakeld.
12. *Wateraansluiting (Retour)* - Deze aansluiting wordt gebruikt om de retourwaterleiding aan te sluiten (Ø 22 mm). Zie onderstaande figuur voor de wateraansluitingen van de linker uitvoering van het toestel.
13. *Printplaat* - De printplaat bevat de regelektronica voor de aansturing van het toestel.
14. *Connectoren* - De connectoren bevinden zich achter de afdekkap en worden gebruikt als extra stuur in- en uitgangen, onder andere voor de CO₂ sensor, de 4-standenschakelaar en de vorstbeveiliging.
15. *Doorvoer condensafvoer* - Bij gebruik van het toestel in combinatie met een warmteterugwinunit.



Wateraansluitingen linker uitvoering Elan 4

4.1 Omschrijving

De Elan 4 is een geavanceerde luchtverwarmer voor gebruik in woonhuizen.

De systeemventilator transporteert omgevingslucht horizontaal door het toestel. Deze lucht wordt verwarmd door een warmtewisselaar. Afhankelijk van de uitblaastemperatuur zal de systeemventilator traploos meer of minder lucht transporteren.

Een besturingsunit met een microprocessor regelt en controleert de veilige werking van het toestel. Met behulp van het display en de bedieningstoetsen kunnen de instelwaarden worden aangepast en de actuele meetwaarden, een filtermelding en storingen worden uitgelezen.

4.2 Programmakeuze

Met een interne temperatuursensor en het gekozen programma wordt het luchtdebiet automatisch geregeld. Met een extra 4-standenschakelaar kan het luchtdebiet worden beïnvloed.

De programmakeuzes zijn:

- Het continu programma, zie "Continu programma" op pagina 14
- Het vast programma, zie "Vast programma" op pagina 16
- Het WTW programma op pagina 17

Het toestel is af fabriek ingesteld op het **continu programma**. Dit programma levert het breedste inzetbereik van het toestel.

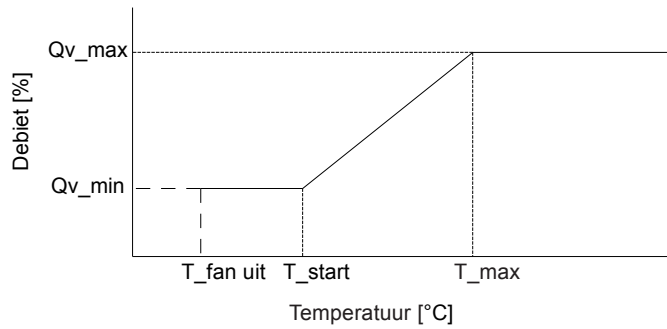
Gebruik parameter **9** in het Instelmenu op pagina 30 om het gewenste programma te activeren. Zie de Parameterlijst op pagina 51 voor de overige in te stellen parameters.

4.2.1 Continu programma

In het continu programma draait de systeemventilator:

- op een minimaal luchtdebiet bij een uitblaastemperatuur onder 30°C (T_{start}). Het minimale luchtdebiet en T_{start} zijn in te stellen met parameters **2** en **5**.
- op een variabel luchtdebiet bij een uitblaastemperatuur boven 30°C (T_{start}), variërend tussen een ingesteld minimaal en een ingesteld maximaal luchtdebiet. Het maximale luchtdebiet wordt bereikt bij een in te stellen maximum uitblaastemperatuur (T_{max}). De uitblaastemperatuur en het maximale luchtdebiet zijn in te stellen met parameters **1** en **3**.

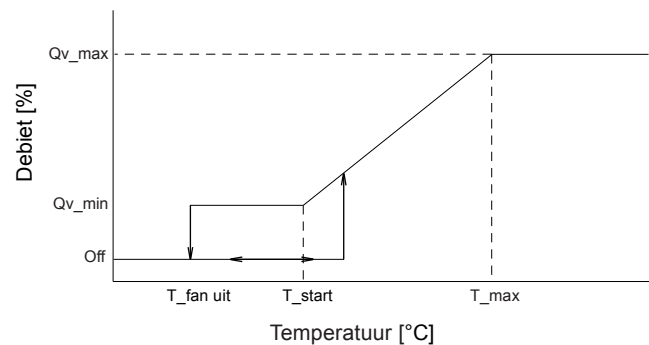
Bij een warmtevraag wordt de systeemventilator aangestuurd en worden de schakeluitgangen voor vorstbeveiliging en koeling verbroken.



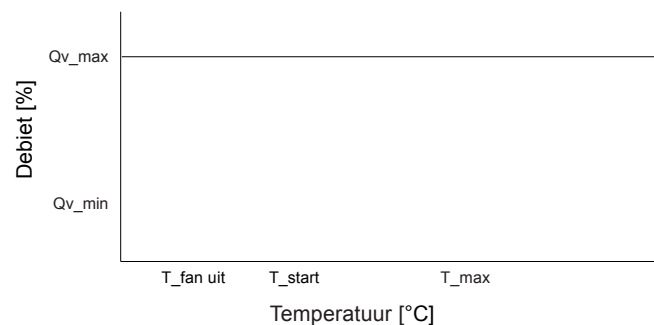
Continu programma regeling

In het continu programma kan de regeling van de systeemventilator met een 4-standenschakelaar beïnvloed worden:

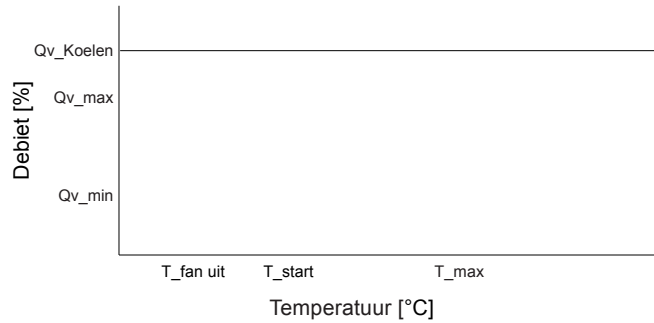
- **Stand 1** - de systeemventilator blijft onder de 30°C altijd op de ingestelde minimale luchttoevoelheid blijven draaien. Boven de 30°C varieert het ingestelde minimale en het ingestelde maximale luchtdebiet afhankelijk van de gemeten uitblaastemperatuur.
- **Stand 2** - de systeemventilator wordt uitgeschakeld als de uitblaastemperatuur daalt onder een ingestelde schakeltemperatuur. Als de temperatuur van de warmtewisselaar boven een instelbare waarde stijgt, wordt de systeemventilator weer ingeschakeld. Boven de 30°C varieert het ingestelde minimale en het ingestelde maximale luchtdebiet afhankelijk van de gemeten uitblaastemperatuur. De inschakeltemperatuur, de uitschakeltemperatuur en de hysteresis van de schakeltemperatuur voor de ventilator zijn in te stellen met parameters **6**, **7** en **8**.



- **Stand 3** - de systeemventilator blijft op het ingestelde maximum luchtdebiet draaien.



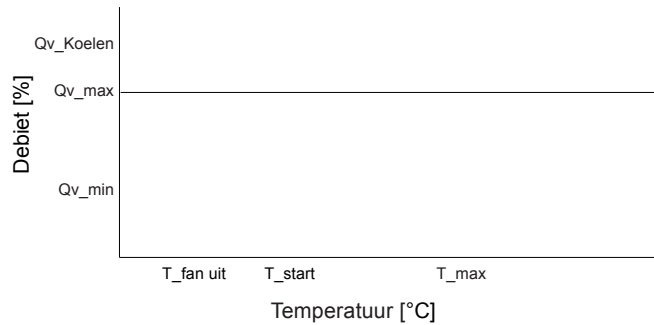
- **Stand 5** - de systeemventilator blijft op het ingestelde luchtdebiet voor koeling draaien. De schakeluitgang voor koeling wordt gesloten. Deze stand werkt alleen als de vorstbeveiliging, zie "Vorstbeveiliging" op pagina 20 niet actief is. Het luchtdebiet voor de koeling is in te stellen met parameter **4**.



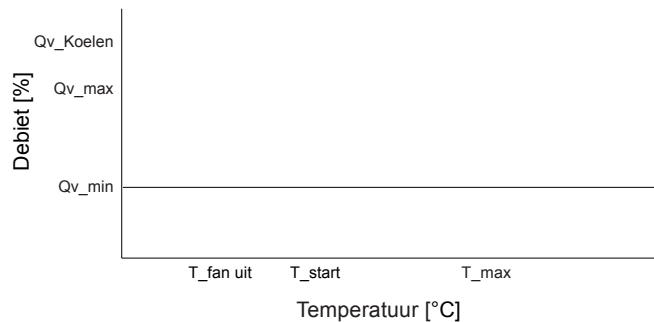
4.2.2 Vast programma

In het vast programma kan de systeemventilator met de 4-standenschakelaar op 3 vaste luchtdebieten worden ingesteld:

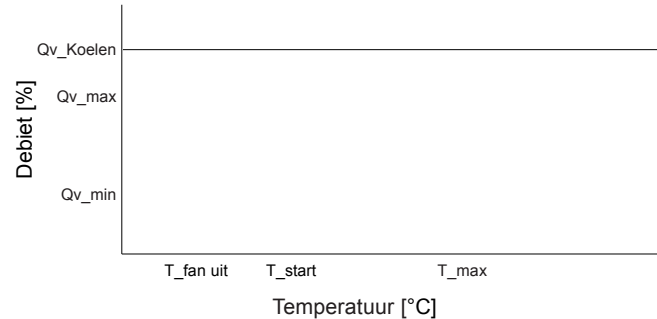
- **Stand 1** - de systeemventilator draait continu op het ingestelde maximale luchtdebiet. Deze is in te stellen met parameter **3**.



- **Stand 2** - de systeemventilator draait continu op het ingestelde minimale luchtdebiet. Deze is in te stellen met parameter **2**.



- *Stand 3* - de systeemventilator draait continu op het ingestelde luchtdebiet voor koeling. Deze is in te stellen met parameter **4**.
- *Stand 3* - de systeemventilator draait continu op het ingestelde luchtdebiet voor koeling. Deze is in te stellen met parameter **4**.



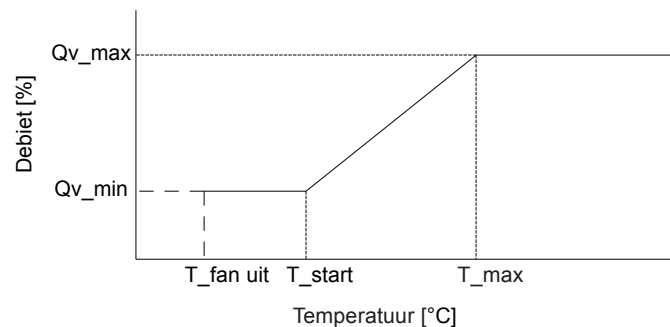
Een koelvraag door een gesloten schakelingang 'koeling' heeft voorrang op de stand van de 4-standenschakelaar.

4.2.3 WTW programma

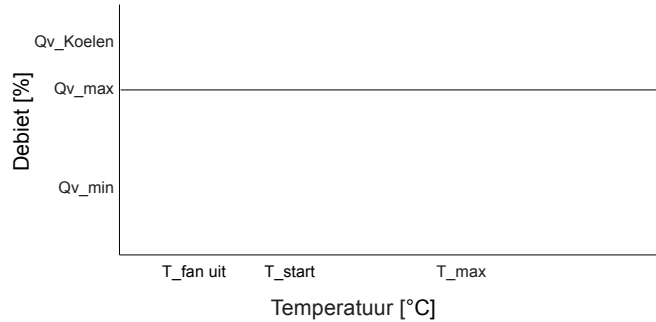
Als de Elan 4 in combinatie met een warmteterugwinunit wordt gebruikt, kan de regeling van de systeemventilator met het WTW programma worden gekoppeld aan de warmteterugwinunit.

Met de 4-standenschakelaar van de warmteterugwinunit kan dan ook het luchtdebiet van de systeemventilator in de Elan 4 worden bepaald.

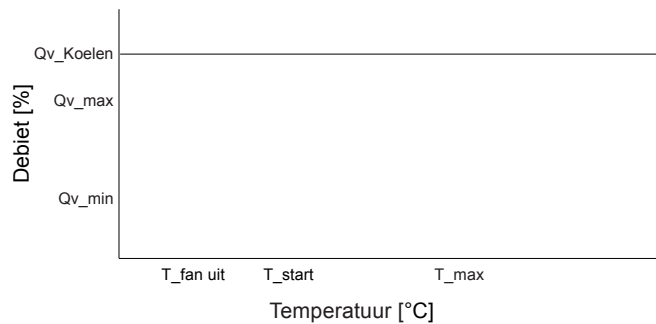
- *Stand 1* - het luchtdebiet varieert tussen het ingestelde minimale en het ingestelde maximale luchtdebiet afhankelijk van de gemeten uitblaastemperatuur. De maximale uitblaastemperatuur, het minimale en maximale luchtdebiet en de starttemperatuur zijn in te stellen met parameters **1, 2, 3 en 5**.



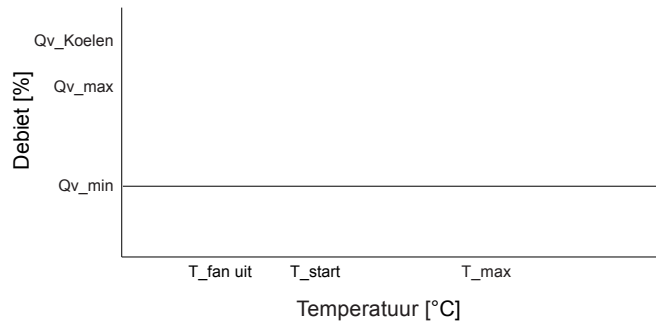
- **Stand 2** - de systeemventilator draait continu op het ingestelde maximale luchtdebiet. Deze is in te stellen met parameter **3**.



- **Stand 3** - de systeemventilator draait continu op het ingestelde luchtdebiet voor koeling. Deze is in te stellen met parameter **4**.



- **Stand 4** - de systeemventilator draait continu op het ingestelde minimale luchtdebiet. Deze is in te stellen met parameter **2**.



Een koelvraag door een gesloten schakelingang 'koeling' heeft voorrang op de stand van de 4-standenschakelaar van de warmteterugwinunit.

De CO₂ sensoren die zijn aangesloten op de warmteterugwinunit hebben geen invloed op de regeling van de Elan 4.

4.3 CO₂-regeling

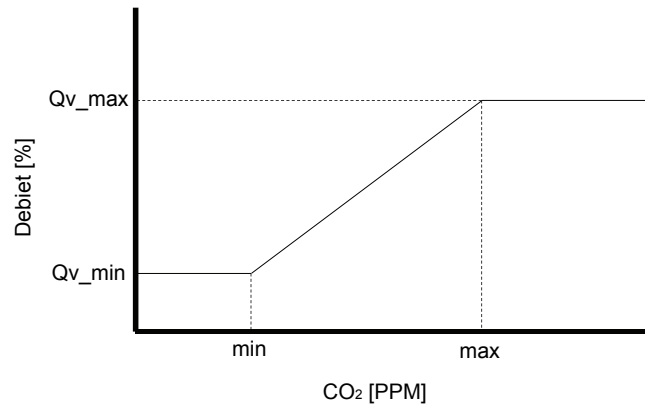
Er kunnen 4 CO₂ sensoren op de Elan 4 worden aangesloten. Met deze CO₂ sensoren wordt de luchtkwaliteit in de verblijfsruimten waarop de Elan 4 is aangesloten bewaakt.

De CO₂ sensoren hebben een minimale en een maximale instelwaarde. Als de CO₂ concentratie in een verblijfsruimte boven de minimale instelwaarde komt, neemt het luchtdebiet van de systeemventilator van de Elan 4 toe. Het

luchtdebiet varieert op basis van de gemeten CO₂ concentratie. De aansturing van de systeemventilator wordt gebaseerd op de CO₂ sensor met de hoogste afwijking.

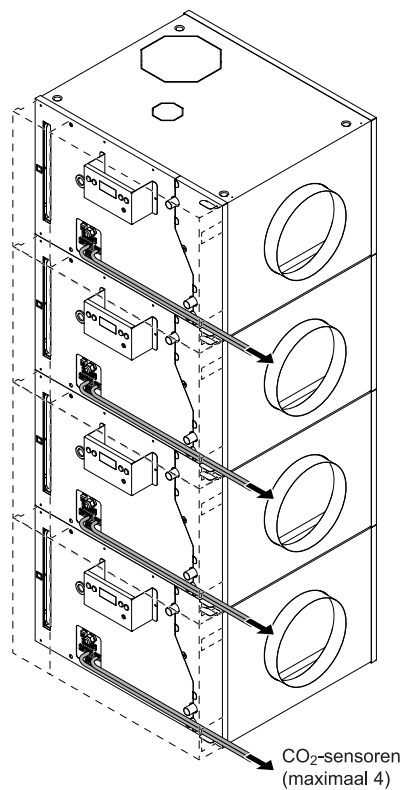


De CO₂ regeling werkt alleen als de 4-standenschakelaar op stand 1 staat of als er geen 4-standenschakelaar is aangesloten.



CO₂ regeling

Bij een warmtevraag van het Elan 4 toestel met CO₂ sensoren wordt het luchtdebiet bepaald door de luchtuitblaasttemperatuur of de CO₂ sensoren. Degene met de hoogste vraag is leidend voor de regeling van het luchtdebiet.



Elan 4 toestellen met CO₂ sensoren

4.4 Vorstbeveiliging

De vorstbeveiliging zorgt ervoor dat de warmtewisselaar niet invriest bij een zeer lage buitentemperatuur.

De vorstbeveiliging wordt aangestuurd door de uitblaastempatuursensor:

- Wanneer de temperatuur lager is dan een ingestelde schakeltemperatuur limiet 1, wordt een eventuele koelvraag geblokkeerd door de schakeluitgang 'koeling' te verbreken. De vorstbeveiliging en een eventuele externe warmtebron wordt geactiveerd. De systeemventilator wordt aangestuurd op basis van de gemeten luchtuitblaastemperatuur en, indien van toepassing, de stand van de 4-standenschakelaar.
Gebruik parameter **10** in het instelmenu, zie "Instelmenu" op pagina 30 om de schakeltemperatuur in te stellen.
- Wanneer de luchtuitblaastemperatuur met een ingestelde hysteresis gestegen is boven limiet 1, wordt de blokkering van de koelvraag weer opgeheven. De vorstbeveiliging wordt gedeactiveerd.
Gebruik parameter **12** in het instelmenu, zie "Instelmenu" op pagina 30 om de hysteresis in te stellen.

Als de uitblaastemperatuur, ondanks de vorstbeveiliging, verder daalt dan de schakeltemperatuur limiet 1 tot een ingestelde schakeltemperatuur limiet 2, wordt ook de systeemventilator uitgeschakeld.

Gebruik parameter **11** in het instelmenu, zie "Instelmenu" op pagina 30 om schakeltemperatuur limiet 2 in te stellen.

De blokkering van de systeemventilator wordt op de volgende manier opgeheven:

- Als de luchtuitblaastemperatuur met 5K is gestegen ten opzichte van de schakeltemperatuur limiet 2, wordt de systeemventilator ingeschakeld gedurende een vaste tijd (antipendel tijd). De systeemventilator blijft draaien op basis van de stand van de 4-standenschakelaar zolang de ingestelde tijd nog niet is verstreken.
- Als de watertemperatuur in de warmtewisselaar stijgt tot boven een ingestelde schakeltemperatuur (parameter 6), wordt de systeemventilator ingeschakeld. De systeemventilator blijft draaien op basis van de stand van de 4-standenschakelaar.
- Als **[R]** op het bedieningspaneel wordt ingetoets wordt de systeemventilator ingeschakeld gedurende een vaste tijd (antipendel tijd). De systeemventilator blijft draaien op basis van de stand van de 4-standenschakelaar zolang de tijd nog niet is verstreken.

5.1 Installeren algemeen

Het toestel wordt stekkerklaar geleverd. Bij plaatsing van het toestel moeten de wateraansluitingen en de systeemluchtkanalen aan de uitblaaszijde worden geïnstalleerd. Als de Elan 4 in combinatie met een warmteterugwinunit wordt gebruikt, moet ook een condensafvoer worden geïnstalleerd. Daarna kan het toestel worden aangesloten op het elektriciteitsnet.

De installatie van de Elan 4 moet voldoen aan de volgende voorschriften:

- NEN 3028: Veiligheidsvoorschriften voor centrale verwarmingsinstallaties.
- NEN 1087: Voorschriften voor ventilatie van woningen en woongebouwen.
- NEN 1010: Veiligheidsbepalingen voor laagspanningsinstallaties.
- NEN 3287: Voorschriften voor het aansluiten op de binnenriolering in woningen en woongebouwen.
- ISO 61: Kwaliteitseisen ventilatiesystemen woningen.
- Relevante artikelen conform het Bouwbesluit.
- Eventuele aanvullende voorschriften van de plaatselijke nutsbedrijven.
- Installatievoorschriften van de Elan 4.

Installeer de Elan 4:

1. Plaats het toestel, zie "Plaatsen toestel" op pagina 21.
2. Monteer de wateraansluitingen, zie "Wateraansluitingen" op pagina 23.
3. Monteer de luchtkanalen, zie "Aansluiten kanalen" op pagina 25.
4. Sluit de elektrische aansluitingen aan, zie "Elektrische aansluitingen" op pagina 26.

5.2 Plaatsen toestel

Houdt bij het plaatsen van de Elan 4 rekening met de volgende omgevingsfactoren:

- De opstellingsruimte moet vorstvrij zijn.
- De opstellingsruimte moet voldoende ruimte voor service bieden. Er moet minimaal 1 m vrije ruimte aan de voorzijde en een vrije stahoogte van 1,8 m aanwezig zijn.
- Indien van toepassing, moet een goede condensafvoer met waterslot en verval voor condenswater in de opstellingsruimte aanwezig zijn of gemaakt kunnen worden.
- Bij gebruik van een vrije aanzuiging, moet de opstellingsruimte in open verbinding staan met de rest van de woning.

Plaats de Elan 4 los op de vloer:

- Zorg dat het toestel aan de zijkanten en bovenkant minimaal 120 mm vrij van de wanden en het plafond wordt geplaatst.
- Plaats het toestel op een montagestoel wanneer sprake is van een vochtige vloer, een niet egale vloer of als gebruik wordt gemaakt van koeling.
- Plaats het toestel zo dicht mogelijk bij de watertoevoer en -afvoer.
- Plaats het toestel zo centraal mogelijk ten opzichte van de luchtkanalen.
- Zorg ervoor dat het toestel trillingsvrij en waterpas is opgesteld.

5.2.1 Plaatsing Renovent Excellent op Elan 4

Het Elan 4 toestel kan worden gecombineerd met twee verschillende warmteterugwinunits:

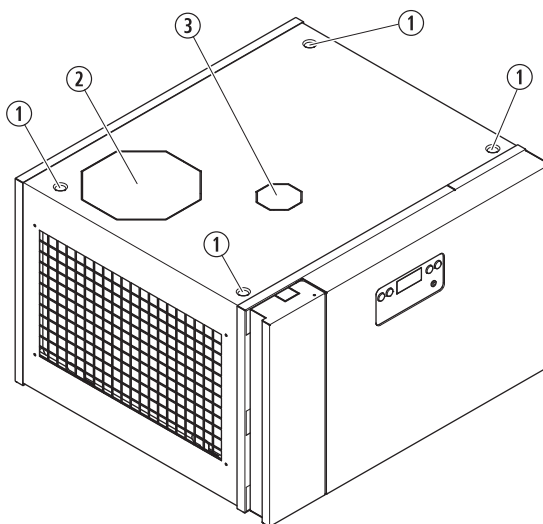
- Renovent Excellent 4/0
- Renovent Excellent 3/1

Een warmteterugwinunit kan bovenop het Elan 4 toestel worden geplaatst.



Gebruik de sifonset met artikelnummer 217052 als een Renovent Excellent warmteterugwinunit boven op het Elan 4 toestel geplaatst wordt.

Zie sectie Condensafvoer bij gebruik Renovent Excellent op pagina 25 voor het aansluiten van de condensafvoer.



Bovenzijde Elan 4

1. Indrukking bovenplaat
2. Uitbreekdeel
3. Uitbreekdeel

Plaats de Renovent Excellent 4/0 op de Elan 4:

1. Verwijder het uitbreekdeel (3) uit de bovenplaat van de Elan 4.
2. Plak de 4 zwarte buffers uit de sifonset op de indrukking (1) van de bovenplaat van de Elan 4.
3. Plak het afdichtband uit de sifonset over de rand van de uitbreekopening (3).
4. Verwijder de 4 rubberen buffers onderaan de Renovent Excellent 4/0.
5. Plaats de Renovent Excellent op de Elan 4 zodanig dat de afdekkappen aan de voorkant in 1 vlak liggen.

Plaats de Renovent Excellent 3/1 op de Elan 4:

1. Verwijder het uitbreekdeel (2) en het uitbreekdeel (3) uit de bovenplaat van de Elan 4.
2. Plak de 4 zwarte buffers uit de sifonset op de indrukking (1) van de bovenplaat van de Elan 4.
3. Plak het afdichtband uit de sifonset over de rand van de uitbreekopeningen (2, 3).
4. Plaats de Renovent Excellent op de Elan 4 zodanig dat de afdekkappen aan de voorkant in 1 vlak liggen.

5.3 Wateraansluitingen

5.3.1 Warmtewisselaar

Sluit de warmtewisselaar aan met 22 mm aansluitingen:

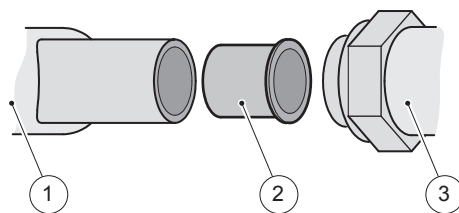
1. Verwijder de afdekkap.
2. Advies: plaats in de toevoer- en de afvoerleiding een afsluitkraan met koppeling. Zorg ervoor dat deze afsluitkranen direct aan de buitenzijde van het toestel komen.

Gebruik een klemverbinding om de toevoer- en de afvoerwaterleiding aan de warmtewisselaar aan te sluiten.

1. Als er gebruik gemaakt wordt van koeling; isoleer alle wateraansluitingen dampdicht.



Maak bij toepassing van een klemverbinding altijd gebruik van een steunbus Ø 22 mm, zie afbeelding.



Klemverbinding wateraansluiting

1. Elan 4 toestel
2. Steunbus
3. Wateraansluiting (door installateur)

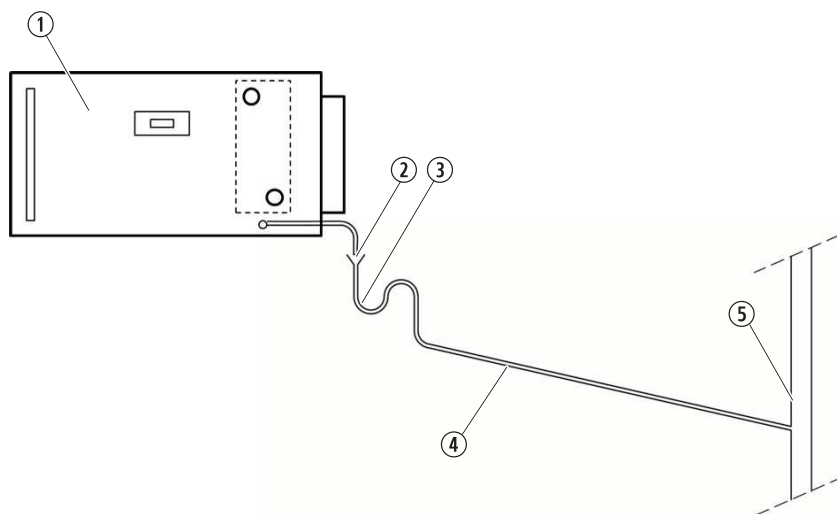
5.3.2 Condensafvoer

De condensafvoer wordt gebruikt bij koeling en wanneer een warmteterugwinunit op de Elan 4 is geplaatst.

5.3.2.1 Condensafvoer Elan 4 bij koeling

Sluit de condensafvoer aan:

1. Verwijder de afdekkap.
2. Sluit de condensafvoerleiding aan met 15 mm aansluitingen.



Condensafvoer bij koeling

1. Toestel
2. Trechter
3. Stankafsluiter
4. Aansluitleiding
5. Standleiding

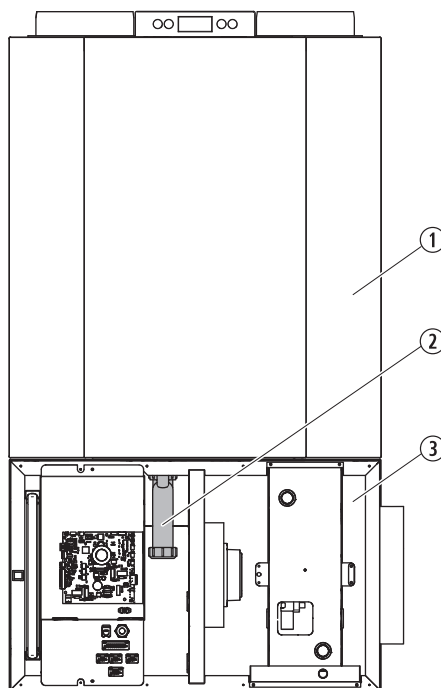
5.3.2.2 Condensafvoer bij gebruik Renovent Excellent



Gebruik de sifonset met artikelnummer 217052 voor het aansluiten van de Renovent Excellent warmteterugwinunit als deze op een Elan 4 toestel is geplaatst.

Sluit de condensafvoer van de warmteterugwinunit aan:

1. Verwijder de afdekkap en voorplaat van de Elan 4 en van de Renovent Excellent.
2. Sluit de sifon (2) uit de sifonset aan op de Renovent Excellent (1), zie ook de installatievoorschriften van de Renovent Excellent warmteterugwinunit.



3. Voer de condensafvoerslang door de tule onder het bedieningspaneel.
4. Plaats de voordeksels terug op de Elan 4.

5.4 Aansluiten kanalen

Sluit het warme luchtkanaal op de aansluiting van de luchtuitlaat aan:

1. Indien nodig, plaats een regelklep in de luchtuitlaat.
2. Isoleer het warmeluchtkanaal, de roosterschoen en het eventuele buitenluchtkanaal.
3. Breng een vochtafsluitende laag om het isolatiemateriaal aan om condensvorming te voorkomen.

Als de aansluiting van de luchtuitlaat voor de installatie niet aan de juiste zijde van het toestel zit, kan gebruik gemaakt worden van een luchtverdeelkast (uitblaasmodule):

1. Maak de gewenste opening in de luchtverdeelkast.
2. Sluit het warme luchtkanaal aan op de gewenste uitgang van de luchtverdeelkast.



Zorg ervoor dat de kanalen geen rechte verbinding tussen 2 vertrekken maken, zodat er geen overspraak kan ontstaan.

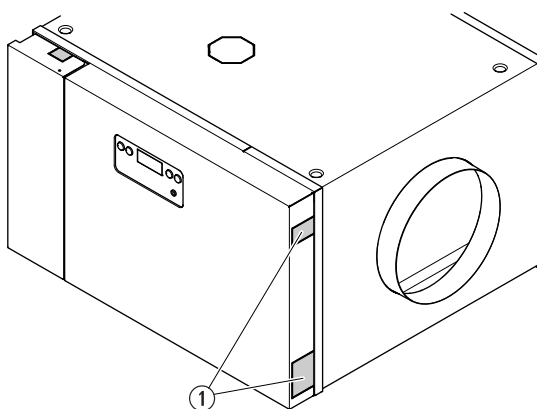
5.5 Elektrische aansluitingen

De Elan 4 moet met de netstekker worden aangesloten op het elektriciteitsnet.

Zie sectie Elektrische aansluitingen accessoires op pagina 44 voor het aansluiten van de extra opties.

5.5.1 Aansluiting van de netstekker

Het snoer van de 230 V netstekker is aangesloten achter de afdekkap. In de afdekkap bevinden zich openingen (1) om het snoer door te voeren.



Doorvoeropeningen



Zorg ervoor dat het netsnoer altijd vrij ligt van de warmtewisselaar.

De elektrische installatie moet voldoen aan de eisen van uw elektriciteitsbedrijf en de NEN 1010 veiligheidsbepalingen voor laagspanningsinstallaties.



Maak het toestel bij werkzaamheden altijd spanningsvrij door de netstekker los te nemen. De ventilator en de printplaat werken onder hoogspanning.

Sluit de netstekker aan:

1. Voer het snoer van de stekker door de opening.
2. Sluit de netstekker aan op een geaarde wandcontactdoos.

5.5.2 Aansluiting van de koeling

Sluit de koeling aan:

1. Verwijder de afdekkap.
2. Sluit het koelrelais aan op poorten 7 en 8 van de 9-polige connector, zie (1) in sectie Aansluitingen connectoren, zie "Aansluiting externe connectoren Elan 4" op pagina 44.
3. Sluit het vorstbeveiligingrelais aan op poorten 5 en 6 van de 9-polige connector
4. Sluit het schakelcontact aan op poorten 1 en 2 van de 9-polige connector.

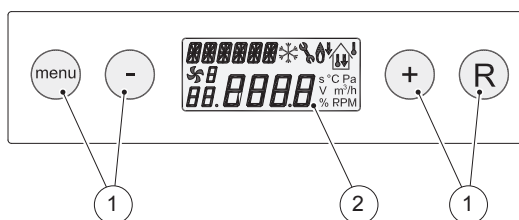
5.5.3 Aansluiting van de Renovent Excellent

Sluit de 2-polige groene eBus connector van de Renovent Excellent warmteterugwinunit aan op de 2-polige groene eBus connector van het Elan 4 toestel.

6.1 Algemene verklaring bedieningspaneel

Met het bedieningspaneel kunnen de instellingen van het toestel worden ingezien en gewijzigd. Het bedieningspaneel heeft een display en 4 bedieningstoetsen:

- Het display toont de bedrijfssituatie, zie "Bedrijfssituatie" op pagina 29 van het toestel als er geen toetsen worden bediend en er geen afwijkende situatie is.
- Met de bedieningstoetsen kan door de menu's van de besturing worden genavigeerd. Als een van de toetsen wordt bediend, wordt het display 30 seconden verlicht.



Bedieningspaneel

1. Bedieningstoetsen
2. Display

De besturing van het toestel bestaat uit 3 menu's:

- Instelmenu op pagina 30
- Uitleesmenu op pagina 31
- Servicemenu op pagina 33

Bij een vergrendelende storing, zie "Storing" op pagina 37 kan alleen het servicemenu worden geactiveerd.

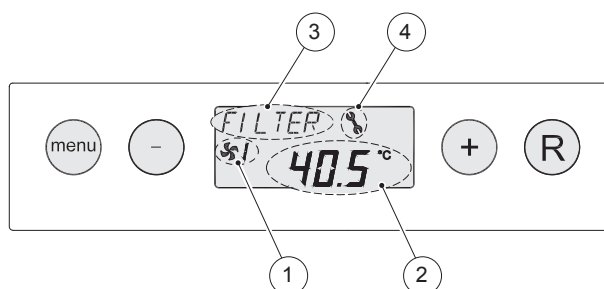
Toets eerst **[Menu]** en vervolgens **[+]** of **[-]** om een menukeuze te maken. Toets **[R]** om terug te keren naar de weergave van de bedrijfssituatie. Toets **[R]** korter dan 5 seconden om de achtergrondverlichting van het display in te schakelen zonder dat er iets in het menu verandert.

Als de toetsen 5 minuten niet worden bediend keert het display automatisch terug naar de bedrijfssituatie.

6.2 Bedrijfssituatie

De bedrijfssituatie wordt door middel van 4 verschillende waarden op het display weergegeven:

- De status van de systeemventilator, zie "Status systeemventilator" op pagina 29
- De luchtuitblaastemperatuur
- Een meldingstekst, zie "Meldingstekst bij bedrijfssituatie" op pagina 29
- Indien van toepassing, een storingsymbool, zie "Storing" op pagina 37



Weergave bedrijfssituatie

1. Status systeemventilator
2. Weergave luchtuitblaastemperatuur
3. Meldingstekst
4. Storingssymbool

6.2.1 Status systeemventilator

De status van de systeemventilator wordt aan de linkerkant op het display weergegeven met een ventilatorsymbool en een nummer, zie Programmakeuze op pagina 14.

Alleen als de systeemventilator draait wordt het ventilatorsymbool weergegeven.

6.2.2 Meldingstekst bij bedrijfssituatie

Indien van toepassing, wordt linksboven op het display een meldingstekst weergegeven.

De melding **FILTER** heeft altijd voorrang op andere meldingsteksten.

De volgende meldingsteksten kunnen op het display worden weergegeven:

Meldingstekst	Omschrijving
FILTER	Het filter moet worden schoongemaakt of vervangen, zie Filter reinigen op pagina 41.
PR1	Het Vast programma op pagina 16 is ingesteld.
PR2	Het WTW programma op pagina 17 is ingesteld.

6.3 Instelmenu

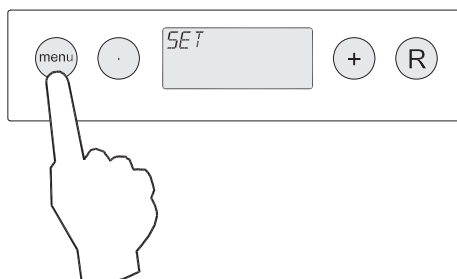
Gebruik het instelmenu om de instellingen van het toestel aan te passen. Zie de Parameterlijst op pagina 51 voor een overzicht van de mogelijke instellingen.



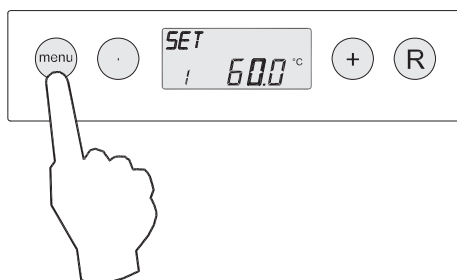
Onjuiste instellingen kunnen de werking van het toestel verstoren. Neem contact op met Brink wanneer instellingen, die niet beschreven zijn in deze installatievoorschriften, gewijzigd moeten worden.

Het aanpassen van instelwaarden:

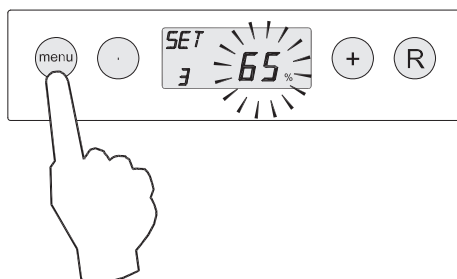
1. Toets **[Menu]**



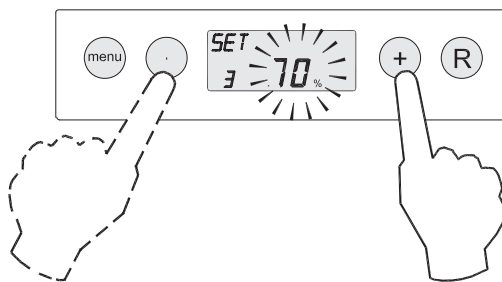
2. Toets **[Menu]** om het instelmenu **SET** te activeren.



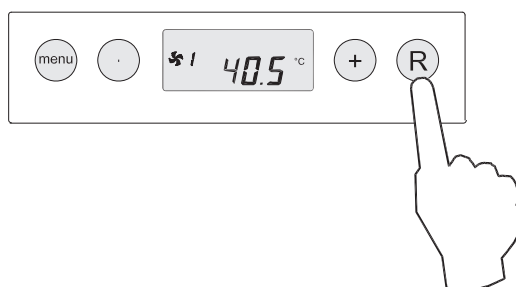
3. Toets **[+]** of **[-]** om naar de aan te passen instelwaarde te navigeren.
4. Toets **[Menu]** om de instelwaarde te selecteren.



5. Pas de instelwaarde aan:
 - a) Toets **[+]** of **[-]** tot de gewenste waarde op het display wordt weergegeven.
 - b) Toets **[Menu]** om de waarde op te slaan of toets **[R]** om de wijziging te annuleren.



6. Indien gewenst, herhaal stap 4 tot en met 6 om meer instelwaarden aan te passen.
7. Toets **[R]** om terug te keren naar de menukeuze.
8. Toets nogmaals **[R]** om terug te keren naar de bedrijfssituatie.



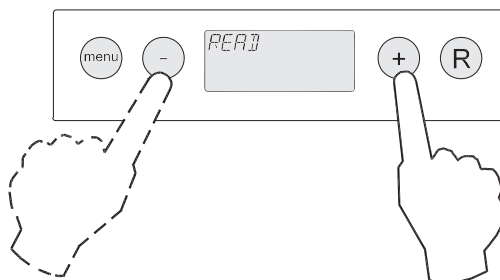
6.4 Uitleesmenu

Gebruik het uitleesmenu om actuele meetwaarden op te roepen:

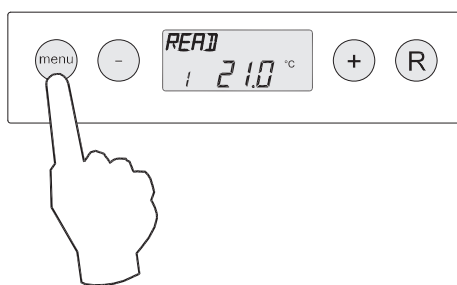
Meet-waarde	Omschrijving	Een-heid
1	Actuele uitblaasttemperatuur	°C
2	Actuele watertemperatuur in de warmtewisselaar	°C
3	Actuele snelheid van de systeemventilator	%
4	Toerental systeemventilator	RPM
5	Status vorstregeling: - ON : vorstregeling actief - OFF : vorstregeling niet actief	-
6	Uitleeswaarde CO ₂ sensor A	PPM
7	Uitleeswaarde CO ₂ sensor B	PPM
8	Uitleeswaarde CO ₂ sensor C	PPM
9	Uitleeswaarde CO ₂ sensor D	PPM

Het uitlezen van meetwaarden:

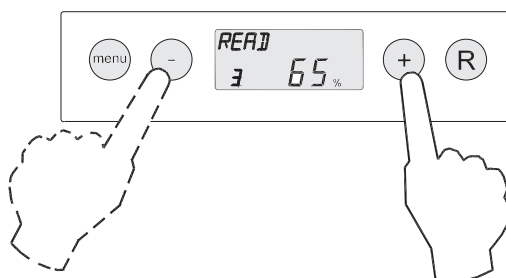
1. Toets **[Menu]**
2. Toets **[+]** of **[-]** om naar het uitleesmenu **READ** te navigeren.



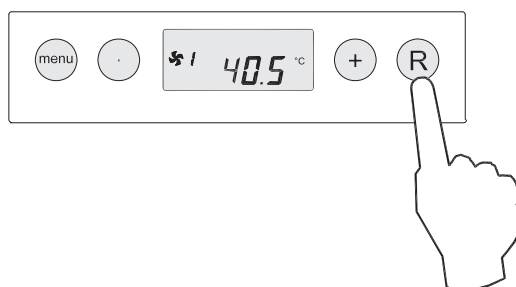
3. Toets **[Menu]** om het uitleesmenu te activeren.



4. Toets **[+]** of **[-]** om door de meetwaarden in het uitleesmenu te navigeren.



5. Toets **[R]** om terug te keren naar de menukeuze.
6. Toets nogmaals **[R]** om terug te keren naar de bedrijfssituatie.

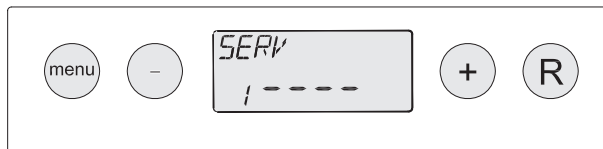


6.5 Servicemenu

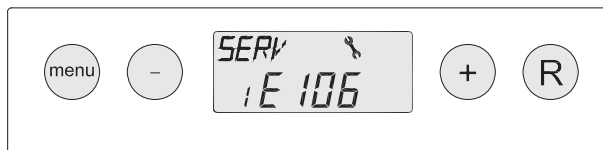
Gebruik het servicemenu om de laatste 10 foutmeldingen van het toestel uit te lezen.

Er zijn 3 verschillende weergaven mogelijk:

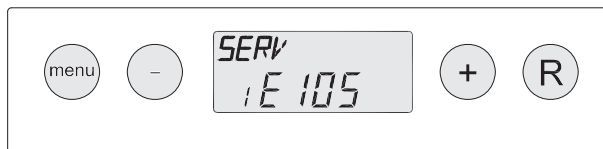
- Als er geen enkele foutmelding is:



- Een foutmelding met het storingsymbool. Dit is een actuele foutmelding:

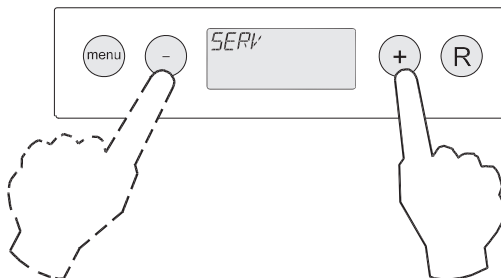


- Een foutmelding zonder storingsymbool. Dit is een opgeloste foutmelding:

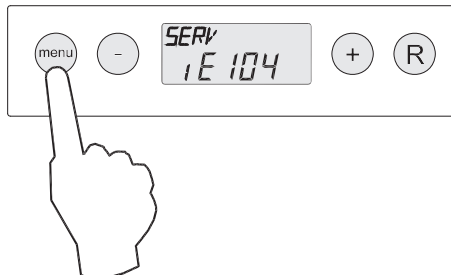


Het uitlezen van foutmeldingen:

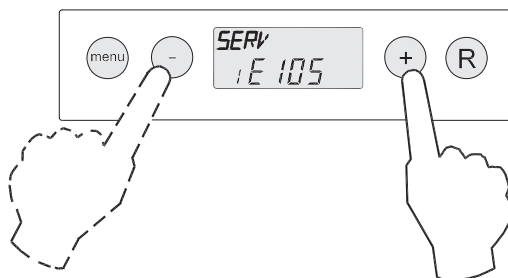
1. Toets **[Menu]**
2. Toets **[+]** of **[-]** om naar het servicemenu **SERV** te navigeren.



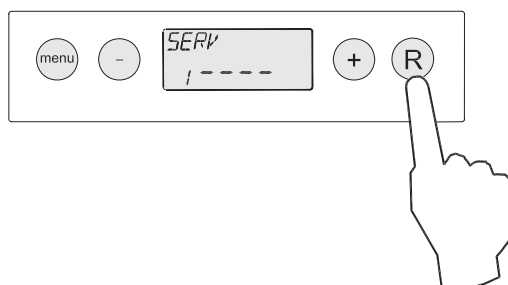
3. Toets **[Menu]** om het servicemenu te activeren.



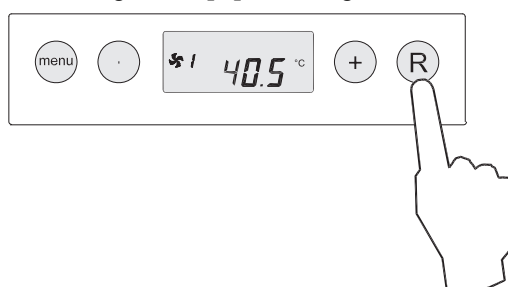
4. Toets **[+]** of **[-]** om door de foutmeldingen in het servicemenu te navigeren.



5. Indien gewenst, toets 5 seconden **[R]** om alle foutmelding in het servicemenu te wissen (niet mogelijk bij een actuele foutmelding).



6. Toets **[R]** om terug te keren naar de menukeuze.
7. Toets nogmaals **[R]** om terug te keren naar de bedrijfssituatie.



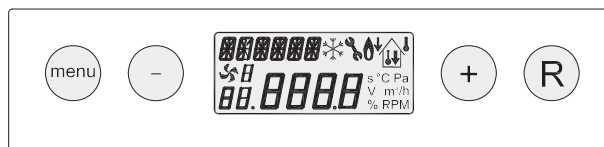
7.1 In- en uitschakelen toestel

7.1.1 Inschakelen toestel

Sluit de 230 V netstekker aan om het toestel in te schakelen, zie Aansluiting van de netstekker op pagina 26.

De achtergrondverlichting van het display gaat 60 seconden aan en het display toont achtereenvolgens de volgende informatie:

1. Alle symbolen op het display worden 2 seconden getoond.



2. De artikelnummer wordt 2 seconden getoond.



3. De softwarecode wordt 4 seconden getoond.



Vervolgens gaat het toestel naar de bedrijfssituatie en start met het verwarmen van de omgevingslucht naar de ingestelde uitblaastemperatuur.

7.1.2 Uitschakelen toestel

Neem de 230 V netstekker uit de wandcontactdoos om het toestel uit te schakelen.

7.2 Instellen luchtdebiet

De prestaties en het energieverbruik van het toestel zijn afhankelijk van drukverlies in het kanalsysteem en de weerstand van het filter. Wijzig de instelwaarden voor het luchtdebiet om de prestaties van het toestel te verbeteren, zie Instelmenu op pagina 30.

7.3 Overige instellingen installateur

Gebruik het Instelmenu op pagina 30 om de instelwaarden van het toestel te wijzigen. Zie de Parameterlijst op pagina 51 voor een overzicht van de mogelijke instellingen.

7.3.1 Koppelen meerdere Elan 4 toestellen

Er kunnen maximaal 4 Elan 4 toestellen met elkaar worden doorverbonden. Gebruik parameter **26** om voor elk toestel een eigen identificatienummer in te stellen, zie de Parameterlijst op pagina 51.



Als de Elan 4 toestellen worden toegepast in combinatie met een warmteterugwinunit, moet deze ook een eigen identificatienummer hebben. Deze is in te stellen met parameter **27**.

7.3.2 Koppelen Elan 4 toestel met Renovent Excellent toestel

Als er een Renovent Excellent warmteterugwinunit wordt aangesloten op het Elan 4 toestel of een serie van maximaal 4 Elan 4 toestellen, dan moet het type Renovent Excellent worden ingesteld met parameter **27**, zie de Parameterlijst op pagina 51.



Deze parameter moet op elk Elan 4 toestel worden ingesteld.

7.4 Fabrieksinstelling

Toets **[+]** en **[-]** 10 seconden gelijktijdig in om alle instellingen terug te zetten naar de fabrieksinstellingen.



Alleen de filtermelding wordt niet teruggezet naar de fabrieksinstelling.

Na het terugzetten van de fabrieksinstellingen toont het display 3 seconden alle symbolen op het display. Daarna gaat het toestel automatisch naar de bedrijfssituatie.

8.1 Storingsanalyse

Als het toestel een storing heeft wordt dit op het display met het storingsymbool weergegeven.

Het toestel maakt onderscheid tussen 2 soorten storingen:

- Niet vergrendelende storing: Het toestel blijft nog (beperkt) functioneren.

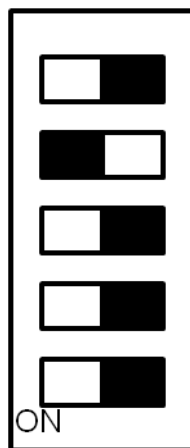


- Vergrendelende storing: De systeemventilator van het toestel wordt uitgeschakeld. Het is niet mogelijk om het instelmenu en het uitleesmenu te activeren. Het toestel blijft vergrendeld tot de storing is opgelost. Daarna zal het toestel automatisch resetten en terug gaan naar de bedrijfssituatie.



Bij een vergrendelende storing wordt naast het storingsymbool ook een storingscode weergegeven, zie Displaycodes op pagina 38.

Als bij het inschakelen van het toestel de melding **E999** op het display wordt getoond is de gemonteerde printplaat niet geschikt voor dit toestel of de dipswitches op de printplaat staan verkeerd ingesteld. Controleer de dipswitches, zie afbeelding. Vervang de printplaat als de melding **E999** niet verdwijnt en de dipswitches in de juiste positie staan.



Dipswitches Elan 4

8.2 Displaycodes

Storingscode	Oorzaak	Actie toestel	Actie installateur
E101	Luchtuitlaattemperatuursensor defect	De ventilator wordt uitgeschakeld	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Vervang de temperatuursensor. 3. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>
E102	Watertemperatuursensor defect	De ventilator wordt uitgeschakeld	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Vervang de temperatuursensor. 3. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>
E104	Systeemventilator defect	Het toestel doet niets	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Controleer de bekabeling. 3. Vervang de ventilator. 4. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>
E105	Storing relaisuitgang 9-polige connector positite 5&6 of 7&8. Er is een relais met een te hoog vermogen op een van de uitgangen aangesloten of kortsluiting bij een van de uitgangen (max. 60 mA, 24 V DC)	De ventilator draait op minimaal luchtdebiet	<ol style="list-style-type: none"> 1. Controleer de bedrading. 2. Controleer de aansluitwaarde van het aangesloten relais.

Storingscode	Oorzaak	Actie toestel	Actie installateur
E106	Onbekende schakelpositie van optionele standenschakelaar	De ventilator draait op minimaal luchtdebiet	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Controleer de aansluiting van de standenschakelaar. 3. Controleer of de modulaire connector juist is gemonteerd. 4. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>
E107	Externe fout op ingang 9-polige connector positie 3&4	Het aangesloten toestel heeft een storing.	Controleer alle toestellen die op de Elan 4 zijn aangesloten en verhelp de storing.
E109	CO ₂ sensor defect of foutief bedraad	De rode led op de CO ₂ sensor knippert elke halve seconde. Het toestel blijft functioneren.	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Controleer de bedrading en pas deze indien nodig aan. 3. Indien van toepassing, vervang de CO₂ sensor. 4. Zorg dat de dipswitch correct is ingesteld., zie "Aansluiten CO₂ sensor" op pagina 46 5. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset</p>

Storingscode	Oorzaak	Actie toestel	Actie installateur
E152	Flash memory defect	Fout in de regeling van de printplaat	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Vervang de printplaat. 3. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>
E999	Dipswitches op printplaat niet juist ingesteld	Het toestel doet niets. Ook de rode storingsled op de standenschakelaar wordt niet aangestuurd	<ol style="list-style-type: none"> 1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35. 2. Zet de dipswitches in de juiste positie, zie "Storingsanalyse" op pagina 37. 3. Schakel het toestel weer in, zie "Inschakelen toestel" op pagina 35. <p>De storing is automatisch gereset.</p>

9.1 Filter reinigen

Reinig het filter als:

- De meldingstekst **FILTER** wordt weergegeven op het display.
- Indien van toepassing, de rode indicatielamp bij de standenschakelaar met filterindicatie brandt.



Gebruik het toestel nooit zonder filter.

Het filter moet jaarlijks worden vervangen.

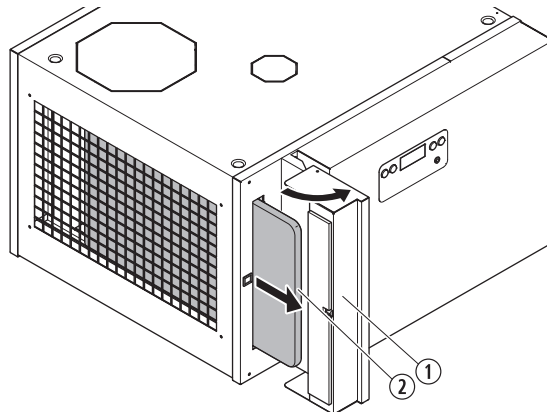
Gebruik het Servicemenu op pagina 33 om de filter melding te resetten. De besturing van het toestel begint dan opnieuw te tellen tot de volgende reinigingsbeurt nodig is. Een filter reset kan op elk moment worden gedaan.



Als het filter niet tijdig wordt gereinigd of vervangen wordt de werking van het toestel belemmerd.

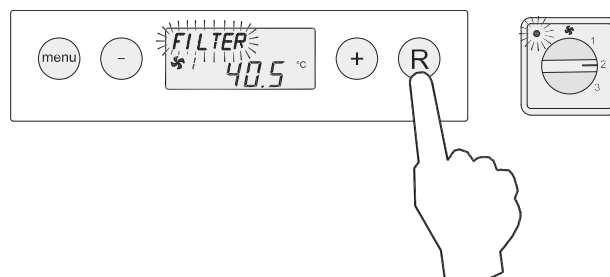
Reinig of vervang het filter:

1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35.
2. Open de filterdeur.
3. Verwijder het filter.



4. Reinig het filter met een stofzuiger.
5. Plaats het filter terug in het toestel.
6. Sluit de filterdeur.
7. Toets **[R]** op het bedieningspaneel en houd deze 5 seconden vast om de filterindicatie te verwijderen.

De meldingstekst **FILTER** knippert kortstondig.



De **FILTER** melding verdwijnt van het display en, indien van toepassing, de indicatieled bij de standenschakelaar gaat uit. Het toestel staat in de bedrijfssituatie.

9.2 Onderhoud

Reinig eens per 3 jaar de warmtewisselaar en de ventilator:

1. Maak het toestel spanningsloos, zie "Uitschakelen toestel" op pagina 35.
2. Verwijder de afdekkap en de voordeksels.
3. Maak de ventilatorkabels los van de printplaat.
4. Verwijder de printplaathouder.
5. Verwijder de geluiddempingsblokken.
6. Verwijder de ventilatoreenheid.



Zorg ervoor dat de balansgewichtjes in de systeemventilator niet verschuiven.

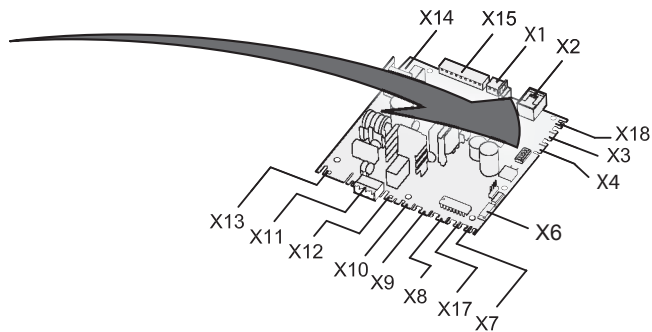
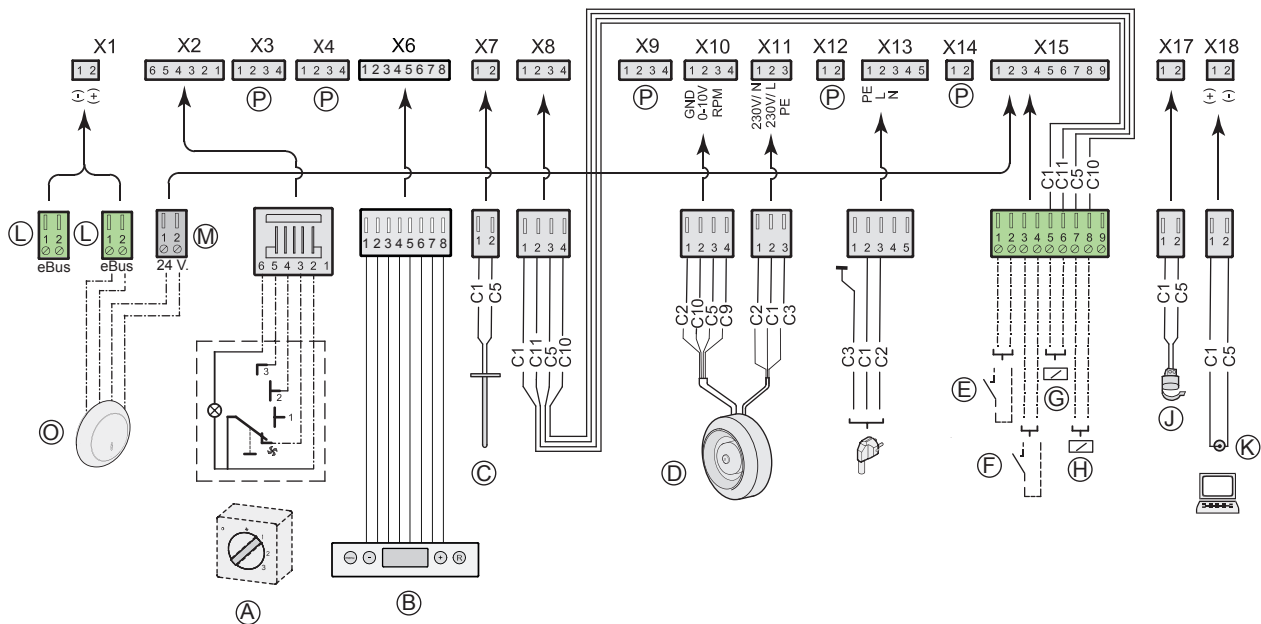
7. Maak de schoepen van de ventilator schoon met een droge kwast.
8. Maak de warmtewisselaar voorzichtig schoon met een stofzuiger.
9. Controleer de warmtewisselaar op eventuele lekkages.
10. Monteer de ventilatoreenheid.
11. Monteer de geluiddempingsblokken.
12. Monteer de printplaathouder.
13. Monteer de ventilatorkabel op de printplaat.
14. Monteer de voordeksels en de afdekkap.
15. Schakel het toestel in, zie "Inschakelen toestel" op pagina 35.
16. Toets **[R]** op het bedieningspaneel en houd deze 5 seconden vast om de filterindicatie te verwijderen.
De meldingstekst FILTER knippert kortstondig.

Het toestel gaat naar de bedrijfssituatie.



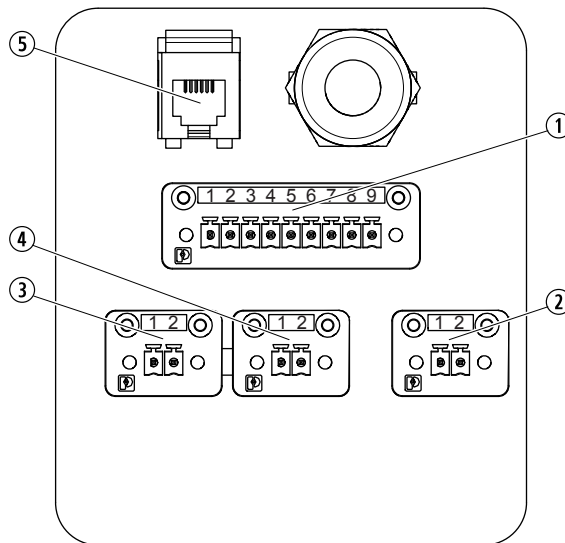
De standaard onderhoudstermijn is 3 jaar. Afhankelijk van de omstandigheden kan de benodigde onderhoudstermijn afwijken.

10.1 Aansluitschema



- | | | |
|------------------|---------------------------------|--|
| C1 = bruin | A = Standenschakelaar | H = Koelrelais (24 VDC, niet gemonteerd) |
| C2 = blauw | B = Bedieningspaneel | J = Watertemperatuursensor |
| C3 = groen/geel | C = Uitblaastempatuursensor | K = Serviceaansluiting |
| C5 = wit | D = Systeemventilator | L = eBus connector (polariteit gevoelig) |
| C6 = draad nr. 1 | E = Schakelcontact koeling | M = Voeding CO ₂ sensor |
| C7 = draad nr. 2 | F = Schakelcontact externe fout | O = CO ₂ sensor (optioneel) |
| C10 = geel | G = Vorstbeveiligingrelais | P = Niet van toepassing |
| C11 = groen | (24 VDC, max. 60 mA) | |

11.1 Aansluiting externe connectoren Elan 4



Aansluitingen connectoren

1. *Externe contacten* - Deze contacten worden gebruikt om externe apparaten op het toestel aan te sluiten.
 - *Positie 1 en 2* - Dit is een schakelcontact voor de koeling. De koeling wordt ingeschakeld als er contact wordt gemaakt.
 - *Positie 3 en 4* - Dit is een schakelcontact voor een externe fout. De systeemventilator van het toestel wordt uitgeschakeld bij storing **E107**, zie Displaycodes op pagina 38.
 - *Positie 5 en 6* - Dit relais wordt bekrachtigd bij de vorstbeveiliging, bijvoorbeeld door een externe pomp bij te schakelen.
 - *Positie 7 en 8* - Dit relais wordt bekrachtigd bij koeling, bijvoorbeeld voor het aansluiten van een interface voor de koeling.
2. *24V voeding* - maximaal 4,5 VA (zwart).
3. *eBus communicatie* - deze aansluiting is polariteitsgevoelig (groen).
4. *eBus communicatie* - deze aansluiting is polariteitsgevoelig (groen).
5. *Aansluiting 4-standenschakelaar*.

11.2 Aansluiten standenschakelaar

Als er gekozen wordt voor toepassing van een 4-standenschakelaar:

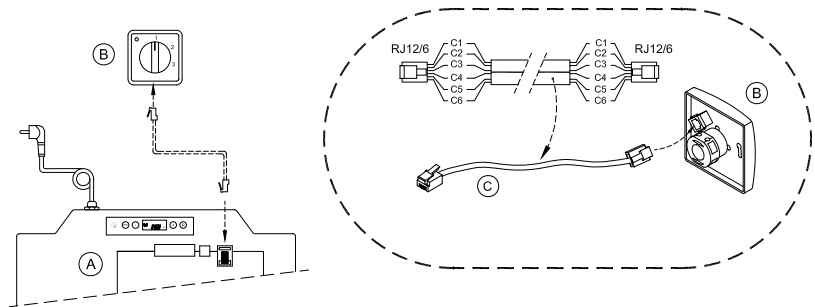
1. Verwijder de afdekkap.
2. Sluit de standenschakelaar aan op de modulaire connector van het toestel, zie Aansluiting externe connectoren, zie "Aansluiting externe connectoren Elan 4" op pagina 44.

11.2.1 Standenschakelaar met filterindicatie

Een standenschakelaar met filterindicatie werkt mechanisch. De rode indicatieled gaat branden als het filter van het toestel moet worden gereinigd of vervangen en gaat knipperen bij een storing.



Bij het aansluiten van de standenschakelaar met filterindicatie wordt een 6-aderige modulaire kabel toegepast. Bij deze kabel moet van beide modulaire connectoren het lipje naar de markering op de kabel worden gemonteerd.

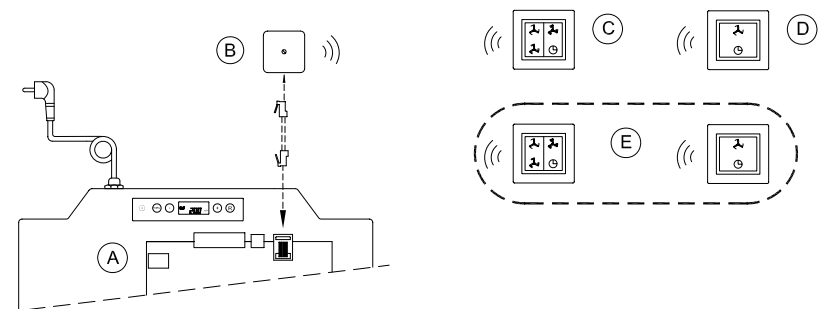


Aansluiting standenschakelaar met filterindicatie

- A. Elan 4 toestel
- B. 4-standenschakelaar met filterindicatie
- C. Modulaire kabel, 6-aderig

11.2.2 Draadloze standenschakelaar

Een draadloze standenschakelaar werkt met behulp van Radio Frequency (RF) technologie en maakt draadloos verbinding met de Elan 4. Een draadloze standenschakelaar kan gemakkelijk worden toegevoegd bij bestaande systemen.



Aansluiting draadloze standenschakelaar

- A. Elan 4 toestel
- B. Ontvanger draadloze afstandbediening
- C. Zender met 4 standen
- D. Zender met 2 standen
- E. Eventueel extra aan te sluiten zenders (Max. 6)

11.3 Aansluiten CO₂ sensor

11.3.1 CO₂ sensor Elan 4

Er kunnen maximaal 4 CO₂ sensoren op een Elan 4 toestel worden aangesloten, zie sectie CO₂-regeling, zie "CO₂-regeling" op pagina 18.



Elke CO₂ sensor moet aan het Elan 4 toestel worden toegekend met de dipswitch aan de achterzijde van de CO₂ sensor.

Stel de dipswitches op de CO₂ sensoren volgens de onderstaande tabel in.

	Nummer CO ₂ sensor	Stand dipswitch				
		1	2	3	4	5
Elan 4 toestel 1	5	on	off	on	off	off
	6	off	on	on	off	off
	7	on	on	on	off	off
	8	off	off	off	on	off
Elan 4 toestel 2	9	on	off	off	on	off
	10	off	on	off	on	off
	11	on	on	off	on	off
	12	off	off	on	on	off
Elan 4 toestel 3	13	on	off	on	on	off
	14	off	on	on	on	off
	15	on	on	on	on	off
	16	off	off	off	off	on
Elan 4 toestel 4	17	on	off	off	off	on
	18	off	on	off	off	on
	19	on	on	off	off	on
	20	off	off	on	off	on

Sluit de CO₂ sensoren aan:

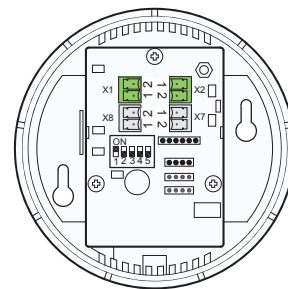
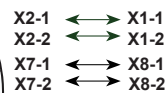
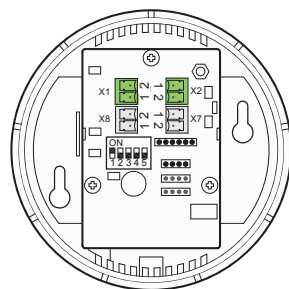
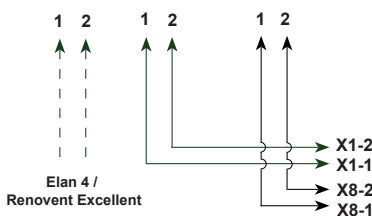
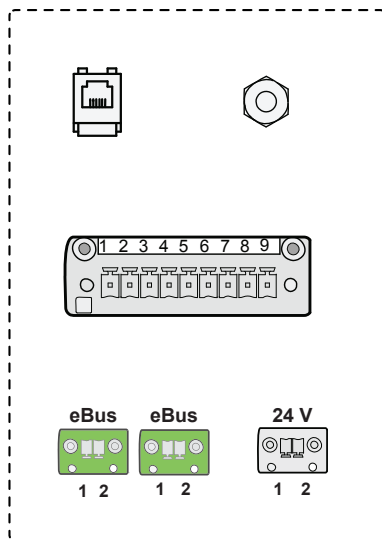
1. Sluit de 2-polige zwarte connector van de CO₂ sensor aan op de 2-polige zwarte connector van het Elan 4 toestel.
2. Sluit de 2-polige groene connector van de CO₂ sensor aan op de 2-polige groene connector van het Elan 4 toestel.



De 2-polige connectoren zijn polariteitsgevoelig. Zorg ervoor dat de CO₂ sensor juist is aangesloten.

Zie de Parameterlijst op pagina 51 voor de benodigde parameters om de CO₂ sensoren in te stellen:

1. Gebruik parameter **13** om de eBus communicatie aan te zetten.
2. Gebruik parameter **14**, **16**, **18** of **20** om de ondergrens van de CO₂ sensor in te stellen.
3. Gebruik parameter **15**, **17**, **19** of **21** om de bovengrens van de CO₂ sensor in te stellen.
4. Gebruik parameter **22**, **23**, **24** of **25** om het identificatienummer (dipswitch nummer) van de CO₂ sensor in te stellen.

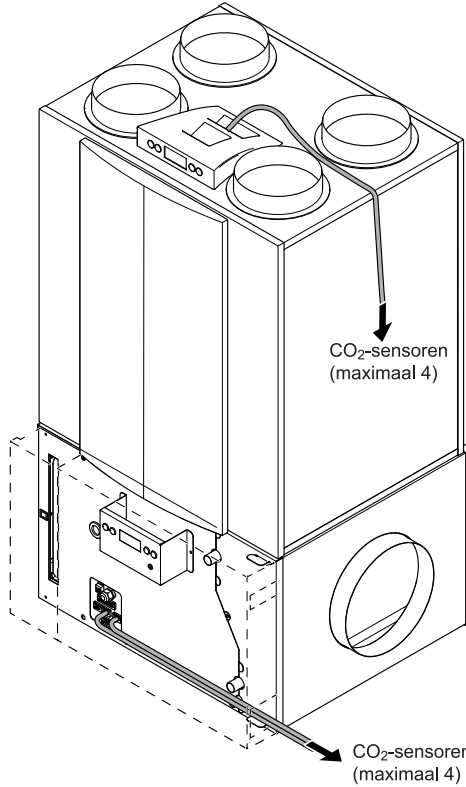


➔
Maximaal
4 CO₂ sensoren

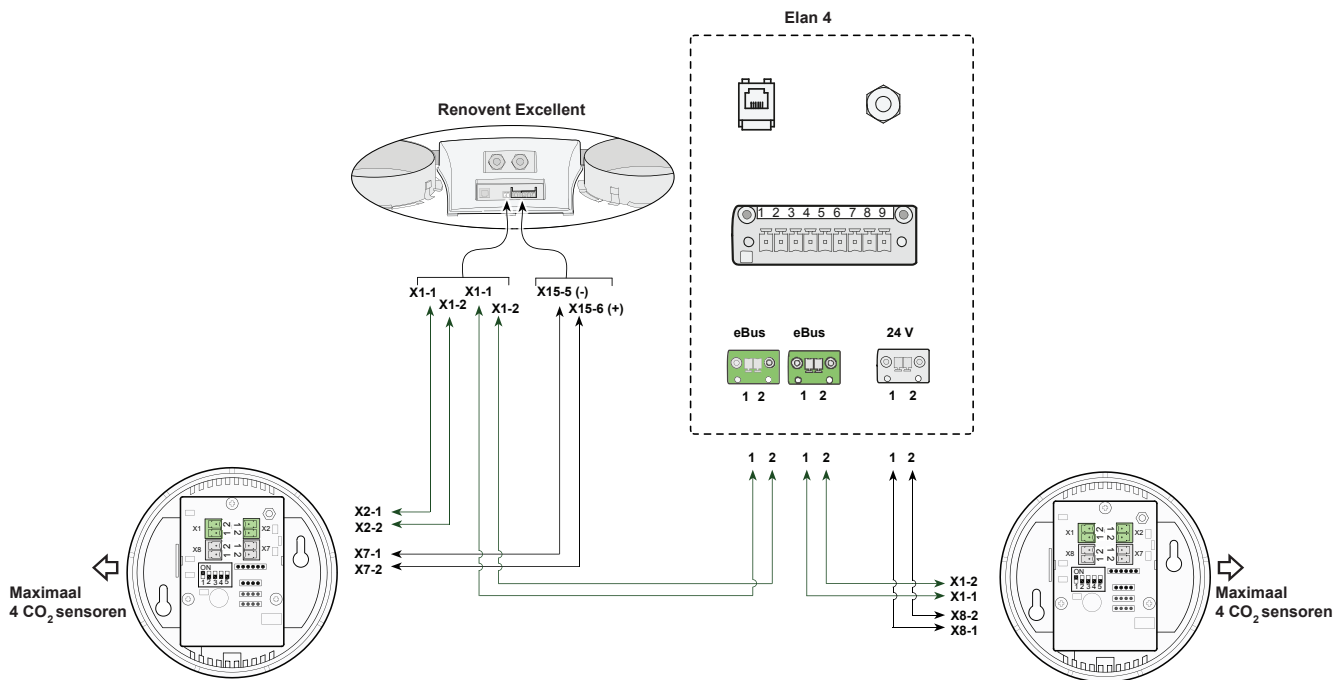
Aansluiting CO₂ sensor

11.3.2 Elan 4 en Renovent Excellent met CO₂ sensor

Koppel een Elan 4 toestel en een Renovent Excellent warmteterugwinunit met CO₂ sensoren volgens de volgende afbeeldingen.

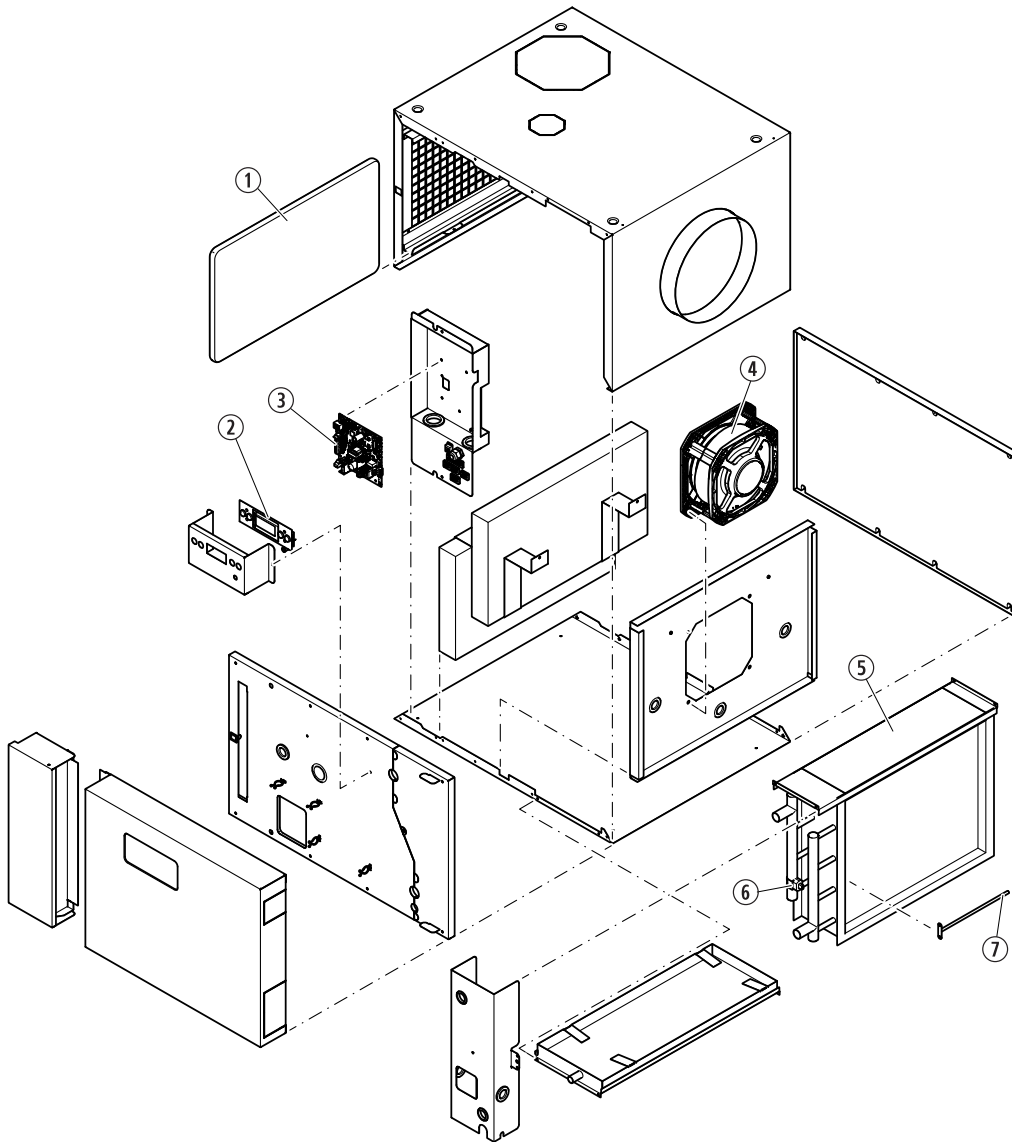


CO₂ sensoren in combinatie met warmteterugwinunit en Elan 4



Aansluiting CO₂ sensor en Renovent Excellent

12.1 Exploded view



Exploded view

Nummer	Artikelomschrijving	Artikel code
1	G3 Filter Elan 4	532606
2	Display Elan 4	531776
3	Printplaat Elan 4	531799
4	Ventilator Elan 4	532607
5	Warmtewisselaar Elan 4	532608
6	Watertemperatuursensor NTC 12k c-clip	531390
7	Uitblaastemperatuursensor NTC 10k	531238

12.2 Service artikelen

Zie de Exploded view op pagina 49 voor een overzicht van de service artikelen.

Meldt bij het bestellen van onderdelen de volgende gegevens:

- De naam van het onderdeel
- Het artikelcodenummer
- Het toesteltype
- Het serienummer
- Het bouwjaar



Het toesteltype, serienummer en bouwjaar staan vermeld op de opschriftplaat achter de afdekkap van het toestel.

Het netsnoer is voorzien van een printconnector. Bestel voor vervanging hiervan altijd bij Brink een vervangend netsnoer.



Een beschadigde netaansluiting mag alleen door een hiervoor gekwalificeerde persoon worden vervangen.

13.1 Parameterlijst

Parameter	Omschrijving	Default	Instelbereik	Stap
1	T_max - Max. uitblaasttemperatuur	60	1,0°C – 70,0°C	0,5°C
2	Qv_min – Inst. percentage min. debiet	20	10% – 100%	1%
3	Qv_max – Inst. percentage max. debiet	65	10% – 100%	1%
4	Qv_koelen – Inst. percentage debiet koeling	80	10% – 100%	1%
5	T_start - Starttemperatuur regeling	30,0	0,0°C – 60,0°C	0,5°C
6	T_fan aan - Inschakeltemperatuur ventilator	30,0	0,0°C – 60,0°C	0,5°C
7	T_fan uit - Uitschakeltemperatuur ventilator	25,0	0,0°C – 60,0°C	0,5°C
8	Hysterese schakeltemperatuur ventilator	1,0	0,0°C – 5,0°C	0,1°C
9	Ventilatieprogramma	0	0 = continu programma, zie "Continu programma" op pagina 14 1 = vast programma, zie "Vast programma" op pagina 16 2 = WTW programma op pagina 17	1
10	Vorstbeveiliging limiet 1	5,0	-20,0°C – +30,0°C	0,5°C
11	Vorstbeveiliging limiet 2	0	-20,0°C – +30,0°C	0,5°C
12	Hysterese vorstbeveiliging	2	0,0°C – 5,0°C	0,1°C
13	In-/uitschakelen eBus CO ₂ sensoren	UIT	AAN / UIT	---
14	Min. ppm eBus CO ₂ sensor A	400	400 ppm – 2000 ppm	25
15	Max. ppm eBus CO ₂ sensor A	1200	400 ppm – 2000 ppm	25
16	Min. ppm eBus CO ₂ sensor B	400	400 ppm – 2000 ppm	25
17	Max. ppm eBus CO ₂ sensor B	1200	400 ppm – 2000 ppm	25
18	Min. ppm eBus CO ₂ sensor C	400	400 ppm – 2000 ppm	25
19	Max. ppm eBus CO ₂ sensor C	1200	400 ppm – 2000 ppm	25
20	Min. ppm eBus CO ₂ sensor D	400	400 ppm – 2000 ppm	25
21	Max. ppm eBus CO ₂ sensor D	1200	400 ppm – 2000 ppm	25

Parameter	Omschrijving	Default	Instelbereik	Stap
22	Adres CO ₂ sensor A	5	5 – 30	1
23	Adres CO ₂ sensor B	6	5 – 30	1
24	Adres CO ₂ sensor C	7	5 – 30	1
25	Adres CO ₂ sensor D	8	5 – 30	1
26	Elan indexnummer	6	1 – 8	1
27	WTW indexnummer	7	7 = Excellent 300 8 = Excellent 400	1

CONFORMITEITSVERKLARING

Fabrikant: Brink Climate Systems B.V.
Adres: Postbus 11
NL-7950 AA Staphorst, Nederland
Product: Luchtverwarmer Elan 4

Het hierboven beschreven product voldoet aan de volgende richtlijnen:

2014/30/EU (EMC-richtlijn)
2014/35/EU (laagspanningsrichtlijn)
2011/65/EU (ROHS-richtlijn)

Het product is voorzien van het CE-label:



Staphorst, 01-12-2016

A handwritten signature in black ink, appearing to be 'W. Hijmissen', written over a faint red circular stamp.

W. Hijmissen,
directeur

► **Snel advies?**

Bel: T. +31 (0) 522 46 99 44

Mail: info@brinkclimatesystems.nl

BRINK

Air for Life

BRINK CLIMATE SYSTEMS B.V.

Wethouder Wassebaliestraat 8 7951 SN Staphorst

Postbus 11 NL-7950 AA Staphorst

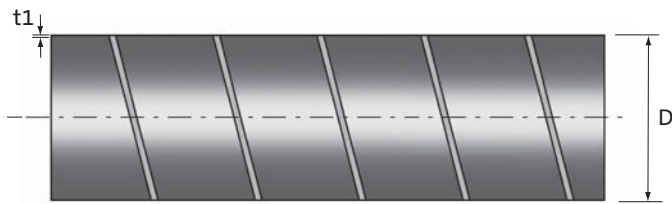
T. +31 (0) 522 46 99 44

F. +31 (0) 522 46 94 00

info@brinkclimatesystems.nl

www.brinkclimatesystems.nl

Thermisch verzinkte spiraalgefelste buis SK



D inw.	Gew. kg/m ¹ SK Eurovent/Luka	Wanddikte t ¹ mm
080	0,88	0,4
100	1,11	0,4
125	1,38	0,4
150	2,07	0,5
160	2,21	0,5
180	2,49	0,5
200	2,76	0,5
224	3,11	0,5
250	3,46	0,5
280	4,64	0,6
300	4,98	0,6
315	5,23	0,6
355	5,98	0,6
400	6,64	0,6
450	7,46	0,6
500	8,29	0,6
560	12,39	0,8
600	13,27	0,8
630	13,93	0,8
710	15,70	0,8
800	17,69	0,8
900	24,88	1,0
1000	27,65	1,0
1120	23,96	1,0
1250	34,56	1,0
1400	38,71	1,0
1500	51,84	1,25
1600	55,29	1,25

Buisprofilering

Standaard 080-1600 mm

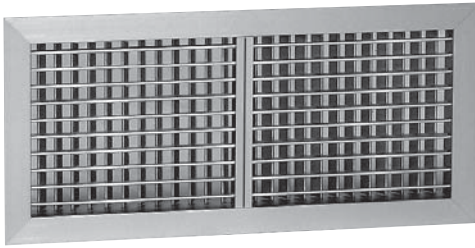


Verstevigingsril 400-1600 mm
(op aanvraag)



Handelslengtes L=3000 en L=6000

Eurovent / Luka norm



Toepassing

Het wandrooster type WUCA (WUAA, WUBA) is geschikt voor toevoer van gekoelde en verwarmde lucht met een groot temperatuurverschil. Het rooster kan in de wand of vensterbank gemonteerd worden. De horizontale en/of verticale schoepen zijn met de hand instelbaar.

BAOPT:

De WUCA is tevens geschikt in systemen waar Baopt wordt toegepast, zie ook onderstaande selectie tabel bij 1m/s.

Eigenschappen

Max. aantal luchtwisselingen: tot 8 x
 Ondertemperatuur: tot 10 K
 Overtemperatuur: tot 15 K
 Vrije doorlaat: 70 %

Leverbare afmetingen

Hoogte	Breedte							
	225	325	425	525	625	825	1025	1225
75	•	•	•	•	•	•	•	•
125	•	•	•	•	•	•	•	•
225	•	•	•	•	•	•	•	•
325	•	•	•	•	•	•	•	•
425	•	•	•	•	•	•	•	•

Baopt:

hoogte	breedte							
	225	325	425	525	625	825	1025	1225
75	23	35	47	59	70	94	117	140
125	47	70	94	117	140	187	234	281
225	94	140	187	234	281	374	468	562
325	140	211	281	351	421	562	702	842
425	187	281	374	468	562	749	936	1123

Luchthoeveelheid (m³/h) bij 1m/s.
 Bovenstaande selectie is gebaseerd op een snelheid van 1m/s. Voor andere snelheden raadpleeg onze technici.

Opmerking

De gegeven afmetingen BxH zijn maten in mm (sparingmaat).
 De werkelijke breedtemaat is B-5 mm.
 De werkelijke hoogtemaat is H-5 mm.
 De roosters type WRHA zijn optioneel leverbaar met klemveren en montageframe (zie WOOOK op pag. 176)

Let op: uitsluitend in statische situatie toepassen;
 maximaal BxH is 625 x 325 mm; sparingmaat +15 mm.
 Voor bijbehorende plenumboxen, (zie WTO/WRO op pag. 177)

WUCA

- ▶ Wand/kanaalrooster
- ▶ Toevoer
- ▶ Gladde schoep

Uitvoering

Wandrooster
 omranding en schoepen: geëxtrudeerd aluminium
 nabehandeling: geanodiseerd
 kleur: blank

Volumeregelaar
 omranding en bladen: geëxtrudeerd aluminium
 nabehandeling: geen

Solid-Air®

Leverbare typen

W U - A - O

W wand/kanaalrooster
 U universele toepassing

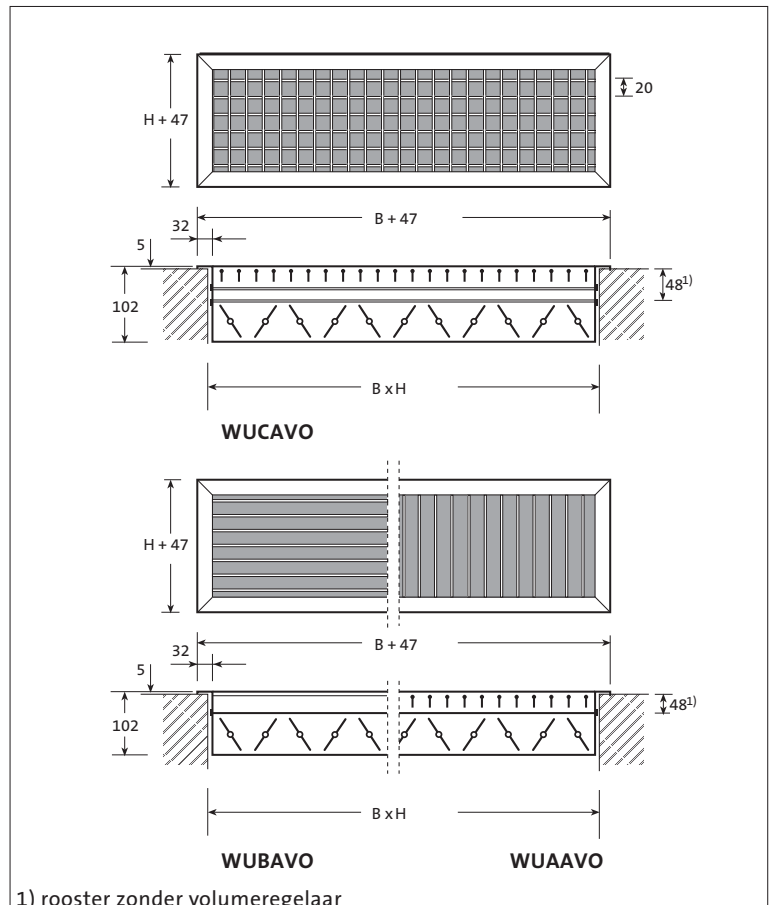
- schoepen
 - A verticale schoepen
 - B horizontale schoepen
 - C horizontale en verticale schoepen

A omranding 32 mm, vast binnenwerk

- accessoires
 - O geen
 - V volumeregelaar

O niet van toepassing

Maatvoering



Selectiegegevens WUCA

Luchthoev.		H	B = 225			325			425			525			625			825			1025			1225							
m ³ /s	m ³ /h		W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp					
0,015	54	75																													
0,020	72	75	2,2	2	-																										
0,025	90	75	2,7	2	-	2,2	1	-																							
0,030	108	75	3,3	3	-	2,7	2	-																							
0,040	144	75	4,3	6	12	3,6	3	-	3,1	2	-	2,8	1	-																	
		125	3,2	2	-																										
0,050	180	75	5,4	10	18	4,5	4	9	3,8	2	-	3,5	2	-	3,2	1	-														
		125	4,0	3	5	3,3	1	-																							
0,060	216	75				5,4	6	14	4,7	4	8	4,2	2	-	3,8	2	-														
		125	4,8	4	10	4,0	2	-	3,4	1	-																				
0,070	252	75				6,3	9	18	5,4	5	12	4,9	3	7	4,5	2	-														
		125	5,6	6	13	4,6	3	-	4,0	1	-																				
0,080	288	75				7,2	11	21	6,2	6	15	5,6	4	11	5,1	3	7														
		125	6,4	7	17	5,3	3	8	4,6	2	-	4,1	1	-																	
0,100	360	75							7,8	10	21	7,0	7	16	6,4	5	13														
		125	8,0	11	23	6,6	5	14	5,7	3	8	5,1	2	-	4,7	1	-														
0,125	450	75										8,7	10	22	8,0	7	18														
		125				8,3	8	20	7,2	5	14	6,4	3	9	5,9	2	5	5,1	1	-											
0,150	540	75												9,6	10	23															
		125				9,9	12	25	8,6	7	19	7,7	4	14	7,1	3	10	6,1	2	-	5,5	1	-								
		225							6,2	2	5	5,6	1	-																	
0,200	720	125							11,5	12	26	10,3	8	21	9,4	5	17	8,2	3	11	7,3	2	7								
		225							8,3	3	12	7,5	2	7	6,8	1	-														
0,300	1080	125												14,1	12	28	12,3	7	22	11,0	4	17									
		225							12,5	7	23	11,2	5	18	10,2	3	14	8,9	2	8	7,9	1	3								
		325												8,4	2	6															
0,400	1440	125															16,3	12	29	14,6	8	25									
		225										14,9	9	25	13,6	6	21	11,8	3	15	10,6	2	11								
		325												11,2	3	13															
0,500	1800	225												17,0	9	27	14,8	5	21	13,2	3	16	12,1	2	12						
		325												14,0	4	19	12,2	2	13	10,9	2	8	10,0	1	-						
		425												12,2	2	13	10,6	1	7												
0,600	2160	225												20,4	13	32	17,7	8	26	15,9	5	21	14,5	3	17						
		325												16,8	6	24	14,6	3	17	13,1	2	13	11,9	2	9						
		425												14,6	4	18	12,7	2	11	11,4	1	7									
0,700	2520	225															20,7	10	30	18,5	7	25	16,9	5	21						
		325												19,6	8	28	17,0	5	21	15,3	3	17	13,9	2	13						
		425												17,1	5	22	14,8	3	15	13,3	2	11	12,1	1	7						
0,800	2880	225																		21,2	9	29	19,3	6	25						
		325												22,4	11	31	19,5	6	25	17,4	4	20	15,9	3	16						
		425												19,5	6	25	16,9	4	19	15,2	2	14	13,8	2	10						
1,000	3600	225																							24,2	9	30				
		325																		24,3	10	31	21,8	6	26	19,9	4	22			
		425																		24,4	10	31	21,2	6	25	18,9	4	20	17,3	2	16
m ³ /s	m ³ /h	H	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp	W	Ps	Lp					

Algemeen

De worp is gegeven bij een recht uitblaasptraan, bij maximale spreiding geldt 0,65 x de aangegeven waarde.

- worp W in meters.

Het drukverlies geldt bij geheel geopende volumeregelaar.

- statisch drukverlies Ps in Pa.

De aangenomen ruimtedemping is 10 dB.

- geluidsdruk Lp in dB(A).

Interpoleren van tussenliggende waarden is toegestaan.

Opmerking

Indien het rooster 0,3 m onder het plafond is gemon-teerd wordt aanbevolen ca. 5° omhoog te blazen. Bij een grotere afstand tot het plafond moet de inblaas-hoek aangepast worden

UTDRAG

PT

ES

GR

NL

03.07.5132 Airdiffuser kitchen



Design and Quality
IKEA of Sweden



Na última página deste manual, encontrará a lista de centros de assistência técnica autorizados designados pela IKEA e os respectivos números de telefone nacionais.



En la última página de este manual encontrará el listado de Centros de servicio autorizado designados por IKEA y los respectivos números de teléfono nacionales.



Ανατρέξτε στην τελευταία σελίδα του παρόντος εγχειριδίου για μια πλήρη λίστα των επιλεγμένων εξουσιοδοτημένων κέντρων εξυπηρέτησης της IKEA και των σχετικών τηλεφωνικών αριθμών σε κάθε χώρα.



Op de laatste pagina van deze instructies vindt u de volledige lijst van alle Geautoriseerde servicecentra van IKEA met hun overeenkomstig telefoonnummer.

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Informações de segurança

Antes da primeira utilização

A sua segurança e a dos outros são fundamentais.


Retire as protecções de cartão, a película de protecção e as etiquetas adesivas dos acessórios.


Verifique se o aparelho apresenta quaisquer danos de transporte.


Para evitar quaisquer danos, não coloque pesos sobre o aparelho.

Não exponha o aparelho aos agentes atmosféricos.

Este manual e o próprio aparelho incluem avisos de segurança importantes, os quais deverá ler e cumprir em todas as situações.

 Este é o símbolo de atenção, relativo à segurança, que alerta os utilizadores para possíveis riscos para eles e terceiros. Todos os avisos de segurança são precedidos por este símbolo de atenção e os seguintes termos:

 **PERIGO:** indica uma situação perigosa que, caso não seja evitada, provocará uma lesão grave.

 **ATENÇÃO:** Indica uma situação perigosa que, caso não seja evitada, poderá provocar uma lesão grave.

Todos os avisos de segurança dão informações específicas sobre o potencial perigo/aviso presente e indicam como reduzir o risco de lesões, danos e choque eléctrico resultantes da utilização indevida do aparelho. Respeite cuidadosamente as seguintes instruções.

Precauções e recomendações gerais

- A instalação e a ligação eléctricas

devem ser executadas por técnicos qualificados de acordo com as instruções do fabricante e em conformidade com as normas de segurança locais. Não repare nem substitua qualquer componente do aparelho a menos que especificamente declarado no manual do utilizador.


- Antes de realizar os trabalhos de instalação desligue o aparelho da corrente eléctrica.
- É obrigatório ligar o aparelho à terra. (necessário apenas para classe I)
- O cabo eléctrico deve ser suficientemente comprido para ligar o aparelho, depois de instalado no respectivo lugar, à tomada eléctrica da parede.
- Não puxe o aparelho pelo cabo de alimentação quando o desligar da tomada eléctrica. Os componentes eléctricos não poderão ficar acessíveis ao utilizador após a instalação.
- Não toque no aparelho com as partes do corpo húmidas e não o utilize com os pés descalços.
- O aparelho não se destina a ser utilizado por pessoas (incluindo crianças) com capacidades físicas, sensoriais ou mentais reduzidas, ou com falta de experiência e de conhecimentos sobre o aparelho, a menos que sejam vigiadas ou que tenham recebido instruções relativas à utilização do aparelho por parte da pessoa responsável pela sua segurança.
- Não repare ou substitua qualquer parte

do aparelho, salvo se especificamente indicado no manual. Todos os restantes serviços de manutenção deverão ser realizados por um técnico especializado.

- As crianças devem ser vigiadas para garantir que não brincam com o aparelho.
- Quando fizer furos na parede, tenha atenção para não danificar ligações eléctricas e/ou tubos.
- As aberturas de ventilação têm de descarregar sempre para o exterior.
- O fabricante não se responsabiliza por quaisquer danos causados pela utilização indevida ou definições erradas.
- A manutenção e limpeza adequadas garantem o bom funcionamento e o melhor desempenho do aparelho. Limpe regularmente toda a sujidade resistente para evitar a acumulação de gordura. Retire e limpe ou substitua o filtro regularmente.
- Nunca cozinhe alimentos à chama (flambé) por baixo do aparelho. A utilização de chamas abertas pode causar um incêndio.
- O incumprimento das instruções de limpeza do exaustor e de substituição dos filtros pode resultar num incêndio.
- O ar de escape não pode ser ventilado pelo tubo utilizado para evacuar os fumos produzidos pelos aparelhos de combustão de gás ou outros combustíveis, deve ter uma saída independente. Devem ser respeitadas todas as normas nacionais relativas ao escoamento de ar.
- Deverá existir uma ventilação adequada se o exaustor for usado em simultâneo com outros aparelhos de combustão de gás ou outros combustíveis. A pressão negativa da divisão não pode exceder os 4 Pa (4x 10-5 bars). Por este motivo, garanta a

boa ventilação da divisão.


- Não deixe as fritadeiras sem vigilância durante a fritura, pois o óleo pode incendiar-se.
- Antes de tocar nas lâmpadas, certifique-se de que estão frias.
- Não utilize ou deixe o exaustor sem a lâmpada correctamente instalada, pois tal pode causar um choque eléctrico.
- O exaustor não é uma superfície de trabalho, assim sendo, não coloque objectos em cima nem o sobrecarregue.
- Use luvas de trabalho adequadas durante todos os trabalhos de instalação e manutenção.
- Este aparelho não se destina a ser utilizado no exterior.

 **ATENÇÃO:** quando a placa estiver em funcionamento, as partes acessíveis do exaustor podem ficar quentes.

Instalação e ligação

Depois de desembalar o aparelho, verifique se este apresenta quaisquer danos de transporte. Em caso de problemas, contacte o centro de assistência técnica autorizado. Para evitar danos, retire o aparelho da sua embalagem de espuma de poliestireno na altura da instalação.

Preparação da instalação

 **AVISO:** trata-se de um produto pesado; o exaustor só deve ser elevado e instalado por duas ou mais pessoas.

A distância mínima entre a placa e a parte inferior do exaustor não deverá ser inferior a 65 cm para fogões a gás ou outro combustível e 50 cm para fogões eléctricos. Antes da instalação, verifique também as distâncias mínimas indicadas no manual do fogão.

Se as instruções de instalação do fogão especificarem uma distância maior entre este e o exaustor, esta deverá ser respeitada.

Ligação eléctrica

Verifique se a tensão eléctrica especificada na chapa de características do aparelho corresponde à tensão da rede eléctrica.

Esta informação pode ser encontrada no interior do exaustor, por baixo do filtro de gordura.

A substituição do cabo de alimentação (tipo H05 VV-F) tem de ser efectuada por um electricista qualificado. Contacte um centro de assistência autorizado.

Se o exaustor estiver equipado com uma ficha eléctrica, ligue a ficha a uma tomada que cumpra os regulamentos em vigor, situada no local acessível. Se não existir qualquer ficha (ligação directa à corrente eléctrica) ou de a tomada não estar num local acessível, um técnico qualificado deverá instalar um interruptor de alimentação de dois pólos padrão, que irá permitir o isolamento total da corrente eléctrica no caso de condições de sobretensão de categoria III, de acordo com os regulamentos de cablagem.

Utilização

O exaustor foi concebido para ser instalado e utilizado com um “Modelo de exaustão” ou como um “Modelo de recirculação”.



Modelo de Exaustão (ver símbolo no manual de instalação)

O vapor do cozinhado é aspirado e canalizado para o exterior da casa através de um ducto de descarga (não fornecido), instalado na saída de vapores do exaustor. Certifique-se de que o ducto de descarga está correctamente instalado na saída de ar, na unidade com um sistema de ligação adequado.

Importante: Se tiver já sido instalado, retire o/s filtro/s de carvão.

Modelo de recirculação (ver símbolo



no manual de instalação)

O ar é filtrado por um ou mais filtros de carvão e, posteriormente, são reenviados para a divisão.

Importante: Garanta uma circulação de ar adequada à volta do exaustor.

Importante: Se o exaustor for fornecido sem filtros de carvão, estes devem ser instalados antes de poder utilizar o exaustor. Os filtros estão disponíveis em lojas.

O exaustor deve ser instalado afastado de áreas muito sujas, janelas, portas e fontes de calor.

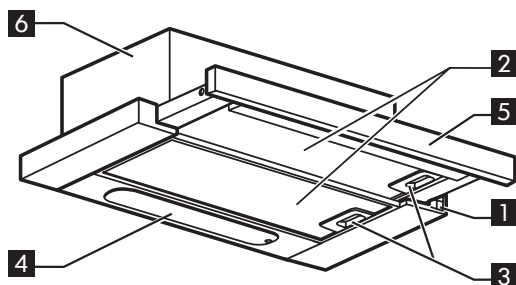
Os acessórios para a fixação à parede não são incluídos porque paredes de diferentes materiais requerem diferentes tipos de acessórios de fixação.

Utilize sistemas de fixação adequados às paredes da sua casa e ao peso do electrodoméstico.

Para mais informações, contacte um revendedor autorizado.

Guarde este manual para futuras consultas.

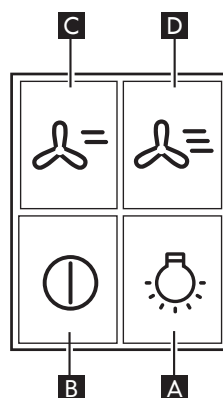
Descrição do produto



- 1 Painel de controlo.
- 2 Filtro de gordura.
- 3 Punhos de libertação do filtro de gordura.
- 4 Luz.
- 5 Colector amovível de vapor.
- 6 Corpo da unidade de aspiração.

Painel de controlo

- A Interruptor ON/OFF luz
- B Velocidade de aspiração 1/Interruptor OFF
- C Velocidade de aspiração 2
- D Velocidade de aspiração 3



Limpeza e manutenção

⚠ AVISO

- Nunca utilize equipamentos de limpeza a vapor.
- Desligue o aparelho da corrente eléctrica.

IMPORTANTE: não utilize detergentes corrosivos ou abrasivos. Se algum desses produtos entrar em contacto accidental com o aparelho, limpe imediatamente com um pano húmido.

- Limpe as superfícies com um pano húmido. Se estiver muito sujo, acrescente algumas gotas de detergente para loiça

à água. Termine a limpeza com um pano seco.

IMPORTANTE: não utilize esponjas abrasivas ou raspadores ou esfregões metálicos. Com o tempo, estes podem danificar a superfície.

- Utilize detergentes especificamente concebidos para a limpeza do aparelho e siga as instruções do fabricante.

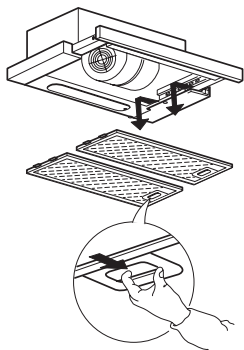
IMPORTANTE: limpe os filtros, pelo menos, uma vez por mês para eliminar quaisquer resíduos de óleo ou gordura.

Para lavar o filtro de gordura

O filtro de gordura metálico tem uma duração ilimitada e deve ser lavado uma vez por mês, à mão ou na máquina de lavar loiça, a baixa temperatura e num ciclo de curta duração. Ao lavar na máquina de lavar loiça, o filtro de gordura pode tornar-se baço; tal não afecta a sua capacidade de filtração.

Manutenção do filtro de carbono:

1. Retire a ficha da tomada ou desligue o aparelho.
2. Retire o filtro de gordura: para removê-lo, puxe para baixo o manípulo de desengate da mola e depois extraia o filtro.
3. Após ter lavado o filtro de gordura, proceda seguindo a sequência inversa para a montagem e certifique-se de que o mesmo abrange toda a superfície de aspiração.



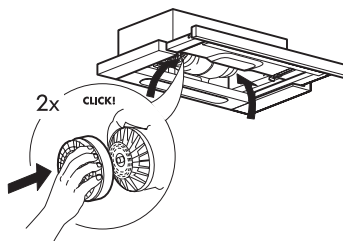
Manutenção do filtro de carvão

1. Desligue a corrente eléctrica.
2. Retire o/s filtro/s de gordura
3. Se os filtros de carvão já estiverem montados e for necessário substituí-los, puxe-os até os libertar.
4. Se os filtros de carvão ainda não estiverem montados, localize os filtros para tapar as grelhas de protecção

do motor (duas grelhas de protecção - dois filtros de carvão) e, em seguida, empurre e fixe no lugar.

5. Volte a montar o(s) filtro(s) de gordura.

O filtro de carvão não pode ser lavado nem regenerado. Substitua-o a cada 4 meses.



Luz LED

O exaustor está equipado com um sistema de iluminação baseado na tecnologia LED. Os LEDs garantem uma iluminação ideal, uma duração até 10 vezes superior à das lâmpadas tradicionais e permitem poupar 90% de energia eléctrica.

Para substituição, contacte o centro de assistência técnica autorizado.

O que fazer se...

Problema	Causa provável	Solução
O aparelho não funciona	Não existe energia eléctrica	Verifique a existência de energia eléctrica. Desligue o aparelho e volte a ligá-lo para ver se a falha persiste.
	O aparelho não está ligado à rede eléctrica	Verifique se o aparelho está ligado à rede eléctrica. Desligue o aparelho e volte a ligá-lo para ver se a falha persiste.
O nível de sucção do exaustor não é suficiente	A velocidade de sucção é demasiado baixa	Verifique a velocidade de sucção e ajuste, se necessário.
	Os filtros de metal estão sujos	Verifique se os filtros estão limpos. Se não estiverem, limpe os filtros na máquina de lavar loiça.
	As aberturas de ventilação estão obstruídas	Verifique se existem obstruções nas aberturas de ventilação e elimine-as, se necessário.
A luz não funciona	O LED está danificado	Para substituição, contacte o centro de assistência técnica autorizado.

Antes de contactar o centro de assistência técnica autorizado:

Volte a ligar o aparelho para se certificar de que o problema ficou resolvido. Se o problema persistir, desligue e volte a ligar o aparelho após uma hora.

Se o aparelho continuar a não funcionar correctamente depois de realizar as verificações indicadas no guia de resolução de problemas e de ligar novamente o aparelho, contacte o centro de assistência técnica autorizado, explique de forma clara o problema e especifique:

- o tipo de avaria;
- o modelo;
- o tipo e número de série do aparelho (que poderá encontrar na chapa de características);
- o número Service (o número situado após a palavra SERVICE na chapa de características localizada no interior do aparelho).

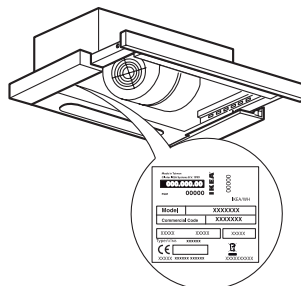
SERVICE 0000 000 00000



Especificações técnicas


Tipo de produto		Exaustor de parede	
Dimensões	Largura	mm	600
	Profundidade	mm	min. 300 máx. 455
	Altura min.	mm	180
	Altura máx.	mm	180
Potência total		W	131
Informação sobre as lâmpadas	Tipo		LED
	Número e potência	W	2x3W
	Casquilho		E14
Altura mínima de instalação - placa a gás		mm	650
Altura mínima de instalação - placa eléctrica		mm	500
Altura do produto		Kg	7
Informação adicional do produto em conformidade com o regulamento da Comissão (UE) N.º 66/2014			
Identificador de modelo			UTDRAG 20304623 UTDRAG 70304625 UTDRAG 00304624
Consumo energético anual		kWh/a	58,7
Factor de aumento de tempo			1,6
Eficiência fluidodinâmica		%	11,2
Índice de eficiência energética			84,1
Débito de ar medido no ponto de maior eficiência		m ³ /h	165
Pressão de ar medido no ponto de maior eficiência		Pa	227
Débito de ar máximo		m ³ /h	320
Potência eléctrica medida no ponto de maior eficiência		W	93
Potência nominal do sistema de iluminação		W	6
Iluminação média produzida pelo sistema de iluminação na superfície de cozedura		lux	78
Consumo energético no modo standby		W	0
Consumo energético no modo inactivo		W	0
Emissão de potência sonora de ponderação A à velocidade máxima		dB(A)	67

As especificações técnicas estão situadas na chapa de características, localizada na secção interna do aparelho.



Questões ambientais


Eliminação da embalagem

O material da embalagem é 100% reciclável, conforme confirmado pelo símbolo de reciclagem . As várias partes da embalagem devem ser eliminadas de forma responsável e em total conformidade com os regulamentos estabelecidos pelas autoridades locais relativos à eliminação de resíduos.

Eliminação do produto

- Este aparelho está em conformidade com a Directiva Europeia 2012/19/CE, Resíduos de equipamentos eléctricos e electrónicos (REEE).
- Ao garantir a eliminação adequada deste produto, estará a ajudar a evitar potenciais consequências negativas para o ambiente e para a saúde pública, que poderiam derivar de um manuseamento de desperdícios inadequado deste produto.



O símbolo  no aparelho ou na documentação que o acompanha indica que este produto não deve ser tratado como um resíduo doméstico, mas sim depositado nos devidos locais de recolha para a reciclagem de aparelhos eléctricos e electrónicos.

Eliminação de electrodomésticos

- Este aparelho é fabricado com materiais recicláveis ou reutilizáveis. Elimine-o de acordo com os regulamentos locais. Antes de eliminar o aparelho, corte o respectivo cabo eléctrico.
- Para obter mais informações sobre o tratamento, recuperação e reciclagem de electrodomésticos, contacte as autoridades locais competentes, o serviço de recolhas de desperdícios domésticos ou a loja onde adquiriu o aparelho.

Dicas de poupança de energia

- Ligue o exaustor na velocidade mínima quando iniciar a cozinhar e mantenha-o a funcionar durante alguns minutos depois de acabar de cozinhar.
- Aumente a velocidade apenas em caso de uma grande quantidade de fumo e vapor e utilize a(s) velocidade(s) boost apenas em situações extremas.
- Substitua o(s) filtro(s) de carvão quando necessário para manter uma boa eficácia na redução de odores.
- Limpe o(s) filtro(s) de carvão quando necessário para manter uma boa eficácia na filtragem de gorduras.
- Use o diâmetro máximo do sistema de condutas indicado neste manual para otimizar a eficiência e minimizar o ruído.

Declaração de conformidade



- Este aparelho foi concebido, fabricado e distribuído em conformidade com:
 - os objectivos de segurança da Directiva “Baixa Tensão” 2006/95/CE (que substitui a 73/23/CEE e subsequentes correcções);
 - os requisitos de ecodesign do regulamento europeu n.º 65/2014 e n.º 66/2014 em conformidade com a norma europeia EN 61591-1;
 - os requisitos de protecção da Directiva “EMC” 2004/108/CE.

A segurança eléctrica do aparelho só é assegurada quando estiver correctamente ligado à terra segundo as normas legais.

GARANTIA IKEA

Durante quanto tempo é válida a garantia IKEA?

Esta garantia é válida durante cinco (5) anos, contados a partir da data de compra do seu aparelho na IKEA, excluindo os aparelhos denominados LAGAN, os quais têm apenas dois (2) anos de garantia. A factura ou talão de compra original é necessária como prova de compra. Se a assistência for efectuada ao abrigo da garantia, isso não irá aumentar o período de garantia do aparelho.

Que aparelhos não estão cobertos pela garantia de cinco (5) anos IKEA?

Os aparelhos denominados LAGAN e todos os electrodomésticos adquiridos na IKEA antes de 1 de Agosto de 2007.

Quem irá realizar o serviço de assistência?

O prestador de serviço da IKEA fornecerá o serviço através dos seus próprios serviços de assistência ou da sua própria rede de agentes autorizados.

O que é que esta garantia cobre?

A garantia cobre as avarias do electrodoméstico causadas por eventuais defeitos de fabrico ou de material, que se verifiquem a partir da data de compra na IKEA. Esta garantia destina-se apenas a uso doméstico. As excepções estão especificadas no parágrafo "O que é que esta garantia não cobre?". Dentro do período de garantia, os custos para resolver a avaria, nomeadamente reparações, peças e componentes, mão-de-obra e deslocação estão cobertos, desde que o aparelho esteja acessível para ser reparado sem que sejam necessários gastos especiais. Nestas condições, são aplicáveis as directrizes da UE (N.º 99/44/EG), bem como a respectiva legislação local em vigor. As peças substituídas passarão a ser

propriedade da IKEA.

O que fará a IKEA para corrigir o problema?

O prestador de serviço designado pela IKEA irá examinar o produto e decidir, segundo o seu critério, se está coberto por esta garantia. Em caso afirmativo, o prestador de serviço da IKEA ou o seu agente autorizado irá então, através dos seus próprios serviços de assistência, decidir, segundo o seu critério, se irá reparar o produto defeituoso ou substituí-lo por outro igual ou equivalente.

O que é que esta garantia não cobre?

- Desgaste normal e rotura.
- Danos deliberados ou negligentes, danos provocados pelo não cumprimento das instruções de utilização, instalação incorrecta ou ligação a uma voltagem incorrecta, danos causados por uma reacção química ou electroquímica, oxidação, corrosão ou danos causados pela água, incluindo, mas sem limitar, os danos causados por excesso de calcário na água fornecida, danos provocados por condições ambientais anormais.
- Consumíveis, incluindo pilhas e lâmpadas.
- Peças não funcionais e decorativas que não afectam a utilização normal do aparelho, incluindo riscos e possíveis diferenças de cor.
- Danos acidentais causados por objectos estranhos ou substâncias e pela limpeza ou desobstrução de filtros, sistemas de drenagem ou gavetas de detergente.
- Danos causados nas seguintes peças: vidro cerâmico, acessórios, cestos de loiça e talheres, tubos de alimentação e drenagem, vedantes, lâmpadas

e coberturas de lâmpadas, visores, botões, revestimentos e partes de revestimentos protectores. A menos que seja possível demonstrar que tais danos foram provocados por defeitos de fabrico.

- Casos em que não é detectada qualquer avaria durante a visita do técnico.
- Reparações não efectuadas pelos nossos prestadores de serviço e/ou por um agente autorizado ou quando não tenham sido usadas peças originais.
- Reparações provocadas por uma instalação incorrecta ou que não cumpra as especificações de instalação.
- Utilização do aparelho num ambiente não doméstico, isto é, profissional.
- Danos de transporte. Se o cliente transportar o produto para casa ou para qualquer outro endereço, a IKEA não poderá ser responsabilizada por eventuais danos que possam ocorrer durante o transporte. No entanto, se a IKEA efectuar a entrega do produto na morada do cliente, os eventuais danos provocados durante essa entrega serão abrangidos pela garantia IKEA.
- Gastos de execução da instalação inicial do aparelho IKEA.
No entanto, se um prestador de serviços IKEA ou um agente de serviços autorizado efectuar a reparação ou a substituição do aparelho ao abrigo desta garantia, o prestador de serviços ou o seu agente autorizado reinstalarão o aparelho reparado ou instalarão o aparelho de substituição, se necessário.

Estas restrições não se aplicam a serviços que tenham sido correctamente realizados por um especialista qualificado, que utilize as nossas peças originais para adaptar o aparelho às especificações técnicas de segurança de outro país da UE.

Como se aplica a legislação nacional?

A garantia IKEA concede-lhe direitos legais específicos, que cobrem ou excedem todas as normativas legais nacionais. No entanto, estas condições não limitam, de forma alguma, os direitos do consumidor descritos na legislação nacional.

Área de validade

Para os aparelhos adquiridos num país da UE e transportados para outro país da UE, os serviços serão prestados de acordo com as condições de garantia normais no novo país. A obrigação de prestar serviços abrangidos pela garantia existe apenas se o aparelho cumpre e está instalado em conformidade com:

- as especificações técnicas do país onde a reclamação de garantia é feita;
- as Instruções de Instalação e a Informação de Segurança do Manual do Utilizador.

O SERVIÇO Pós-Venda dedicado para electrodomésticos IKEA

Por favor, não hesite em contactar com o centro de assistência técnica autorizado designado pela IKEA para:

- fazer um pedido de assistência ao abrigo desta garantia;
- solicitar um esclarecimento relativo à instalação do aparelho IKEA nos móveis de cozinha IKEA;
- solicitar um esclarecimento sobre as funções dos aparelhos IKEA.

Para garantir que lhe proporcionamos a melhor assistência, por favor, antes de contactar connosco leia atentamente as Instruções de Instalação e/ou o Livro de Instruções de utilização.

Como contactar-nos, se necessitar do nosso serviço?



Na última página deste manual, encontrará a lista de centros de assistência técnica autorizados designados pela IKEA e os respectivos números de telefone nacionais.

- i** Para lhe proporcionarmos um serviço mais rápido, recomendamos a utilização dos números de telefone específicos incluídos no manual. Indique sempre os números incluídos no manual do aparelho específico para o qual necessita de assistência. Também solicitamos que nos indique sempre o número de artigo IKEA (código de 8 dígitos) e o número de serviço de 12 dígitos situados na chapa de características.

i GUARDE A FACTURA OU TALÃO DE COMPRA!

É a sua prova de compra e será necessária para aplicar e validar a garantia. A factura ou talão de compra indica igualmente o nome e o número de artigo (código de 8 dígitos) IKEA de cada aparelho que adquiriu.

Necessita ajuda adicional?

Para quaisquer esclarecimentos adicionais não relacionados com Pós-Venda sobre os seus electrodomésticos, por favor, contacte o callcenter da IKEA. Recomendamos que leia atentamente a documentação do aparelho antes de nos contactar.

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Información sobre seguridad

Antes de utilizar el aparato por primera vez

Su seguridad y la de terceros son muy importantes.


Retire las protecciones de cartón, la película protectora y las etiquetas adhesivas de los accesorios.

Compruebe si se ha dañado el aparato durante el transporte.


Para evitar daños, no coloque objetos pesados sobre la campana.


No exponga el aparato a los elementos atmosféricos.

Este manual y el propio aparato contienen advertencias de seguridad, que se deben leer y seguir en todo momento.

 Este símbolo de atención, relacionado con la seguridad, alerta a los usuarios sobre peligros potenciales para sí mismos y para los demás.

Todas las advertencias de seguridad van precedidas del símbolo de alerta y el texto siguiente:

 **PELIGRO:** indica una situación peligrosa que, si no se evita, provocará daños graves.

 **ADVERTENCIA:** Indica una situación peligrosa que, en caso de no evitarse, podría provocar lesiones graves.


Todos los mensajes de advertencia proporcionan detalles específicos sobre peligros potenciales y avisos que indican cómo reducir el riesgo de lesiones, daños y descargas eléctricas resultantes de un uso inadecuado del aparato. Respete estrictamente las siguientes instrucciones.

Precauciones y recomendaciones generales

- La instalación y la conexión eléctricas tienen que ser realizadas por un técnico cualificado de acuerdo con las instrucciones del fabricante y respetando las normativas locales de seguridad. No realice reparaciones ni la sustitución de piezas del aparato que no se indiquen específicamente en el manual de instrucciones.
- El aparato tiene que ser desconectado del suministro eléctrico antes de realizar ninguna labor de instalación.
- Es obligatorio conectar el aparato a tierra. (sólo se requiere para la clase I).
- El cable de alimentación tiene que ser lo suficientemente largo para conectar el aparato, una vez alojado en su habitáculo, a la toma eléctrica.
- No tire del cable de alimentación para desenchufar el aparato.
- Los componentes eléctricos no tienen que estar accesibles para el usuario tras la instalación.
- No toque el aparato con ninguna parte húmeda del cuerpo y no lo accione con los pies descalzos.
- Este aparato no está destinado al uso por parte de personas (incluidos niños) discapacitadas física, sensorial o mentalmente, salvo bajo la vigilancia de una persona responsable que pueda garantizar el uso seguro del aparato.
- No repare ni cambie piezas en el aparato salvo que el manual lo indique de forma expresa. Todos los otros servicios de mantenimientos deben ser realizados por un técnico especializado.

- Hay que vigilar a los niños para asegurarse de que no jueguen con el aparato.
- Al perforar la pared, se debe prestar atención a fin de no dañar las conexiones eléctricas ni las tuberías.
- Las salidas de aire, siempre tienen que descargar hacia el exterior.
- El fabricante declina toda responsabilidad por cualquier daño causado debido a un uso indebido o una configuración incorrecta.
- El mantenimiento y la limpieza adecuados garantizan el correcto funcionamiento y las mejores prestaciones de la campana. Limpie con regularidad toda la suciedad difícil de la superficie para evitar que se acumule grasa. Extraiga y limpie o cambie el filtro con regularidad.
- No flamee alimentos debajo de la campana. El uso de una llama libre puede provocar un incendio.
- Si no cumple las instrucciones de limpieza de la campana y cambio de filtros, puede provocar un incendio.
- El aire de salida no deberá ser expulsado mediante una salida de humos utilizada para extraer los humos producidos por los aparatos de combustión de gas u otros materiales combustibles, sino que tiene que tener una salida separada. Se deberán cumplir todas las normativas nacionales que rigen la extracción de humos.
- Deberá haber una ventilación adecuada si la campana se utiliza al mismo tiempo que otros aparatos a gas u otros materiales combustibles. La presión negativa de la habitación no deberá superar los 4 Pa (4x 10⁻⁵ bares). Por esta razón es necesario asegurarse de que el local esté bien ventilado.
- No deje las sartenes sin vigilancia mientras fríe alimentos, puesto que el


- aceite de la fritura puede incendiarse.
- Antes de tocar las bombillas, asegúrese de que estén frías.
- No use la campana ni la deje sin haber colocado correctamente la bombilla, puesto que podría producirse una descarga eléctrica.
- La campana no es una superficie de trabajo, por lo que no hay que colocar ningún objeto sobre ella ni sobrecargarla.
- Durante toda la instalación y las operaciones de mantenimiento, lleve guantes de trabajo adecuados.
- Este aparato no es adecuado para usarlo en exteriores.

 **ADVERTENCIA:** Cuando se esté usando la placa, las partes accesibles de la campana se pueden poner calientes.

Instalación y conexión

Tras desembalar, compruebe si se ha dañado el aparato durante el transporte. Si hubiera problemas, póngase en contacto con el Centro de servicio autorizado. Para evitar daños, extraiga el aparato de su embalaje solo en el momento de la instalación.

Preparación para la instalación

 **ADVERTENCIA:** este es un producto pesado; la campana sólo debería ser levantada e instalada por dos o más personas.

La distancia mínima entre la placa de cocción y la parte inferior de la campana no debe ser inferior a 65 cm en cocinas de gas y de 50 cm en cocinas eléctricas.

Antes de la instalación, compruebe también las distancias mínimas indicadas en el manual de la cocina.

Si en las instrucciones de instalación de la placa de cocción se especifica una distancia mayor, es necesario respetarla.

Conexión eléctrica

Asegúrese de que el valor especificado en la placa de datos técnicos coincide con el voltaje de la red eléctrica.

Esta información puede encontrarse en la parte interior de la campana, bajo el filtro de la grasa.

La sustitución del cable eléctrico (tipo H05 VV-F) debe efectuarla un electricista cualificado. Póngase en contacto con un centro de mantenimiento autorizado.

Si la campana incluye un enchufe, conecte el enchufe a una toma que cumpla con la normativa vigente y que se encuentre en un lugar accesible. Si la campana está desprovista de clavija (conexión directa a la red) o la clavija queda en una zona inaccesible, un técnico deberá aplicar un interruptor bipolar según las normas que asegure la desconexión completa de la red en las condiciones establecidas por la categoría de sobretensión III, de conformidad con las normas de instalación.

Uso

La campana ha sido diseñada para ser instalada y usada bien como “Modelo de salida de aire” o como “Modelo de recirculación del aire”.

Modelo de salida del aire (véase el símbolo



en el manual de instalación)

El humo de la cocción es succionado y conducido fuera de la casa mediante una tubería de salida (no suministrada), unida a la salida de humos de la campana.

Asegúrese de que el tubo de evacuación está acoplado correctamente a la salida de aire mediante un sistema de conexión adecuado.

Importante: Quite los filtros de carbón, si ya están instalados.

Modelo de recirculación (véase el símbolo



en el manual de instalación)

El aire es filtrado mediante uno o más filtros de carbón, y luego enviado de vuelta a la habitación.

Importante: Asegúrese de que el aire circula adecuadamente alrededor de la campana.

Importante: Si la campana se suministra sin filtros de carbón, es necesario colocarlos antes de usar la campana. Los filtros están disponibles en tiendas.

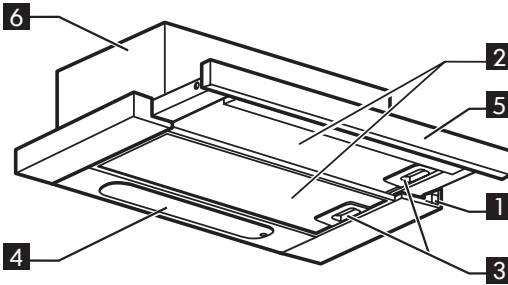
La instalación de la campana deberá efectuarse lejos de áreas sucias, ventanas, puertas y fuentes de calor.

Los accesorios de fijación a la pared no están incluidos, porque distintos tipos de paredes requieren distintos accesorios de fijación.

Utilice sistemas de fijación aptos para las paredes de su casa y en función del peso del electrodoméstico. Para más información, póngase en contacto con el vendedor especializado.

Guarde este guía para futuras consultas.

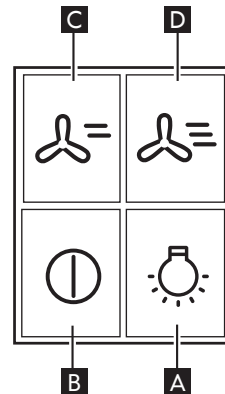
Descripción del aparato



- 1 Panel de mandos.
- 2 Filtro antigrasa.
- 3 Manillas de los filtros antigrasa.
- 4 Plafón.
- 5 Colector de vapor (extraíble).
- 6 Cajón para la unidad aspirante.

Panel de mandos

- A Interruptor de encendido/apagado de la luz
- B Interruptor de velocidad de extracción 1/Apagado
- C Velocidad de extracción 2
- D Velocidad de extracción 3



Limpieza y mantenimiento

⚠ ADVERTENCIA

- No utilice nunca un equipo de limpieza con vapor.
- Desconecte el aparato del suministro eléctrico.

IMPORTANTE: no utilice detergentes corrosivos o abrasivos. Si uno de esos productos entra accidentalmente en contacto con el aparato, límpielo de inmediato con un paño húmedo.

- Limpie las superficies con un paño húmedo. Si está muy sucio, utilice una solución de agua con unas gotas

de lavavajillas. Termine la limpieza utilizando un paño seco.

IMPORTANTE: No utilice esponjas abrasivas ni estropajos metálicos o lijas. Con el tiempo podrían estropear la superficie.

- Use detergentes específicamente diseñados para limpiar el aparato y siga las instrucciones del fabricante.

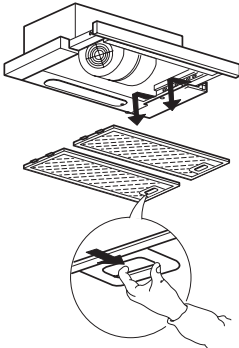
IMPORTANTE: limpie los filtros al menos una vez al mes para eliminar el aceite y grasa residuales.

Para lavar el filtro antigrasa

El filtro antigrasa metálico tiene una vida útil ilimitada y tiene que ser lavado una vez al mes a mano o en el lavavajillas a temperatura baja, y con un ciclo corto. Al lavarlo en un lavavajillas, el filtro antigrasa puede ponerse mate; esto no afecta a su funcionamiento.

Mantenimiento del filtro antigrasa:

1. Desenchufe el aparato o desconecte el suministro eléctrico.
2. Quite los filtros de grasa: tire de la manilla de desenganche con resorte y, luego, quite el filtro hacia abajo.
3. Una vez lavado, vuelva a montar el filtro antigrasa efectuando las mismas operaciones en orden inverso. Asegúrese de que cubre toda la superficie de aspiración.

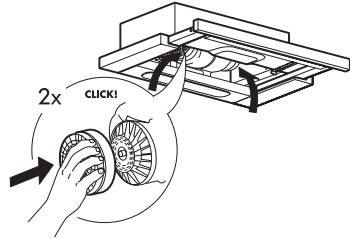


Mantenimiento del filtro de carbón

1. Desconecte la campana de la red eléctrica.
2. Quite los filtros antigrasa
3. Si los filtros de carbón ya están montados y se tienen que sustituir, tire hasta que se desbloqueen los filtros.
4. Si los filtros de carbón no están montados, colóquelos de manera que cubran las rejillas de protección del motor (dos rejillas de protección, dos filtros de carbón), presione y bloquéelos en su sitio.

5. Vuelva a montar el/los filtro(s) antigrasa.

El filtro de carbón no se puede limpiar ni regenerar. Cámbielo cada 4 meses.



Luz

La campana está equipada con un sistema de luz basada en tecnología LED. La tecnología LED garantiza una iluminación óptima, una duración 10 veces superior al de las bombillas tradicionales y permite ahorrar hasta un 90% en electricidad. Para su sustitución, póngase en contacto con el Centro de servicio autorizado.

Qué hacer si...

Problema	Causa posible	Solución
El aparato no funciona	No hay corriente eléctrica	Controle que haya corriente eléctrica en la red. Apague el aparato y vuelva a encenderlo para comprobar si se ha solucionado el problema.
	El aparato no está conectado al suministro eléctrico.	Compruebe si el aparato está conectado al suministro eléctrico. Apague el aparato y vuelva a encenderlo para comprobar si se ha solucionado el problema.
La potencia de aspiración de la campana no es suficiente.	La velocidad de aspiración es demasiado baja.	Compruebe la velocidad de aspiración y ajústela si es necesario.
	Los filtros metálicos están sucios.	Compruebe que los filtros están limpios. Si no es así, limpie los filtros en el lavavajillas.
	Los conductos de ventilación están obstruidos.	Compruebe si los conductos de aspiración están obstruidos y elimine la obstrucción si fuera necesario.
La luz no funciona.	El LED está fundido.	Para su sustitución, póngase en contacto con el Centro de servicio autorizado.

Antes de llamar al Centro de servicio autorizado:

Vuelva a poner en marcha el aparato para comprobar si se ha resuelto el problema. Si no es así, apague el aparato y vuelva a encenderlo al cabo de una hora. Si el aparato sigue sin funcionar correctamente después de efectuar las comprobaciones que se mencionan en la guía de solución de problemas y de volver a encenderlo, póngase en contacto con el Centro de servicio autorizado y explique el problema especificando los datos

siguientes:

- El tipo de fallo;
- El modelo;
- El tipo y número de serie del aparato (indicado en la placa de características);
- Número de servicio (aparece después de la palabra SERVICE en la placa de características, dentro del aparato).

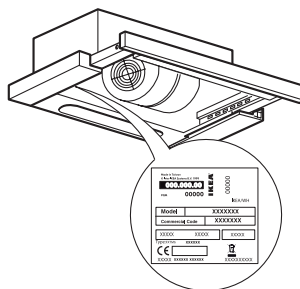
SERVICE 0000 000 00000



Datos técnicos


Tipo de producto		Campana de pared	
Dimensiones	Anchura	mm	600
	Fondo	mm	min. 300, máx. 455
	Altura mín.	mm	180
	Altura máx.	mm	180
Potencia total		W	131
Información de bombillas	Tipo		LED
	Número y potencia	W	2x3W
	Casquillo		E14
Altura mínima de instalación: cocina gas		mm	650
Altura mínima de instalación: cocina eléctrica		mm	500
Peso del producto		Kg	7
Información adicional del producto que cumple con el Reglamento Delegado (UE) n° 66/2014 de la Comisión			
Identificador de modelo			UTDRAG 20304623 UTDRAG 70304625 UTDRAG 00304624
Consumo anual de energía		kWh/a	58,7
Factor de aumento del tiempo			1,6
Eficiencia dinámica de fluido		%	11,2
Índice de eficiencia energética			84,1
Flujo de aire medido en el punto de máximo rendimiento		m³/h	165
Presión de aire medida en el punto de máximo rendimiento		Pa	227
Flujo de aire máximo		m³/h	320
Potencia eléctrica de entrada medida en el punto de máximo rendimiento		W	93
Potencia nominal del sistema de iluminación		W	6
Promedio de iluminación del sistema de iluminación en la superficie de cocción		lux	78
Consumo energético en modo Standby (En espera)		W	0
Consumo energético en modo Off (apagado)		W	0
Emisiones acústicas ponderadas-A a velocidad máxima		dB(A)	67

La información técnica está situada en la placa de características, en la parte interna del aparato.



Aspectos medioambientales


Eliminación del embalaje

El material de embalaje es 100% reciclable, tal y como indica el símbolo de reciclaje . No arroje el material de embalaje en el medio ambiente, elimínelo de acuerdo con la normativa local vigente.

Eliminación del producto

- Este aparato lleva la marca CE de conformidad con la Directiva 2012/19/EC del Parlamento Europeo y del Consejo sobre desechos de aparatos eléctricos y electrónicos (RAEE).
- Al asegurarse de que se desecha correctamente, contribuirá a evitar las posibles consecuencias negativas para el medioambiente y la salud pública que podría conllevar una gestión inadecuada de los residuos.



El símbolo  en el aparato o en la documentación que lo acompaña indica que no se puede tratar como desecho doméstico, sino que debe entregarse en un punto de recogida para el reciclaje de aparatos eléctricos y electrónicos.

Eliminación de electrodomésticos

- Este producto ha sido fabricado con material reciclable o reutilizable. Desguácelo de conformidad con las normas locales para la eliminación de residuos. Antes de desecharlo, corte el cable de alimentación.
- Para obtener información más detallada sobre el tratamiento, recuperación y reciclaje de aparatos eléctricos domésticos, póngase en contacto con las autoridades locales, con el servicio de recogida de residuos urbanos, o con la tienda en la que adquirió el aparato.

Consejos para ahorrar energía

- Ponga en marcha la campana con la potencia mínima cuando empiece a cocinar y déjela en marcha durante unos minutos después de que haya terminado de cocinar.
- Aumente la velocidad en caso de que haya mucho humo o vapor y utilice la potencia máxima (turbo) solo en situaciones extremas.
- Sustituya el filtro de carbón cuando sea necesario para mantener la eficiencia de eliminación de malos olores.
- Sustituya el filtro antigrasa cuando sea necesario para mantener su eficiencia.
- Utilice el diámetro máximo del sistema de canalización indicado en este manual para optimizar la eficiencia y reducir al máximo el ruido.

Declaración de conformidad



- Este aparato ha sido diseñado, fabricado y comercializado con arreglo a:
 - los principios de seguridad de la directiva “Baja tensión” 2006/95/CE (que sustituye la 73/23/CEE y sucesivas rectificaciones);
 - los requisitos de ecodiseño de los reglamentos delegados (UE) n° 65/2014 y n° 66/2014 en conformidad con la norma UNE-EN 61591-1;
 - los requisitos de protección de la Directiva “EMC” 2004/108/CE.

El aparato posee una toma de tierra que cumple las normas de seguridad establecidas por la ley.

GARANTÍA IKEA

¿Qué plazo de validez tiene la garantía de IKEA?

Esta garantía es válida por cinco (5) años a partir de la fecha original de compra del electrodoméstico en IKEA, excluyendo los aparatos denominados LAGAN, los cuales tienen solo dos (2) años de garantía. Como justificante de la compra, necesitará la factura o recibo de compra original. Si se realizan reparaciones en el periodo de garantía, no se ampliará el periodo de garantía del electrodoméstico.

¿Qué aparatos no están cubiertos por la garantía de cinco (5) años de IKEA?

Los aparatos LAGAN y todos los electrodomésticos comprados en IKEA antes del 1 de agosto de 2007.

¿Quién llevará a cabo el servicio?

El proveedor de servicios autorizado de IKEA prestará el servicio a través de su propio servicio o una red de servicio autorizada.

¿Qué cubre esta garantía?

La garantía cubre defectos del electrodoméstico, que pueden haber sido causados por un defecto de fabricación o de materiales a partir de la fecha de la compra en IKEA. Esta garantía se aplica sólo al uso doméstico. Las excepciones se especifican en el título "¿Qué no cubre esta garantía?". Dentro del periodo de garantía, los costes para remediar el fallo, por ejemplo reparaciones, piezas, mano de obra y desplazamientos quedarán cubiertos, siempre que el electrodoméstico esté accesible para reparar sin gastos especiales. En estas condiciones, se aplican las directrices de la UE (Nº 99/44/EG) y las respectivas normativas locales. Las piezas cambiadas pasarán a ser propiedad de IKEA.

¿Qué hará IKEA para solucionar el problema?

El proveedor de servicios designado de IKEA examinará el producto y decidirá, según su criterio, si está cubierto por la garantía. En

caso afirmativo, el proveedor de servicios de IKEA, o su servicio autorizado, por medio de sus propias operaciones de servicio, decidirán, según su criterio, si reparan el producto defectuoso o si lo cambian por uno igual o comparable.

¿Qué no cubre esta garantía?

- El deterioro o desgaste normal.
- Daños deliberados o causados por negligencia, daños causados por incumplimiento de las instrucciones de funcionamiento, instalación incorrecta, conexión a una tensión incorrecta, daños causados por reacciones químicas o electroquímicas, óxido, corrosión o daños causados por el agua incluyendo pero sin limitarse a los daños causados por un exceso de cal en el agua, y los daños provocados por condiciones medio ambientales anormales.
- Piezas consumibles, incluyendo las baterías y las bombillas.
- Piezas no funcionales y decorativas, que no afecten el uso normal del electrodoméstico, incluida cualquier posible raya y las diferencias de color.
- Daños accidentales provocados por objetos o sustancias extraños, por la limpieza o por el desbloqueo de los filtros, los sistemas de vaciado o los cajetines para el jabón.
- Daños provocados en las siguientes piezas: vidrio cerámico, accesorios, cestos para la vajilla y los cubiertos, tuberías de llenado o vaciado, juntas, bombillas o sus cubiertas, pantallas, mandos, revestimientos y partes de los revestimientos protectores. Salvo que se demuestre que tales daños hayan sido provocados por fallos en la producción.
- Casos en los que no se detecte ningún fallo en el producto durante la visita de un técnico.
- Reparaciones no realizadas por nuestros

proveedores de servicios y/o un servicio autorizado por IKEA, o cuando se utilicen piezas no originales.

- Reparaciones provocadas por una instalación defectuosa o que no cumpla las especificaciones de instalación.
- Uso del electrodoméstico en un entorno no-doméstico, es decir, uso profesional.
- Daños de transporte. Si un cliente transporta el producto a su casa o a otra dirección, IKEA no se responsabiliza de los daños que pueda sufrir en el trayecto. No obstante, si IKEA entrega el producto en la dirección indicada por el cliente, los daños del producto producidos con motivo del transporte serán cubiertos por IKEA.
- Coste de la instalación inicial del aparato IKEA.

No obstante, si un proveedor de servicios de IKEA o su servicio autorizado repara o sustituye el aparato con arreglo a esta garantía, el proveedor de servicios o su servicio autorizado volverán a instalar el aparato arreglado o nuevo, si es necesario.

Estas restricciones no se aplican a las tareas libres de fallos llevadas a cabo por un especialista cualificado utilizando nuestras piezas originales, con vistas a adaptar el electrodoméstico a las especificaciones técnicas de seguridad de otro país de la UE.

¿Cómo se aplica la ley nacional?

La garantía IKEA le otorga derechos legales específicos, que cubren o exceden todas las normativas legales locales.

No obstante, estas condiciones no limitan de ningún modo los derechos de los consumidores prescritos por la legislación local.

Área de validez

Para los electrodomésticos comprados en un país de la UE y que son llevados a otro país de la UE, se proporcionarán los servicios de acuerdo con las condiciones de la garantía normales en el nuevo país. Sólo existe la

obligación de realizar servicios en el marco de la garantía si el electrodoméstico cumple y está instalado según:

- Las especificaciones técnicas del país en el que se realiza la reclamación.
- Las instrucciones de montaje y la información de seguridad del Manual del Usuario.

El Centro de servicio autorizado para aparatos IKEA

Por favor, no dude en contactar con el Centro de servicio autorizado designado por IKEA para:

- hacer una reclamación con arreglo a esta garantía;
- solicitar aclaraciones relacionadas con la instalación del aparato IKEA en los muebles de cocina IKEA;
- solicitar aclaraciones sobre las funciones de los aparatos IKEA.

Para asegurar de que le proporcionaremos la mejor asistencia, por favor, lea atentamente las Instrucciones de Montaje y/o el Manual de Instrucciones antes de contactar con nosotros.

¿Cómo contactar con nosotros si necesita nuestro servicio?



En la última página de este manual encontrará el listado de Centros de servicio autorizado designados por IKEA y los respectivos números de teléfono nacionales.

i Para proporcionarle un servicio más rápido, le recomendamos que utilice los números de teléfono específicos que se incluyen en este manual. Indique siempre los números que aparecen en el manual correspondientes al aparato específico para que el necesita asistencia. Además, indique siempre el número de producto, (8 dígitos) y el número de servicio de 12 dígitos del

artículo de IKEA, que se encuentran en la placa de datos técnicos del aparato.

i ¡GUARDE LA FACTURA O RECIBO DE COMPRA!

Es la prueba de la compra y lo necesitará para hacer uso de la garantía. El recibo también incluye el nombre y el número del producto (8 dígitos) de IKEA, para cada uno de los electrodomésticos que compre.

¿Necesita ayuda adicional?

Para todas las cuestiones adicionales no relacionadas con el Centro de servicio autorizado sobre sus aparatos, por favor, diríjase al call center de la tienda IKEA. Le recomendamos que lea atentamente la documentación del aparato antes de contactar con nosotros.

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Πληροφορίες ασφαλείας


Πριν από την πρώτη χρήση

Η προσωπική σας ασφάλεια και η ασφάλεια άλλων ατόμων είναι πολύ σημαντική.


Αφαιρέστε τα προστατευτικά από χαρτόνι, την προστατευτική μεμβράνη και τις αυτοκόλλητες ετικέτες από τα εξαρτήματα. Ελέγξτε τη συσκευή για τυχόν ζημιές κατά τη μεταφορά.


Για να αποφευχθούν τυχόν ζημιές, μην τοποθετείτε βάρος πάνω στη συσκευή. Μην εκθέτετε τη συσκευή σε ατμοσφαιρικούς παράγοντες.

Το παρόν εγχειρίδιο και η συσκευή περιλαμβάνουν σημαντικές προειδοποιήσεις σχετικά με την ασφάλεια, τις οποίες πρέπει να διαβάσετε και να τηρείτε σε κάθε περίπτωση.

 Αυτό είναι το σύμβολο προσοχής, το οποίο αφορά την ασφάλεια και υποδεικνύει πιθανούς κινδύνους για το χρήστη και άλλα άτομα.

Όλες οι προειδοποιήσεις που αφορούν την ασφάλεια συνοδεύονται από το σύμβολο προσοχής και τις παρακάτω επισημάνσεις:

 **ΚΙΝΔΥΝΟΣ:** υποδεικνύει μια επικίνδυνη κατάσταση, η οποία, εάν δεν αποφευχθεί, θα οδηγήσει σε σοβαρούς τραυματισμούς.

 **ΠΡΟΕΙΔΟΠΟΙΗΣΗ:** Υποδεικνύει μια επικίνδυνη κατάσταση, η οποία, εάν δεν αποφευχθεί, μπορεί να οδηγήσει σε σοβαρούς τραυματισμούς.

Όλες οι προειδοποιήσεις που αφορούν την ασφάλεια παρέχουν λεπτομέρειες για πιθανούς κινδύνους/προειδοποιήσεις και περιλαμβάνουν οδηγίες για τη μείωση του κινδύνου τραυματισμού, βλάβης ή

ηλεκτροπληξίας λόγω εσφαλμένης χρήσης της συσκευής. Τηρείτε προσεκτικά τις παρακάτω οδηγίες.

Προφυλάξεις και γενικές συστάσεις


- Η ηλεκτρική εγκατάσταση και η ηλεκτρική σύνδεση πρέπει να πραγματοποιούνται από εξειδικευμένο τεχνικό σύμφωνα με τις οδηγίες του κατασκευαστή και τους ισχύοντες τοπικούς κανονισμούς ασφαλείας. Μην επισκευάζετε και μην αντικαθιστάτε κανένα εξάρτημα της συσκευής, εκτός εάν αναφέρεται ρητά στο εγχειρίδιο χρήσης.
- Η συσκευή πρέπει να αποσυνδέεται από το ηλεκτρικό δίκτυο πριν από κάθε εργασία εγκατάστασης.
- Η γείωση της συσκευής είναι υποχρεωτική. (απαιτείται μόνο για την κατηγορία I)
- Το καλώδιο τροφοδοσίας πρέπει να έχει επαρκές μήκος, ώστε να είναι δυνατή η σύνδεση της εντοιχισμένης συσκευής στην πρίζα.
- Μην τραβάτε το καλώδιο τροφοδοσίας, για να αποσυνδέσετε τη συσκευή.
- Μετά την ολοκλήρωση της εγκατάστασης, δεν πρέπει να είναι δυνατή η πρόσβαση στα ηλεκτρικά εξαρτήματα.
- Μην αγγίζετε τη συσκευή με βρεγμένα μέρη του σώματος και μην την χρησιμοποιείτε όταν έχετε γυμνά πόδια.
- Η συσκευή δεν προορίζεται για χρήση από άτομα (συμπεριλαμβανομένων παιδιών) με μειωμένες σωματικές, αισθητηριακές ή διανοητικές ικανότητες ή με έλλειψη εμπειρίας και γνώσεων,

εκτός εάν επιβλέπονται ή έχουν λάβει οδηγίες σχετικά με τη χρήση της συσκευής από άτομα υπεύθυνα για την ασφάλειά τους.

- Μην επισκευάζετε και μην αντικαθιστάτε κανένα εξάρτημα της συσκευής, εκτός εάν αναφέρεται ρητά στο εγχειρίδιο. Όλες οι υπόλοιπες εργασίες συντήρησης πρέπει να εκτελούνται από εξειδικευμένο τεχνικό.
- Τα παιδιά πρέπει να βρίσκονται υπό επιτήρηση, ώστε να μην παίζουν με τη συσκευή.
- Κατά τη διάνοιξη οπών στον τοίχο, φροντίστε να μην προκαλέσετε ζημιά στις ηλεκτρικές συνδέσεις ή/και στους σωλήνες.
- Οι αεραγωγοί πρέπει να καταλήγουν πάντα σε εξωτερικό χώρο.
- Ο κατασκευαστής δεν αναλαμβάνει καμία ευθύνη για βλάβες που προκαλούνται από εσφαλμένη χρήση ή ρυθμίσεις.
- Η σωστή συντήρηση και ο καθαρισμός διασφαλίζουν την καλή κατάσταση λειτουργίας και τη βέλτιστη απόδοση της συσκευής. Καθαρίζετε τακτικά όλους τους επίμονους επιφανειακούς λεκέδες, ώστε να αποφευχθεί η συσσώρευση λιπαρών ακαθαρσιών. Αφαιρείτε και καθαρίζετε ή αντικαθιστάτε το φίλτρο τακτικά.
- Μην μαγειρεύετε ποτέ φλαμπέ φαγητά κάτω από τη συσκευή. Η γυμνή φλόγα μπορεί να προκαλέσει πυρκαγιά.
- Σε περίπτωση μη τήρησης των οδηγιών καθαρισμού του απορροφητήρα και αντικατάστασης των φίλτρων υπάρχει κίνδυνος πυρκαγιάς.
- Ο αέρας απαγωγής δεν πρέπει να καταλήγει σε αγωγό που χρησιμοποιείται για την εκκένωση των αερίων που παράγουν συσκευές καύσης αερίου ή άλλων καυσίμων, αλλά πρέπει να διατίθεται ανεξάρτητη έξοδος. Πρέπει να τηρούνται όλοι οι ισχύοντες τοπικοί

κανονισμοί για την απαγωγή αερίων.

- Πρέπει να υπάρχει επαρκής εξαερισμός όταν ο απορροφητήρας χρησιμοποιείται ταυτόχρονα με άλλες συσκευές που καταναλώνουν αέριο ή άλλα καύσιμα. Η αρνητική πίεση στο χώρο δεν πρέπει να υπερβαίνει τα 4 Pa (4x 10⁻⁵ bar). Για το λόγο αυτό, πρέπει να βεβαιώνετε ότι ο χώρος έχει καλό εξαερισμό.
- Μην αφήνετε το τηγάνι χωρίς επίβλεψη κατά τη διάρκεια του τηγανίσματος, καθώς το καυτό λάδι μπορεί να αναφλεγεί.
- Πριν αγγίξετε τους λαμπτήρες, βεβαιωθείτε ότι έχουν κρυώσει.
- Μη χρησιμοποιείτε και μην αφήνετε τον απορροφητήρα χωρίς να έχετε τοποθετήσει σωστά τους λαμπτήρες, καθώς μπορεί να προκληθεί ηλεκτροπληξία.
- Ο απορροφητήρας δεν είναι πάγκος εργασίας και, συνεπώς, μην τοποθετείτε πάνω στον απορροφητήρα αντικείμενα.
- Κατά τη διάρκεια των εργασιών εγκατάστασης και συντήρησης φοράτε πάντα γάντια.
- Η συσκευή αυτή δεν προορίζεται για χρήση σε εξωτερικό χώρο.

 **ΠΡΟΕΙΔΟΠΟΙΗΣΗ:** όταν χρησιμοποιείται η μονάδα εστίων, τα προσβάσιμα μέρη του απορροφητήρα μπορεί να ζεσταθούν.

Εγκατάσταση και σύνδεση

Μετά την αποσυσκευασία, ελέγξτε τη συσκευή για τυχόν ζημιές κατά τη μεταφορά. Εάν υπάρχει κάποιο πρόβλημα, επικοινωνήστε με το εξουσιοδοτημένο κέντρο εξυπηρέτησης πελατών. Για να αποφευχθούν τυχόν ζημιές, αφαιρείτε τη συσκευή από τη συσκευασία φελιζόλ μόνο κατά τη στιγμή της εγκατάστασης.

Προετοιμασία για την εγκατάσταση

 **ΠΡΟΕΙΔΟΠΟΙΗΣΗ:** το προϊόν αυτό έχει μεγάλο βάρος. Η ανύψωση και η

εγκατάσταση του απορροφητήρα πρέπει να πραγματοποιείται από δύο ή περισσότερα άτομα. Η ελάχιστη απόσταση μεταξύ της εστίας και του κάτω μέρους του απορροφητήρα δεν πρέπει να είναι μικρότερη από 65 cm για καύσιμο αέριο ή άλλα καύσιμα και 50cm για ηλεκτρικές εστίες. Πριν από την εγκατάσταση, ελέγξτε επίσης τις ελάχιστες αποστάσεις που αναφέρονται στο εγχειρίδιο της κουζίνας. Εάν στις οδηγίες εγκατάστασης της κουζίνας συνιστάται μεγαλύτερη απόσταση μεταξύ της κουζίνας και του απορροφητήρα, ακολουθήστε τις σχετικές οδηγίες.

Ηλεκτρική σύνδεση

Βεβαιωθείτε ότι η τάση που αναγράφεται στην πινακίδα ονομαστικών χαρακτηριστικών της συσκευής αντιστοιχεί στην τάση του δικτύου. Οι πληροφορίες αυτές αναγράφονται στο εσωτερικό του απορροφητήρα, κάτω από το φίλτρο για λίπη. Η αντικατάσταση του καλωδίου τροφοδοσίας (τύπος H05 VV-F) πρέπει να πραγματοποιείται από εξειδικευμένο ηλεκτρολόγο. Επικοινωνήστε με ένα εξουσιοδοτημένο κέντρο τεχνικής υποστήριξης. Εάν ο απορροφητήρας διαθέτει φιν, συνδέστε το σε μια πρίζα που συμμορφώνεται με τους τρέχοντες κανονισμούς, σε εύκολα προσβάσιμο σημείο. Εάν δεν υπάρχει φιν (απευθείας σύνδεση στο δίκτυο) ή εάν η πρίζα δεν είναι τοποθετημένη σε εύκολα προσβάσιμο σημείο, πρέπει να εγκατασταθεί ένας τυπικός διπολικός διακόπτης από εξειδικευμένο τεχνικό που παρέχει τη δυνατότητα πλήρους απομόνωσης από το δίκτυο στις συνθήκες της κατηγορίας υπέρτασης III σύμφωνα με τους κανονισμούς καλωδίωσης.

Χρήση

Ο απορροφητήρας έχει σχεδιαστεί για εγκατάσταση και χρήση είτε ως «μοντέλο με λειτουργία απαγωγής» είτε ως «μοντέλο με λειτουργία ανακύκλωσης».

Μοντέλο με λειτουργία απαγωγής (βλ.



σύμβολο στο εγχειρίδιο εγκατάστασης)

Ο ατμός από το μαγείρεμα αναρροφάται και διοχετεύεται προς το εξωτερικό του σπιτιού μέσω ενός σωλήνα απαγωγής (δεν παρέχεται), ο οποίος τοποθετείται στην έξοδο ατμού του απορροφητήρα.

Βεβαιωθείτε ότι ο σωλήνας απαγωγής έχει τοποθετηθεί σωστά στην έξοδο αέρα με τη χρήση κατάλληλου συστήματος σύνδεσης.

Σημαντικό: Αφαιρέστε τα φίλτρα ενεργού άνθρακα, εάν έχουν ήδη τοποθετηθεί.

Μοντέλο με λειτουργία ανακύκλωσης (βλ.



σύμβολο στο εγχειρίδιο εγκατάστασης)

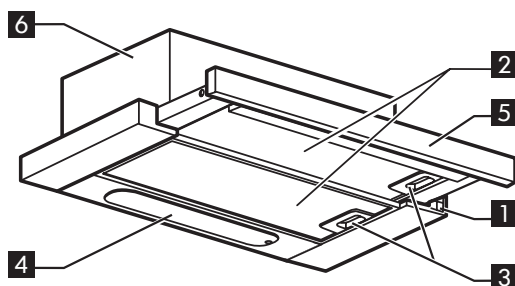
Ο αέρας φιλτράρεται μέσω ενός ή περισσότερων φίλτρων ενεργού άνθρακα και, στη συνέχεια, διοχετεύεται ξανά στο χώρο.

Σημαντικό: Βεβαιωθείτε ότι η κυκλοφορία του αέρα γύρω από τον απορροφητήρα είναι ελεύθερη.

Σημαντικό: Εάν ο απορροφητήρας παρέχεται χωρίς φίλτρα ενεργού άνθρακα, πρέπει να τα τοποθετήσετε πριν χρησιμοποιήσετε τον απορροφητήρα. Τα φίλτρα πωλούνται στα καταστήματα. Ο απορροφητήρας πρέπει να εγκαθίσταται μακριά από περιοχές με ακαθαρσίες, παράθυρα, πόρτες και πηγές θερμότητας. Τα εξαρτήματα για στερέωση στον τοίχο δεν παρέχονται, καθώς διαφέρουν ανάλογα με το υλικό του τοίχου. Χρησιμοποιείτε συστήματα στερέωσης κατάλληλα για τους τοίχους του σπιτιού σας και το βάρος της ηλεκτρικής οικιακής συσκευής. Για περισσότερες λεπτομέρειες, απευθυνθείτε σε έναν εξειδικευμένο προμηθευτή.

Φυλάξτε το εγχειρίδιο αυτό για μελλοντική αναφορά.

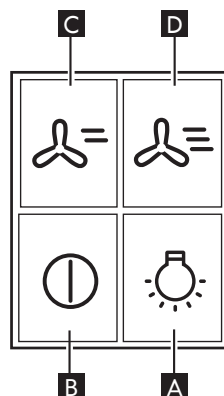
Περιγραφή προϊόντος



- 1 Πίνακας ελέγχου.
- 2 Φίλτρο για λίπη
- 3 Λαβές απασφάλισης φίλτρου για λίπη με ελατήριο.
- 4 Φως.
- 5 Αφαιρούμενος εκτροπέας ατμών.
- 6 Σώμα μονάδας απαγωγής.

Πίνακας ελέγχου

- A** Διακόπτης ενεργοποίησης/ απενεργοποίησης φωτός
- B** Διακόπτης ταχύτητας αναρρόφησης 1/ απενεργοποίησης
- C** Ταχύτητα αναρρόφησης 2
- D** Ταχύτητα αναρρόφησης 3



Καθαρισμός και συντήρηση

⚠️ ΠΡΟΕΙΔΟΠΟΙΗΣΗ

- Μη χρησιμοποιείτε ποτέ εξοπλισμό καθαρισμού με ατμό.
- Αποσυνδέετε τη συσκευή από την τροφοδοσία.

ΣΗΜΑΝΤΙΚΟ: μη χρησιμοποιείτε διαβρωτικά ή λειαντικά καθαριστικά. Σε περίπτωση τυχαίας επαφής των προϊόντων αυτών με τη συσκευή, καθαρίστε αμέσως με ένα υγρό πανί.

- Καθαρίστε τις επιφάνειες με ένα υγρό πανί. Εάν υπάρχουν πολλές ακαθαρσίες, προσθέστε στο νερό λίγες σταγόνες απορρυπαντικού για τα πιάτα. Σκουπίστε με ένα στεγνό πανί.

ΣΗΜΑΝΤΙΚΟ: μη χρησιμοποιείτε σκληρά

σφουγγαράκια ή μεταλλικές ξύστρες ή συρμάτινα σφουγγαράκια. Μπορεί να καταστραφεί η επιφάνεια με την πάροδο του χρόνου.

- Χρησιμοποιείτε απορρυπαντικά ειδικά σχεδιασμένα για τον καθαρισμό της συσκευής και ακολουθείτε τις οδηγίες του κατασκευαστή.

ΣΗΜΑΝΤΙΚΟ: καθαρίζετε τα φίλτρα τουλάχιστον μία φορά το μήνα, για να απομακρυνθούν λάδια ή λιπαρά υπολείμματα.

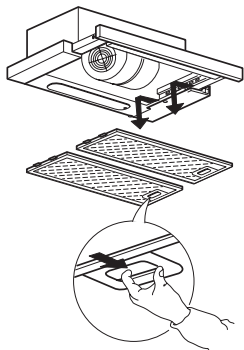
Για να καθαρίσετε το φίλτρο για λίπη

Το μεταλλικό φίλτρο για λίπη έχει απεριόριστη διάρκεια ζωής και πρέπει να καθαρίζεται μία φορά το μήνα στο

χέρι ή σε πλυντήριο πιάτων, σε σύντομο κύκλο χαμηλής θερμοκρασίας. Μετά τον καθαρισμό σε πλυντήριο πιάτων, το φίλτρο για λίπη μπορεί να θαμπώσει. Ωστόσο, κάτι τέτοιο δεν επηρεάζει την ικανότητα φιλτραρίσματος του φίλτρου.

Συντήρηση του φίλτρου για λίπη:

1. Αποσυνδέστε τη συσκευή ή διακόψτε την τροφοδοσία.
2. Αφαιρέστε τα φίλτρα για λίπη: τραβήξτε τη λαβή απασφάλισης με ελατήριο και, στη συνέχεια, αφαιρέστε το φίλτρο προς τα κάτω.
3. Μετά τον καθαρισμό του φίλτρου για λίπη, τοποθετήστε το ξανά ακολουθώντας την παραπάνω διαδικασία με αντίστροφη σειρά και βεβαιωθείτε ότι καλύπτεται ολόκληρη η επιφάνεια απαγωγής.

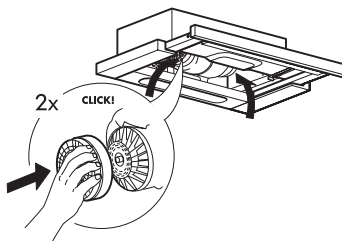


Συντήρηση του φίλτρου ενεργού άνθρακα

1. Αποσυνδέστε τη συσκευή από την ηλεκτρική τροφοδοσία.
2. Αφαιρέστε το(α) φίλτρο(α) για λίπη.
3. Εάν τα φίλτρα ενεργού άνθρακα είναι ήδη τοποθετημένα και πρέπει να αντικατασταθούν, τραβήξτε μέχρι να απασφαλιστούν τα φίλτρα.
4. Εάν τα φίλτρα ενεργού άνθρακα δεν είναι ήδη τοποθετημένα, τοποθετήστε τα φίλτρα καλύπτοντας τις προστατευτικές σχάρες του μοτέρ (δύο προστατευτικές σχάρες - δύο φίλτρα ενεργού άνθρακα) και, στη συνέχεια, πιέστε τα και ασφαλίστε τα.

5. Τοποθετήστε ξανά το(α) φίλτρο(α) για λίπη.

Το φίλτρο ενεργού άνθρακα δεν πλένεται και δεν μπορεί να υποβληθεί σε διαδικασία αναγέννησης. Αντικαθιστάτε το φίλτρο κάθε 4 μήνες.



Φως LED

Ο απορροφητήρας είναι εξοπλισμένος με σύστημα φωτισμού που βασίζεται σε τεχνολογία LED.

Τα LED διασφαλίζουν βέλτιστο φωτισμό, διάρκεια μέχρι 10 φορές περισσότερο από τις συμβατικές λυχνίες και εξοικονόμηση ηλεκτρικής ενέργειας κατά 90%.

Για αντικατάσταση, επικοινωνήστε με το εξουσιοδοτημένο κέντρο εξυπηρέτησης πελατών.

Τι να κάνετε εάν.....

Πρόβλημα	Πιθανή αιτία	Λύση
Η συσκευή δεν λειτουργεί	Δεν παρέχεται ρεύμα από το κεντρικό δίκτυο	Ελέγξτε εάν παρέχεται ρεύμα από το κεντρικό δίκτυο. Απενεργοποιήστε και ενεργοποιήστε ξανά τη συσκευή για να διαπιστώσετε εάν η βλάβη παραμένει.
	Η συσκευή δεν είναι συνδεδεμένη στην ηλεκτρική τροφοδοσία	Ελέγξτε εάν η συσκευή είναι συνδεδεμένη στην ηλεκτρική τροφοδοσία. Απενεργοποιήστε και ενεργοποιήστε ξανά τη συσκευή για να διαπιστώσετε εάν η βλάβη παραμένει.
Το επίπεδο αναρρόφησης του απορροφητήρα δεν είναι επαρκές	Η ταχύτητα αναρρόφησης είναι πολύ χαμηλή	Ελέγξτε την ταχύτητα αναρρόφησης και ρυθμίστε την, εάν απαιτείται.
	Ακαθαρσίες στα μεταλλικά φίλτρα	Ελέγξτε εάν τα φίλτρα είναι καθαρά Εάν όχι, καθαρίστε τα φίλτρα στο πλυντήριο πιάτων.
	Οι αεραγωγοί είναι φραγμένοι	Ελέγξτε εάν οι αεραγωγοί είναι φραγμένοι και απομακρύνετε τα εμπόδια, εάν απαιτείται.
Το φως δεν λειτουργεί	Το LED είναι σπασμένο	Για αντικατάσταση, επικοινωνήστε με το εξουσιοδοτημένο κέντρο εξυπηρέτησης πελατών.

Πριν επικοινωνήσετε με το εξουσιοδοτημένο κέντρο εξυπηρέτησης πελατών:

Ενεργοποιήστε ξανά τη συσκευή για να διαπιστώσετε εάν το πρόβλημα έχει αποκατασταθεί. Εάν όχι, απενεργοποιήστε ξανά τη συσκευή και επαναλάβετε τη διαδικασία μετά από μία ώρα.

Εάν η συσκευή εξακολουθεί να μη λειτουργεί σωστά μετά τους ελέγχους που αναφέρονται στον οδηγό αντιμετώπισης προβλημάτων και την εκ νέου ενεργοποίηση της συσκευής, επικοινωνήστε με το εξουσιοδοτημένο κέντρο εξυπηρέτησης πελατών, περιγράψτε με σαφήνεια το πρόβλημα και δηλώστε τα εξής:

- τον τύπο της βλάβης,
- το μοντέλο,
- τον τύπο και τον αριθμό σειράς της συσκευής (αναγράφονται στην πινακίδα τεχνικών στοιχείων),
- τον αριθμό Service (ο αριθμός μετά την ένδειξη SERVICE στην πινακίδα τεχνικών στοιχείων που βρίσκεται στο εσωτερικό της συσκευής).

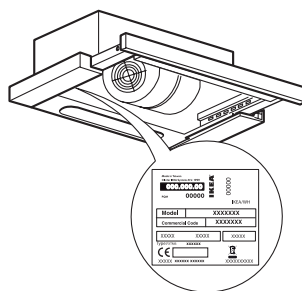
SERVICE 0000 000 00000



Τεχνικά στοιχεία


Τύπος προϊόντος	Επιτοίχιος απορροφητήρας		
Διαστάσεις	Πλάτος	mm	600
	Βάθος	mm	ελάχ. 300 μέγ. 455
	Ύψος ελάχ.	mm	180
	Ύψος μέγ.	mm	180
Συνολική ισχύς	W		131
Στοιχεία λαμπτήρων	Τύπος		LED
	Αριθμός και ισχύς	W	2x3W
	Υποδοχή		E14
Ελάχιστο ύψος εγκατάστασης - εστίες υγραερίου	mm		650
Ελάχιστο ύψος εγκατάστασης - ηλεκτρικές εστίες	mm		500
Βάρος προϊόντος	Kg		7
Επιπρόσθετες πληροφορίες προϊόντος σε συμμόρφωση με τον κανονισμό της επιτροπής (ΕΕ) υπ' αριθμ. 66/2014			
Αναγνωριστικό μοντέλου			UTDRAG 20304623 UTDRAG 70304625 UTDRAG 00304624
Ετήσια ενεργειακή κατανάλωση	kWh/a		58,7
Συντελεστής αύξησης χρόνου			1,6
Αποδοτικότητα δυναμικής υγρού	%		11,2
Δείκτης ενεργειακής αποδοτικότητας			84,1
Μετρούμενη παροχή αέρα σε σημείο βέλτιστης αποδοτικότητας	m ³ /h		165
Μετρούμενη πίεση αέρα σε σημείο βέλτιστης αποδοτικότητας	Pa		227
Μέγιστη ροή αέρα	m ³ /h		320
Μετρούμενη είσοδος ηλεκτρικής ισχύος σε σημείο βέλτιστης αποδοτικότητας	W		93
Ονομαστική ισχύς του συστήματος φωτισμού	W		6
Μέσος φωτισμός του συστήματος φωτισμού στην επιφάνεια μαγειρέματος	lux		78
Ενεργειακή κατανάλωση σε κατάσταση αναμονής	W		0
Ενεργειακή κατανάλωση σε απενεργοποιημένη κατάσταση	W		0
A σταθμισμένη εκπομπή ισχύος ήχου σε μέγιστη ταχύτητα	dB(A)		67

Οι τεχνικές πληροφορίες αναγράφονται στην πινακίδα ονομαστικών χαρακτηριστικών στην εσωτερική πλευρά της συσκευής.



Περιβαλλοντικά θέματα


Απόρριψη συσκευασίας

Το υλικό συσκευασίας είναι 100% ανακυκλώσιμο, όπως δείχνει το σύμβολο ανακύκλωσης . Για το λόγο αυτό, τα υλικά συσκευασίας δεν πρέπει να απορρίπτονται στο περιβάλλον, αλλά σύμφωνα με τους κανονισμούς που καθορίζονται από τις τοπικές αρχές.

Απόρριψη του προϊόντος

- Αυτή η συσκευή φέρει σήμανση σύμφωνα με την Ευρωπαϊκή οδηγία 2012/19/ΕΚ σχετικά με τα απόβλητα ειδών ηλεκτρικού και ηλεκτρονικού εξοπλισμού (ΑΗΗΕ).
- Εξασφαλίζοντας ότι το προϊόν αυτό απορρίπτεται σωστά, θα βοηθήσετε στην πρόληψη πιθανά αρνητικών επιπτώσεων για το περιβάλλον και την ανθρώπινη υγεία, οι οποίες θα μπορούσαν να δημιουργηθούν από τον ακατάλληλο χειρισμό αυτού του προϊόντος ως απόρριμμα.



Το σύμβολο  πάνω στο προϊόν ή στα συνοδευτικά έγγραφα υποδεικνύει ότι το προϊόν αυτό δεν πρέπει να υποβάλλεται σε επεξεργασία όπως τα οικιακά απόβλητα, αλλά να παραδίδεται σε κατάλληλα σημεία συλλογής για την ανακύκλωση ηλεκτρικού και ηλεκτρονικού εξοπλισμού.

Απόρριψη οικιακών συσκευών

- Η συσκευή αυτή έχει κατασκευαστεί από ανακυκλώσιμα ή επαναχρησιμοποιούμενα υλικά. Για τη διάλυσή του ακολουθήστε την τοπική νομοθεσία για τη διάθεση των απορριμμάτων. Πριν απορρίψετε, κόψτε το καλώδιο τροφοδοσίας ρεύματος.
- Για πιο λεπτομερείς πληροφορίες σχετικά με την επεξεργασία, την περισυλλογή και την ανακύκλωση οικιακών ηλεκτρικών συσκευών, παρακαλούμε επικοινωνήστε με το αρμόδιο γραφείο της τοπικής αυτοδιοίκησης, την τοπική υπηρεσία αποκομιδής οικιακών απορριμμάτων ή το κατάστημα όπου αγοράσατε τη συσκευή.

Συμβουλές εξοικονόμησης ενέργειας

- Ενεργοποιήστε τον απορροφητήρα σε ελάχιστη ταχύτητα όταν αρχίσετε το μαγείρεμα και διατηρήστε τον σε λειτουργία για λίγα λεπτά αφού τελειώσετε το μαγείρεμα.
- Αυξήστε την ταχύτητα μόνο στην περίπτωση μεγάλης ποσότητας καπνού και ατμών και χρησιμοποιήστε τις ταχύτητες ενίσχυσης μόνο σε ακραίες καταστάσεις.
- Αντικαταστήστε τα φίλτρα άνθρακα όταν απαιτείται για να διατηρηθεί η καλή αποδοτικότητα μείωσης των οσμών.
- Καθαρίστε τα φίλτρα γράσου όταν απαιτείται για να διατηρηθεί η καλή αποδοτικότητα του φίλτρου γράσου.
- Χρησιμοποιήστε τη μέγιστη διάμετρο του συστήματος σωλήνων που υποδεικνύεται στο παρόν εγχειρίδιο για να βελτιστοποιήσετε την αποδοτικότητα και να ελαχιστοποιήσετε το θόρυβο.

Δήλωση συμμόρφωσης



- Αυτή η συσκευή έχει σχεδιαστεί, κατασκευαστεί και διατεθεί στην αγορά σύμφωνα με:
 - τις απαιτήσεις ασφαλείας της Οδηγίας «Χαμηλής Τάσης» 2006/95/ΕΚ (η οποία αντικαθιστά την Οδηγία 73/23/ΕΟΚ και τις μετέπειτα τροποποιήσεις της),
 - οι απαιτήσεις οικολογικού σχεδιασμού των ευρωπαϊκών κανονισμών υπ' αριθμ. 65/2014, και υπ' αριθμ. 66/2014 σε συμμόρφωση με το ευρωπαϊκό πρότυπο EN 61591-1,
 - τις απαιτήσεις προστασίας της Οδηγίας "ΗΜΣ" 2004/108/ΕΚ.

Η ηλεκτρική ασφάλεια της συσκευής εξασφαλίζεται μόνο όταν είναι σωστά συνδεδεμένη σε αποτελεσματική εγκατάσταση γείωσης βάσει του νόμου.

ΕΓΓΥΗΣΗ ΙΚΕΑ

Ποια είναι η διάρκεια της εγγύησης της ΙΚΕΑ;

Αυτή η εγγύηση ισχύει για πέντε (5) έτη από την αρχική ημερομηνία αγοράς της συσκευής σας στην ΙΚΕΑ, με εξαίρεση τις συσκευές που ονομάζονται LAGAN όπου ισχύει εγγύηση δύο (2) ετών. Απαιτείται η πρωτότυπη απόδειξη αγοράς ως αποδεικτικό στοιχείο. Εάν εκτελεστούν εργασίες σέρβις εντός εγγύησης, δε θα επεκταθεί το χρονικό διάστημα της εγγύησης για τη συσκευή.

Ποιες συσκευές δεν καλύπτονται από την εγγύηση πέντε (5) ετών της ΙΚΕΑ;

Η σειρά συσκευών με την επωνυμία LAGAN, καθώς και όλες οι συσκευές που αγοράστηκαν από το κατάστημα ΙΚΕΑ πριν από την 1η Αυγούστου 2007.

Ποιος εκτελεί τις εργασίες επισκευής;

Ο παροχέας υπηρεσιών επισκευής της ΙΚΕΑ θα εκτελέσει τις εργασίες επισκευής μέσω των δικών του τεχνικών ή του δικτύου εξουσιοδοτημένων συνεργατών επισκευής.

Ποιες περιπτώσεις καλύπτονται από τη συγκεκριμένη εγγύηση;

Η εγγύηση καλύπτει βλάβες της συσκευής που έχουν προκληθεί λόγω ελαττωματικής κατασκευής ή ελαττωματικών υλικών από την ημερομηνία αγοράς της συσκευής από το κατάστημα ΙΚΕΑ. Η εγγύηση αυτή ισχύει μόνο για οικιακή χρήση. Οι εξαιρέσεις αναφέρονται στην παράγραφο με τίτλο «Ποιες περιπτώσεις δεν καλύπτονται από τη συγκεκριμένη εγγύηση;». Κατά τη διάρκεια ισχύος της εγγύησης, καλύπτεται το κόστος αποκατάστασης της βλάβης, π.χ. επισκευές, εξαρτήματα, εργατικά και μετακινήσεις, εφόσον για την επισκευή της συσκευής δεν απαιτούνται ειδικές δαπάνες. Υπό τις προϋποθέσεις αυτές, ισχύουν οι κατευθυντήριες οδηγίες της Ε (99/44/ΕΚ) και οι αντίστοιχοι τοπικοί κανονισμοί. Τα αντικαθιστώμενα εξαρτήματα αποτελούν ιδιοκτησία της ΙΚΕΑ.

Πώς θα αποκαταστήσει το πρόβλημα η ΙΚΕΑ;

Ο επιλεγμένος παροχέας υπηρεσιών

επισκευής της ΙΚΕΑ θα εξετάσει το προϊόν και θα αποφασίσει, κατά την αποκλειστική του κρίση, εάν η βλάβη καλύπτεται από την εγγύηση αυτή. Εάν η βλάβη καλύπτεται από την εγγύηση, ο παροχέας υπηρεσιών επισκευής της ΙΚΕΑ ή ο εξουσιοδοτημένος συνεργάτης υπηρεσιών επισκευής μέσω των δικών του τεχνικών και κατά την αποκλειστική του κρίση θα επισκευάσει το ελαττωματικό προϊόν ή θα το αντικαταστήσει με ίδιο ή αντίστοιχο προϊόν.

Ποιες περιπτώσεις δεν καλύπτονται από τη συγκεκριμένη εγγύηση;

- Φυσιολογική φθορά.
- Βλάβη από πρόθεση ή αμέλεια, βλάβη που οφείλεται σε μη τήρηση των οδηγιών λειτουργίας, εσφαλμένη εγκατάσταση ή σύνδεση σε ακατάλληλη τάση, βλάβη που οφείλεται σε χημική ή ηλεκτροχημική αντίδραση, σκουριά, διάβρωση ή βλάβη λόγω του νερού, συμπεριλαμβανομένης, ενδεικτικά, βλάβης λόγω υπερβολικής συσσώρευσης αλάτων στην παροχή νερού, καθώς και βλάβη που οφείλεται σε μη φυσιολογικές περιβαλλοντικές συνθήκες.
- Αναλώσιμα εξαρτήματα, συμπεριλαμβανομένων μπαταριών και λαμπτήρων.
- Μη λειτουργικά και διακοσμητικά εξαρτήματα που δεν επηρεάζουν την κανονική χρήση της συσκευής, καθώς και χαρακίες και πιθανοί αποχρωματισμοί.
- Τυχαία βλάβη που προκαλείται από ξένα σωματίδια ή ουσίες, καθώς και βλάβη που οφείλεται στον καθαρισμό ή την απόφραξη φίλτρων, συστημάτων αποστράγγισης ή θηκών απορρυπαντικού.
- Ζημιές στα παρακάτω εξαρτήματα: υαλοκεραμικές επιφάνειες, πρόσθετα εξαρτήματα, σκεύη και καλάθια μαχαιροπίρουνων, σωλήνες παροχής και αποστράγγισης, λάστιχα στεγανοποίησης, λαμπτήρες και καλύμματα λαμπτήρων, οθόνες, διακόπτες, περιβλήματα και τμήματα περιβλημάτων. Εκτός εάν αυτές οι ζημιές αποδεχτεί πως έχουν προκληθεί από ελαττωματική λειτουργία του προϊόντος.
- Περιπτώσεις στις οποίες δεν μπορεί

να εντοπιστεί κάποια βλάβη κατά την επίσκεψη του τεχνικού.

- Επισκευές που δεν εκτελούνται από τους επιλεγμένους μας παροχείς υπηρεσιών επισκευής ή/και από εξουσιοδοτημένο συνεργάτη υπηρεσιών επισκευής ή περιπτώσεις στις οποίες δεν έχουν χρησιμοποιηθεί γνήσια ανταλλακτικά.
- Επισκευές λόγω εσφαλμένης εγκατάστασης ή εγκατάστασης που δεν πληρεί τις προδιαγραφές.
- Χρήση της συσκευής σε μη οικιακό περιβάλλον, π.χ. επαγγελματική χρήση.
- Ζημιές κατά τη μεταφορά. Εάν ένας πελάτης μεταφέρει το προϊόν στο σπίτι του ή σε άλλη διεύθυνση, η IKEA δεν είναι υπεύθυνη για τυχόν ζημιές που θα προκληθούν κατά τη μεταφορά. Ωστόσο, εάν η IKEA μεταφέρει το προϊόν στη διεύθυνση παράδοσης του πελάτη, τότε τυχόν ζημιές που θα προκληθούν στο προϊόν κατά τη μεταφορά καλύπτονται από την IKEA.
- Το κόστος της αρχικής εγκατάστασης της συσκευής IKEA.

Ωστόσο εάν ο εξουσιοδοτημένος συνεργάτης υπηρεσιών επισκευής επισκευάσει ή πρέπει να αντικαταστήσει την συσκευή βάσει των όρων της παρούσας εγγύησης τότε η τυχόν εγκατάσταση ή απεγκατάσταση επίσης δεν καλύπτεται από τους όρους αυτής της εγγύησης. Ο πελάτης βέβαια μπορεί να επικοινωνήσει ή με τον παροχέα του σέρβις ή με το κατάστημα του IKEA από όπου αγόρασε το προϊόν και να ζητήσει πλήρη πληροφόρηση.

Οι περιορισμοί αυτοί δεν ισχύουν σε περιπτώσεις στις οποίες οι εργασίες εκτελούνται σωστά από εξειδικευμένο τεχνικό χρησιμοποιώντας γνήσια ανταλλακτικά για προσαρμογή της συσκευής στις τεχνικές προδιαγραφές ασφαλείας μιας άλλης χώρας της ΕΕ.

Πώς εφαρμόζεται η εθνική νομοθεσία

Η εγγύηση της IKEA σας παρέχει ειδικά νομικά δικαιώματα, τα οποία καλύπτουν ή υπερκαλύπτουν όλες τις τοπικές νομικές απαιτήσεις που ενδέχεται να διαφέρουν από

χώρα σε χώρα.

Ωστόσο αυτές οι προϋποθέσεις δεν περιορίζουν με κανένα τρόπο τα δικαιώματα του καταναλωτή που περιγράφηκαν στην τοπική νομοθεσία.

Περιοχή ισχύος

Για συσκευές που αγοράζονται από μία χώρα της ΕΕ και μεταφέρονται σε άλλη χώρα της ΕΕ, οι υπηρεσίες επισκευής θα παρέχονται στο πλαίσιο των όρων εγγύησης που ισχύουν στη νέα χώρα.

Η εκτέλεση των υπηρεσιών επισκευής στο πλαίσιο της εγγύησης είναι υποχρεωτική, μόνο εάν η συσκευή συμμορφώνεται και έχει εγκατασταθεί σύμφωνα με:

- τις τεχνικές προδιαγραφές της χώρας στην οποία υποβάλλεται το αίτημα για εργασίες εγγύησης,
- τις Οδηγίες συναρμολόγησης και τις Πληροφορίες ασφαλείας του εγχειριδίου χρήσης.

Η αποκλειστική ΤΕΧΝΙΚΗ ΥΠΟΣΤΗΡΙΞΗ για συσκευές της IKEA

Μη διστάσετε να επικοινωνήσετε με το εγκεκριμένο εξουσιοδοτημένο κέντρο εξυπηρέτησης της IKEA για:

- αίτημα εργασιών στο πλαίσιο της εγγύησης,
- διευκρινίσεις σχετικά με την εγκατάσταση της συσκευής IKEA στην ειδική μονάδα επίπλου κουζίνας της IKEA,
- διευκρινίσεις σχετικά με τις λειτουργίες των συσκευών IKEA.

Για να διασφαλιστεί η παροχή βέλτιστης υποστήριξης, διαβάστε προσεκτικά τις Οδηγίες συναρμολόγησης ή/και το Εγχειρίδιο χρήσης πριν επικοινωνήσετε μαζί μας.

Τρόπος επικοινωνίας



Ανατρέξτε στην τελευταία σελίδα του παρόντος εγχειριδίου για μια πλήρη λίστα των επιλεγμένων εξουσιοδοτημένων κέντρων εξυπηρέτησης της IKEA και των σχετικών τηλεφωνικών αριθμών σε κάθε χώρα.

i Για ταχύτερη εξυπηρέτηση, συνιστάται η χρήση των ειδικών τηλεφωνικών αριθμών που αναφέρονται σε αυτό το εγχειρίδιο. Ανατρέχετε πάντα στους τηλεφωνικούς αριθμούς που παρέχονται στο εγχειρίδιο της συσκευής για την οποία χρειάζεστε βοήθεια. Επίσης, ανατρέχετε πάντα στον αριθμό προϊόντος της ΙΚΕΑ (8ψήφιος κωδικός) και το 12ψήφιο αριθμό επισκευής που αναγράφονται στην πινακίδα τεχνικών χαρακτηριστικών της συσκευής σας.

i **ΦΥΛΑΞΤΕ ΤΗΝ ΑΠΟΔΕΙΞΗ ΑΓΟΡΑΣ!**
Es la prueba de la compra y lo Αποτελεί αποδεικτικό αγοράς και είναι απαραίτητη ώστε να ισχύει η εγγύηση. Επίσης, στην απόδειξη αγοράς να αναφέρεται η επωνυμία και ο αριθμός του προϊόντος ΙΚΕΑ (8ψήφιος κωδικός) για κάθε συσκευή που αγοράσατε.

Χρειάζεστε επιπλέον βοήθεια;

Για επιπλέον ερωτήσεις που δεν αφορούν την εξυπηρέτηση μετά την πώληση, επικοινωνήστε με το τηλεφωνικό κέντρο του πλησιέστερου καταστήματος ΙΚΕΑ. Συνιστάται να διαβάσετε προσεκτικά το εγχειρίδιο της συσκευής πριν επικοινωνήσετε μαζί μας.

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Veiligheidsinformatie

Voordat u het apparaat in gebruik neemt

Uw veiligheid en die van anderen is erg belangrijk.


Verwijder de kartonnen beschermingen, transparante folie en stickers van de accessoires.

Controleer het apparaat op eventuele transportschade.


Zet geen zware dingen op het apparaat om beschadiging te voorkomen.


Stel het apparaat niet bloot aan weersinvloeden.

Deze handleiding en het apparaat zelf zijn voorzien van belangrijke veiligheidsaanwijzingen, die te allen tijde moeten worden gelezen en opgevolgd.

 Dit is het waarschuwingssymbool waarmee mogelijke risico's voor de gebruiker en voor anderen worden aangegeven.

Alle veiligheidsberichten komen na het waarschuwingssymbool en de volgende tekst:

 **GEVAAR:** Geeft een gevaarlijke situatie aan, die ernstig letsel veroorzaakt als deze niet wordt vermeden.

 **WAARSCHUWING:** Geeft een gevaarlijke situatie aan, die ernstig letsel zou kunnen veroorzaken als deze niet wordt vermeden.

Alle veiligheidswaarschuwingen geven specifieke details van het mogelijke gevaar/risico dat aanwezig is en geven aan hoe het risico op letsel, schade en elektrische schokken voortvloeiend uit het onjuiste gebruik van het apparaat beperkt kan

worden. Houd u strikt aan de volgende instructies.

Vorzorgsmaatregelen en algemene aanbevelingen


- De installatie en de elektrische aansluiting moeten door een erkend vakman worden uitgevoerd, volgens de aanwijzingen van de fabrikant en in overeenstemming met de plaatselijke veiligheidsvoorschriften. Repareer of vervang geen enkel onderdeel van het apparaat, behalve als dit expliciet aangegeven wordt in de gebruikershandleiding.
- Het apparaat moet worden losgekoppeld van het elektriciteitsnet voordat u installatiewerkzaamheden uitvoert.
- Dit apparaat moet worden geaard. (uitsluitend vereist voor klasse I)
- De voedingskabel van het apparaat moet lang genoeg zijn om het apparaat vanuit de inbouwpositie in het meubel te kunnen aansluiten op het stopcontact van de netvoeding.
- Trek niet aan de voedingskabel om de stekker uit het stopcontact te halen.
- Na de installatie mogen de elektrische onderdelen niet meer toegankelijk zijn voor de gebruiker.
- Raak het apparaat niet aan met vochtige lichaamsdelen en gebruik het niet op als u op blote voeten loopt.
- Dit apparaat mag niet worden gebruikt door personen (waaronder kinderen) met beperkte lichamelijke, zintuiglijke of verstandelijke vermogens of gebrek

aan ervaring en kennis, tenzij ze onder toezicht staan of instructies met betrekking tot het gebruik van het apparaat hebben ontvangen van een persoon die verantwoordelijk is voor hun veiligheid.

- Repareer of vervang geen enkel onderdeel van het apparaat, tenzij dit specifiek wordt aanbevolen in de handleiding. Alle andere onderhoudswerkzaamheden moeten worden uitgevoerd door een gespecialiseerde monteur.
- Kinderen moeten in de gaten gehouden worden, om te voorkomen dat ze met het apparaat gaan spelen.
- Let er bij het boren van gaten in de muur op dat u geen elektrische aansluitingen of leidingen beschadigt.
- De lucht moet altijd via ventilatieopeningen naar buiten worden afgevoerd.
- De fabrikant kan niet aansprakelijk gesteld worden voor schade die het gevolg is van oneigenlijk gebruik of verkeerde instellingen.
- Goed onderhoud en een goede reiniging garanderen de goede werking en de beste prestaties van het apparaat. Verwijder regelmatig hardnekkige vuil van het oppervlak om vetophoping te voorkomen. Verwijder het filter regelmatig en maak het schoon, of vervang het.
- Onder de kap mag nooit geflambeerd worden. Open vuur kan brand veroorzaken.
- Als de aanwijzingen voor het schoonmaken van de afzuigkap, en voor het vervangen van de filters niet worden opgevolgd, kan dat brand veroorzaken.
- De afgevoerde lucht mag niet worden geloosd in een kanaal dat wordt gebruikt voor de afvoer van rookgassen afkomstig van toestellen op verbranding van gas of andere brandstoffen, maar

moet een eigen uitgang hebben. • De landelijke regelgeving inzake rookafvoer moet worden nageleefd.

- De ruimte moet goed geventileerd worden als de kap tegelijkertijd gebruikt wordt met apparaten die op gas of andere brandstoffen werken. De negatieve druk in de ruimte mag de 4 Pa (4 x 10⁻⁵ bar) niet overschrijden. Zorg er dus voor dat de ruimte goed wordt geventileerd.
- Laat tijdens het frituren de pan niet onbeheerd achter, omdat de kokende olie vlam kan vatten.
- Controleer of de lampjes voldoende afgekoeld zijn, voordat u ze aanraakt.
- De kap mag niet zonder correct gemonteerd lampje worden gebruikt of achtergelaten, omdat er dan gevaar voor een elektrische schok bestaat.
- De afzuigkap is geen werkblad, zet er dus geen voorwerpen op en overbelast hem niet.
- Draag bij alle installatie- en onderhoudswerkzaamheden geschikte werkhandschoenen.
- Dit apparaat is niet geschikt voor gebruik buitenshuis.

 **WAARSCHUWING:** wanneer de kookplaat in gebruik is, kunnen de toegankelijke delen van de afzuigkap heet worden.

Installatie en aansluiting

Controleer het apparaat, nadat u het hebt uitgepakt, op eventuele transportschade. Neem in geval van problemen contact op met het erkend servicecentrum. Om eventuele schade te voorkomen wordt geadviseerd om de oven pas vlak voor de installatie van de piepschuim bodem te halen.

Vorbereiding voor de installatie

 **WAARSCHUWING:** dit is een zwaar product; de afzuigkap mag alleen

door twee of meer personen worden opgetild en geïnstalleerd.

De minimumafstand tussen de kookplaat en de onderkant van de afzuigkap mag niet minder dan 65 cm bedragen voor kookplaten op gas of andere brandstof en 50 cm voor elektrische kookplaten. Controleer bovendien de afstanden die in de handleiding van de kookplaat zijn vermeld, voordat u de kap installeert. Indien de installatie-instructies van de kookplaat een grotere afstand voorschrijven, dan dient u zich daar aan te houden.

Elektrische aansluiting

Controleer of de elektrische spanning die aangegeven staat op het typeplaatje van het apparaat overeenkomt met de voedingsspanning van uw woning. U kunt deze informatie vinden op de binnenkant van de kap, onder het vetfilter. Vervanging van de voedingskabel (type H05 VV-F) moet uitgevoerd worden door een erkend elektricien. Wendt u tot een erkend servicecentrum.

Indien de kap is voorzien van een stekker, dan moet deze worden aangesloten op een toegankelijk stopcontact dat aan de geldende voorschriften voldoet. Als de kap geen stekker heeft (directe aansluiting op het elektriciteitsnet) of als het stopcontact zich niet op een toegankelijke plek bevindt, moet u door een erkende monteur een tweepolige schakelaar laten installeren die aan de geldende voorschriften voldoet en die de volledige loskoppeling van het elektriciteitsnet in de overspanningscategorie III garandeert, in overeenstemming met de installatievoorschriften.

Gebruik

De kap is ontworpen voor installatie en gebruik als “Model met luchtafvoer naar buiten”, of als “Model met luchtrecirculatie”.

Model met luchtafvoer naar buiten (zie het



symbool in het installatieboekje)

De bereidingsdampen worden afgezogen en naar buiten afgevoerd via een afvoerleiding (niet bijgeleverd), die gemonteerd is aan de afvoerpijp van de kap.

Zorg ervoor dat de afvoerleiding goed gemonteerd is aan de luchtafvoerpijp, met behulp van een geschikt verbindingssysteem.

Belangrijk: Als het/de koolstoffilter(s) al geïnstalleerd is/zijn moet(en) dit/ze worden verwijderd.

Model met luchtrecirculatie (zie het



symbool in het installatieboekje)

De lucht wordt gefilterd door één of meer koolstoffilters, en vervolgens teruggevoerd in de ruimte.

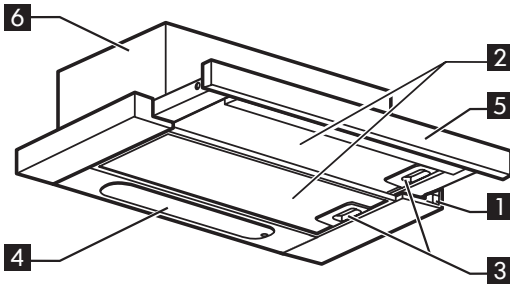
Belangrijk: Zorg voor geschikte luchtrecirculatie rond de kap.

Belangrijk: Als de kap zonder koolstoffilters geleverd is, dan moeten deze gemonteerd worden voordat de kap in gebruik genomen kan worden. Filters zijn verkrijgbaar in de winkel.

De afzuigkap moet uit de buurt van zeer vuile plaatsen, ramen, deuren en warmtebronnen geïnstalleerd worden. De accessoires voor de bevestiging aan de wand zijn niet bijgeleverd omdat voor wanden van verschillende materialen verschillende soorten bevestigingsaccessoires nodig zijn. Gebruik bevestigingssystemen die geschikt zijn voor de wanden van uw huis en voor het gewicht van het elektrische huishoudelijke apparaat. Wendt u tot een gespecialiseerde dealer voor meer details.

Bewaar dit boekje, zodat het later nog eens kunt raadplegen.

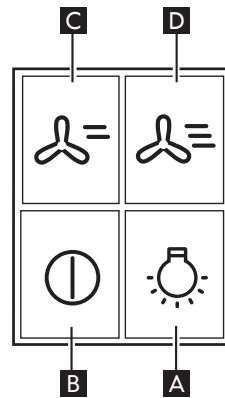
Productbeschrijving



- 1 Bedieningspaneel.
- 2 Vefilter.
- 3 Handgrepen voor ontgrendeling van het vefilter.
- 4 Lampenkap(pen).
- 5 Schuifkap (uittrekbaar).
- 6 Behuizing afzuigenheid.

Bedieningspaneel

- A Verlichting AAN/UIT-toets
- B Afzuigsnelheid 1/UIT-toets
- C Afzuigsnelheid 2
- D Afzuigsnelheid 3



Reiniging en onderhoud

⚠ WAARSCHUWING

- Gebruik nooit stoomreinigers.
- Koppel het apparaat los van de netvoeding.

BELANGRIJK: gebruik geen bijtende of schurende reinigingsmiddelen. Als een dergelijk product per ongeluk in contact komt met het apparaat, verwijder het dan onmiddellijk met een vochtig doekje.

- Reinig de oppervlakken met een vochtig doekje. Als de buitenkant zeer vuil is, voeg dan een paar druppels afwasmiddel toe aan het water.

Afdrogen met een droge doek.

BELANGRIJK: gebruik geen schuursponsjes, sponsjes van staalwol of metalen schrappers. Deze beschadigen metertijd het oppervlak.

- Gebruik reinigingsmiddelen die speciaal bedoeld zijn voor afzuigkappen en volg de aanwijzingen van de fabrikant op.

BELANGRIJK: reinig de filters minstens eenmaal per maand om olie- of vetresten te verwijderen.

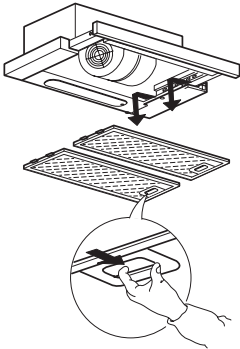
Reinigen van het vefilter

Het metalen vefilter heeft een onbeperkte

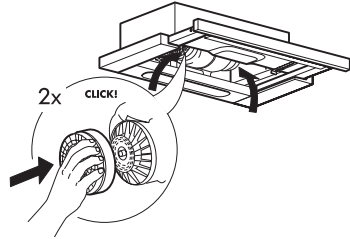
levensduur en moet eens per maand met de hand of in de afwasmachine (kort programma met lage temperatuur) afgewassen worden. Bij afwassen in de afwasmachine kan het filter dof worden; dit heeft geen invloed op de filtercapaciteit.

Onderhoud van het vetfilter:

1. Haal de stekker uit het stopcontact of schakel de stroom in uw woning uit.
2. Verwijder de vetfilters: trek de handgreep met veerhaak naar beneden en haal het filter er omlaag uit.
3. Nadat u het vetfilter heeft gereinigd, voert u voor de montage de bovenstaande handelingen in omgekeerde volgorde uit. Verzekert u ervan dat het vetfilter het gehele afzuigoppervlak bedekt.



5. Monteer het/ de vetfilter(s) weer. Koolstoffilters kunnen niet gewassen of opnieuw gebruikt worden. Vervang het om de 4 maanden.



Ledverlichting

De afzuigkap is voorzien van een verlichtingssysteem gebaseerd op ledtechnologie. De leds garanderen een optimale verlichting, ze gaan tot wel 10 keer langer mee dan traditionele lampjes en maken een besparing van 90% elektrische energie mogelijk.

Neem contact op met het erkend servicecentrum voor vervanging.

Onderhoud van het koolstoffilter

1. Sluit de afzuigkap van het elektriciteitsnet af.
2. Verwijder de vetfilter(s)
3. Als de koolstoffilters reeds gemonteerd zijn en vervangen moeten worden, trek dan aan de filters tot ze loskomen.
4. Als de koolstoffilters nog niet gemonteerd zijn, breng ze dan zo aan dat de beschermroosters van de motor worden afgedekt (twee beschermroosters - twee koolstoffilters). Druk en vergrendel de filters op hun plaats.

Wat moet u doen als...

Probleem	Mogelijke oorzaak	Oplossing
Het apparaat werkt niet	De stroom is uitgevallen	Controleer of de stroom is uitgevallen. Schakel het apparaat uit en vervolgens weer in om te kijken of de storing nog steeds optreedt.
	Het apparaat is niet aangesloten op het elektriciteitsnet	Controleer of het apparaat aangesloten is op het elektriciteitsnet. Schakel het apparaat uit en vervolgens weer in om te kijken of de storing nog steeds optreedt.
Het afzuigvermogen van de kap is onvoldoende	De afzuigsnelheid is te laag	Controleer de afzuigsnelheid en pas deze zo nodig aan.
	De metalen filters zijn vuil	Controleer of de filters schoon zijn. Als dat niet het geval is, reinig de filters dan in de afwasmachine.
	De ventilatieopeningen zijn verstopt	Controleer de ventilatieopeningen op verstopping en verhelp dit.
De verlichting doet het niet	De led is kapot	Neem contact op met het erkend servicecentrum voor vervanging.

Voordat u contact opneemt met het erkend servicecentrum voor vervanging: schakel het apparaat weer in om te zien of het probleem verdwenen is. Als het niet verdwenen is, schakelt u het apparaat weer uit en herhaalt u deze actie na een uur. Als uw apparaat na de controles in de gids voor het opsporen van storingen en nadat u het apparaat opnieuw gestart hebt nog steeds niet goed werkt, neem dan contact op met het erkend servicecentrum en leg het probleem duidelijk uit. Geef het volgende door:

- het soort defect;
- het model;
- het type en serienummer van het apparaat (staat op het typeplaatje);
- het Service-nummer (het nummer na het woord SERVICE op het typeplaatje in het apparaat).

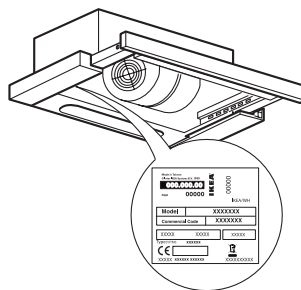
SERVICE 0000 000 00000



Technische gegevens

Type product		Afzuigkap voor wandmontage	
Afmetingen	Breedte	mm	600
	Diepte	mm	min. 300 max. 455
	Hoogte min.	mm	180
	Hoogte max.	mm	180
Totaal vermogen		W	131
Info lampen	Type		LED
	Aantal en vermogen	W	2x3W
	Aansluiting		E14
Minimale installatiehoogte - gasfornuis		mm	650
Minimale installatiehoogte - elektrisch fornuis		mm	500
Gewicht product		Kg	7
Aanvullende productinformatie conform Gedelegeerde verordening (EU) nr. 66/2014 van de Commissie			
Identificatie model			UTDRAG 20304623 UTDRAG 70304625 UTDRAG 00304624
Jaarlijkse energieverbruik		kWh/a	58,7
Tijdstoenamefactor			1,6
Hydrodynamische efficiëntie		%	11,2
Energie-efficiëntie-index			84,1
Gemeten debiet op het beste-efficiëntiepunt		m ³ /h	165
Gemeten luchtdruk op het beste-efficiëntiepunt		Pa	227
Maximaal debiet		m ³ /h	320
Gemeten waarde elektrisch opgenomen vermogen op het beste-efficiëntiepunt		W	93
Nominale opgenomen vermogen van het verlichtingssysteem		W	6
Gemiddelde verlichting van het kookoppervlak door het verlichtingssysteem		lux	78
Elektriciteitsverbruik in de stand-by-stand		W	0
Elektriciteitsverbruik in de uit-stand		W	0
Akoestische A-gewogen geluidsemisatie bij maximumsnelheid		dB(A)	67

De technische informatie staat op het typeplaatje aan de binnenkant van het apparaat.



Milieu

Verwerking van de verpakking


Het verpakkingsmateriaal is 100% recyclebaar, zoals aangegeven wordt door het recyclingsymbool . De diverse onderdelen van de verpakking mogen daarom niet bij het gewone huisvuil worden weggegooid, maar moeten worden afgevoerd volgens de plaatselijke voorschriften.

Afvalverwerking van het product

- Dit apparaat is voorzien van het merkteken volgens de Europese richtlijn 2012/19/EG inzake Agedankte Elektrische en Elektronische Apparatuur (AEEA).
- Door ervoor te zorgen dat dit product op de juiste manier als afval wordt verwerkt, helpt u mogelijk schadelijke gevolgen voor het milieu en de gezondheid te

voorkomen, die veroorzaakt zouden kunnen worden door onjuiste verwerking van dit product als afval.



Het symbool  op het product of op de begeleidende documentatie geeft aan dat dit apparaat niet als huishoudelijk afval behandeld mag worden, maar naar een speciaal verzamelpunt voor recycling van elektrische en elektronische apparatuur moet worden gebracht.

Afvalverwerking van huishoudelijke apparaten

- Dit product is vervaardigd van recyclebaar of herbruikbaar materiaal. Dank het apparaat af in overeenstemming met plaatselijke milieuvorschriften voor afvalverwerking. Snij de voedingskabel door voordat u het apparaat afdankt.
- Voor meer informatie over behandeling, terugwinning en recycling van dit apparaat kunt u contact opnemen met uw plaatselijke instantie, de vuilnisophaaldienst of de winkel waar u dit product hebt gekocht.

Tips om energie te besparen

- Schakel de afzuigkap in op de minimumsnelheid wanneer u met koken begint en laat hem nog enkele minuten na het beëindigen van het koken werken.
- Verhoog de snelheid alleen in geval van grote hoeveelheden rook en damp en

gebruik de hoogste snelheid (snelheden) alleen in extreme omstandigheden.

- Vervang het/de koolstoffilter(s) wanneer dat nodig is om onaangename luchtjes efficiënt te laten afvoeren.
- Maak de/het vetfilter(s) schoon wanneer dat nodig is om de efficiëntie van het vetfilter te behouden.
- Gebruik voor de buizen van het afvoersysteem de maximale diameter zoals aangegeven in deze handleiding om de efficiëntie te optimaliseren en het lawaai te minimaliseren.

Verklaring van overeenstemming



- Dit apparaat is ontwikkeld, geproduceerd en in de handel gebracht in overeenstemming met:
 - veiligheidsvoorschriften van de “Laagspanningsrichtlijn” 2006/95/EG (die de richtlijn 73/23/EEG en latere verordeningen vervangt);
 - de vereisten voor ecologisch ontwerp van de Europese voorschriften nr. 65/2014, en nr. 66/2014 in overeenstemming met de Europese norm EN 61591-1;
 - de beschermingsvereisten van de “EMC”-richtlijn 2004/108/EG.

De elektrische veiligheid van het apparaat is alleen gegarandeerd wanneer het op de juiste wijze op een efficiënt werkende installatie is aangesloten, die volgens de wettelijke voorschriften is geaard.

IKEA GARANTIE

Hoe lang is de IKEA garantie geldig?

Deze garantie is vijf (5) jaar geldig vanaf de oorspronkelijke datum van aankoop van uw apparaat bij IKEA, uitgezonderd indien uw apparaat het merk LAGAN draagt, daar is de garantieperiode van twee (2) jaar van toepassing. Uw origineel kassaticket is vereist. Als er tijdens de garantieperiode service tussenkomsten worden uitgevoerd, wordt de garantietermijn van het apparaat niet verlengd.

Welke apparatuur valt niet onder de vijf (5) jaar IKEA garantie?

De apparaten van het merk LAGAN en alle apparaten die gekocht zijn bij IKEA vóór 1 augustus 2007.

Wie zal de service uitvoeren?

De erkende IKEA servicedienst zal zorgdragen voor de dienstverlening via haar eigen netwerk of via het netwerk van erkende servicediensten.

Wat valt er onder de garantie?

De garantie dekt storingen van het apparaat, die veroorzaakt zijn door verkeerde constructie of materiaalfouten vanaf de aankoopdatum bij IKEA. Deze garantie is uitsluitend van toepassing bij huishoudelijk gebruik. De uitzonderingen worden onder het artikel "Wat is er niet gedekt door deze garantie?" gespecificeerd. Binnen de garantieperiode worden de kosten om de storing te verhelpen vergoed d.w.z. reparaties, onderdelen, arbeidsloon en transport, op voorwaarde dat het apparaat toegankelijk voor reparaties, (cont. zonder speciale kosten) is zonder speciale kosten. Op deze voorwaarden zijn de EG-richtlijnen (Nr. 99/44/EG) en de respectievelijke plaatselijke voorschriften van toepassing. Vervangen onderdelen worden eigendom van IKEA.

Wat zal IKEA doen om het probleem op te lossen?

De door IKEA aangestelde servicedienst zal het product onderzoeken en uitsluitend ter eigen beoordeling bepalen of het gedekt wordt door deze garantie.

Als het defect blijkt te zijn, zal de IKEA servicedienst of de erkende servicedienst via het eigen bedrijf, uitsluitend ter eigen beoordeling, ofwel het defecte product repareren of het vervangen door eenzelfde of een vergelijkbaar product.

Wat valt er niet onder deze garantie?

- Normale slijtage.
- Opzettelijke schade of schade door verwaarlozing, schade veroorzaakt door het niet opvolgen van de gebruiksaanwijzing, foutieve installatie of aansluiting op een verkeerd voltage, schade veroorzaakt door chemische of elektrochemische reactie, roest, corrosie of waterschade, schade veroorzaakt door overmatig kalkgehalte van de watertoevoer, schade veroorzaakt door abnormale omgevingsomstandigheden.
- Verbruiksonderdelen, inclusief batterijen en lampjes.

- Niet-functionele en decoratieve onderdelen die niet van invloed zijn op het normale gebruik van het apparaat, inclusief eventuele krassen en mogelijke kleurverschillen.
- Onvoorziene schade veroorzaakt door vreemde voorwerpen of stoffen en het reinigen of deblokken van filters, afvoersystemen of wasmiddellades.
- Schade aan de volgende onderdelen: glaskeramiek, accessoires, servieskorven en bestekmandjes, aanvoer- en afvoerpijpen, afdichtingen, lampen en lampenkapjes, schermen, knoppen, behuizingen en gedeeltes van behuizingen, tenzij bewezen is dat de schade te wijten is aan een productiefout.
- Gevallen waarbij geen storing geconstateerd kon worden tijdens het bezoek van een technicus.
- Reparaties die niet zijn uitgevoerd door onze aangestelde servicediensten en/of een erkende contractuele servicepartner of wanneer er niet-originele onderdelen gebruikt zijn.
- Reparaties die veroorzaakt zijn door installatie die verkeerd of niet in overeenstemming met de installatie-instructies zijn uitgevoerd.
- Het gebruik van het apparaat in niet huishoudelijke omgeving d.w.z. professioneel gebruik.
- Transportschade. Indien een klant het product zelf naar zijn of haar woning of naar een ander adres transporteert, is IKEA niet aansprakelijk voor schade die optreedt tijdens het transport. Als het product echter door IKEA wordt afgeleverd op het door de klant opgegeven adres, dan wordt schade aan het product die tijdens deze levering ontstaat wel gedekt door IKEA.
- De installatiekosten voor het installeren van het IKEA-apparaat. Als een IKEA servicedienst of een erkende servicepartner het apparaat echter repareert of vervangt onder

de voorwaarden van deze garantie, dan zal de servicedienst of de erkende servicepartner het gerepareerde of vervangende apparaat indien nodig opnieuw installeren.

Deze beperkingen zijn niet van toepassing op foutloze werkzaamheden uitgevoerd door een gekwalificeerde specialist met gebruik van onze originele onderdelen teneinde het apparaat aan te passen aan de technische veiligheidsspecificaties van een ander EG-land.

Hoe de landelijke wetten van toepassing zijn

Deze IKEA garantie verleent u specifieke wettelijke rechten, welke met de eigen lokale wetgeving overeenstemmen of deze overstijgen, die variëren van land tot land. Deze omstandigheden beperken geenszins consumentenrechten die onder de plaatselijke wetgeving vallen.

Gebied van geldigheid

Voor apparaten die in een EU-lidstaat zijn aangeschaft en meegenomen worden naar een ander EU-lidstaat, zal de dienstverlening uitgevoerd worden in het kader van de garantievoorwaarden die in het nieuwe land gebruikelijk zijn. Een verplichting om diensten te verlenen in het kader van de garantie bestaat uitsluitend als het apparaat voldoet aan en geïnstalleerd is in overeenstemming met:

- de technische specificaties van het land waarin aanspraak gemaakt wordt op de garantie;
- de Montage-instructies en de Veiligheidsinformatie uit de Gebruiksaanwijzing.

De speciale KLANTENSERVICE voor IKEA-apparaten

Aarzel niet om contact op te nemen met een Geautoriseerd servicecentrum van IKEA:

- Een claim in te dienen onder deze garantie

- Verduidelijking te vragen in verband met de installatie van het IKEA apparaat in de daarvoor bestemde IKEA keukenmeubels
- Verduidelijking te vragen in verband met de functies van de IKEA apparaten.

Om u beter van dienst te kunnen zijn, leest u best eerst de installatie-instructies en de gebruiksaanwijzing zorgvuldig alvorens ons te contacteren.

Hoe u ons kunt bereiken als u hulp nodig hebt



Op de laatste pagina van deze instructies vindt u de volledige lijst van alle Geautoriseerde servicecentra van IKEA met hun overeenkomstig telefoonnummer.

- i** Om u sneller van dienst te kunnen zijn, adviseren wij u de specifieke telefoonnummers in de handleiding te gebruiken. Vermeld altijd de nummers die vermeld zijn in het boekje van het specifieke apparaat waarvoor u assistentie wilt. Vermeld ook het IKEA artikelnummer (bestaande uit 8 cijfers) en het servicenummer bestaande uit 12 cijfers dat op het typeplaatje van uw apparaat staat.

- i** **BEWAAR DE KASSABON!**
Het is uw bewijs van aankoop en is ook nodig om de geldigheid van de garantie aan te tonen. Op de kassabon is ook de IKEA naam en het artikelnummer (8 cijfers) van elk door u aangeschaft apparaat vermeld

Extra hulp nodig?

Voor alle bijkomende vragen die niet bij de dienst na-verkoop van uw toestellen horen, neem contact op met het call center van uw IKEA winkel. Wij adviseren u de documentatie die bij het apparaat wordt geleverd zorgvuldig door te lezen voordat u contact met ons opneemt.

**BELGIË - BELGIQUE - BELGIEN**

Telefoon/Numéro de téléphone/Telefon-Nummer:	026200311	
Tarif/Tarif/Tarif:	Lokaal tarief/Prix d'un appel local/Ortstarif	
Openingstijd:	Maandag - Vrijdag	8.00 - 20.00
Heures d'ouverture:	Lundi - Vendredi	8.00 - 20.00
Öffnungszeiten:	Montag - Freitag	8.00 - 20.00

БЪЛГАРИЯ

Телефонен номер:	02 4003536	
Тарифа:	Локална тарифа	
Работно време:	понеделник - петък	8.00 - 20.00

ČESKÁ REPUBLIKA

Telefonní číslo:	225376400	
Sazba:	Místní sazba	
Pracovní doba:	Pondělí - Pátek	8.00 - 20.00

DANMARK

Telefonnummer:	70150909	
Takst:	Lokal takst	
Åbningstid:	Mandag - fredag	9.00 - 21.00
	Lørdag	9.00 - 18.00
	(Åbent udvalgte søndage, se IKEA.dk)	

DEUTSCHLAND

Telefon-Nummer:	06929993602	
Tarif:	Ortstarif	
Öffnungszeiten:	Montag - Freitag	8.00 - 20.00

ΕΛΛΑΔΑ

Τηλεφωνικός αριθμός:	2109696497	
Χρέωση:	Τοπική χρέωση	
Ώρες λειτουργίας:	Δευτέρα - Παρασκευή	8.00 - 20.00

ESPAÑA

Teléfono:	913754126	
Tarifa:	Tarifa local	
Horario:	Lunes - Viernes	8.00 - 20.00
	(España Continental)	

FRANCE

Numéro de téléphone:	0170480513	
Tarif:	Prix d'un appel local	
Heures d'ouverture:	Lundi - Vendredi	9.00 - 21.00

HRVATSKA

Broj telefona:	0800 3636	
Tarifa:	Lokalna tarifa	
Radno vrijeme:	Ponedjeljak - Petak	8.00 - 20.00

ÍSLAND

Símanúmer:	5852409	
Kostnaður við símtal:	Almennt mínútuverð	
Opnunartími:	Mánudaga - Föstudaga	9.00 - 17.00

ITALIA

Telefono:	0238591334	
Tariffa:	Tariffa locale	
Orari d'apertura:	Lunedì - Venerdì	8.00 - 20.00

LIETUVIŲ

Telefono numeris:	(0) 520 511 35	
Skambūčio kaina:	Vietos mokestis	
Darbo laikas:	Nuo pirmadienio iki penktadienio	8.00 - 20.00

MAGYARORSZÁG

Telefon szám:	(06-1)-3285308	
Tarifa:	Helyi tarifa	
Nyitvatartási idő:	Hétfőtől Péntekig	8.00 - 20.00

NEDERLAND

Telefoon:	09002354532 en/of 0900 BEL IKEA	
Tarif:	15 cent/min., starttarief 4.54 cent en gebruikelijke belkosten	
Openingstijd:	Maandag t/m - Vrijdag	8.00 - 20.00
	Zaterdag	9.00 - 20.00
	Zondag	gesloten

NORGE

Telefon nummer:	23500112	
Takst:	Lokal takst	
Åpningstider:	Mandag - fredag	8.00 - 20.00

ÖSTERREICH

Telefon-Nummer:	013602771461	
Tarif:	Ortstarif	
Öffnungszeiten:	Montag - Freitag	8.00 - 20.00

POLSKA

Numer telefonu:	225844203	
Stawka:	Koszt połączenia według taryfy operatora	
Godziny otwarcia:	Poniedziałek - Piątek	8.00-20.00

PORTUGAL

Telefone:	213164011	
Tarifa:	Tarifa local	
Horário:	Segunda - Sexta	9.00 - 21.00

REPUBLIC OF IRELAND

Phone number:	016590276	
Rate:	Local rate	
Opening hours:	Monday - Friday	8.00 - 20.00

ROMÂNIA

Număr de telefon:	021 2044888	
Tarif:	Tarif local	
Orar:	Luni - Vineri	8.00 - 20.00

РОССИЯ

Телефонный номер:	84957059426	
Стоимость звонка:	Местная стоимость звонка	
Время работы:	Понедельник - Пятница	9.00 - 21.00
	(Московское время)	

SCHWEIZ - SUISSE - SVIZZERA

Telefon-Nummer/Numéro de téléphone/Telefono:	0225675345	
Tarif/Tarif/Tariffa:	Ortstarif/Prix d'un appel local/Tariffa locale	
Öffnungszeiten:	Montag - Freitag	8.00 - 20.00
Heures d'ouverture:	Lundi - Vendredi	8.00 - 20.00
Orario d'apertura:	Lunedì - Venerdì	8.00 - 20.00

SLOVENSKO

Telefónne číslo:	(02) 50102658	
Cena za hovor:	Cena za miestny hovor	
Pracovná doba:	Pondelok až piatok	8.00 - 20.00

SRBIJA

<http://www.ikea.com>

SUOMI

Puhelinnumero:	0981710374	
Hinta:	Yksikköhinta	
Aukioloaika:	Maanantaista perjantaihin 8.00 - 20.00	

SVERIGE

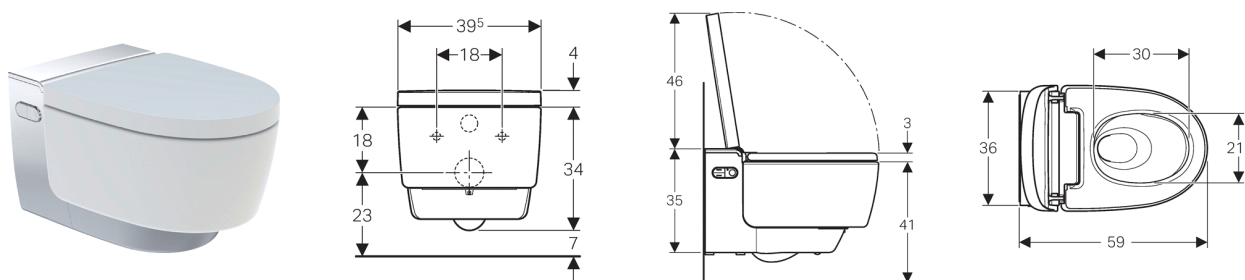
Telefon nummer:	0775-700 500	
Taxa:	Lokal samtal	
Öppet tider:	Måndag - Fredag	8.30 - 20.00
	Lördag - Söndag	9.30 - 18.00

UNITED KINGDOM

Phone number:	02076601517	
Rate:	Local rate	
Opening hours:	Monday - Friday	9.00 - 21.00



Geberit AquaClean Mera Comfort WC complete solution, wall-hung WC



Application purpose

- For convenient and odourless toilet use
- For gently cleaning the anal and vaginal areas with water

Characteristics

- Hybrid hot water system with continuous flow heater and storage water heater
- Anal shower with double-nozzle WhirlSpray shower technology
- Separate Lady shower nozzle in protected park position
- Adjustable shower water temperature
- Spray intensity can be set to five different levels
- Spray arm can be set to five different positions
- Adjustable oscillating spray (automatic forward and reverse motion of the spray arm)
- Automatic pre- and post-rinsing of the spray nozzle with fresh water
- Descaling programme
- Rimless WC ceramic appliance featuring TurboFlush flush technology
- Washdown WC with dirt-repellent ceramic surface
- User detection
- Odour extraction with ceramic honey comb filter can be activated
- Odour extraction unit with run-on function
- Dryer can be activated
- Dryer arm can be extended
- Adjustable dryer temperature
- WC seat with rapid heating function
- Adjustable temperature of the WC-seat heating
- WC seat and WC lid with SoftClosing
- WC lid with SoftOpening
- Touchless opening and closing of the WC lid
- Activation of the orientation light when approaching
- Orientation light can be set in seven colours
- Functions and settings via remote control
- Four user profiles can be programmed
- Water supply connection on the left, hidden behind the WC ceramic
- Mains connection with flexible three-wire sheathed cable, on the right side, hidden behind the WC ceramic
- External water supply connection on the left, accessories possible
- External mains connection with power outlet on the right possible
- Approval in accordance with EN 1717 / EN 13077

Technical data

Protection class	I
Protection degree	IPX4
Nominal voltage	230 V AC
Mains frequency	50 Hz
Power consumption	2000 W
Power consumption standby	≤ 0.5 W
Flow pressure	0.5-10 bar
Minimum flow pressure	0.5 bar
Operating temperature	5-40 °C
Water temperature, adjustment range	34-40 °C
Calculated flow rate	0.03 l/s
Spray time	30-50 s
Maximum load WC seat	150 kg

Scope of delivery

- Water supply connection set for Geberit Sigma concealed cistern 12 cm and Geberit Omega concealed cistern 12 cm
- Female socket for mains connection
- Spray shield
- Descaling agent, 125 ml
- Cleaning set
- Connection set for WC, ø 90 mm
- Remote control with wall-mounted case and battery CR2032
- Fastening material

Article

Art. no.	Colour / Surface
146.210.11.1	white alpine
146.210.21.1	gloss chrome-plated

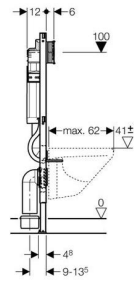
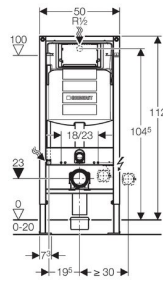
- i** This product is supplied with the Geberit AquaClean descaling agent and the Geberit AquaClean cleaning agent. These consumables contain classified hazardous substances. Information, instructions and measures for handling hazardous substances safely can be found in the appendix or at www.geberit.co.uk.

Accessories

- Geberit wall-mounted control panel for Geberit AquaClean Mera
- Interface module for Geberit Aqua Clean Mera
- Accessory overview: Water supply and electrical connection for Geberit concealed cisterns

11.1122.3418 Water reserve

Geberit Duofix frame for wall-hung WC, H112, with Sigma cistern 12 cm (UP320)



Application purpose

- For installation of a wall-hung WC with bolt fixings set at 180 or 230 mm centres
- For installation in a room-height Duofix system wall in front of a solid or drywall construction
- For mounting in front of a solid or drywall construction
- For a screed of 0 - 200 mm (not in room height applications)
- For connecting Geberit AquaClean

Characteristics

- Self-supporting
- Frame with C profile 40/40 mm
- Powder-coated frame, ultramarine blue
- Galvanised leg supports, steplessly adjustable 0 - 200 mm
- Feet can be retracted 5 cm
- Rotating foot plate, for installation in UW50 and UW75 profiles
- Frame with holes \varnothing 9 mm for fastening in wood frame construction
- Sound-absorbing actuator rods, tool-free, fast adjustment
- Concealed cistern fully insulated against condensation
- Concealed cistern for tool-free mounting and maintenance
- Frame height 1120 mm
- With wall brackets to allow up to a 200 mm duct. For larger ducts up to 400 mm use extension bolts 111.887.00.1
- Tool-free fastening for outlet bend, sound-absorbing, adjustable in depth with 8 positions, adjustable range 45 mm
- Connection hose to angle stop valve can be screwed without tools
- Water supply connection at centre back or at the top
- Geberit Sigma concealed cistern 12 cm (UP320) with front actuation
- Dual flush with Sigma80, Sigma60, Sigma50, Sigma20, Sigma01 or Bolero flush plates
- Single flush with Sigma10, Rumba, Mambo or Tango flush plates
- Dual flush with pneumatic button
- Single flush with touchless flush or pneumatic buttons
- The protection cover protects the service opening against moisture and dirt and can be mounted without tools and cut to length
- Universal water supply connection compatible with MeplaFix, can be mounted and operated without tools
- Self-locking feet for tool-free alignment of the frame, (friction feet have to be locked with spanner)
- For pans with contact surfaces smaller than 170 mm (see accessory 111.847.00.1)
- Flush valve features settings to enable either a 6l and 3l flush or a 4.5l and 3l flush. For flush volumes of 4l and 2l a low flush beaker is required (241.894.00.1)

Technical data

Flow pressure range	0.1-10	bar
Operating temperature water max.	25	°C
Flush volume small range	3-4	l
Flush volume factory setting	5.8 and 3	l

Scope of delivery

- 2 Duofix PreWall brackets for system
- Water supply connection R 1/2" male BSP parallel thread with integrated angle stop valve and hand wheel
- Conduit pipe for the water supply connection of Geberit AquaClean
- Flush bend
- Protection plug
- Protection housing for service opening
- 2 threaded rods M12 for ceramics fastening
- WC connection set, \varnothing 90 mm
- WC outlet bend, HDPE, \varnothing 90 mm
- Adaptor sleeve, HDPE, \varnothing 90/110 mm
- Fastening material
- To be installed with a check valve or similar providing backflow prevention protection

Excluded:

- Flush plate

Article

Article no.	PU1	PU4
111.383.00.5	1	12

11.2133.3132 Dutch combination

KENZ
BATHROOM PRODUCTS



Bespaar tot
wel 90% op
water- &
gasverbruik



Upfall Shower

De krachtigste en zuinigste
douche ter wereld

Xenz Upfall



Upfall Shower

'De krachtigste en zuinigste douche ter wereld'

In Nederland verbruiken we gemiddeld 52 procent van het drinkwater per persoon per dag met douchen. Dit past niet in de trend van een duurzame samenleving. De Upfall Shower is een spaardouche die tot 80 - 90% zuiniger is dan een normale douche. Door het unieke upcycle systeem geniet u van een krachtige, schone douchebeleving met echt wellness comfort.



'De te bereiken EPC verlaging kan oplopen tot 0.18. De gemeten KIWA efficiency bedraagt 70%

De Upfall Shower kent 2 standen: de wellness- en de spaarstand. U kunt eerst douchen op de spaarstand. Deze werkt net als uw huidige douche, zodat u zich goed kunt wassen met water en zeep. Daarna kunt u extra lang genieten op de wellness-stand. Het reservoir sluit en vult zich automatisch en pompt water rond. Het water wordt gefilterd en gereinigd met Philips UV. Het systeem voegt continu een kleine hoeveelheid schoon warm water toe, om het water te verversen en op temperatuur te houden. Na gebruik wordt het systeem automatisch gespoeld en gelegegd.

Het water wordt dus continu gefilterd, gereinigd, verwarmd en ververs.

'De oplossing voor 'CO2 neutraal' en 'nul op de meter' bouwen. Deze groene douche bespaart op water, energie, afvalwater en CO2.

Verbruik slechts 1,2 liter water per minuut (KIWA).'



Xenz Upfall Premium

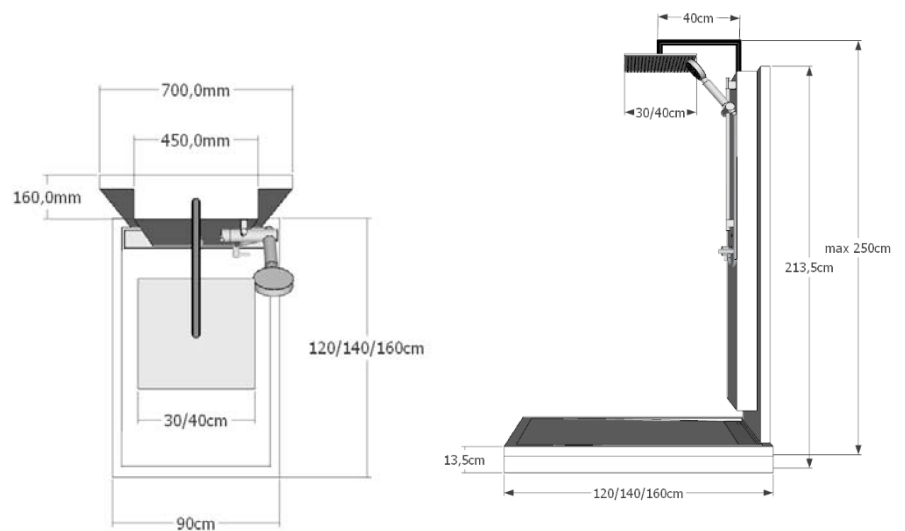
Standaard uitvoering in hoogwaardig wit acryl

- Douchetray met paneel 213,5 cm hoog (tray 13,5 cm hoog *incl. sifon*)
- Thermostatische kraan
- Design handdouche op houder (reguliere douche)
- Upfall systeem met vierkante regendouche 30x30 cm
- Elektronische bediening
- Philips UV desinfectiesysteem
- Automatische naspoel en leegloop

€ 3495,-
ex. btw

Art.nr.	Maten tray	Wit(01)	Kleur*
UFPR0912	90X120X13,5	€ 3.495,-	€ 3.795,-
UFPR0914	90X140X13,5	€ 3.545,-	€ 3.845,-
UFPR0916	90X160X13,5	€ 3.545,-	€ 3.895,-

Prijzen exclusief 21% BTW



Getoond model met optie glijstang en 3 st. handdouche.

Voor prijzen kijk onder opties.

Upfall Shower
time to care

Xenz Upfall Excellent Tray

Standaard uitvoering in hoogwaardig acryl met witte of zwarte glasplaat

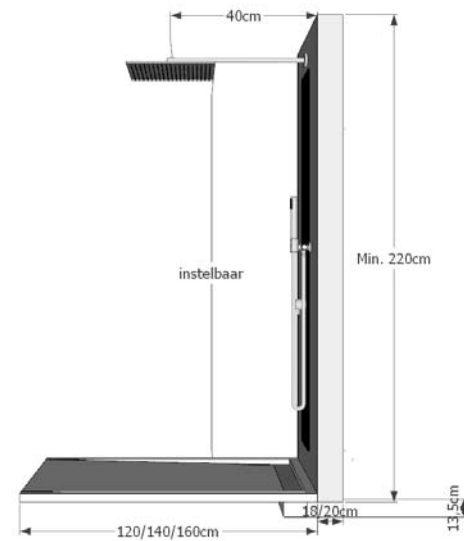
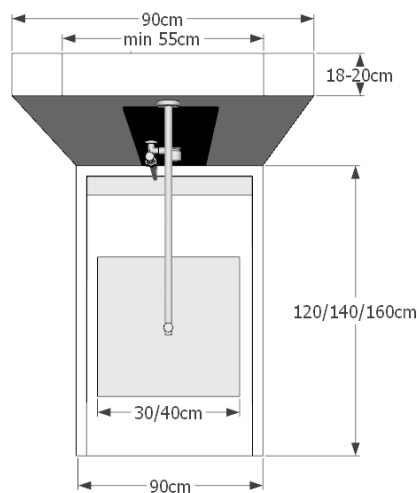
- Douche tray 13,5 cm hoog *incl. sifon*
- Inbouw frame 18-20cm diep, 55cm breed, minimaal 220 cm hoog.
Glasplaat in wit (w) of zwart (z)
- Thermostatische kraan
- Design handdouche op houder (reguliere douche)
- Upfall systeem met vierkante regendouche 30x30 cm
- Elektronische bediening
- Philips UV desinfectiesysteem
- Automatische naspoel en leegloop

€ 3750,-

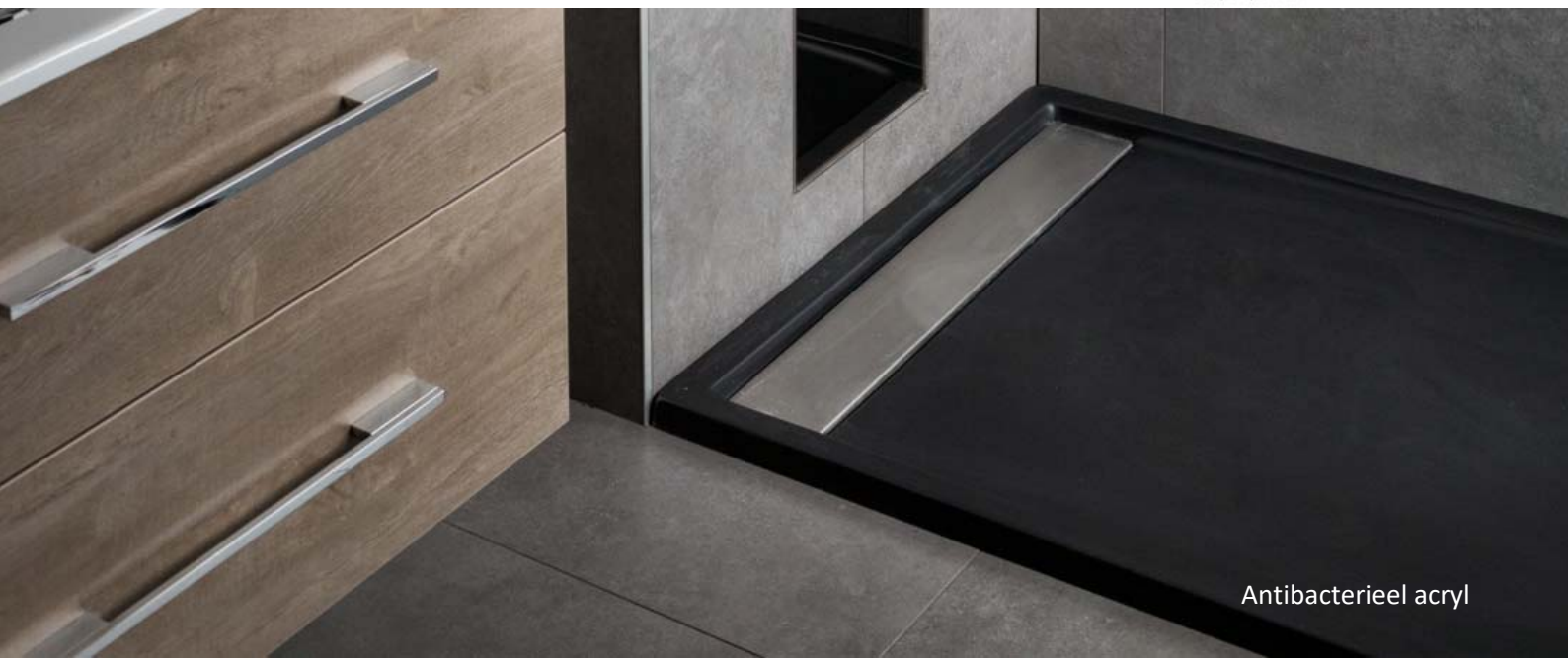
Ex. BTW

Art.nr.	Maten Tray	Wit (01) w/z	Tray kleur* w/z
UFEX0912	90X120X13,5	€ 3750,-	€ 3795,-
UFEX0914	90X140X13,5	€ 3795,-	€ 3845,-
UFEX0916	90X160X13,5	€ 3845,-	€ 3895,-

Prijzen exclusief 21% BTW



Getoond model met optie glijstang en 3 st. handdouche. Voor prijzen kijk onder opties.



Antibacterieel acryl

Xenz Upfall Excellent Drain

Standaard uitvoering met witte of zwarte glasplaat en RVS drain

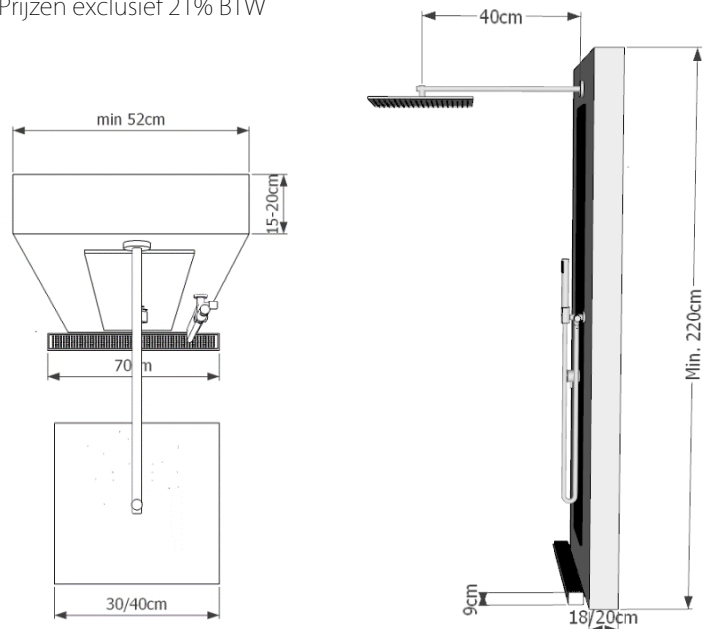
- Inbouw diepte drain 9 cm *inclusief sifon*
- Inbouw frame 18-20 cm diep, 55 cm breed, minimaal 220cm hoog
- Thermostatische kraan
- Design handdouche op houder (reguliere douche)
- Upfall systeem met vierkante regendouche 30 x 30 cm
- Elektronische bediening
- Philips UV desinfectiesysteem
- Automatische naspoel en leegloop

€ 3995,-

Ex. BTW

Art.nr.	Maten	Wit	Zwart
UFEXD0912		€ 3.995,-	€ 3.995,-

Prijzen exclusief 21% BTW



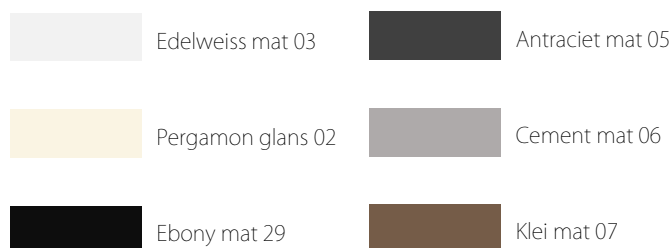
KIWA

Gecertificeerd

Opties

	Art.nr	Prijs ex BTW	Naam systeem		
			Premium	Excellent	Excellent Drain
Regendouche rond 30 cm	UF-01	€ 35,-	X	X	X
Ronde handdouche met 3 standen	UF-04	€ 35,-	X	X	X
Glijstangset i.p.v. handdouche houder	UF-05	€ 65,-	X	X	X
Plafond uitloop met aansluiting (i.p.v. wanduitloop) alleen voor 30cm hoofddouche	UF-06	€ 150,-		X	X
Plafond inbouw turbo douche 36x36cm. 30 lt/ min.	UF-07	€ 395,-		X	X

*Kleur opties



Alle modellen zijn standaard uitgevoerd met een design handdouche op een houder

Technisch

Standaard geeft het Upfallshower systeem 24 liter water per minuut.
Bij de inbouw modellen kan deze capaciteit verhoogt worden naar ruim 36 liter per minuut door gebruik van de 36 x 36 cm inbouw turbo wellness douche

- Een gearde aansluiting voor 220 volt.
- Aardlekschakelaar 30mA. 75 watt
- Warm en koud water ½
- Warm water, minimaal 1,5 liter water van 55 graden per minuut
- Een 40 mm afvoer
- Geen drukverhogers
- Benodigd water om Upfall systeem te starten 3 liter



De Upfallshower Excellent Tray en de Upfall Excellent Drain zijn voorzien van een stalen frame. Het frame kunt u afbouwen als een toilet element





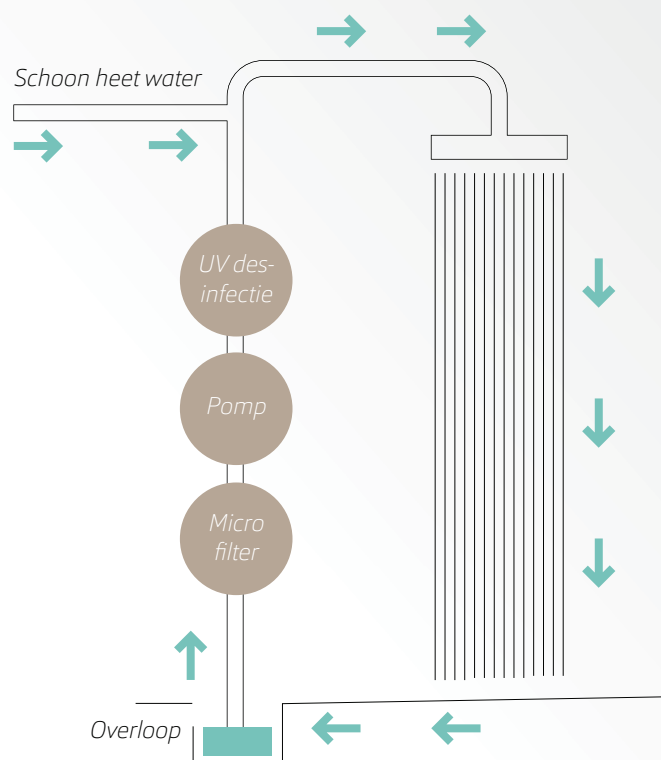
Duurzaam
Met maximaal
comfort

Het nieuwe douchen



Het Upfall upcycle shower systeem in 9 stappen

1. Het kleine reservoir vult zich met water.
2. Het water wordt opgezogen uit het reservoir.
3. Een microfilter houdt haren en vuil tegen.
4. Een pomp duwt het water "UP".
5. Het UV-filter reinigt het water.
6. Warm water wordt toegevoegd om het water te verversen en op temperatuur te houden.
7. Geniet van de heerlijke brede "FALL" uit de grote hoofddouche.
8. Circulatieproces herhaalt zich, zolang u dat wenst.
9. Na het douchen wordt het systeem automatisch nagespoeld.



Showroom
Antennestraat 8
1322 AB Almere
T.036 5365700
info@upfallshower.com
www.upfallshower.com

openingtijden:

Dinsdag t/m vrijdag 10.00 tot
17.00

Zaterdag 10.00 tot 16.00

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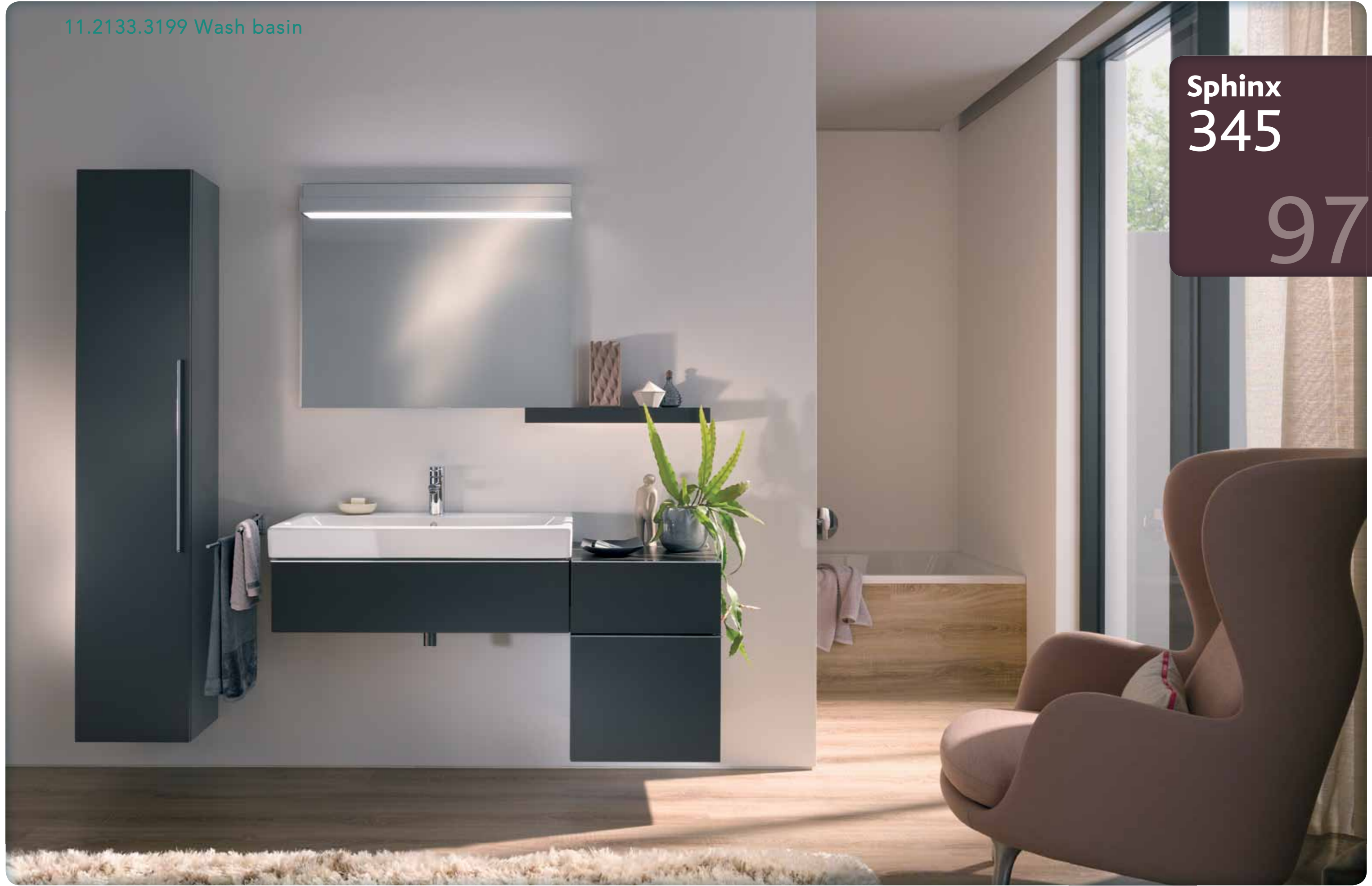


Beterbad BV De
Linge 33-35 8253
PJ Dronten T.
0321-380028 F.
0321-380242
verkoop@xenz.nl
www.xenz.nl

11.2133.3199 Wash basin

Sphinx
345

97





98

Grafisch exacte contouren, organisch vloeiende vormen voor moderne, architectonische badkameroplossingen.

Des contours géométriques parfaits, un lavabo tout en fluidité pour des salles de bains à l'architecture avant-gardiste.

99

Inner basin blending graphically-precise contours with organic flow for modern architectural bathroom solutions.



Wastafel en meubel volgens persoonlijke denkbeelden door ruimtelijke architectuur en comfort gecombineerd. De lichtlijst en het planket aan de spiegel kunnen zijdelings worden verplaatst. Sphinx 345 nodigt u uit tot een creatief spel met verschillende niveaus.

Le lavabo et le mobilier répondent aux souhaits personnels de confort et d'aménagement de l'espace. Le bandeau lumineux et la tablette sont latéralement décalés; le Sphinx 345 laisse libre cours à votre créativité, à tous les points de vue.

Washbasin and bathroom furniture, combined to suit your personal concepts of spatial architecture and convenience. Strip light for mirror and shelf below is displaced sideways. An invitation from Sphinx 345 to approach the various levels creatively.

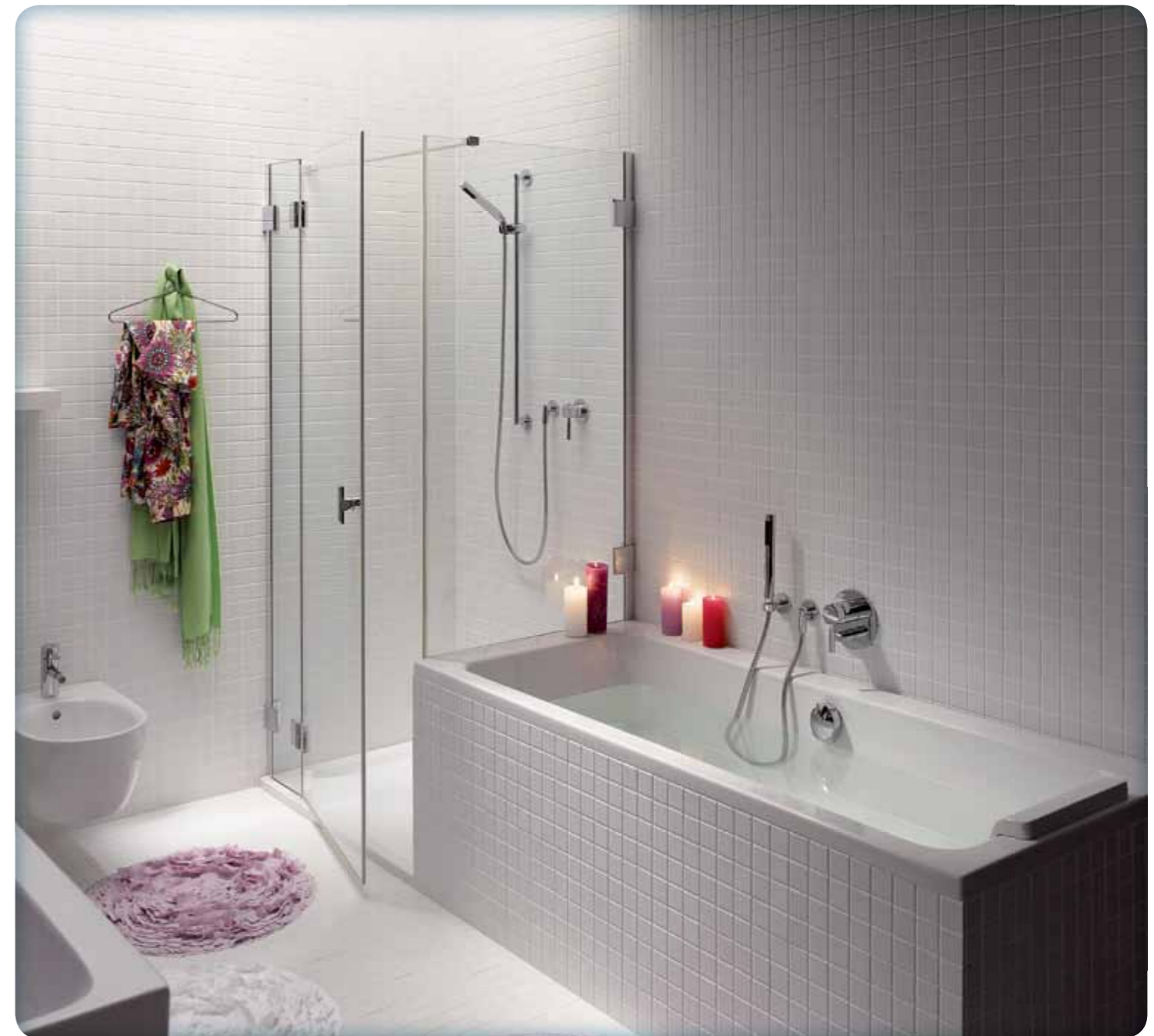


Het omvangrijke aanbod aan wastafels omvat ook asymmetrische vormen. De bijzonderheid: een uitsparing in het keramiek, uitgerust met een decoratieve schaal. Innovatief en modern – elegant.

La gamme étendue de lavabos comprend également des formes asymétriques. Leur particularité: une cavité dans la céramique, permettant d'accueillir une coupelle décorative. Innovation et élégance contemporaine.

The wide range of available washbasins also includes asymmetrical designs. Special feature: the ceramic is indented to accommodate a decorative dish. Innovative, modern, elegant.





Zich goed voelen met alles, dat daarbij hoort. Van de klassieke dubbele wastafel met onderbouw via wandcloset en wandbidet tot baden – de badkamerserie Sphinx 345 kan uiterst variabel gecombineerd worden. Optioneel om ontspannen te baden: het nekkussen.

Le bien-être – et tout ce qui va avec. Du double-lavabo traditionnel avec meuble sous-lavabo aux baignoires, en passant par les WC et bidets – la ligne de salles de bains Sphinx 345 offre d'innombrables possibilités de combinaison. En option pour une détente totale lors du bain: l'appuie-tête.

Comfort, and everything that entails. From the classic double washbasin with vanity unit or the WC and bidet right through to baths – the Sphinx 345 bathroom range offers an exceptionally flexible range of possible combinations. A further option for a truly relaxed bathing experience is the neckrest.





Met drie hedendaagse, moderne kleuren eiken naturel, wit mat en lava mat biedt Sphinx 345 nog meer actuele mogelijkheden voor de inrichting van badkamers met een modern design. De badmeubels in eiken naturel komen daarbij op een verfijnde en elegante manier

tegenoet aan de vraag naar authentieke natuurlijkheid voor de badkamer thuis.

Avec les trois nouvelles teintes modernes chêne naturel, blanc mat et lava mat la série Sphinx 345 offre des nouvelles options de style pour des salles de bains

aux lignes modernes. Chêne naturel répond à la demande pour une ambiance naturelle authentique à la maison.

With three contemporary colors natural oak, white matt and lava matt Sphinx 345 offers additional design options for bathrooms with an modern appearance. The

demand for an authentic natural ambiance at home is now met in an elegant way by this bathroom furniture in natural oak.



Maar ook in wit mat of in lava mat onderstrepen Sphinx 345 badmeubels de individueel gecreëerde badkamersfeer. Het modulaire karakter van Sphinx 345 zorgt voor een comfortabele en flexibele inrichting.

Qu'ils soient en alpin mat ou en lava mat les meubles de salle de bain Sphinx 345 soulignent la nature individuelle des ambiances de couleur et des concepts spatiaux. Cette flexibilité de conception est encore renforcée par les tiroirs à fermeture douce automatique, les armoires basses de rangement supplémentaires et le principe modulaire de Sphinx 345.

Whether in white matt or in lava matt , Sphinx 345 bathroom furniture underlines the individual nature of color moods and spatial concepts. Soft-closing drawers, low cabinets for additional space and the modular concept of Sphinx 345 comfortably add flexibility to this design.



Het wandcloset uit de Sphinx 345 serie is dankzij een innovatieve wandbevestiging aan de buitenkant esthetisch glad en dus uitermate gemakkelijk in het onderhoud. Nog eenvoudiger schoonmaken is de Rimfree® uitvoering van dit wandcloset.

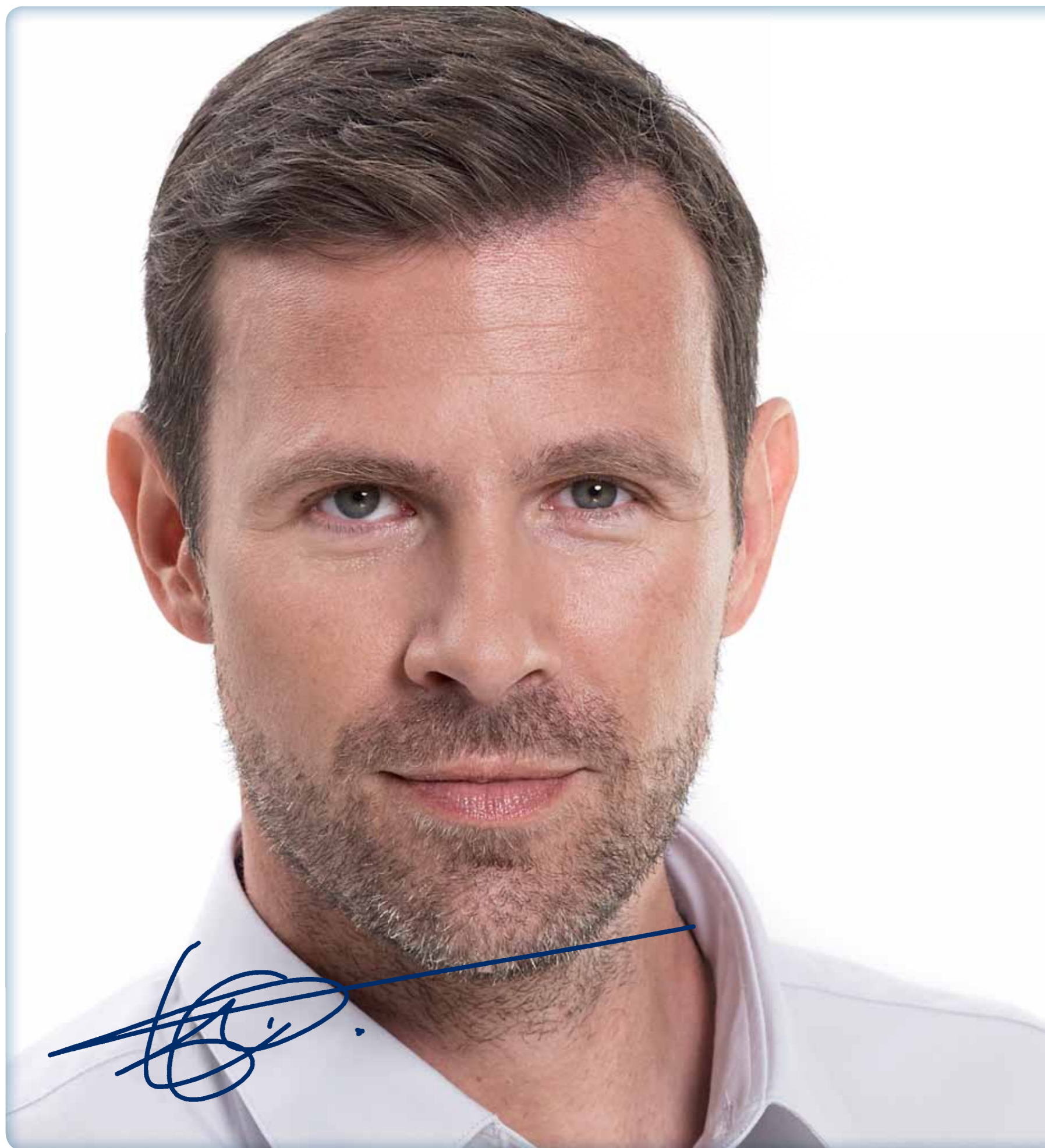
Grâce à la fixation murale innovante, la cuvette suspendue de la série Sphinx 345 est esthétiquement lisse à l'extérieur et donc extrêmement facile à entretenir. L'exécution Rimfree® de la cuvette suspendue est encore plus facile à nettoyer.

The wall hung closet pan from the Sphinx 345 series is aesthetically smooth and so very easy to clean, thanks to an innovative wall mounting fixation. Even easier cleaning is the Rimfree® version of this wall mounted toilet.

Productinformatie Sphinx 345
Zie pagina 205

Information produits Sphinx 345
Voir page 205

Product information Sphinx 345
See page 205



Mijn badkamer Mijn verhaal

De Sphinx 345 serie met zijn vloeiende vormen paste perfect bij mijn wensen: een moderne en tegelijkertijd tijdloze badkamer met innovatieve oplossingen. Zoals de lichtlijst en het planket, die bij montage naar de zijkant kunnen worden verplaatst. Ik kan in mijn domein nu echt genieten van een goed boek in bad.

Leon, communicatie expert

Mijn badkamer Mon histoire

La série Sphinx 345 avec ses formes fluides correspondait parfaitement avec ce que je voulais: une salle de bains à la fois moderne et intemporelle, avec des solutions innovantes. Comme le bandeau lumineux et la tablette qui peuvent être décalés latéralement lors du montage. Dans mon domaine, j'ai maintenant vraiment beaucoup de plaisir à lire un bon bouquin dans mon bain.

Léon, expert en communication

My bathroom My story

The Sphinx 345 series with its flowing shapes is the perfect match for my wishes – a modern and timeless bathroom with innovative solutions. For example, the lighting cove or the shelf that can be moved aside while mounting. My realm is now the ideal place to enjoy a good book in the bath.

Leon, communications expert

Wastafel 60
Lavabo 60
Washbasin 60
 60 x 48,5 cm
 > S8307900000



Wastafel 75
Lavabo 75
Washbasin 75
 75 x 48,5 cm
 > S8308000000



Wastafel 90 met kraangat
Lavabo 90 avec trou pour robinet
Washbasin 90 with tapholes
 90 x 48,5 cm
 > S8308100000



Wastafel 90 zonder kraangat
Lavabo 90 sans trou pour robinet
Washbasin 90 without tapholes
 90 x 48,5 cm
 > S8308105000



Dubbele wastafel 120
Lavabo double 120
Double washbasin 120
 120 x 48,5 cm
 > S8308300000



Wastafel 120 met 2 kraangaten
Lavabo 120 avec 2 trous pour robinets
Washbasin 120 with 2 tapholes
 120 x 48,5 cm
 > S8308202000



Wastafel 120 zonder kraangaten
Lavabo 120 sans trous pour robinets
Washbasin 120 without tapholes
 120 x 48,5 cm
 > S8308200000



Wastafel 50 links met schaalje
Lavabo 50 gauche avec coupelle
Washbasin 50 left with dish
 50 x 48,5 cm
 > S8307600000



Wastafel 50 rechts met schaalje
Lavabo 50 droite avec coupelle
Washbasin 50 right with dish
 50 x 48,5 cm
 > S8307500000



Wastafel 90 links met schaalje
Lavabo 90 gauche avec coupelle
Washbasin 90 left with dish
 90 x 48,5 cm
 > S8307800000



Wastafel 90 rechts met schaalje
Lavabo 90 droite avec coupelle
Washbasin 90 right with dish
 90 x 48,5 cm
 > S8307700000



* Verlengde sifonafvoerpijp noodzakelijk
 * Tuyaux d'évacuation plus long est nécessaire
 * Extended drain pipe necessary

* Verlengde sifonafvoerpijp noodzakelijk
 * Tuyaux d'évacuation plus long est nécessaire
 * Extended drain pipe necessary

Wandcloset 6 liter
Cuvette suspendue 6 litres
Wallhung pan 6 litres
 35,5 x 53 cm
 > S8202700000

* Verlengde sifonafvoerpijp noodzakelijk
 * Tuyaux d'évacuation plus long est nécessaire
 * Extended drain pipe necessary



Zitting | Abattant | Seat
 (Topfix bevestiging |
 fixation Topfix | fixation Topfix)
 > S8H51205000

Zitting | Abattant | Seat
 (softclose mechanisme | mécanisme
 softclose | softclose mechanism)
 > S8H5095C000

Wandcloset Rimfree®
Cuvette suspendue Rimfree®
Wallhung pan Rimfree®
 diepspoel | à fond creux | wash-down
 35,5 x 54 cm
 > S8203700000

Rimfree®



Zitting | Abattant | Seat
 (Topfix bevestiging |
 fixation Topfix | fixation Topfix)
 > S8H51205000

Zitting | Abattant | Seat
 (softclose mechanisme | mécanisme
 softclose | softclose mechanism)
 > S8H5095C000

Duocloset 6 liter universeel
Cuvette pour duo 6 litres universelle
Universal WC closet-pan 6 litre
 36 x 86 x 68 cm
 > S8103700000



Reservoir | Réservoir | Cistern
 > S8502400000

Zitting | Abattant | Seat
 (Topfix bevestiging |
 fixation Topfix | fixation Topfix)
 > S8H51205000

Zitting | Abattant | Seat
 (softclose mechanisme | mécanisme
 softclose | softclose mechanism)
 > S8H5095C000

• Met kunststofpijpen zijn verschillende
 afvoeren te realiseren:
 PK > standaard
 AO > S8H871000
 • Dubbelspoeling voor 6/3 liter
 • Inclusief vloermontageset

• Des sorties en matière synthétique
 permettent de réaliser différents vidages:
 PK > standard
 AO > S8H871000
 • 2 volumes de rinçage 6/3 litres
 • Incl. jeu de fixation au sol

• With a loose connection you can match
 different outlets:
 PK > standard
 AO > S8H871000
 • Dualflush for 6/3 liter
 • Floor mounting fixingset included

Wandbidet
Bidet suspendu
Wallhung bidet
 35,5 x 54 cm
 > S8902500000

**Eigenschappen badmeubels**

- Verchroomde handgrepen
- Laden zijn gedempt en zelfsluitend
- Verschillende kleuren mogelijk:
 wit, bourgogne rood, platinagrijs, wit mat,
 lava mat, eiken naturel
- Mogelijkheid voor vloerbuisaansluiting

Caractéristiques meubles de salle de bains

- Poignées chromées
- Tiroirs à fermeture douce et automatique
- Différentes combinaisons de couleurs possible:
 blanc, rouge bourgogne, gris platine, wit mat,
 lava mat, chêne naturel
- Possibilité pour évacuation par le sol

Features bathroom furniture

- Chromated furniture grips
- Drawers with soft- and selfclosing mechanism
- Different colour combinations possible:
 white, burgundy red, platin grey, white matt,
 lava matt, natural oak
- Possibility for floor drain pipe

Planchet 60
Tablette 60
Shelf 60

60 x 16,5 x 5 cm

wit | blanc | white > S8M09043000
 bourgogne rood | rouge bourgogne | burgundy red > S8M09043HBO
 platinagrijs | gris platine | platin grey > S8M09043HPO
 wit mat | blanc mat | white matt > S8M09043600
 lava mat | lava mat | lava matt > S8M09043YLO
 eiken naturel | chêne naturel | natural oak > S8M09043YMO

**Planchet 90**
Tablette 90
Shelf 90

90 x 16,5 x 5 cm

wit | blanc | white > S8M09045000
 bourgogne rood | rouge bourgogne | burgundy red > S8M09045HBO
 platinagrijs | gris platine | platin grey > S8M09045HPO
 wit mat | blanc mat | white matt > S8M09045600
 lava mat | lava mat | lava matt > S8M09045YLO
 eiken naturel | chêne naturel | natural oak > S8M09045YMO

**Wastafelonderbouw voor wastafel 60**
Meuble sous-lavabo pour lavabo 60
Undercounter for washbasin 60

59,5 x 47,7 x 24 cm

wit | blanc | white > S8M09003000
 bourgogne rood | rouge bourgogne | burgundy red > S8M09003HBO
 platinagrijs | gris platine | platin grey > S8M09003HPO
 wit mat | blanc mat | white matt > S8M09003600
 lava mat | lava mat | lava matt > S8M09003YLO
 eiken naturel | chêne naturel | natural oak > S8M09003YM



• 1 lade
 • 1 tiroir
 • 1 drawer

Wastafelonderbouw voor wastafel 60
Meuble sous-lavabo pour lavabo 60
Undercounter for washbasin 60

59,5 x 47,7 x 62 cm

wit | blanc | white > S8M09021000
 bourgogne rood | rouge bourgogne | burgundy red > S8M09021HBO
 platinagrijs | gris platine | platin grey > S8M09021HPO
 wit mat | blanc mat | white matt > S8M09021600
 lava mat | lava mat | lava matt > S8M09021YLO
 eiken naturel | chêne naturel | natural oak > S8M09021YMO



• 2 laden
 • 2 tiroirs
 • 2 drawers

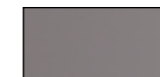
Wit gelakt
 Blanc laqué
 White painted



Bourgogne rood
 hoogglaans | Rouge
 bourgogne superbrillant
 Glossy burgundy red



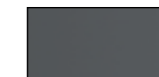
Platinagrijs hoogglaans
 Gris platine superbrillant
 Glossy platin grey



Wit mat
 Blanc mat
 White matt



Lava mat
 Lava mat
 Lava matt



Eiken naturel
 Chêne naturel
 Natural oak



Wastafelonderbouw voor wastafel 75
Meuble sous-lavabo pour lavabo 75
Undercounter for washbasin 75
 74 x 47,7 x 24 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09005000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09005HBO |
| platinagrijs gris platine platin grey | > S8M09005HPO |
| wit mat blanc mat white matt | > S8M09005600 |
| lava mat lava mat lava matt | > S8M09005YLO |
| eiken naturel chêne naturel natural oak | > S8M09005YMO |



- 1 lade
- 1 tiroir
- 1 drawer

Wastafelonderbouw voor wastafel 75
Meuble sous-lavabo pour lavabo 75
Undercounter for washbasin 75
 74 x 47,7 x 62 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09023000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09023HBO |
| platinagrijs gris platine platin grey | > S8M09023HPO |
| wit mat blanc mat white matt | > S8M09023600 |
| lava mat lava mat lava matt | > S8M09023YLO |
| eiken naturel chêne naturel natural oak | > S8M09023YMO |



- 2 laden
- 2 tiroirs
- 2 drawers

Wastafelonderbouw voor wastafel 90
Meuble sous-lavabo pour lavabo 90
Undercounter for washbasin 90
 89 x 47,7 x 24 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09007000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09007HBO |
| platinagrijs gris platine platin grey | > S8M09007HPO |
| wit mat blanc mat white matt | > S8M09007600 |
| lava mat lava mat lava matt | > S8M09007YLO |
| eiken naturel chêne naturel natural oak | > S8M09007YMO |



- 1 lade
- 1 tiroir
- 1 drawer

Wastafelonderbouw voor wastafel 90
Meuble sous-lavabo pour lavabo 90
Undercounter for washbasin 90
 89 x 47,7 x 62 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09025000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09025HBO |
| platinagrijs gris platine platin grey | > S8M09025HPO |
| wit mat blanc mat white matt | > S8M09025600 |
| lava mat lava mat lava matt | > S8M09025YLO |
| eiken naturel chêne naturel natural oak | > S8M09025YMO |



- 2 laden
- 2 tiroirs
- 2 drawers

Wastafelonderbouw voor wastafel 120
Meuble sous-lavabo pour lavabo 120
Undercounter for washbasin 120
 119 x 47,7 x 24 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09011000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09011HBO |
| platinagrijs gris platine platin grey | > S8M09011HPO |
| wit mat blanc mat white matt | > S8M09011600 |
| lava mat lava mat lava matt | > S8M09011YLO |
| eiken naturel chêne naturel natural oak | > S8M09011YMO |



- 2 laden
- 2 tiroirs
- 2 drawers

Wastafelonderbouw voor wastafel 120
Meuble sous-lavabo pour lavabo 120
Undercounter for washbasin 120
 119 x 47,7 x 62 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09029000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09029HBO |
| platinagrijs gris platine platin grey | > S8M09029HPO |
| wit mat blanc mat white matt | > S8M09029600 |
| lava mat lava mat lava matt | > S8M09029YLO |
| eiken naturel chêne naturel natural oak | > S8M09029YMO |



- 4 laden
- 4 tiroirs
- 4 drawers

Wastafelonderbouw voor dubbele wastafel 120
Meuble sous-lavabo pour lavabo double 120
Undercounter for double washbasin 120
 119 x 47,7 x 24 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09009000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09009HBO |
| platinagrijs gris platine platin grey | > S8M09009HPO |
| wit mat blanc mat white matt | > S8M09009600 |
| lava mat lava mat lava matt | > S8M09009YLO |
| eiken naturel chêne naturel natural oak | > S8M09009YMO |



- 2 laden
- 2 tiroirs
- 2 drawers

Wastafelonderbouw voor dubbele wastafel 120
Meuble sous-lavabo pour lavabo double 120
Undercounter for double washbasin 120
 119 x 47,7 x 62 cm

- | | |
|---|---------------|
| wit blanc white | > S8M09027000 |
| bourgogne rood rouge bourgogne burgundy red | > S8M09027HBO |
| platinagrijs gris platine platin grey | > S8M09027HPO |
| wit mat blanc mat white matt | > S8M09027600 |
| lava mat lava mat lava matt | > S8M09027YLO |
| eiken naturel chêne naturel natural oak | > S8M09027YMO |



- 4 laden
- 4 tiroirs
- 4 drawers

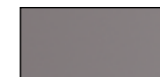
Wit gelakt
Blanc laqué
White painted



Bourgogne rood
hoogglijans | Rouge
bourgogne superbrillant
Glossy burgundy red



Platinagrijs hoogglijans
Gris platine superbrillant
Glossy platin grey



Wit mat
Blanc mat
White matt



Lava mat
Lava mat
Lava matt



Eiken naturel
Chêne naturel
Natural oak



Wastafelonderbouw rechts voor wastafel 50 links
Meuble sous-lavabo droite pour lavabo 50 gauche
Undercounter right for washbasin 50 left
 89 x 47,7 x 24 cm

- wit | blanc | white > S8M09015000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09015HB0
- platinagrijs | gris platine | platin grey > S8M09015HP0
- wit mat | blanc mat | white matt > S8M09015600
- lava mat | lava mat | lava matt > S8M09015YLO
- eiken naturel | chêne naturel | natural oak > S8M09015YMO



- 1 lade
- 1 tiroir
- 1 drawer

Wastafelonderbouw links voor wastafel 50 rechts
Meuble sous-lavabo gauche pour lavabo 50 droite
Undercounter left for washbasin 50 right
 89 x 47,7 x 24 cm

- wit | blanc | white > S8M09013000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09013HB0
- platinagrijs | gris platine | platin grey > S8M09013HP0
- wit mat | blanc mat | white matt > S8M09013600
- lava mat | lava mat | lava matt > S8M09013YLO
- eiken naturel | chêne naturel | natural oak > S8M09013YMO



- 1 lade
- 1 tiroir
- 1 drawer

Wastafelonderbouw voor 2 wastafels 50
Meuble sous-lavabo pour 2 lavabos 50
Undercounter for 2 washbasins 50
 119 x 47,7 x 24 cm

- wit | blanc | white > S8M09017000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09017HB0
- platinagrijs | gris platine | platin grey > S8M09017HP0
- wit mat | blanc mat | white matt > S8M09017600
- lava mat | lava mat | lava matt > S8M09017YLO
- eiken naturel | chêne naturel | natural oak > S8M09017YMO



- 2 laden
- 2 tiroirs
- 2 drawer

Hoge kast
Armoire haute
Tall unit
 36 x 31,7 x 180 cm

- wit | blanc | white > S8M09033000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09033HB0
- platinagrijs | gris platine | platin grey > S8M09033HP0
- wit mat | blanc mat | white matt > S8M09033600
- lava mat | lava mat | lava matt > S8M09033YLO
- eiken naturel | chêne naturel | natural oak > S8M09033YMO

- Links- of rechtsdraaiend
- Incl. 1 vaste legplank
- Incl. 4 verstelbare legplanken
- Ouverture à gauche ou à droite
- Avec 1 étagère fixe
- Avec 4 étagères réglables
- Turnable left or right
- Incl. 1 fixed shelf
- Incl. 4 adjustable shelves



Hoge kast met spiegel
Armoire haute avec miroir
Tall unit with mirror
 36 x 31,7 x 150 cm

- wit | blanc | white > S8M09035000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09035HB0
- platinagrijs | gris platine | platin grey > S8M09035HP0
- wit mat | blanc mat | white matt > S8M09035600
- lava mat | lava mat | lava matt > S8M09035YLO
- eiken naturel | chêne naturel | natural oak > S8M09035YMO

- Links- of rechtsdraaiend
- Incl. 2 vaste legplanken
- Incl. 2 verstelbare legplanken
- Combineerbaar met staande lage kast 89 cm
- Ouverture à gauche ou à droite
- Avec 2 étagères fixes
- Avec 2 étagères réglables
- A combiner avec armoire basse à poser 89 cm
- Turnable left or right
- Incl. 2 fixed shelves
- Incl. 2 adjustable shelves
- To combine avec standing low cabinet 89 cm



Lage kast
Armoire basse
Low cabinet
 45 x 47,7 x 60 cm

- wit | blanc | white > S8M09019000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09019HB0
- platinagrijs | gris platine | platin grey > S8M09019HP0
- wit mat | blanc mat | white matt > S8M09019600
- lava mat | lava mat | lava matt > S8M09019YLO
- eiken naturel | chêne naturel | natural oak > S8M09019YMO



- Combineerbaar met alle wastafelonderbouwkasten
- 2 laden
- A combiner avec tous meubles sous-lavabos
- 2 tiroirs
- To combine avec all undercounters
- 2 drawers

Lage kast staand
Armoire basse à poser
Standing low cabinet
 89 x 47,7 x 47,2 cm

- wit | blanc | white > S8M09031000
- bourgogne rood | rouge bourgogne | burgundy red > S8M09031HB0
- platinagrijs | gris platine | platin grey > S8M09031HP0
- wit mat | blanc mat | white matt > S8M09031600
- lava mat | lava mat | lava matt > S8M09031YLO
- eiken naturel | chêne naturel | natural oak > S8M09031YMO



- 1 lade
- 1 tiroir
- 1 drawer

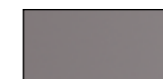
Wit gelakt
Blanc laqué
White painted



Bourgogne rood
hoogglaans | Rouge
bourgogne superbrillant
Glossy burgundy red



Platinagrijs hoogglaans
Gris platine superbrillant
Glossy platin grey



Wit mat
Blanc mat
White matt



Lava mat
Lava mat
Lava matt



Eiken naturel
Chêne naturel
Natural oak



Wastafelspiegel 60
Miroir pour lavabo 60
Washbasin mirror 60
60 x 75 cm
> S8M12011A20



- LED 12V 19W
- IP44, klasse 2
- Lichtbalk vóór montage naar links of rechts verstelbaar
- LED 12V 19W
- IP44, classe 2
- Bandeau lumineux ajustable à droite ou à gauche avant le montage
- LED 12V 19W
- IP44, class 2
- Light can be adjusted to left or right before mounting

Wastafelspiegel 90
Miroir pour lavabo 90
Washbasin mirror 90
90 x 75 cm
> S8M12012A20



- LED 12V 19W
- IP44, klasse 2
- Lichtbalk vóór montage naar links of rechts verstelbaar
- LED 12V 19W
- IP44, classe 2
- Bandeau lumineux ajustable à droite ou à gauche avant le montage
- LED 12V 19W
- IP44, class 2
- Light can be adjusted to left or right before mounting

Wastafelspiegel 120
Miroir pour lavabo 120
Washbasin mirror 120
120 x 75 cm
> S8M12013A20



- LED 12V 19W
- IP44, klasse 2
- Lichtbalk vóór montage naar links of rechts verstelbaar
- LED 12V 19W
- IP44, classe 2
- Bandeau lumineux ajustable à droite ou à gauche avant le montage
- LED 12V 19W
- IP44, class 2
- Light can be adjusted to left or right before mounting

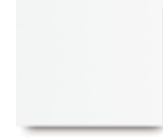
Kleuren | Couleurs | Colours

Keramik
Céramique
Ceramics

Wit (00)
Blanc
White

Badmeubels
Meubles de salle de bains
Bathroom furniture

Wit gelakt
Blanc laqué
White painted



Bourgogne rood hoogglans
Rouge bourgogne superbrillant
Glossy burgundy red



Platinagrijs hoogglans
Gris platine superbrillant
Glossy platin grey



Wit mat
Blanc mat
White matt



Lava mat
Lava mat
Lava matt



Eiken naturel
Chêne naturel
Natural oak



Duobad ovaal Sphinx B65/345 180
Baignoire duo ovale Sphinx B65/345 180
Twinbath oval Sphinx B65/345 180
180 x 85 cm
> S8B09005000



Badpoten | Jeu de pieds | Bath feet
> S8H991000 (≤ 180 cm)

Nekkussen
Appuie-tête
Neckrest
> S8B09A03000

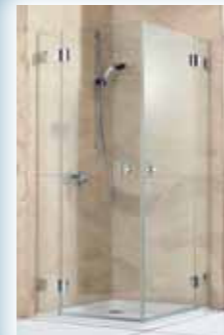


Duobad Sphinx B65/345 170/180
Baignoire duo Sphinx B65/345 170/180
Twinbath Sphinx B65/345 170/180
170 x 75 cm / 180 x 80 cm
170 > S8B09003000
180 > S8B09004000



Badpoten | Jeu de pieds | Bath feet
> S8H991000 (≤ 180 cm)

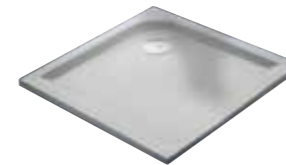
Douchewanden | Ecrans de douche | Shower enclosures



Douchewanden Koralle S320
Ecrans de douche Koralle S320
Shower enclosures Koralle S320

Sphinx adviseert de serie Sphinx 345 te combineren met Koralle S320 douchewanden.
Sphinx conseille de combiner la série Sphinx 345 avec les écrans de douche Koralle S320.
Sphinx advices to combine Sphinx 345 with Koralle S320 shower enclosures.

Douchebakken | Receveurs de douche | Showertrays



Douchebakken Koralle T320
Receveurs de douche Koralle T320
Showertrays Koralle T320

Sphinx adviseert de serie Sphinx 345 te combineren met Koralle T320 douchebakken.
Sphinx conseille de combiner la série Sphinx 345 avec les receveurs de douche Koralle T320.
Sphinx advices to combine Sphinx 345 with Koralle T320 showertrays.

Douche | Het complete assortiment vindt u op www.sphinx.nl of in de brochure Koralle.
Douche | Pour l'assortiment complet veuillez voir www.sphinx.be ou le catalogue Koralle.
Shower | You will find the complete range on www.sphinxexport.com or in the Koralle catalog.

F25 Koker + deksel, 2 meter wit (RAL 9010)



Handelskenmerken

Artikel:	F25 Koker + deksel, 2 meter
Artikelnummer:	5621
Verpakkingsaantal:	5 lgt. x 2 m

Technische Specificatie

Kleur:	Wit (RAL 9010)
--------	----------------

Etim Artikelklasse: Leidingkanaal

Hoogte:	13
Breedte:	25
Lengte:	2000
Nuttige doorsnede:	154
Materiaal:	Kunststof
Halogeenvrij:	Nee
Oppervlaktebescherming:	Geen (onbehandeld)
Kleur:	Zuiver wit
RAL-nummer:	9010
Aantal vaste scheidingswanden:	0
Aantal insteekbare scheidingswanden:	0
Uitvoeringsvorm deksel:	Los
Uitvoering deksel:	Los
Met kabelbevestigingsklem:	Ja
Beschermfolie:	Nee
Met gootkoppelstuk:	Ja
Leverbaar op rol:	Nee

Alle voordelen op een rij

- Geleverd met speciaal deksel voor toepassingen waarbij voorgeschreven is dat de koker niet handmatig te openen is.
- Voorzien van sleufen spijkergaten.
- Inwendige afmetingen: 22,5 x 10,5 mm.

 /company/attema-b.v.

 /attemabv

 /attemabv

Attema B.V., Schelluinsestraat 1, 4203 NJ Gorinchem, Postbus 58, 4200 AB Gorinchem

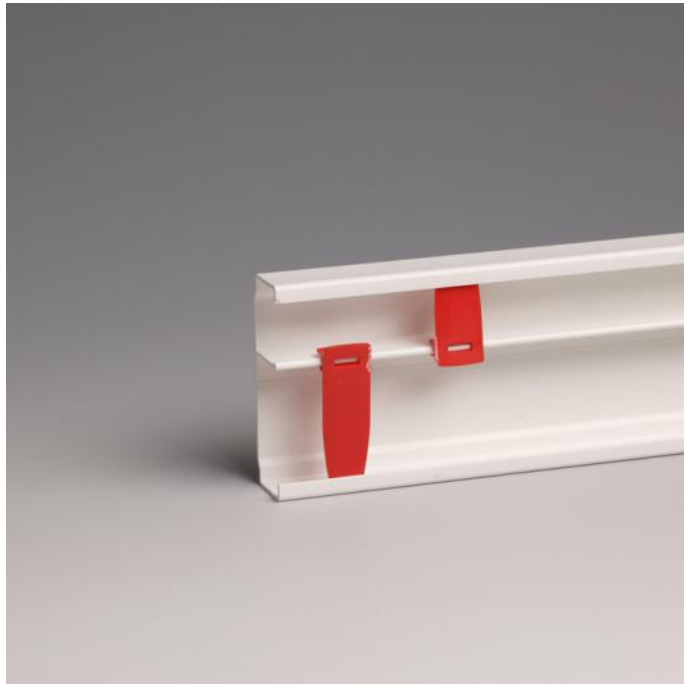
Telefoon: +31(0)183 650 650, Telefax: +31(0)183 650 750

Internet: www.attema.com, E-mail: info@attema.nl

Vernieuwende ideeën voor 'n veranderende wereld



K40 Basisprofiel incl. clips wit (RAL 9010)



Handelskenmerken

Artikel:	K40 Basisprofiel incl. clips
Artikelnummer:	9234
Verpakkingsaantal:	10 lgt. x 2 m

Technische Specificatie

Kleur:	Wit (RAL 9010)
--------	----------------

Etim Artikelklasse: Plintgoot basisdeel

Hoogte:	70
Diepte:	24
Lengte:	2000
Met tapijtljst:	Nee
Materiaal:	Kunststof
Halogeenvrij:	Nee
Kleur:	Wit

Alle voordelen op een rij

- 2 volledig gescheiden compartimenten.
- geschikt voor installatie met VD-draad.
- incl. 4 sets clip C40 (kort en lang).
- lengte 2 meter.

 /company/attema-b.v.

 /attemabv

 /attemabv

Attema B.V., Schelluinsestraat 1, 4203 NJ Gorinchem, Postbus 58, 4200 AB Gorinchem

Telefoon: +31(0)183 650 650, Telefax: +31(0)183 650 750

Internet: www.attema.com, E-mail: info@attema.nl

Vernieuwende ideeën voor 'n veranderende wereld



K40 Afdekplint wit (RAL 9010)



Handelskenmerken

Artikel:	K40 Afdekplint
Artikelnummer:	9237
Verpakkingsaantal:	10 lgt. x 2 m

Technische Specificatie

Kleur:	Wit (RAL 9010)
--------	----------------

Etim Artikelklasse: Deksel plintgoot

Hoogte:	70
Diepte:	24
Lengte:	2000
Met tapijtljst:	Nee
Dichtingslip deksel:	Geen
Beschermfolie:	Nee
Materiaal:	Kunststof
Halogeenvrij:	Nee
Kleur:	Zuiver wit
RAL-nummer:	9010
Decor:	Geen

Alle voordelen op een rij

- Voor toepassing als plintgoot.
- Bevestiging op basisprofiel d.m.v. klikverbinding.
- Lengte 2 meter.

 /company/attema-b.v.

 /attemabv

 /attemabv

Attema B.V., Schelluinsestraat 1, 4203 NJ Gorinchem, Postbus 58, 4200 AB Gorinchem

Telefoon: +31(0)183 650 650, Telefax: +31(0)183 650 750

Internet: www.attema.com, E-mail: info@attema.nl

Vernieuwende ideeën voor 'n veranderende wereld



Product data sheet

Characteristics

4511210

Performa - mesh tray - electro-zinc - 70 mm x 100 mm x 3000 mm



Main

Range of product	Performa
Product or component type	Mesh tray
Quantity per set	12 m

Complementary

Shape	U-shape
Material	Steel, electro-zinc
Atmospheric-corrosivity category	C1
Longitudinal wire diameter	3.9 mm
Transversal wire diameter	3.9 mm
Cable cross section	5268 mm ²
Standards	EN 12329 DIN 4102-12 EN/ISO 9227 EN 50102 IEC 60068-2-75 IEC 61537
Length	3 m
Height	75 mm
Width	100 mm
Height compatibility	70 mm
Width compatibility	100 mm
Surface treatment compatibility	Electro-zinc

Environment

Ambient air temperature for operation	-40...120 °C
IK degree of protection	IK10

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0721 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product environmental
Product end of life instructions	Need no specific recycling operations

Contractual warranty

Warranty period	18 months
-----------------	-----------



Main

Range of product	Performa
Product or component type	Mesh tray
Quantity per set	6 m

Complementary

Shape	U-shape
Material	Steel, electro-zinc
Atmospheric-corrosivity category	C1
Longitudinal wire diameter	4.9 mm
Transversal wire diameter	3.9 mm
Cable cross section	12328 mm ²
Standards	DIN 4102-12 EN/ISO 9227 IEC 60068-2-75 EN 50102 EN 12329 IEC 61537
Length	3 m
Height	75 mm
Width	200 mm
Height compatibility	70 mm
Width compatibility	200 mm
Surface treatment compatibility	Electro-zinc

Environment

Ambient air temperature for operation	-40...120 °C
IK degree of protection	IK10

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0721 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product environmental
Product end of life instructions	Need no specific recycling operations

Contractual warranty

Warranty period	18 months
-----------------	-----------

Product data sheet

Characteristics

4511230

Performa - mesh tray - electro-zinc - 70 mm x 300 mm x 3000 mm



Main

Range of product	Performa
Product or component type	Mesh tray
Quantity per set	6 m

Complementary

Shape	U-shape
Material	Steel C4D, electro-zinc
Atmospheric-corrosivity category	C1
Longitudinal wire diameter	4.9 mm
Transversal wire diameter	3.9 mm
Cable cross section	19028 mm ²
Standards	EN 50102 DIN 4102-12 IEC 60068-2-75 IEC 61537 EN 12329 EN/ISO 9227
Length	3 m
Height	75 mm
Width	300 mm
Height compatibility	70 mm
Width compatibility	300 mm
Surface treatment compatibility	Electro-zinc

Environment

Ambient air temperature for operation	-40...120 °C
IK degree of protection	IK10

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0721 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product environmental
Product end of life instructions	Need no specific recycling operations

Contractual warranty

Warranty period	18 months
-----------------	-----------

Catalogus



Electro

Pipes
for **life**

PIPELIFE 

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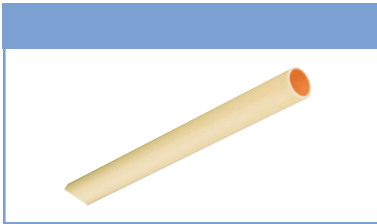
Deze catalogus is met grote zorg samengesteld. Er kunnen echter geen rechten aan worden ontleend, drukfouten voorbehouden.

Alle maten in mm tenzij anders aangegeven.

Kijk voor de meest actuele versie van deze catalogus op www.pipelife.nl

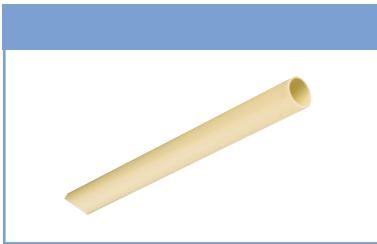
Niets uit deze uitgave mag worden verveelvuldigd en/of openbaar gemaakt zonder voorafgaande schriftelijke toestemming van de auteurs en of de uitgever.

Polivolt



POLIVOLT INSTALLATIEBUIS LF (LOW FRICTION) PVC-CRÈME met KEMA-keur

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Verp. ½ container	Verp. container	Art.nr.
16	5/8	15,9 x 13,6	100	6000			305408
16	5/8	15,9 x 13,6	100		7500		305406
16	5/8	15,9 x 13,6	100			16500	305400
19	3/4	19,1 x 16,7	100	4000			305409
19	3/4	19,1 x 16,7	100		5000		305407
19	3/4	19,1 x 16,7	100			11500	305401

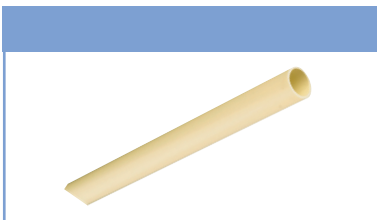


POLIVOLT INSTALLATIEBUIS PVC-CRÈME met KEMA-keur

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Art.nr.
12*	1/2	12,0 x 9,8	100		300117
25**	1	25,4 x 22,7	100	3200	305990
32**	1 1/4	31,8 x 28,9	100	1800	300667
38**	1 1/2	38,1 x 34,3	60	840	300668
50**	2	50,8 x 46,4	40	800	300670

*) Geen KEMA-keur / Geen Low Friction

**) Geen Low Friction



POLIVOLT OVERMAATSE (MOFFEN) BUIS PVC CRÈME

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Art.nr.
16*	5/8	18,2 x 16,3	100	6800	320415
19*	3/4	21,5 x 19,5	100	3600	320416
25*	1	28,1 x 25,8	100	1400	322028

*) Geen Low Friction



POLIVOLT INSTALLATIEBUIS PVC GRIJS met KEMA-keur

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Verp. container	Art.nr.
16	5/8	15,9 x 13,6	100	6000		320941
19	3/4	19,1 x 16,7	100	4000		320942

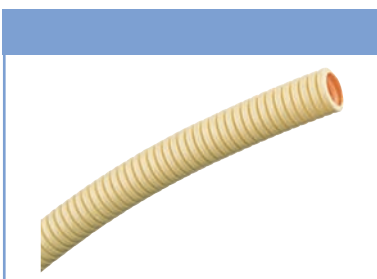
POLIVOLT LF (LOW FRICTION) INSTALLATIEBUIS PVC GROEN

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Verp. container	Art.nr.
19	3/4	19,1 x 16,7	100	4000		309958

POLIVOLT LF (LOW FRICTION) INSTALLATIEBUIS PVC ROOD

Norm mm	Afm. inch	Afm.	Verp. bundel	Verp. pakket	Verp. container	Art.nr.
19	3/4	19,1 x 16,7	100	4000		309959

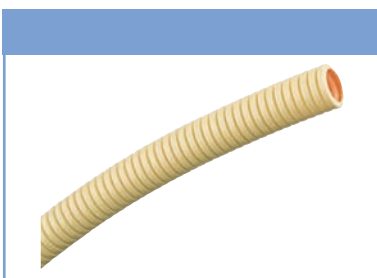
Flexivolt



FLEXIVOLT LF (LOW FRICTION) INSTALLATIEBUIS, OP ROL PVC CRÈME met KEMA-keur

Norm mm	Afm. inch	Ø mm uitw.	Verp. rol	Verp. pallet	Art.nr.
16	5/8	15,9	100	2000	369912
19	3/4	19,1	100	1600	369913
25	1	25,4	50		314988
32*	1 1/4	31,8	25		314882

*) Geen Low Friction.



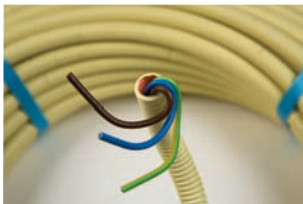
FLEXIVOLT LF (LOW FRICTION) INSTALLATIEBUIS, OP ROL PVC CRÈME met KEMA-keur

Norm mm	Afm. inch	Ø mm uitw.	Verp. rol	Art.nr.
16	5/8	15,9	10	374468
16	5/8	15,9	20	374469
19	3/4	19,1	10	374470
19	3/4	19,1	20	374471

Flexiplus

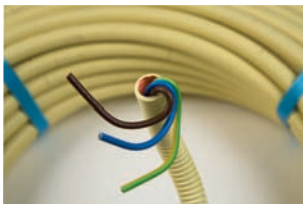
PVC CRÈME LF (LOW FRICTION) incl. VD-draad, met KEMA-keur op buis en draad

Type	Norm mm	Afm. inch	Ø mm uitw.	Inhoud	Aderdoorsnede	Verp. rol	Art.nr.
B	16	5/8	15,9	1 x blauw	2,5 mm ²	50	338032
				1 x bruin	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
C	19	3/4	19,1	1 x bruin	2,5 mm ²	50	338033
				3 x zwart	1,5 mm ²		
D	16	5/8	15,9	1 x bruin	2,5 mm ²	50	338034
				1 x zwart	1,5 mm ²		
E	16	5/8	15,9	3 x zwart	1,5 mm ²	50	338035
G	16	5/8	15,9	1 x bruin	2,5 mm ²	50	338382
				1 x zwart	1,5 mm ²		
				1 x zwart/wit	1,5 mm ²		
I	19	3/4	19,1	1 x bruin	2,5 mm ²	50	338384
				1 x blauw	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
				1 x zwart	1,5 mm ²		
				1 x zwart/wit	1,5 mm ²		
K	19	3/4	19,1	1 x bruin	2,5 mm ²	50	338446
				1 x blauw	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
				1 x zwart	1,5 mm ²		
P	16	5/8	15,9	1 x bruin	2,5 mm ²	50	308582
				1 x blauw	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
				1 x zwart	1,5 mm ²		
X	19	3/4	19,1	2 x bruin	2,5 mm ²	50	372547
				2 x blauw	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		



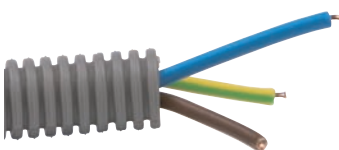
PVC CRÈME LF (LOW FRICTION) voorzien van trekdraad

Type	Norm mm	Afm. inch	Ø mm uitw.	Inhoud	Verp. rol	Art.nr.
R	19	3/4	19,1	Trekdraad	100	338556
S	19	3/4	19,1	Telecom	100	307581
T	19	3/4	19,1	Coax	100	388363
U	19	3/4	19,1	UTP Cat 5	100	339184
V	19	3/4	19,1	Brandmeld kabel 2 x 0,8 mm ²	100	374219
W	19	3/4	19,1	Brandmeld kabel 4 x 0,8 mm ²	100	360830



FLEXIPLUS QL (QUICKLINE) FLEXIBELE INSTALLATIEBUIS PP-GRIJS SLAGVAST incl. VD-draad, met KEMA-keur

Type	Norm mm	Afm. inch	Ø mm uitw.	Inhoud	Aderdoorsnede	Verp. rol	Art.nr.
B	16	5/8	15,9	1 x blauw	2,5 mm ²	100	305420
				1 x bruin	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
P	16	5/8	15,9	1 x bruin	2,5 mm ²	100	305421
				1 x blauw	2,5 mm ²		
				1 x geel/groen	2,5 mm ²		
				1 x zwart	1,5 mm ²		



Polvite



POLVITE MOF PVC CRÈME met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. zak	Art.nr.
16	5/8	480	48	312063
19	3/4	480	48	312062
25	1	200		312775
32	1 1/4	150		312777
38	1 1/2	50		312779
50	2	50		312781

Polvite moffen zijn geschikt voor gladde buis en flexibele buis.



POLIVOLT BOCHT PVC CRÈME met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Art.nr.
16	5/8	250	331696
19	3/4	100	331697
25	1	100	331698
32	1 1/4	50	331699
38	1 1/2	25	331700
50	2	10	331701

Polfix+ bevestigingssysteem



POLFIX+ KLEMBLOK PVC CRÈME met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	1200	300	351160
19	3/4	800	200	351190
25	1	600	150	351250
32	1 1/4	200	50	305411
38	1 1/2	200	50	305412
50	2	100	25	305413



POLFIX+ KLEMBLOK PVC CRÈME met KEMA-keur voorzien van plug

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	800	200	351162
19	3/4	600	150	351192
25	1	400	100	351251
Losse plug		4800		350111



FLEXBOX+ CRÈME

Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399320
Lasdoos Combi + WCD*	n.t.b.	399323

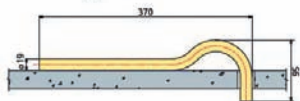
*) Lasdoos Combi bestaat uit: 1x lasdoos, 1 x deksel, 4 x insert 16/19 cm

Aansluitbochten

POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 1

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	316691

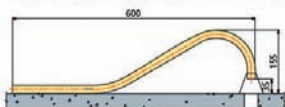
Type 1 Universeel



POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 2

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	320566

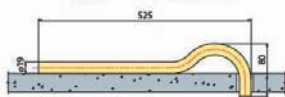
Type 2 Sparingskegel (bekistingsvloer)



POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 3

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	316693

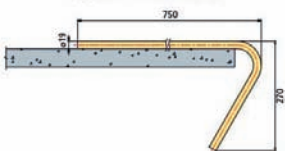
Type 3 Tunnelbouw



POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 4

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	307852

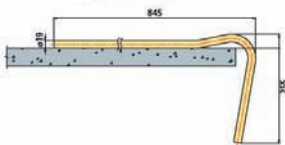
Type 4 Vloerrand



POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 5

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	316838

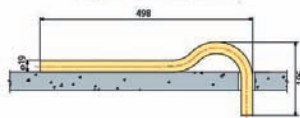
Type 5 Vloerrand



POLIVOLT AANSLUITBOCHT LF (LOW FRICTION) PVC CRÈME met KEMA-keur type 6

Norm mm	Afm. inch	Verp. container	Verp. zak	Art.nr.
19	$\frac{3}{4}$	6000	50	366153

Type 6 Breedplaat



Polvalit VSV Low friction en Polfix+ Klemblokken



De nieuwe Polvalit VSV Low friction installatiebuis in combinatie met de Polfix+ Klemblokken is uitermate geschikt voor toepassingen waarbij hoge eisen worden gesteld aan de slagvastheid en verwerkbaarheid.

Pipelife heeft nu de slagvaste installatiebuis in de maten 16- en 19mm voorzien van de Low Friction binnenlaag. Deze binnenlaag heeft zich reeds bewezen in de standaard Polivolt buis en maakt het trekken van draad en kabel gemakkelijk en het werkt aanzienlijk sneller. Na de succesvolle introductie van de nieuwe generatie 16, 19 en 25mm Polfix+ klemblokken, heeft Pipelife in samenwerking met de Nederlandse installateurs klemblokken voor de maten 32, 38 en 50mm ontwikkeld. De reeks is nu compleet en de installateur kan nu voor elke diameter Elektro installatiebuis een Polfix+ klemblok gebruiken.

**Pipes
for life**

Pipelife Nederland B.V.
Postbus 380
1600 AJ Enkhuizen

Tel.: 0228 35 55 55
Fax: 0228 35 56 66

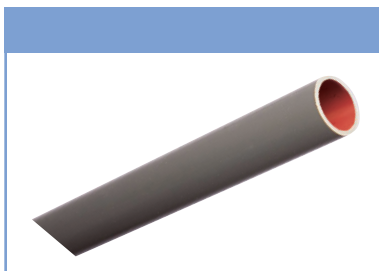
info@pipelife.nl
www.pipelife.nl

PIPELIFE

Polvalit buis VSV kleur RAL7037

POLVALIT VSV LF (LOW FRICTION) INSTALLATIEBUIS SLAGVAST GRIJS met KEMA-keur

Norm mm	Afm. inch	Afm. mm	Verp. bundel	Verp. pakket	Verp. container	Art.nr.
16	5/8	15,9 x 13,4	100	6000		305425
16	5/8	15,9 x 13,4	100		16500	306013
19	3/4	19,1 x 16,3	100	4000		305426
19	3/4	19,1 x 16,3	100		11500	306014



POLVALIT VSV INSTALLATIEBUIS SLAGVAST GRIJS met KEMA-keur

Norm mm	Afm. inch	Afm. mm	Verp. bundel	Verp. pakket	Art.nr.
12*	1/2	12,0 x 9,8	100	10000	311289
25**	1	25,4 x 22,2	100	3200	306015
32**	1 1/4	31,8 x 28,6	100	1800	302102
38**	1 1/2	38,1 x 34,4	60	840	302672
50**	2	50,8 x 46,4	40	800	300698



*) Geen KEMA-keur / Geen Low Friction
 **) Geen Low Friction

POLVALIT FLEX VSV LF (LOW FRICTION) INSTALLATIEBUIS OP ROL GRIJS met KEMA-keur

Norm mm	Afm. inch	Ø mm uitw.	Verp. rol	Art.nr.
16	5/8	15,9	100	374472
19	3/4	19,1	100	374473



Polvite VSV

POLVITE MOF VSV GRIJS met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	480	48	312064
19	3/4	480	48	312086
25	1	200		312776
32	1 1/4	150		312778
38	1 1/2	50		312780
50	2	50		312782



Polvite moffen zijn geschikt voor gladde buis en flexibele buis.

Bochten VSV

POLVALIT BOCHT VSV GRIJS met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Art.nr.
16	5/8	250	330722
19	3/4	100	330723
25	1	100	330724
32	1 1/4	50	330725
38	1 1/2	25	330726
50	2	10	330727



Polfix+ VSV



POLFIX+ KLEMBLOK VSV GRIJS met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	1200	300	350160
19	3/4	800	200	350190
25	1	600	150	350250
32	1 1/4	200	50	305414
38	1 1/2	200	50	305415
50	2	100	25	305416



POLFIX+ KLEMBLOK VSV GRIJS met KEMA-keur voorzien van plug

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	800	200	350162
19	3/4	600	150	350192
25	1	400	100	350252
Losse plug		4800		350111



FLEXBOX+GRIJS RAL 7037 SLAGVAST

Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399325
Lasdoos Combi + WCD*	n.t.b.	399329

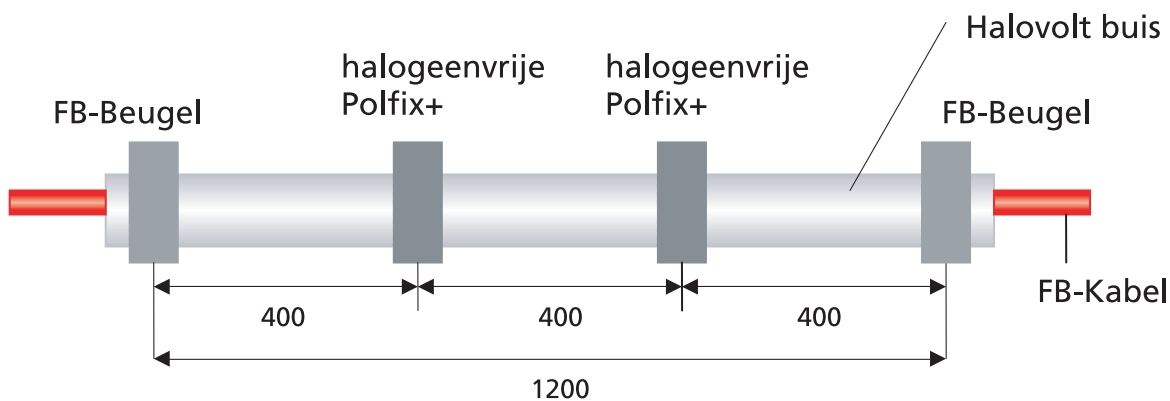
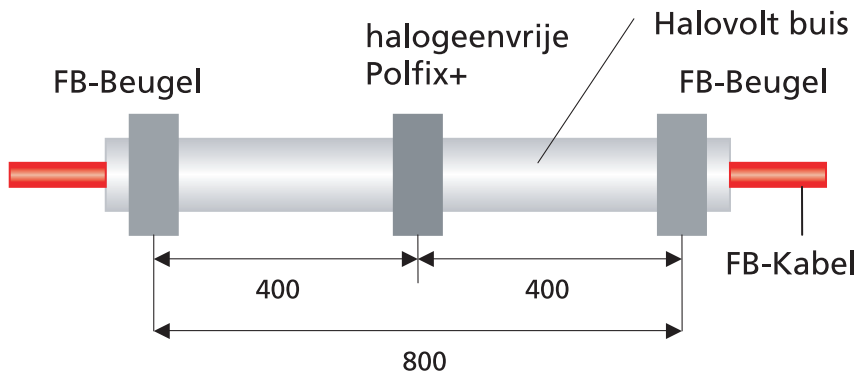
*) Lasdoos Combi bestaat uit: 1x lasdoos, 1 x deksel, 4 x insert 16/19 cm

Voorbeeld van installeren Functie Behoud kabel in Halovolt buis

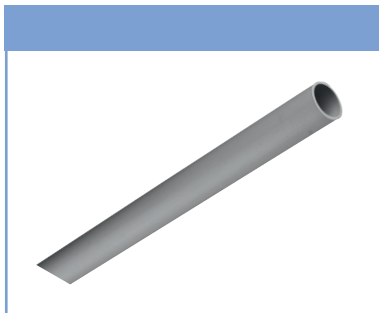
Het is toegestaan om FB-Kabel in onze Halovolt buis te installeren. Deze Halovolt buis hoeft geen functiebehoud te hebben. Dat komt omdat, de FB-Beugels en FB-Ankers al voldoende ondersteuning bieden bij brand. Dit betekent echter wel dat deze buis halogeenvrij moet zijn. De Halovolt buis is halogeenvrij.

Door de FB-Kabel in een buis te installeren kan men grotere afstanden overbruggen tussen de FB-Beugels. Men dient dan wel tussen de FB-Beugels halogeenvrije Polfix+ klemblokken (zonder functiebehoud) te plaatsen. Door deze manier van installeren voldoet de installatie aan de NEN1010 en de NPR2576 normeringen.

Hieronder ziet u een aantal voorbeelden voor het installeren van FB-Kabel met de Halovolt buis en halogeenvrije Polfix+ klemblokken.



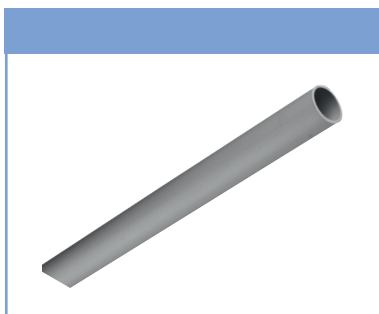
Halovolt buis RAL7035



HALOVOLT INSTALLATIEBUIS HALOGEEN VRIJ LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Afm. mm	Verp. bundel	Verp. pakket	Art.nr.
16*	5/8	15,9 x 13,4	100	6.000	322003
19*	3/4	19,1 x 16,3	100	4.000	321992

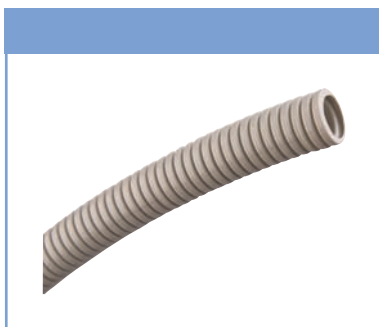
*) Low Friction versie verwacht medio 2010.



HALOVOLT INSTALLATIEBUIS HALOGEEN VRIJ LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Afm. mm	Verp. bundel	Verp. pakket	Art.nr.
25	1	25,4 x 22,2	100	4000	322004
32	1 1/4	31,8 x 28,9	100	1800	322018
38	1 1/2	38,1 x 34,3	60	840	322058
50	2	50,8 x 46,4	40	800	322063

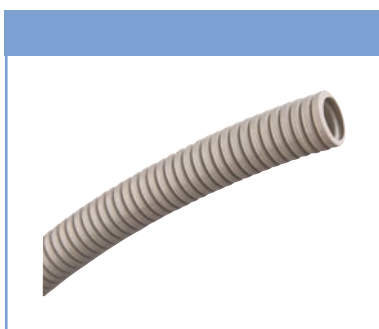
HalovoltFlex



HALOVOLTFLEX INSTALLATIEBUIS, OP ROL LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Ø mm uitw.	Verp. rol	Verp. pallet	Art.nr.
16*	5/8	15,9	100	2000	369776
19*	3/4	19,1	100	1600	369777

*) Low Friction versie verwacht medio 2010.



HALOVOLTFLEX INSTALLATIEBUIS, OP ROL LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Ø mm uitw.	Verp. rol	Art.nr.
16*	5/8	15,9	10	374464
16*	5/8	15,9	20	374465
19*	3/4	19,1	10	374466
19*	3/4	19,1	20	374467
25**	1	25,4	25	369778

*) Low Friction versie verwacht medio 2010.

**) Zonder Low Friction

Polvite

HALOVOLT MOF LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	640	160	312019
19	3/4	500	125	320069
25	1	275		312037
32	1 1/4	150		312889
38	1 1/2	50		213890
50	2	50		213891

Halovolt moffen zijn geschikt voor gladde buis en flexibele buis.



Halovolt bocht

HALOVOLT BOCHT LICHTGRIJS met KEMA-keur

Norm mm	Afm. inch	Verp. omdoos	Verp. zak	Art.nr.
16	5/8	250	10	312807
19	3/4	100	10	312808
25	1	100	5	312809
32	1 1/4	50	5	312892
38	1 1/2	25	5	312893
50	2	10	5	312894



Polfix+

POLFIX+ KLEMBLOK HALOGEENVRIJ LICHTGRIJS met KEMA-keur

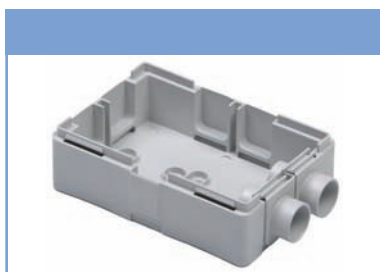
Norm mm	Afm. inch	Verp. omdoos	Verp. doos	Art.nr.
16	5/8	600	150	370485
19	3/4	800	200	370484
25	1	600	150	370705
32	1 1/4	200	50	305417
38	1 1/2	200	50	305418
50	2	100	25	305419



FLEXBOX+ GRIJS RAL 7035 HALOGEEN VRIJ

Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399330
Lasdoos Combi + WCD*	n.t.b.	399334

*) Lasdoos Combi bestaat uit: 1x lasdoos, 1 x deksel, 4 x insert 16/19 cm



Functie Behoud Beugels



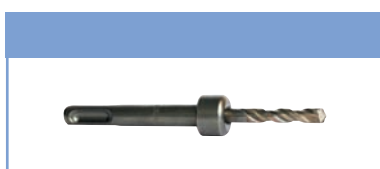
METALEN FUNCTIEBEHOUD BEUGELS

Omschrijving 2	Verp.	Art.nr.
AM 12	50	400600
AM 15/16	50	400601
AM 20	50	400602
AM 25/26	50	400603
AM 32	25	400604
AM 40	15	400605
AM 50	10	400606



FUNCTIE BEHOUD ANKER FNA-2

Omschrijving 2	Verp.	Art.nr.
6X30mm M6x43 FNA 2	100	400607

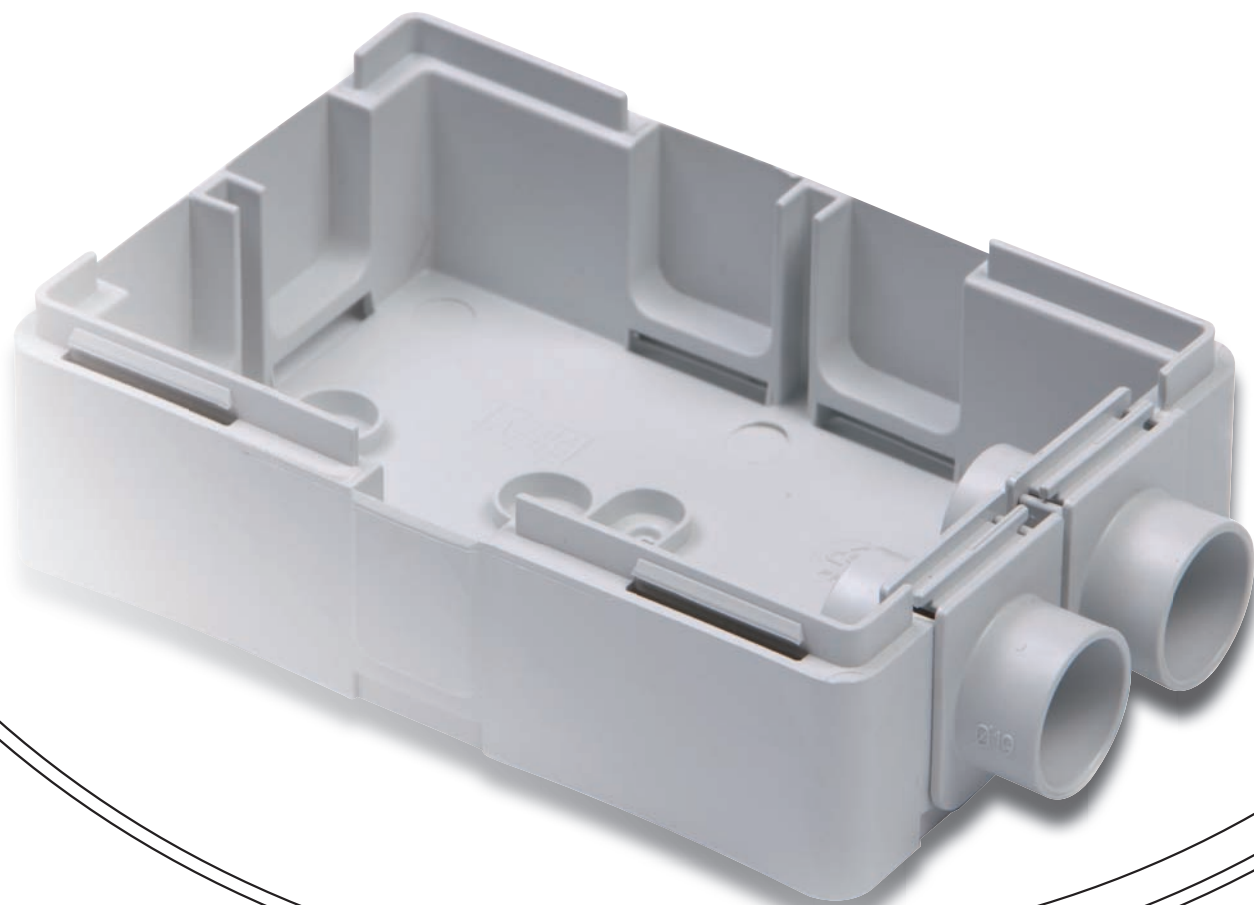


AANSLAGBOOR T.B.V. ANKER FNA-2

Omschrijving 2	Verp.	Art.nr.
Boor Aanslagboor	1	400608
M6 Nagelplug*	1	400609

* Nagelplug heeft geen functiebehoud

Flexbox⁺

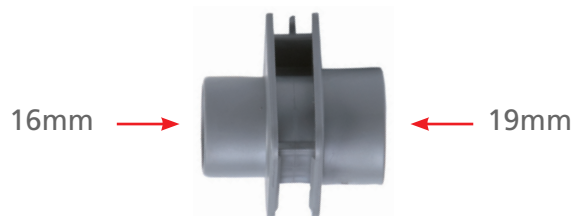


DE MULTIFUNCTIONELE LASDOOS VAN PIPELIFE SLUIT EXACT AAN OP UW WENSEN

Als installateur die staat voor topkwaliteit werkt u graag met het beste materiaal. Goed nieuws! Pipelife introduceert een nieuwe multifunctionele lasdoos, die alles heeft wat u zich kunt wensen. Met deze uiterst innovatieve lasdoos werkt u exacter, sneller en efficiënter. Het resultaat: een elektrotechnische installatie waarmee uw klanten in elk opzicht tevreden worden gesteld.

DE VOORDELEN OP EEN RIJ

- IJzersterke combinatie met Polfix⁺
- Eén lasdoos voor 16 mm en 19 mm
- In drie kleuren Crème, Slagvast, Halogeenvrij
- Eén universele klikbare deksel
- Grotere lasdoos met meer lasruimte
- Geschikt voor 7 elektro buizen



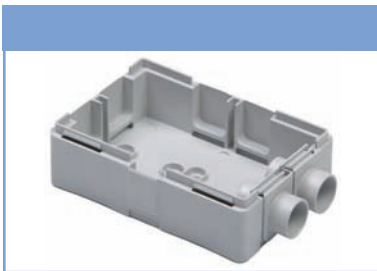
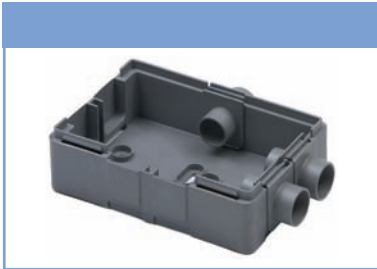
Pipelife Nederland B.V.

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www.pipelife.nl

PIPELIFE



Flexbox+

FLEXBOX+ CRÈME

Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399320
Lasdoos Combi + WCD*	n.t.b.	399323

FLEXBOX+ GRIJS RAL 7037 SLAGVAST

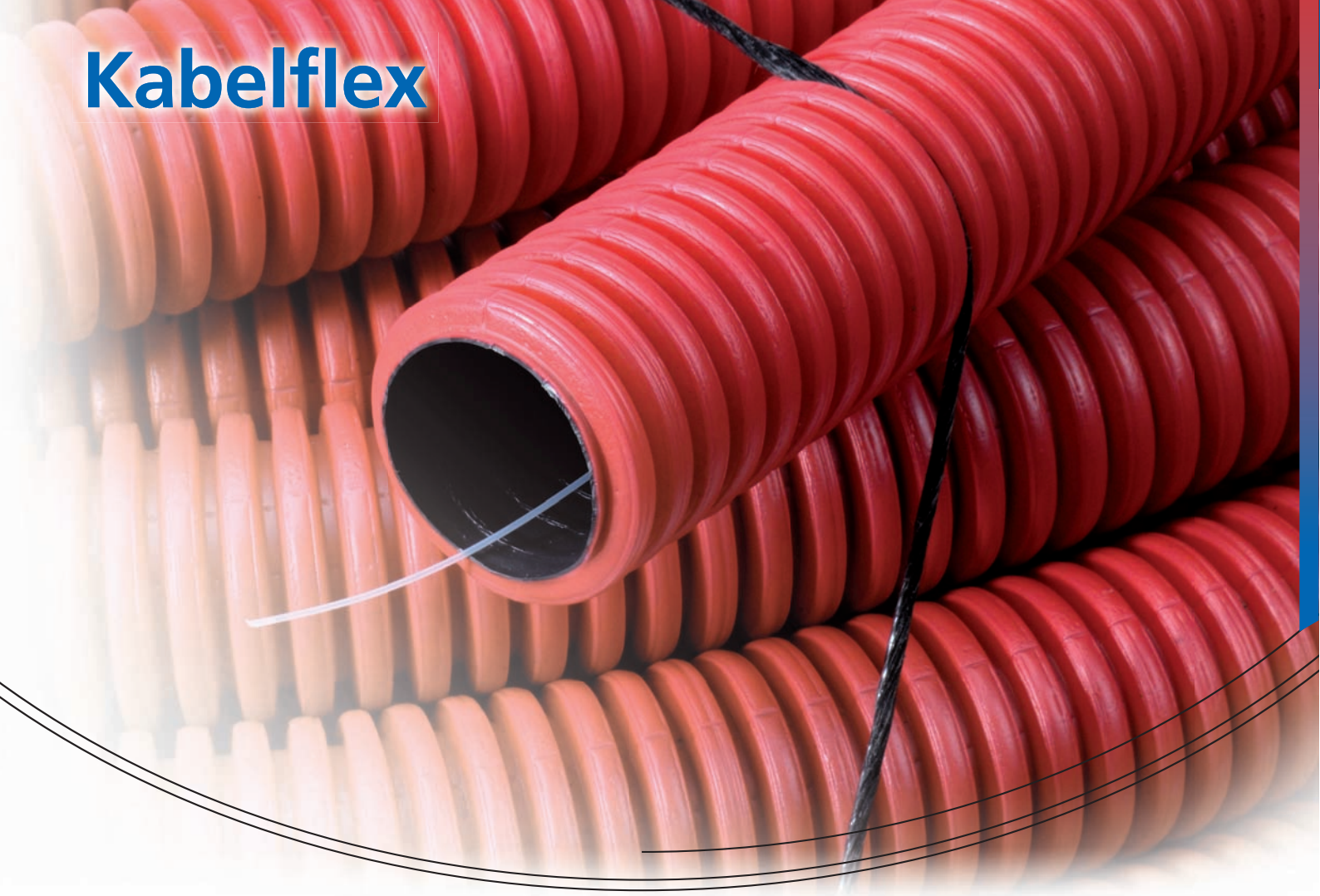
Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399325
Lasdoos Combi + WCD*	n.t.b.	399329

FLEXBOX+ GRIJS RAL 7035 HALOGEEN VRIJ

Afm.	Verp.	Art.nr.
Lasdoos Combi*	30	399330
Lasdoos Combi + WCD*	n.t.b.	399334

*) Lasdoos Combi bestaat uit:
 1 x lasdoos
 1 x deksel
 4 x insert 16/19mm

Kabelflex



Flexibele dubbelwandige PE kabelbeschermbuis met trekdraad

Voor optimale bescherming van kabels in de grond en beton is er nu Kabelflex van Pipelife. Deze geribbelde buis is gemaakt van een binnen- en buitenmantel van PE. PE heeft de ideale eigenschappen om toe te passen in de grond. Zo is het materiaal goed resistent tegen zuren en vervuilingen welke veel voorkomen in de grond.

De voordelen op een rij:

- Hoog flexibele buis
- Voorzien van trekdraad
- Standaard rood
- Zwarte gladde binnenvoering
- Leverbaar op rol inclusief mof
- Leverbaar in de maten 40, 50, 63, 75, 90, 110, 125, 160mm op rol
- Bestand tegen diverse zuren en chemische invloeden
- Recyclebaar

Pipelife Nederland B.V.
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1600 AJ Enkhuizen

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Fax: 0228 35 56 66

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www.pipelife.nl



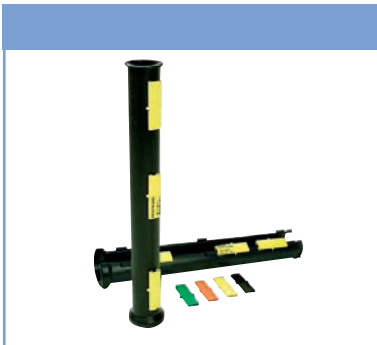


FLEXIBELE KABELBESCHERMINGSBUIS ROOD inclusief trekdraad

Norm mm	Binnenmaat mm	Verp. rol	Art.nr.
40	30	50	361245
50	40	50	217630
63	52	50	339262
75	62	50	338902
90	77	50	316776
110	96	50	317631
125	112	25	338959
160	135	25	337874

Snipp & Snapp

Snipp & Snapp is een deelbare kabelbescherming, en wordt geleverd in lengtes van 1 meter. De buizen worden geproduceerd van PP en geleverd in de kleur zwart. De sluitklemmen kunnen in diverse kleuren worden geleverd.



SNIPP & SNAPP 110

Afm.	Art.nr.
110 110/102 SRN geel	399335
110 110/102 SRN zwart	399336
110 110/102 SRN groen	399337
110 110/102 SRN oranje	399338
110 110/99 SRS geel	399339
110 110/99 SRS zwart	399345



SNIPP & SNAPP 160

Afm.	Art.nr.
160 160/144 SRN geel	399346
160 160/144 SRN zwart	399347
160 160/144 SRN groen	399358
160 160/144 SRN oranje	399359
160 160 SRS geel	399361
160 160 SRS zwart	399362

SNIPP & SNAPP OVERGANGSMOF naar Kabelflex

Afm.	Art.nr.
110	399363

Overig

GEDEELDE REPARATIEKOPPELING

Afm.	Art.nr.	Verp.
32	311170	12
40	311171	12
50	311172	12

GEDEELDE REPARATIE SCHALENSET 2 m lang

Afm.	Art.nr.	Verp.
32	311175	2
40	311176	2
50	311177	3

MONTAGEGEREEDSCHAP T.B.V. GEDEELDE REP.SET

Afm.	Art.nr.
32	334502
40	334484
50	317470


ATS WARETEL RECHT POLYAMIDE (NYLON) 6.6 EXTERN METRISCH DRAAD KLEUR ZWART incl. moer

Omschrijving	Draad	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram	Verp.	Art.nr.
AT13/M16/A/BLY	M16	13	-50°C	120°C	50	10	400500
AT13/M20/A/BLY	M20	13	-50°C	120°C	50	10	400501
AT16/M16/A/BLY	M16	16	-50°C	120°C	70	10	400502
AT16/M20/A/BLY	M20	16	-50°C	120°C	70	10	400503
AT21/M20/A/BLY	M20	21	-50°C	120°C	90	10	400504
AT21/M25/A/BLY	M25	21	-50°C	120°C	90	10	400505
AT28/M25/A/BLY	M25	28	-50°C	120°C	110	10	400506
AT28/M32/A/BLY	M32	28	-50°C	120°C	110	10	400507
AT34/M32/A/BLY	M32	34	-50°C	120°C	130	10	400508


ATS WARETEL 90° BOCHT POLYAMIDE (NYLON) 6.6 EXTERN METRISCH DRAAD KLEUR ZWART incl. moer

Omschrijving	Draad	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram	Verp.	Art.nr.
AT13/M16/C90/BLY	M16	13	-50°C	120°C	50	10	400509
AT16/M16/C90/BLY	M16	16	-50°C	120°C	70	10	400510
AT16/M20/C90/BLY	M20	16	-50°C	120°C	70	10	400511
AT21/M20/C90/BLY	M20	21	-50°C	120°C	80	10	400512
AT28/M25/C90/BLY	M25	28	-50°C	120°C	110	10	400513
AT34/M32/C90/BLY	M32	34	-50°C	120°C	130	10	400514


ATS KOPPELING RECHT POLYAMIDE (NYLON) 6.6 KLEUR ZWART

Omschrijving	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram	Verp.	Art.nr.
AT13-AT13/A/UBLY	13	-50°C	120°C	50	10	400515
AT16-AT16/A/UBLY	16	-50°C	120°C	70	10	400516
AT21-AT21/A/UBLY	21	-50°C	120°C	80	10	400517
AT28-AT28/A/UBLY	28	-50°C	120°C	110	10	400518
AT34-AT34/A/UBLY	34	-50°C	120°C	130	10	400519


ATS WARETEL RECHT POLYAMIDE (NYLON) 6.6 EN VERNIKKELD MESSING EXTERN METRISCH DRAAD KLEUR ZWART excl. moer

Omschrijving	Draad	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram	Verp.	Art.nr.
AT13/M16/SA/BLY	M16	13	-50°C	120°C	100	10	400520
AT16/M16/SA/BLY	M16	16	-50°C	120°C	110	10	400521
AT21/M20/SA/BLY	M20	21	-50°C	120°C	120	10	400522
AT28/M25/SA/BLY	M25	28	-50°C	120°C	130	10	400523
AT34/M32/SA/BLY	M32	34	-50°C	120°C	150	10	400524


ATS WARETEL 90° BOCHT POLYAMIDE (NYLON) 6.6 EN VERNIKKELD MESSING EXTERN METRISCH DRAAD KLEUR ZWART excl. moer

Omschrijving	Draad	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram	Verp.	Art.nr.
AT13/M16/CS90/BLY	M16	13	-50°C	120°C	100	10	400525
AT16/M16/CS90/BLY	M16	16	-50°C	120°C	110	10	400526
AT21/M20/CS90/BLY	M20	21	-50°C	120°C	120	10	400527
AT28/M25/CS90/BLY	M25	28	-50°C	120°C	130	10	400528
AT34/M32/CS90/BLY	M32	34	-50°C	120°C	150	10	400529


FLEXIBELE BUIS POLYAMIDE (NYLON) 6.6 KLEUR ZWART

Omschrijving	Buig- radius	Ø mm buis	Min. temp.	Max. temp.	Gewicht gram/m	Verp. m	Art.nr.
PRFS13/BL/50M	35	13	-40°C	120°C	80	50	400530
PRFS16/BL/50M	45	15,8	-40°C	120°C	100	50	400531
PRFS21/BL/50M	60	21,2	-40°C	120°C	120	50	400532
PRFS28/BL/50M	70	28,5	-40°C	120°C	140	50	400533
PRFS34/BL/50M	75	34,5	-40°C	120°C	160	50	400534


VERNIKKELD MESSING MOER

Omschrijving	Draad	Verp.	Art.nr.
LNB/M16	M16	10	400541
LNB/M20	M20	10	400542
LNB/M25	M25	10	400543
LNB/M32	M32	1	400544


VERWIJDERGEREEDSCHAP

Omschrijving	Ø mm buis	Verp.	Art.nr.
AL13RT	13	1	400560
AL16RT	16	1	400561
AL21RT	21	1	400562
AL28RT	28	1	400563
AL34RT	34	1	400564


SNIJGEREEDSCHAP

Omschrijving	Ø mm buis	Verp.	Art.nr.
Adaptacut20	20	1	400565
Adaptacut21	21	1	400566
Adaptacut25	25	1	400567
Adaptacut28	28	1	400568

Knipscharen



KNIPSCHAAR TBV INSTALLATIEBUIS

Afm.	Verp.	Art.nr.
16 / 19	1	336080
mesjes	1	336128
bekje	1	339539

Lijm



PIPELIFE LIJM VOOR PVC MET KOMO-KEUR PVC

Inhoud	Verp.	Art.nr.
0,25 l	12	339580
1 kg	8	339581
*4,5 kg	1	339582

*) Bussen zonder kwast.

Trekveren



TREKVEER LOW FRICTION

Omschrijving	Lengte	Art.nr.
Trekveer	15 m	305410
*Trekveer	30 m	
*Trekveer	50 m	

*) Verwacht medio 2010.

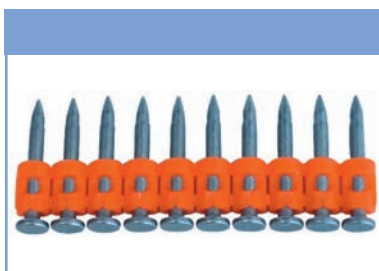
Schiethamer



SCHIETHAMER

	Art.nr.
Pulsa 700E	367491

NAGELS (500 STUKS)

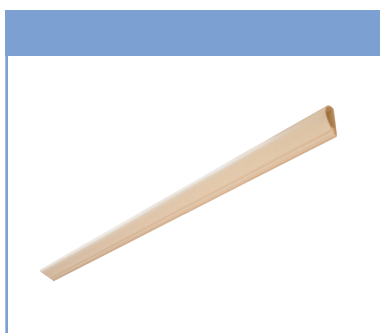


Omschrijving	Lengte	Art.nr.
HC6 nagel	15	367486
HC6 nagel	17	367487
HC6 nagel	22	367488
HC6 nagel	27	367489

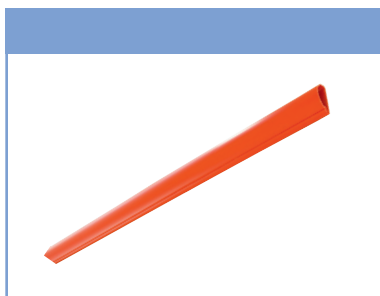
D-Line

**KABEL KANAAL, WIT** Inclusief zelfklevende laag met KEMA-keur

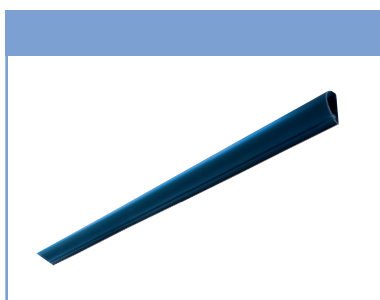
Omschrijving	Art.nr. 50x25	Art.nr. 30x15	Art.nr. 16x8	Art.nr. 22x22
Profiel 2 m	552501	531501	516801	522201
Scheidingschot 2 m	552509	531509		
Vlakke haakse hoek	552510	531510	516810	522210
Haakse binnenhoek	552511	531511	516811	
Haakse buitenhoek	552512	531512	516812	522211
T-stuk	552513	531513		
T-stuk verloop 50/25 - 30/15	552514			
Koppelstuk	552515	531516	516813	522214
Eindstuk	552516	531517	516814	
Opbouwdoos invoerstuk		531514		
Eindstuk links				
Eindstuk rechts				
Kabelinvoer				
Kabeluitvoer				
Opbouwdoos 1- voudig		500011		
Opbouwdoos 2- voudig		500012		

**KABEL KANAAL, CRÈME** Inclusief zelfklevende laag met KEMA-keur

Omschrijving	Art.nr. 30x15	Art.nr. 16x8
Profiel 2 m	531503	516802
Vlakke haakse hoek	531530	516830
Haakse binnenhoek	531531	516831
Haakse buitenhoek	531532	516832
T-stuk	531533	
Koppelstuk	531535	516833
Eindstuk	531536	516834
Opbouwdoos invoerstuk	351534	
Opbouwdoos enkelvoudig	500031	
Opbouwdoos tweevoudig	500032	

**KABEL KANAAL, ROOD** Inclusief zelfklevende laag met KEMA-keur

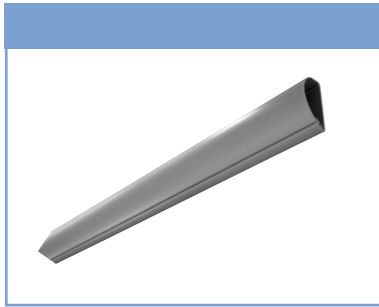
Omschrijving	Art.nr. 30x15
Profiel 2 m	531504
Vlakke haakse hoek	531550
Haakse binnenhoek	531551
Haakse buitenhoek	531552
T-stuk	531553
Koppelstuk	531555
Eindstuk	531556
Opbouwdoos invoerstuk	351554

**KABEL KANAAL, ZWART** Inclusief zelfklevende laag met KEMA-keur

Omschrijving	Art.nr. 50x25	Art.nr. 30x15
Profiel 2 m	552503	531502
Vlakke haakse hoek	552551	531520
Haakse binnenhoek	552551	531521
Haakse buitenhoek	552552	531522
T-stuk	552553	531523
Koppelstuk	552555	531524
Eindstuk	552556	531526
Opbouwdoos invoerstuk		531525

**KABEL KANAAL, HOUT-LOOK** Inclusief zelfklevende laag met KEMA-keur

Omschrijving	Art.nr. 22x22
Profiel 2 m	522202
Haakse binnenhoek	522260
Haakse buitenhoek	522261
T-stuk	522264
Eindstuk links	522265
Eindstuk rechts	522266
Koppelstuk	522262
Opbouwdoos invoerstuk	522263



D-Line

KABEL KANAAL, ALUMINIUM-LOOK Inclusief zelfklevende laag met KEMA-keur

Omschrijving	Art.nr. 50x25	Art.nr. 30x15	Art.nr. 16x8
Profiel 2 m	552502	531505	516803
Vlakke haakse hoek	552540	531660	516840
Haakse binnenhoek	552541	531661	516841
Haakse buitenhoek	552542	531662	516842
T-stuk	552543	531663	
T-stuk verloop 50/25 - 30/15	552544		
Koppelstuk	552545	531664	516843
Eindstuk	552546	531665	516844
Opbouwdoos invoerstuk		531666	

D-LINE BY PIPELIFE SETS

Omschrijving	Afm.	Lengte	Type	Art.nr.
Wit	50x25	1x1500	Plasma	500019
Aluminium	50x25	1x1500	Plasma	500020
Zwart	50x25	1x1500	Plasma	500021
Wit + accessoires	30x15	2x1500	LCD	500013
Aluminium + accessoires	30x15	2x1500	LCD	500022
Zwart + accessoires	30x15	2x1500	LCD	500023
Wit + accessoires	16x8	4x1500	Audio	500014
Aluminium + accessoires	16x8	4x1500	Audio	500024
Zwart + accessoires	16x8	4x1500	Audio	500025

D-LINE ACCESSOIRES

Omschrijving	Afm.	Art.nr.
Zaagmal		500000
Kunststof duimplug (15st)	6x30	500003

D-LINE VERPAKKINGEN

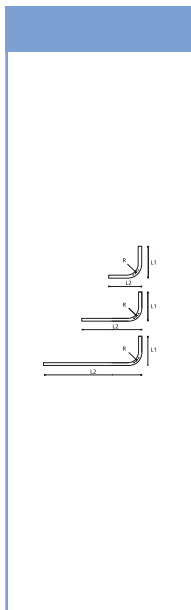
Omschrijving	Profiel	Afmeting
Profiel	16x8	4 x 2 m
Profiel	22x22	4 x 2 m
Profiel	30x15	4 x 2 m
Profiel	50x25	2 x 2 m
Hulpstukken		5 stuks



KUNSTSTOF METERKASTVLOERPLAAT met KOMO-keur

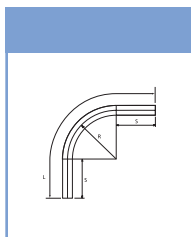
Omschrijving	Afm.	Art.nr.
Standaard	780 x 328 x 30	374594
Vloerplaat geïsoleerd	780 x 328 x 100	374595
Vloerplaat t.b.v. stadsverwarming	750 x 310 x 30	374596

INVOERBOCHTEN t.b.v. kunststof meterkastvloerplaat

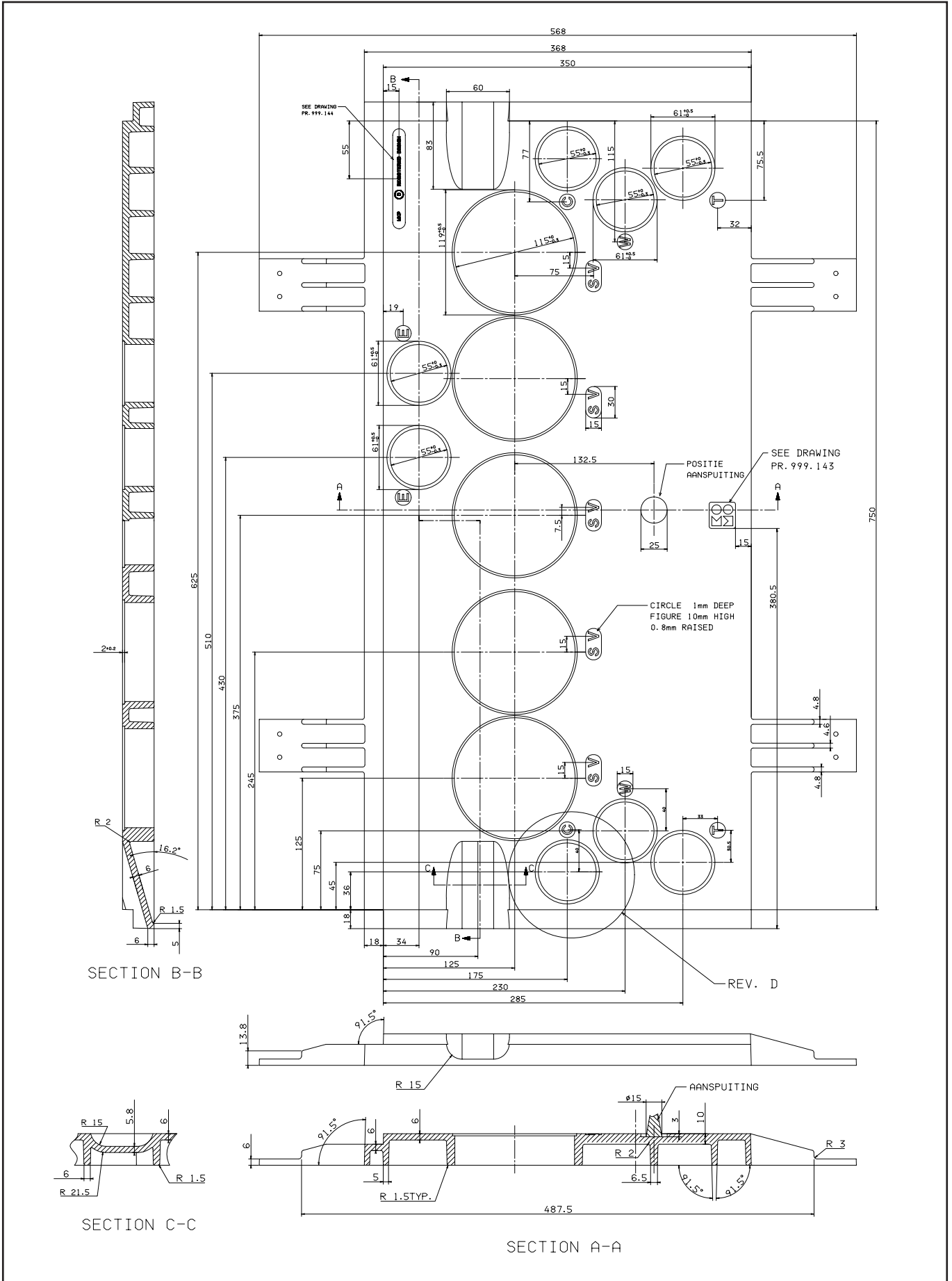


Omschrijving	Afm.	R mm	L1 mm	L2 mm	Art.nr.
Kort model					
t.b.v. CAI	50 x 3,0	500	1200	1250	320286
t.b.v. TELECOM	50 x 3,0	500	1200	1250	320286
t.b.v. WATER	50 x 3,0	750	1200	1250	320288
t.b.v. GAS	63 x 3,0	500	1200	1250	320284
t.b.v. ELECTRICITEIT	50 x 3,0	500	1200	1250	320286
Middellang model					
t.b.v. CAI	50 x 3,0	500	1200	2800	301394
t.b.v. TELECOM	50 x 3,0	500	1200	2800	301394
t.b.v. WATER	50 x 3,0	750	1200	2800	301395
t.b.v. GAS	63 x 3,0	500	1200	2800	301396
t.b.v. ELECTRICITEIT	50 x 3,0	500	1200	2800	301394
Lang model					
t.b.v. CAI	50 x 3,0	500	1200	4250	320287
t.b.v. TELECOM	50 x 3,0	500	1200	4250	320287
t.b.v. WATER	50 x 3,0	750	1200	4250	320289
t.b.v. GAS	63 x 3,0	500	1200	4250	320285
t.b.v. ELECTRICITEIT	50 x 3,0	500	1200	4250	320287

PVC DOORVOERBOCHT 90°



Afm.	R mm	S mm	Lengte	Art.nr.
40 x 3,0	750	411	2000	318826
50 x 3,0	600	539	2000	318622
50 x 3,0	750	411	2000	318827
75 x 3,0	600	539	2000	318882
75 x 3,0	750	425	2000	318828
110 x 3,0	1050	276	2500	322013



Onze producten voldoen aan de volgende normeringen:

KEMA-Keuringseisen K24B-1

Systemen van buizen voor elektrotechnische installaties

Deel 1: Algemene eisen

Deel 2: Systeem van buizen

Deel 2-12: Buishulpstukken

KEMA-Keuringseisen K51

Eisen voor de verlening van het keuringsmerk voor bevestigingsmiddelen voor kabels of buizen voor elektrotechnische installaties

NEN-EN-50086

Systemen van buizen voor elektrotechnische installaties

NEN-EN-50086-1 Algemene eisen

NEN-EN-50086-2-1 Bijzondere eisen voor systemen met starre buizen (NEN3174)

NEN-EN-50086-2-2 Bijzondere eisen voor systemen met flex buizen (NEN3530)

Aan Pipelife Nederland B.V. is het NEN-ISO 9001 certificaat verleend. Dit houdt in dat haar kwaliteitssysteem en de toepassing daarvan voldoen aan de voorwaarden gesteld in NEN-ISO 9001 met betrekking tot het ontwikkelen, vervaardigen en verkopen van kunststof leidingsystemen.

AFMETINGEN VAN CONTAINERS EN PAKKETTEN

Omschrijving	Afm. buis	Meters	Lengte	Breedte	Hoogte	Gewicht
Grote container ledig			3077 mm	1223 mm	1250 mm	ca. 200 kg
inclusief buis	16 mm	16500	4000 mm	1223 mm	1250 mm	ca. 1540 kg
inclusief buis	19 mm	11500	4000 mm	1223 mm	1250 mm	ca. 1420 kg
Kleine container ledig			3077 mm	1223 mm	700 mm	ca. 150 kg
inclusief buis	16 mm	7500	4000 mm	1223 mm	700 mm	ca. 650 kg
inclusief buis	19 mm	5000	4000 mm	1223 mm	700 mm	ca. 650 kg
Pakketten	16 mm	6000	4000 mm	1070 mm	390 mm	ca. 325 kg
	19 mm	4000	4000 mm	1070 mm	370 mm	ca. 415 kg
	25 mm	3000	4000 mm	1070 mm	640 mm	ca. 510 kg
	32 mm	1800	4000 mm	1070 mm	485 mm	ca. 380 kg
	38 mm	890	4000 mm	1070 mm	315 mm	ca. 265 kg
	50 mm	800	4000 mm	1070 mm	520 mm	ca. 390 kg

Algemene Verkoopvoorwaarden Pipelife Nederland B.V./Uitgave 2001/Nederlands

1. Algemeen

Tenzij partijen schriftelijk anders overeenkomen zijn deze Algemene Verkoopvoorwaarden van toepassing op alle aanbestedingen, verkoopovereenkomsten en leveringen van en met Pipelife Nederland B.V. en zijn de inkoopvoorwaarden van koper uitgesloten.

2. Totstandkoming van de overeenkomst

Al aan bidingen van Pipelife Nederland B.V. zijn vrijblijvend, tenzij zij een termijn voor aanvaarding bevatten. Pipelife Nederland B.V. is bevoegd een vrijblijvend aanbod, binnen 3 werkdagen na aanvaarding daarvan door koper, te herroepen.

3. Prijzen

3.1 Alle geoffreerde prijzen zijn exclusief BTW en zijn, tenzij een andere leveringsconditie is overeengekomen, gebaseerd op levering af fabriek/magazijn Pipelife Nederland B.V. (EXW, Incoterms, laatste versie). De kosten van eventuele Pipelife Nederland B.V.-standaardverpakkingen voor éénmalig gebruik zijn in de prijzen inbegrepen.

3.2 Prijswijzigingen, welke plaatsvinden na totstandkoming van de overeenkomst maar tot 3 werkdagen vóór de aflevering, kunnen aan de koper worden doorberekend, indien dit naar het oordeel van Pipelife Nederland B.V. billijk te achten is. Koper is alsdan gerechtigd de overeenkomst, voor zover deze op het moment van kennisgeving door Pipelife Nederland B.V. van de prijswijziging nog niet is uitgevoerd, binnen 3 werkdagen na deze kennisgeving schriftelijk dan wel mondeling met schriftelijke bevestiging te ontbinden, tenzij de prijswijzigingen het gevolg zijn van overheidsmaatregelen.

4. Levering

4.1 Voorzover niet anders wordt overeengekomen geschieden leveringen af fabriek/magazijn Pipelife Nederland B.V. (EXW). De Incoterms, laatste versie, zijn van toepassing.

4.2 Pipelife Nederland B.V. zal naar beste vermogen de leveringstermijnen in acht nemen. Leveringstermijnen gelden echter niet als fatale termijn en Pipelife Nederland B.V. zal, bij overschrijding van de aangegeven leveringstermijn, door koper in gebreke gesteld dienen te worden. Overschrijding van de leveringstermijn door Pipelife Nederland B.V. geeft aan koper geen recht op ontbinding van de overeenkomst of enige schadevergoeding van Pipelife Nederland B.V., tenzij Pipelife Nederland B.V., ook nadat zij door koper in gebreke is gesteld, niet binnen een redelijke door koper gestelde termijn tot levering is overgegaan.

4.3 Indien Pipelife Nederland B.V. voor de uitvoering van de overeenkomst gegevens nodig heeft die door de koper moeten worden verschaft of indien Pipelife Nederland B.V. een betalingszekerheid heeft bedongen deze gegevens of deze betalingszekerheid niet zijn ontvangen voor de overeengekomen afleveringsdatum, is Pipelife Nederland B.V. niet eerder tot aflevering verplicht dan een redelijke tijd nadat de benodigde gegevens of de bedongen betalingszekerheid zijn ontvangen.

5. Hoeveelheid

Het vaststellen van de geleverde hoeveelheid geschiedt door Pipelife Nederland B.V. voor aflevering. Deze vaststelling is beslissend voor de betalingsverplichting van koper.

6. Betaling

6.1 Alle betalingen dienen te geschieden volgens de tussen partijen overeengekomen wijze van betaling en binnen de overeengekomen termijnen. Voor zover niet anders is overeengekomen geldt een betalingsstermijn van 30 dagen na factuurdatum en dienen betalingen te geschieden in Euro's, zonder korting of beroep op enige verrekening, bij een door Pipelife Nederland B.V. aangegeven bank.

6.2 Indien betaling door middel van een letter of credit (l/c) wordt overeengekomen, dient dit een onherroepelijk, geconfirmeerd l/c te zijn dat de gehele contractprijs dekt en dient deze door koper geopend te worden bij een toonaangevende bank binnen 15 dagen na totstandkoming van de overeenkomst. Confirmatie dient te geschieden door een door Pipelife Nederland B.V. aangewezen bank. Het l/c zal onderworpen zijn aan de laatste versie van de "Uniform Customs and Practice for Documentary Credits".

6.3 Bij gebreke van tijdige betaling wordt koper geacht, zonder enige ingebrekestelling of rechterlijke tussenkomst, in verzuim te zijn en hem zal alsdan een rente over het verschuldigde bedrag in rekening worden gebracht, gelijk aan 4,25% boven de depositorente van de Europese Centrale Bank.

6.4 Afgezien van verdere aanspraken op schadevergoeding die Pipelife Nederland B.V. mocht hebben, zijn alle kosten die Pipelife Nederland B.V. moet maken -gerechtelijke en buitengerechtelijke- in verband met de niet-nakoming door koper van enige verplichting jegens Pipelife Nederland B.V., voor rekening van koper.

6.5 Indien een klacht door Pipelife Nederland B.V. gegrond wordt bevonden voordat de betalingsstermijn is verstrekt zal Pipelife Nederland B.V. aan koper, afhankelijk van de te nemen maatregel een creditnota en/of een nieuwe factuur en/of aanvullende dan wel vervangende producten zenden. In alle andere gevallen blijft koper gehouden het volledige factuurbedrag uiterlijk op de oorspronkelijke vervaldag te voldoen, zonder korting of verrekening.

6.6 Pipelife Nederland B.V. is bevoegd om binnen de afgesproken leveringstermijn in gedeelten te leveren tenzij deelleveranties geen zelfstandige waarde hebben en om, indien een order in deellevering wordt uitgevoerd, elk deel afzonderlijk te factureren.

7. Tekortkoming

7.1 Indien koper enige verplichting uit de overeenkomst of deze Algemene Verkoopvoorwaarden niet, niet tijdig of niet behoorlijk nakomt en hem dit toe te rekenen is, alsmede in geval van faillissementsaan-vraag, faillissement, liquidatie van het bedrijf of aangevraagde of verkregen surséance van betaling van koper, heeft Pipelife Nederland B.V. het recht de overeenkomst geheel of gedeeltelijk zonder nadere ingebrekestelling en zonder rechterlijke tussenkomst schriftelijk geheel of gedeeltelijk te ontbinden of de uitvoering daarvan geheel of gedeeltelijk op te schorten zonder tot enige schadevergoeding gehouden te zijn, onverminderd alle haar verder toekomende rechten.

7.2 In geval een van de in lid 1 van dit artikel genoemde omstandigheden zich voordoet, zullen alle vorderingen van Pipelife Nederland B.V. op koper terstond volledig opeisbaar zijn en zal Pipelife Nederland B.V. het recht hebben ook alle andere overeenkomsten met koper tot levering van producten en diensten op te schorten of te ontbinden.

8. Zekerheidsstelling

Indien Pipelife Nederland B.V. gegronde vrees heeft dat koper zijn betalingsverplichtingen niet zal nakomen, is zij bevoegd van koper te vorderen dat deze tot haar genoegen deugdelijke zekerheid stelt voor de nakoming van zijn betalingsverplichtingen.

9. Overmacht

9.1 In geval van verhindering tot uitvoering van de overeenkomst ten gevolge van omstandigheden die aan Pipelife Nederland B.V. niet toe te rekenen zijn (overmacht), is Pipelife Nederland B.V. gerechtigd om zonder rechterlijke tussenkomst, schriftelijk te vorderen, hetzij dat de overeenkomst aan de omstandigheden wordt aangepast, hetzij dat de uitvoering van de overeenkomst wordt opgeschort of de overeenkomst geheel of ten dele te ontbinden, zonder tot enige schadevergoeding gehouden te zijn.

9.2 Onder overmacht wordt hier verstaan elke omstandigheid tengevolge waarvan de normale uitvoering van de overeenkomst redelijkerwijs niet door koper kan worden verlangd, en in ieder geval, voor zover daaronder niet reeds begrepen, natuur- en milieuarmpen, oorlog, oorlogsgevaar, burgeroorlog, oproer, werkstaking, geheel of gedeeltelijk in gebreke blijven van derden van wie producten of diensten moeten worden ontvangen, gebrek aan grondstoffen, halffabrikaten, hulpstoffen en/of energie, transportmoeilijkheden, brand en andere calamiteiten bij Pipelife Nederland B.V. of bij haar leveranciers.

9.3 Indien gehele of gedeeltelijke opschorting als in lid 1 van dit artikel bedoeld, de latere prestatie van Pipelife Nederland B.V. voor koper in betekenis zou doen veranderen, in die mate dat acceptatie daarvan door deze laatste redelijkerwijs niet meer kan worden verlangd, is koper van zijn verdere afnameverplichtingen ontslagen.

9.4 Nakoming in een of meer gevallen tijdens omstandigheden als in lid 2 van dit artikel bedoeld, tast niet het recht aan, in andere gevallen van de bevoegdheid tot opschorting of beëindiging gebruik te maken.

10. Eigendomsvoorbehoud

10.1 Het eigendomsrecht van de verkochte producten gaat eerst op koper over nadat deze aan al zijn verplichtingen jegens Pipelife Nederland B.V. tot de betaling van de koopsom voor geleverde of nog te leveren producten of verrichte of nog te verrichten diensten en ter zake verschuldigde rente, kosten en schadevergoeding, voldaan heeft. Koper is echter gerechtigd om over de producten te beschikken in zijn normale bedrijfsuitoefening. Overigens is koper niet bevoegd de producten te verpanden of hier enig ander recht op te vestigen. Hij is verplicht Pipelife Nederland B.V. onverwijld op de hoogte te stellen wanneer derden rechten doen gelden met betrekking tot Pipelife Nederland B.V. nog in eigendom toebehorende producten. Zodra Pipelife Nederland B.V. een gegrond vermoeden heeft, dat koper niet of niet tijdig zal betalen is Pipelife Nederland B.V. voorts onherroepelijk gemachtigd, zonder dat ingebrekestelling is vereist, om de producten die het eigendom van Pipelife Nederland B.V. zijn gebleven weg te halen of te doen weghalen van de plaats waar deze zich bevinden.

10.2 Koper zal de onder eigendomsvoorbehoud geleverde producten op eerste verzoek van Pipelife Nederland B.V. als eigendom van Pipelife Nederland B.V. merken. Koper wordt tot wederopzegging gemachtigd deze producten in het kader van zijn normale bedrijfsuitoefening aan derden te verkopen en te leveren, met dien verstande dat hij, op eerste verzoek van Pipelife Nederland B.V., de uit deze verkopen tegenover zijn afnemers verkregen vorderingen aan Pipelife Nederland B.V. zal cederen.

11. Aansprakelijkheid en klachten

11.1 Mededelingen door of namens Pipelife Nederland B.V. gedaan betreffende de kwaliteit, samenstelling, eigenschappen, toepassingsmogelijkheden van de verkochte producten e.d., binden Pipelife Nederland B.V. slechts indien dat uitdrukkelijk, schriftelijk is overeengekomen.

11.2 Koper is verplicht de producten zo spoedig mogelijk, doch binnen 2 weken, te controleren. De gebreken van de producten die bij deze controle worden geconstateerd alsmede gebreken die pas in latere instantie konden worden geconstateerd, dienen onverwijld na constatering schriftelijk of telefonisch met schriftelijk bevestiging, aan Pipelife Nederland B.V. te worden gemeld, met opgave van de desbetreffende factuur-, vrachtbrief-, en batchnummers (voorzover bekend) e.d. Bij niet inachtneming van het voorgaande verliest koper elke aanspraak tegenover Pipelife Nederland B.V. terzake van genoemde gebreken. Koper zal ter beperking van de schade de aanwijzingen van Pipelife Nederland B.V. met betrekking tot de producten opvolgen.

11.3 In geval van een klacht zal Pipelife Nederland B.V. alles in het werk stellen om de klacht te beoordelen en zodanig tot herstel conform de bepalingen in artikel 11 lid 4 hieronder overgaan. Koper zal alle door Pipelife Nederland B.V. voor onderzoek van de klacht gewenste medewerking verlenen, o.a. door het verstrekken van monstermateriaal en door Pipelife Nederland B.V. in de gelegenheid te stellen ter plaats een onderzoek in te stellen naar de toepassings- en/of verwerkingsmethode.

11.4 Indien Pipelife Nederland B.V. een gebrek aangetoond acht, zal zij de keus hebben in redelijkheid hetzij de niet deugdelijk gebleken producten kosteloos te vervangen, hetzij koper alsnog een korting op de koopprijs te verlenen. In het eerstgenoemde geval zal koper op verzoek van Pipelife Nederland B.V. de ondeugdelijk bevonden nog niet verwerkte of geïnstalleerde producten aan Pipelife Nederland B.V. voor rekening en risico van Pipelife Nederland B.V. retourneren. In het geval dat Pipelife Nederland B.V. besluit koper alsnog een korting op de koopprijs te verlenen, kunnen de ondeugdelijk bevonden producten slechts na de uitdrukkelijke, schriftelijke toestemming van Pipelife Nederland B.V., voor rekening en risico van koper, worden geretourneerd.

11.5 Elke aansprakelijkheid van Pipelife Nederland B.V. tengevolge van een tekortkoming, die toe te rekenen is aan Pipelife Nederland B.V. is te allen tijde beperkt tot maximaal de netto factuurwaarde van de producten behalve in geval van opzet of grove schuld van Pipelife Nederland B.V. Behoudens het hiervoor gestelde is Pipelife Nederland B.V. jegens koper nimmer verplicht tot vergoeding van enige schade, waaronder begrepen enige directe of indirecte schade, uit welken hoofde of van welken aard ook, uitgezonderd eventuele schade op grond van enige wettelijke aansprakelijkheid van Pipelife Nederland B.V. jegens derden ten gevolge van de gebrekkigheid van haar producten, tenzij de schade (mede) aan koper te wijten is.

12. Transportmaterieel en emballage

12.1 De producten worden geleverd in de standaardverpakking van Pipelife Nederland B.V. Mocht koper in verband met het door hem gewenste vervoer een andere verpakking nodig achten, dan dient dat afzonderlijk met Pipelife Nederland B.V. te worden overeengekomen. In geval door Pipelife Nederland B.V. leenemballage ter beschikking wordt gesteld dient deze in behoorlijke staat en zonder productresten onverwijld, franco aan Pipelife Nederland B.V. te worden geretourneerd. Indien deze leenemballage niet binnen de gesteldetermijn wordt geretourneerd dan worden extra huurtermijnen aan koper in rekening gebracht. In het geval dat leenemballage beschadigd en/of met productresten wordt geretourneerd, worden de kosten van vervanging respectievelijk herstel en/of reiniging en afvoer aan koper in rekening gebracht.

12.2 Vanaf het moment van afzending door Pipelife Nederland B.V. en tot het moment waarop de leenemballage door Pipelife Nederland B.V. is terug ontvangen, is koper volledig aansprakelijk voor alle schade aan de leenemballage, alsmede voor alle schade welke koper of enige derde door de leenemballage of door het gebruik of anderszins daarvan op welke wijze dan ook lijdt.

12.3 Emballage die in eigendom van koper is overgegaan, mag uitsluitend weer in het handelsverkeer worden gebruikt, indien de firma-naam en het logo van Pipelife Nederland B.V., haar handelsmerken en andere aanduidingen onherkenbaar zijn gemaakt. Vrachtauto's, eigendom van of ter beschikking gesteld door Pipelife Nederland B.V., dienen prompt na aankomst te worden gelost.

12.4 Koper is verantwoordelijk voor het voldoen van door hem ter beschikking gesteld transportmaterieel en emballage aan de wettelijke vereisten en aan normen voor veilig en deugdelijk transport. Pipelife Nederland B.V. is bevoegd te weigeren door koper ter beschikking gesteld materieel en emballage te beladen, indien dit materieel of deze emballage niet voldoet aan de in dit lid genoemde vereisten en normen. Pipelife Nederland B.V. is in geval van zodanige weigering niet aansprakelijk voor de gevolgen die uit de vertraging voortvloeien. Bij aflevering in een door koper ter beschikking gestelde vrachtauto dient deze voor belading gereed en schoon ter beschikking te worden gesteld.

13. Strijdigheid met wettelijke bepalingen

Mocht enige bepaling van deze Algemene Verkoopvoorwaarden niet van toepassing of in strijd met de openbare orde of de wet zijn, dan zal slechts de desbetreffende bepaling als niet geschreven worden beschouwd doch zullen overigens de Algemene Verkoopvoorwaarden volledig van kracht blijven.

14. Toepasselijk recht

Op alle overeenkomsten waarop deze voorwaarden geheel of ten dele van toepassing zijn, is uitsluitend het Nederlandse recht van toepassing, met uitsluiting van de regels van het Nederlandse internationale privaatrecht. Het Weens Koopverdrag van 11 april 1980, Trb. 1981, 184 en 1986, 61 is evenmin van toepassing.

15. Geschillenbeslechting

Alle geschillen tussen partijen, welke niet in onderling overleg kunnen worden opgelost, zullen worden beslecht door arbitrage overeenkomstig het Reglement van het Nederlands Arbitrage Instituut. Pipelife Nederland B.V. is echter gerechtigd een geschil voor te leggen aan een Nederlandse rechter in het arrondissement waar Pipelife Nederland B.V. haar zetel heeft, dan wel aan een andere bevoegde rechter, arbiter.

* A translation of these general conditions of sale in the English language will be available upon request. The Dutch version however will be decisive.

* Une traduction de ces Conditions générales de Vente en français est disponible sur demande. La version néerlandaise sera néanmoins décisive.

* Eine Übersetzung dieser Allgemeinen Verkaufsbedingungen in deutscher Sprache steht auf Anfrage zur Verfügung. Die niederländische Version ist jedoch die Entscheidende.



Gas & Water

PVC drukleidingsystemen
Polvalene PE drukleidingsystemen
Elgef electrolassysteem
Klem- en steekkoppelingen
Trekvastе koppelingen
Polvalit-Z leidingsysteem
Polsafe



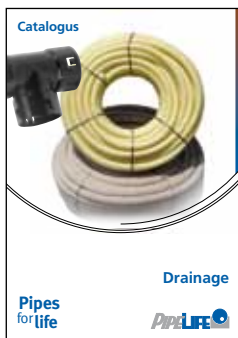
Binnenriolering

Polisan PVC rioleringsbuizen en lijmhulpstukken
Renovatie hulpstukken
Polisan PVC Zichtleidingen, manchetten en sifons
Douchepluggen, vloer- en schrobputten
Hemelwaterafvoer en goten
Meterkastvloerplaat en doorvoerbochten
Ontluchting
Rookgasafvoersystemen



Buitenriolering

Renofort PVC buizen
Manchethulpstukken SN4 en SN8
Kolken
Renoflow inspectieputten
Lijnafwatering
SpaRc IT/ID-riool
SpaRc Infiltratie Box
Infiltratiekolken

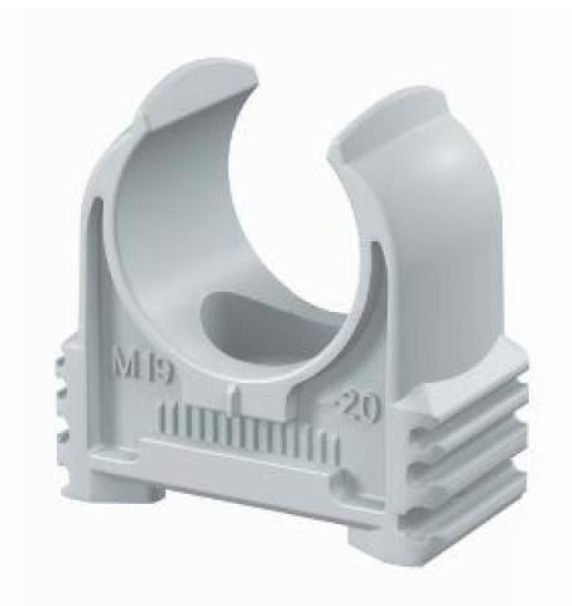


Drainage

Drainflex PVC Drainagesystemen
Strabusil PE Drainagesystemen
Percodrain PE Drainagesysteem
PE en PP drainagebuis
Erfafscheiding- en Drainageputten
PVC beregeningsbuis



OBO - OBO KABELBUISKLEM 19-20MM KOPP



Artikelnummer	2700423313
Fabrikaat	OBO
Typenummer	2957 M19-20
Artikelnummer Leverancier	2149710
EAN Code	4012195931928

Minimale afname	100
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Product omschrijving

Er is geen product omschrijving beschikbaar

Technische specificaties

Geschikt voor buisdiameter 19 - 20 mm

Gesloten Nee

Materiaal Kunststof

Rijgbaar Ja

Max. aantal buizen 1

Soort bevestiging Schroefgat

Met inlage Nee

Kleur Grijs



Main

Range of product	KNX
Product or component type	Power supply
Bus type	KNX
Additional information	With integrated choke

Complementary

18 mm pitches	4
Mounting support	DIN rail
[Ue] rated operational voltage	110...230 V
Network frequency	50...60 Hz
Output current	640 mA
Local signalling	LED

Environment

Environmental health and issues	Halogen free
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Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1426 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference contains SVHC above the threshold - Go to CaP for more details Go to CaP for more details
Product environmental profile	Available End of life manual
Product end of life instructions	Available

Contractual warranty

Warranty period	18 months
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Main

Range of product	KNX
Product or component type	Power supply
Bus type	KNX

Complementary

Condition of use	Other device KNX device
Function of module	With output voltage stabilized
Mounting support	DIN rail
Rated operational power in W	9.6 W
Output current	0.4 A
Output voltage	24 V
Connections - terminals	Screw terminals
Height	68.1 mm
Width	17.5 mm
Depth	68.1 mm

Environment

IP degree of protection	IP20
Environmental health and issues	Halogen free

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0647 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference contains SVHC above the threshold - Go to CaP for more details Go to CaP for more details
Product environmental profile	Available

Product end of life instructions	Available
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Contractual warranty

Warranty period	18 months
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Conext MPPT 80 600 solar charge controller

Install for less, harvest more energy



Product at a glance

The Conext™ MPPT 80 600 solar charge controller offers integration features and top performance that allow for easy installation of large PV array systems to the battery bank for the lowest overall cost. Installing one MPPT 80 600 is faster than installing multiple smaller charge controllers and lowers overall costs further by utilizing fewer PV strings, smaller wiring and conduit, and eliminating the need for PV combiner boxes and DC circuit breakers. Longer distances from array site to battery bank are also easier to accommodate than with smaller charge controllers. Advanced Fast Sweep Maximum Power Point Tracking (MPPT) charging technology helps harvest the most energy available from the PV array, even in partial shade conditions. A battery charge current of 80 A allows for the connection of PV arrays rated up to 600 V STC (2560 W for 24 V systems, 4800 W for 48 V systems).

Why choose Conext MPPT 80 600?

Higher return on investment

- Installs faster with fewer costly components
- Improve battery life with selectable multi-stage temperature-compensated charging
- Harvest more energy with shade-tolerant fast sweep MPPT algorithm

Designed for reliability

- Robust design through rigorous Multiple Environmental Over Stress Testing (MEOST)

Flexible

- Available remote monitoring and configuration
- Compatible with any brand of PV module and any grounding method
- Stand-alone application or full integration with Conext XW inverter charger system

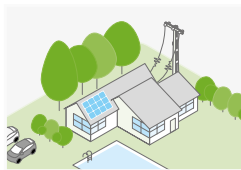
Easy to install

- Fewer string wires
- Smaller AWG wire
- No need for combiner box or GFI circuit breaker

Product applications



Backup power



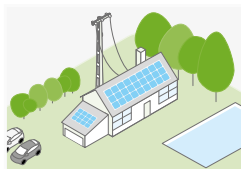
Residential grid-tie solar with backup power



Off-grid solar



Community electrification



Self-consumption

Device short name	MPPT 80 600
Electrical specifications	
Nominal battery voltage	24 and 48 V (Default is 48 V)
PV array operating voltage	195 to 550 V
Max. PV array open circuit voltage	600 V including temperature correction factor
Battery voltage operating range	16 to 67 VDC
Array short-circuit current	35 A (28 A @ STC)
Max. charge current	80 A
Max. and min. wire size in conduit	#6 AWG to #14 AWG (13.5 to 2.5 mm ²)
Max. output power	2560 W (nominal 24 V), 4800 W (nominal 48 V)
Charger regulation method	Three-stage (bulk, absorption, float) plus manual equalization Two-stage (bulk, absorption) plus manual equalization
Supported battery types	Flooded, GEL, AGM, Custom
Efficiency	
Max. power conversion efficiency	94% (nominal 24 V), 96% (nominal 48 V)
General specifications	
Power consumption, night time	< 1 W
Battery temperature sensor	Included
Auxiliary output	Dry contact switching up to 60 VDC, 30 VAC, 8A
Enclosure material	Indoor, ventilated, aluminum sheet metal chassis with 22.22 mm and 27.76 mm (7/8 in and 1 in) knockouts and aluminum heat sink
IP degree of protection	IP20
Product weight	13.5 kg (29.8 lb)
Shipping weight	17.4 kg (38.3 lb)
Product dimensions (H x W x D)	76.0 x 22.0 x 22.0 cm (30.0 x 8.6 x 8.6 in)
Shipping dimensions (H x W x D)	87.0 x 33.0 x 27.0 cm (34.3 x 13.0 x 10.6 in)
Device mounting	Vertical wall mount
Ambient air temperature for operation	-20 °C to 65 °C (-4 °F to 149 °F), power derating above 45 °C
Storage temperature range	-40 °C to 85 °C (-40 °F to 185 °F)
Operating altitude	Sea level to 2000 m (6562 ft)
System network and remote monitoring	Available
Warranty	Five-year standard
Part number	865-1032
Regulatory approvals	
Safety	CSA certified (UL1741, CSA 107.1) and CE marked for the Low-voltage Directive (EN50178)
EMC	FCC and Industry Canada (Class B), CE marked for the EMC Directive (EN61000-6-1, -6-3), C-Tick compliant
Compatible products	
Conext XW+ inverter/charger (230 V)	XW 7048 E product no. 865-7048-61/XW 8548 E product no. 865-8548-61
Conext XW+ inverter/charger (120/240 V)	XW 5548 NA product no. 865-5548-01/XW 6848 NA product no. 865-6848-01
Conext SW (230 V)	SW 2524 product no. 865-2524-61/SW 4024 product no. 865-4024-61/SW 4048 product no. 865-4048-61
Conext SW (120 V)	SW 2524 product no. 865-2524/SW 4024 product no. 865-4024/SW 4048 product no. 865-4048
Conext System Control Panel	Product no. 865-1050
Conext Automatic Generator Start	Product no. 865-1060
Conext ComBox	Product no. 865-1058
Conext portable installation and configuration tool	Product no. 865-1155-01

Specifications are subject to change without notice.

Conext XW+

hybrid inverter/charger

One solution for global power needs.

Product at a glance

Conext™ XW+ is an adaptable single-phase and three-phase inverter/charger system with grid-tie functionality and dual AC power inputs. Available solar charge controllers, monitoring, and automated generator control modules enable further adaptability. From a single Conext XW+ unit to clusters up to 102 kW, the Conext XW+ is a scalable system that allows for the integration of solar capacity as required. Adaptable and scalable, the Schneider Electric™ Conext XW+ system is the one solution for grid-interactive and off-grid, residential and commercial, solar and backup power applications.



Conext XW+

Higher return on investment

- Excellent load starting with high 30-minute and 5-second power
- Performs in hot environments up to 70° C
- Intelligent functionality enables solar prioritization, load shifting, peak shaving, and assists small generators with heavy loads
- Backup power with grid-tie functionality converts external DC power to AC power for export to the utility grid

Designed for reliability

- Extensive quality and reliability testing
- Highly accelerated life testing
- Globally proven and recognized field performance

Flexible

- Single- or three-phase phase off-grid systems from 7.0 kW to 102 kW
- Supports DC-coupled and AC-coupled off-grid and grid-tie architectures
- Supports charging of lithium ion battery packs

Easy to service

- Field serviceable with replacement boards and spare parts
- Monitor, troubleshoot, or upgrade firmware with Conext ComBox™

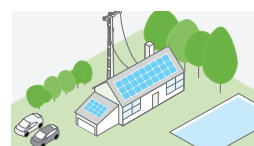
Easy to install

- System configures quickly into compact, wall-mounted system
- Integrates both grid and generator power with dual AC inputs
- Balance-of-system components integrates battery bank, solar charge controllers, and generators
- Commission the entire system with PC software tool and Conext ComBox

Product application



Residential grid-tie solar with backup power



Self-consumption



Off-grid solar



Backup power



Community electrification

Conext XW+ series (230 V)

Device short name	XW+ 7048 E	XW+ 8548 E
Inverter AC output (standalone)		
Output power (continuous) at 25° C	5500 W	6800 W
Overload 30 min/60 sec at 25° C	7000 W/9500 W	8500 W/12000W
Output power (continuous) at 40° C	4500 W	6000W
Maximum output current 60 seconds (rms)	40 A	53 A
Output frequency (selectable)	50/60 Hz	50/60 Hz
Output voltage	230 Vac	230 Vac
Total harmonic distortion at rated power	< 5%	< 5%
Idle consumption search mode	< 7 W	< 7 W
Input DC voltage range	40 to 64 V (48 V nominal)	40 to 64 V (48 V nominal)
Maximum input DC current	150 A	180 A
Charger DC output		
Maximum output charge current	110 A	140 A
Output charge voltage range	40 – 64 V (48 V nominal)	40 – 64 V (48 V nominal)
Charge control	Three stage, two stage, boost, custom	Three stage, two stage, boost, custom
Charge temperature compensation	Battery temperature sensor included	Battery temperature sensor included
Power factor corrected charging	0.98	0.98
Compatible battery types	Flooded (default), Gel, AGM, Lithium ion, custom*	Flooded (default), Gel, AGM, Lithium ion, custom*
Battery bank range (scaled to PV array size)	440 to 10000 Ah	440 to 10000 Ah
AC input		
AC 1 (grid) input current (selectable limit)	3 – 60 A (56 A default)	3 – 60 A (56 A default)
AC 2 (generator) input current (selectable limit)	3 – 60 A (56 A default)	3 – 60 A (56 A default)
Automatic transfer relay rating/typical transfer time	60 A/8 ms	60 A/8 ms
AC input voltage nominal	230 V +/- 3%	230 V +/- 3%
AC input frequency range (bypass/charge mode)	45 – 55 Hz (default) 40 – 68 Hz (allowable)	45 – 55 Hz (default) 40 – 68 Hz (allowable)
AC grid-tie output		
Grid sell on AC1 (max)	4.5 kVA	6.0 kVA
Grid sell current range on AC1 (selectable range)	0 to 20 A	0 to 27 A
Grid sell voltage range on AC1	205 to 262 Vrms (auto adjust entering sell mode)	205 to 262 Vrms (auto adjust entering sell mode)
Grid sell frequency range on AC1	48 to 51 Hz (auto adjust entering sell mode)	48 to 51 Hz (auto adjust entering sell mode)
Grid sell power factor range (lead/lag)	0.5	0.5
Efficiency		
Peak	95.8%	95.8%
General specifications		
Part number	865-7048-61	865-8548-61
Product/shipping weight	53.5 kg (118.0 lb)/75.0 kg (165.0 lb)	55.2 kg (121.7 lb) / 76.7 kg (169.0 lb)
Product dimensions (H x W x D)	58 x 41 x 23 cm (23 x 16 x 9 in)	58 x 41 x 23 cm (23 x 16 x 9 in)
Shipping dimensions (H x W x D)	71.1 x 57.2 x 39.4 cm (28.0 x 22.5 x 15.5 in)	71.1 x 57.2 x 39.4 cm (28.0 x 22.5 x 15.5 in)
IP degree of protection	IP20	
Operating air temperature range	-25° C to 70° C (-13° F to 158° F) (power derated above 25° C (77° F))	
Warranty (depending on the country of installation)	2 or 5 years	2 or 5 years
Features		
System monitoring and network communications	Available	
Intelligent features	Grid sell, peak load shave, generator support, prioritized consumption of battery or external DC energy	
Auxiliary port	0 to 12 V, maximum 250 mA DC output, selectable triggers	
Off-grid AC coupling	Frequency control	
Regulatory approval		
CE marked according to the following EU directives and standards		
RCM marked and compliant	AS 4777.2:2015, CEC Listed, EN61000-6-1, EN61000-6-3, EN61000-3-2	
EMC directive	EN61000-6-1, EN61000-6-3, EN61000-3-2	
Low-voltage directive	EN50178	
Safety	IEC 62109-1, IEC 62109-2	
Compatible products		
Conext XW + power distribution panel	865-1014-01	
Conext system control panel	865-1050	
Conext automatic generator start	865-1060	
Conext MPPT 60 150	865-1030-1	
Conext MPPT 80 600	865-1032	
Conext ComBox	865-1058	
Conext battery monitor	865-1080-01	
Conext battery fuse combiner box	865-1031-01	
Conext portable installation and configuration tool	865-1155-01	

Specifications are subject to change without notice.

Schneider Electric
35 rue Joseph Monier
92500 Rueil-Malmaison, France
Tel: +33 (0)1 41 29 70 00

Life Is On

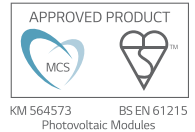
Schneider
Electric



LG NeON™ 2 **LG320N1C-G4**

60 cell

LG's new module, NeON™ 2, adopts Cello technology. Cello technology replaces 3 busbars with 12 thin wires to enhance power output and reliability. NeON™ 2 demonstrates LG's efforts to increase customer's values beyond efficiency. It features enhanced warranty, durability, performance under real environment, and aesthetic design suitable for roofs.



Enhanced Performance Warranty

LG NeON™ 2 has an enhanced performance warranty. The annual degradation has fallen from -0.7%/yr to -0.6%/yr. Even after 25 years, the cell guarantees 2.4%p more output than the previous NeON™ modules.



High Power Output

Compared with previous models, the LG NeON™ 2 has been designed to significantly enhance its output efficiency, thereby making it efficient even in limited space.



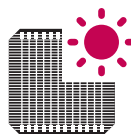
Aesthetic Roof

LG NeON™ 2 has been designed with aesthetics in mind; thinner wires that appear all black at a distance. The product may increase the value of a property with its modern design.



Outstanding Durability

With its newly reinforced frame design, LG has extended the warranty of the NeON™ 2 for an additional 2 years. Additionally, LG NeON™ 2 can endure a front load up to 6000 Pa, and a rear load up to 5400 Pa.



Better Performance on a Sunny Day

LG NeON™ 2 now performs better on sunny days thanks to its improved temperature coefficient.



Double-Sided Cell Structure

The rear of the cell used in LG NeON™ 2 will contribute to generation, just like the front; the light beam reflected from the rear of the module is reabsorbed to generate a great amount of additional power.

About LG Electronics

LG Electronics is a global player who has been committed to expanding its capacity, based on solar energy business as its future growth engine. We embarked on a solar energy source research program in 1985, supported by LG Group's rich experience in semi-conductor, LCD, chemistry, and materials industry. We successfully released the first Mono X® series to the market in 2010, which were exported to 32 countries in the following 2 years, thereafter. In 2013, NeON™ (previously known as Mono X® NeON) won "Intersolar Award", which proved LG is the leader of innovation in the industry.

Mechanical Properties

Cells	6 x 10
Cell Vendor	LG
Cell Type	Monocrystalline / N-type
Cell Dimensions	156.75 x 156.75 mm / 6 x 6 inch
# of Busbar	12 (Multi Wire Busbar)
Dimensions (L x W x H)	1640 x 1000 x 40 mm 64.57 x 39.37 x 1.57 inch
Front Load	6000 Pa / 125 psf
Rear Load	5400 Pa / 113 psf
Weight	17.0 ± 0.5 kg / 37.48 ± 1.1 lbs
Connector Type	MC4, MC4 Compatible, IP67
Junction Box	IP67 with 3 Bypass Diodes
Length of Cables	2 x 1000 mm / 2 x 39.37 inch
Glass	High Transmission Tempered Glass
Frame	Anodized Aluminum

Certifications and Warranty

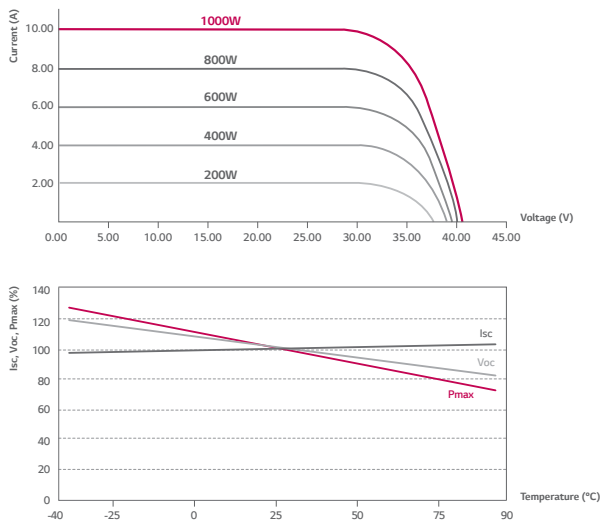
Certifications (In Progress)	IEC 61215, IEC 61730-1/-2, UL 1703, ISO 9001, IEC 62716 (Ammonia Test), IEC 61701 (Salt Mist Corrosion Test)
Module Fire Performance	Type 2 (UL 1703)
Product Warranty	12 years
Output warranty of Pmax (measurement Tolerance ± 3%)	Linear warranty*

* 1) 1st year: 98%, 2) After 2nd year: 0.6%p annual degradation, 3) 83.6% for 25 years

Temperature Coefficients

NOCT	46 ± 3 °C
Pmpp	-0.38 %/°C
Voc	-0.28 %/°C
Isc	0.03 %/°C

Characteristic Curves



Electrical Properties (STC *)

	320 W
MPP Voltage (Vmpp)	33.6
MPP Current (Impp)	9.53
Open Circuit Voltage (Voc)	40.9
Short Circuit Current (Isc)	10.05
Module Efficiency (%)	19.5
Operating Temperature (°C)	-40 ~ +90
Maximum System Voltage (V)	1000
Maximum Series Fuse Rating (A)	20
Power Tolerance (%)	0 ~ +3

* STC (Standard Test Condition): Irradiance 1000 W/m², Module Temperature 25 °C, AM 1.5

* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.

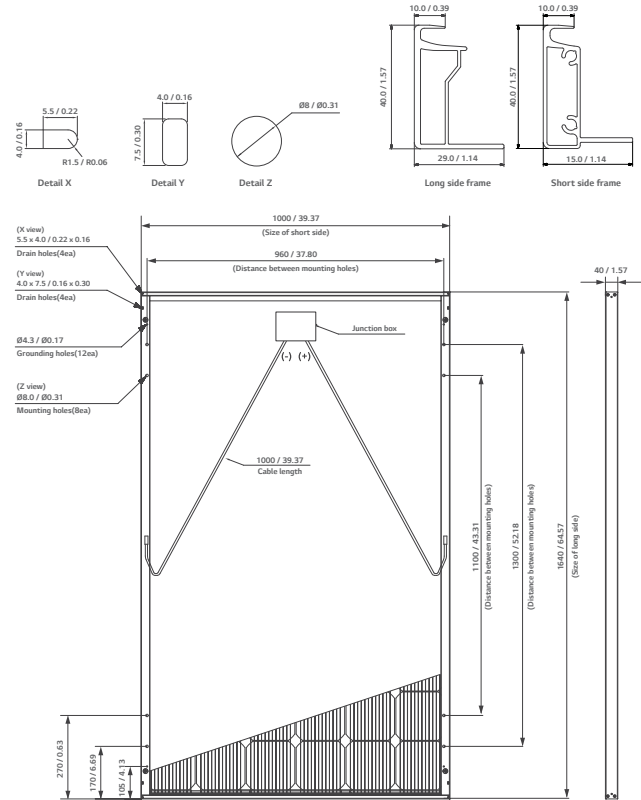
* The typical change in module efficiency at 200 W/m² in relation to 1000 W/m² is -2.0%.

Electrical Properties (NOCT*)

	320 W
Maximum Power (Pmpp)	234
MPP Voltage (Vmpp)	30.7
MPP Current (Impp)	7.60
Open Circuit Voltage (Voc)	37.9
Short Circuit Current (Isc)	8.10

* NOCT (Nominal Operating Cell Temperature): Irradiance 800 W/m², ambient temperature 20 °C, wind speed 1 m/s

Dimensions (mm/in)



* The distance between the center of the mounting/grounding holes.



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 1000 Sylvan Ave, Englewood Cliffs, NJ 07632

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 www.lgsolarusa.com

Product specifications are subject to change without notice.
 DS-N2-60-C-G-F-EN-50427

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 01/04/2015

Innovation for a Better Life



Advanced diagnostics for solar and battery systems

Conext™ ComBox

Schneider Electric brings a powerful analytic solution to monitor residential and off-grid solar installation performance, making life simpler for installers and system owners.

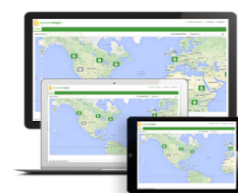


Solution at a glance

Conext ComBox is a true System Manager for your battery based solar installation allowing you to visualize, monitor and control.

- **Cost effective:** monitor solar system performance to ensure optimal returns and uptime.
- **Flexible:** multiple visualization options for trends and analysis as well as custom data logging for diagnostics.
- **Connected:** have your system performance data at your fingertips through emails alerts and portal access.
- **Scalable:** for large multi-cluster systems, the Conext ComBox can be setup in a master-slave configuration to monitor multiple separate Xanbus networks and supported Modbus devices, such as power meters.
- **Simple and powerful:** change or configure the settings of Conext Xanbus devices through the user-interface. Modbus interface on ComBox allows you to link Conext devices with third-party systems for further diagnostic and control.

Conext ComBox easily connects with **Conext Insight** to enable you to remotely monitor a portfolio of sites from any web-connected device.



Conext Insight



Conext ComBox
Tablet App

Homeowners can reap maximum benefits from their battery based solar installation by keeping realtime track of system performance using the **Android Tablet App**.

Conext ComBox can be coupled with **Conext RL** grid-tie inverters to enable zero export in regions where homeowners have no incentives to sell PV energy to the grid.

Technical Specifications

Conext ComBox

Device short name	Conext ComBox
Electrical specifications	
Communication interfaces	
Xanbus	Connector: 2 x RJ45 Products Supported: Conext™ XW+, SW, MPPT 60-150, MPPT 80-600, AGS, SCR, Battery monitor
Ethernet	Connector: 1 x RJ45, 10 / 100 MBPS Server: FTP, Web, Modbus TCP/IP slave, SMTP, SNTP, Auto discovery: DPWS
RS485	Modbus (1 x Connector: Screw 5-terminal, 16-24AWG, 2-wire serial, 19200 bps)
Data Interfaces	
USB 2.0-Host	Connector: USB-A, Protocols: MSD (firmware upgrades and device locator)
USB 2.0-Device	Connector: USB-mini B, Protocols: MSD (data extraction)
Power supply options	
DC input	Certified / Listed / CE, using a 6.5 mm power plug, 9 - 24 Vdc (universal multi-pin AC adapter included)
Power consumption	<2 W typical / 10 W peak
Xanbus	When connected to Conext™ XW+ or MPPT 80 600
RS485 connector	24 Vdc input(safety extra low-voltage only)
Memory	
Internal	96 MB flash
External	Micro-SD Card (2GB or more, class 2 or better recommended)
Conext ComBox Android tablet application*	
Software	Minimum Android version 4.0 (Ice Cream Sandwich), download via Google Play
Hardware	Minimum tablet screen size (7", 1024 x 600, e.g. Acer Iconia Tab A100, Acer Iconia Tab A500, Google Nexus™ 7, Asus Transformer TF700T, Samsung Galaxy Tab*2 10.1)
General specifications	
Weight	0.25 kg (0.55 lb)
Dimensions (H x W x D)	11.4 x 16.9 x 5.4 cm (4.5 x 6.7 x 2.1 in)
Housing/mounting system	ABS Plastic / DIN-rail: 35 mm, Wall-mount: 2-screw
IP rating/mounting Location	IP 20, NEMA 1, Indoor only
Status display	5 x LEDs
Temperature	Operating: -4 to 122 °F (-20 to 50 °C) / storage: -40 to 185 °F (-40 to 85 °C)
Humidity	Operating: < 95%, non-condensing / storage: < 95%
Part number	865-1058
Features	
Programmable dry contact relay	Screw 3-terminal, 16-24 AWG, NC-Com-NO, Form: Class 2, 24 Vdc 4 A max
Graphical user interface	Internet Browser, Android tablet app
Remote firmware upgrades	Yes (ComBox and connected Xanbus devices)
Custom datalogger	Yes (requires Micro-SD card)
Warranty	5 years
Number of Xanbus devices	Up to 20 (depending on device type)
Regulatory approvals	
Marking	CE, RCM
EMC immunity	EN61000-6-1 residential / commercial
EMC emission	EN61000-6-3, FCC Part 15 Class B, Ind. Canada ICES-003 Class B
Substances/environmental	RoHS

Specifications are subject to change without notice. *Tablet not included

Conext ComBox communication device works with the following Schneider Electric products



Conext XW inverter/charger

XW 5548 NA Product no. 865-5548-01
XW 6848 NA Product no. 865-6848-01
XW 7048 E Product no. 865-7048-61
XW 8548 E Product no. 865-8548-61



Conext SW inverter/charger

SW 2524 120 Product no. 865-2024
SW 4024 120 Product no. 865-3524
SW 2524 230 Product no. 865-2524-61
SW 4024 230 Product no. 865-4024-61



Conext MPPT 60 150
solar charge controller
Product no. 865-1030-1



Conext MPPT 80 600
solar charge controller
Product no. 865-1032



System Control Panel (SCP)
Product no. 865-1050-01



Automatic Generator Start (AGS)
Product no. 865-1060-01



Conext Battery Monitor
Product no. 865-1080-01



Conext RL 3000/4000/5000 E/ E-S
3000 Product no. PVSNVC3000/3000S
4000 Product no. PVSNVC4000/4000S
5000 Product no. PVSNVC5000/5000S



Conext Insight

UHW50 Hollewand inbouwdoos Ø 16/19 mm



Handelskenmerken

Artikel:	UHW50 Hollewand inbouwdoos
Artikelnummer:	1081
Verpakkingsaantal:	100 st.

Technische Specificatie

Diameter van de te gebruiken rondzaag:	76 mm
Buisdiameter:	16 / 19 mm
Hart-op-hart maat van de te boren gaten:	71 mm
Inwendige diepte:	50 mm

Etim Artikelklasse: Doos voor montage in de wand/plafond

Montagewijze:	Holle wand
Vorm:	Rond
Bouwworm:	Inbouwdoos/verbindingsdoos (rond/vierkant)
Uitvoering:	Enkel
Voorzien van draaibare ring:	Nee
Koppelbaar:	Ja
Diameter:	76
Diepte:	52
Inwendige diepte:	50
Voor aantal inbouwsokkels:	1
Bevestiging schakelmateriaal:	Schroeven
Met schroeven:	Ja
Behuizingsdoorvoer via uitbreekopening:	Ja
Behuizingsdoorvoer via dichtmembraam:	Nee
Behuizingsdoorvoer via buismanchet:	Nee
Behuizingsdoorvoer via trappenmembraam:	Nee
Voor buisdiameter:	16/19 mm
Buisvergrendeling:	Ja
Buisvergrendeling optioneel:	Nee
Achterinvoer:	Nee
Aantal invoeren:	2
Aantal meegeleverde tuiten:	0
Materiaal:	Kunststof
Halogeenvrij:	Nee
Oppervlaktebescherming:	Geen (onbehandeld)
Kleur:	Grijs
Beschermingsgraad (IP):	IP20
Deksel:	Geen
Dekselbevestiging:	Niet van toepassing
Verzegelbaar:	Nee
Functiebehoud:	Geen
Met afscherming:	Nee
Winddicht:	Nee
Max. aderdoorsnede:	6
Aantal polen klem:	0
Klem met vaste positie:	Nee
Armatuurhaakbevestiging:	Nee
Spruit:	Dubbele spruit
Met nagelstrip:	Nee

Alle voordelen op een rij

- Plaat 1 – 27,5 mm.
- Gipskarton 9,5 – 27,5 mm.
- Voorzien van geïntegreerde, soepel scharnierende combituit.
- Tevens toepasbaar in betonstenen met een leidingsleuf (MBI B2 blokken).
- Voorzien van 2 conische buisvoerers met geïntegreerde vergrendeling voor zowel 16 als 19 mm buis, waarvan er één is afgesloten door een uitbreekpoort.
- Stevige montage van de doos in de wand dankzij de metalen schroefplaatjes met 3-voudige spoed.
- Geen kiervorming tussen schakelmateriaal en wand door zeer dunne, stevige oplegrand van de metalen bevestigingssetjes.
- Extra doorvoermogelijkheid bij gekoppelde dozen.
- Afstand tot buisinvoer: 29mm.

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Vernieuwende ideeën voor 'n veranderende wereld

Tips & Tricks

Hollewanddozen de juiste hartafstand bij de montage van de hollewanddoos in de wand. Zorg voor de juiste hartafstand (71 mm) bij gekoppelde dozen.

ATTEMA

UHW50P Perilex hollewand inbouwdoos Ø 16/19 mm



Handelskenmerken

Artikel:	UHW50P Perilex hollewand inbouwdoos
Artikelnummer:	1120
Verpakkingsaantal:	50 st.

Technische Specificatie

Diameter van de te gebruiken rondzaag:	76 mm
Buisdiameter:	16 / 19 mm
Hart-op-hart maat van de te boren gaten:	71 mm
Inwendige diepte:	50 mm

Etim Artikelklasse: Doos voor montage in de wand/plafond

Montagewijze:	Holle wand
Vorm:	Rond
Bouwworm:	Inbouwdoos/verbindingsdoos (rond/vierkant)
Uitvoering:	Perilex
Voorzien van draaibare ring:	Nee
Koppelbaar:	Nee
Diameter:	76
Diepte:	52
Inwendige diepte:	50
Voor aantal inbouwsokkels:	1
Bevestiging schakelmateriaal:	Schroeven
Met schroeven:	Ja
Behuizingsdoorvoer via uitbreekopening:	Nee
Behuizingsdoorvoer via dichtmembraam:	Nee
Behuizingsdoorvoer via buismanchet:	Nee
Behuizingsdoorvoer via trappenmembraam:	Nee
Voor buisdiameter:	16/19 mm
Buisvergrendeling:	Ja
Buisvergrendeling optioneel:	Nee
Achterinvoer:	Nee
Aantal invoeren:	2
Aantal meegeleverde tuiten:	0
Materiaal:	Kunststof
Halogeenvrij:	Ja
Oppervlaktebescherming:	Geen (onbehandeld)
Kleur:	Grijs
Beschermingsgraad (IP):	IP20
Deksel:	Geen
Dekselbevestiging:	Niet van toepassing
Verzegelbaar:	Nee
Functiebehoud:	Geen
Met afscherming:	Nee
Winddicht:	Nee
Max. aderdoorsnede:	6
Aantal polen klem:	0
Klem met vaste positie:	Nee
Armatuurhaakbevestiging:	Nee
Spruit:	Dubbele spruit
Met nagelstrip:	Nee

Alle voordelen op een rij

- Plaat 1 27,5 mm.
- Gipskarton 9,5 27,5 mm.
- Winddicht.
- Voorzien van een los inzetbare combituit.
- Tevens toepasbaar in betonstenen met een leidingsleuf (MBI B2 blokken).
- Voorzien van 2 conische buisvoeren met geïntegreerde vergrendeling voor zowel 16 als 19 mm buis, waarvan er één is afgesloten door een uitbreekpoort.
- Stevige montage van de doos in de wand dankzij de metalen schroefplaatjes met 3-voudige spoed.
- Geen kiervorming tussen schakelmateriaal en wand door zeer dunne, stevige oplegrand van de metalen bevestigingssetjes.
- Afstand tot buisvoer: 29mm.

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Vernieuwende ideeën voor 'n veranderende wereld



Platte Doos



Alle voordelen op een rij

- Inclusief montageplaat en deksel.
- Afmetingen 120 x 120 x 40 mm.
- Uitbreekpoorten voor M20 wartel, GST 18/Winsta Midi 3-, 4en 5-polig en BST14.
- Doos in elke gewenste richting te verstellen.
- Snelmontage op diverse centraaldozen en inbouwdozen.
- Zie voor mogelijkheden van gatenpatroon de montagehandleiding.
- Geschikt voor ruimtes achter verlaagde plafonds en onder verhoogde vloeren.

Handelskenmerken

Artikel:	Platte Doos
Artikelnummer:	2525
Verpakkingsaantal:	20 st.

Technische Specificatie

Halogeenvrij:	Ja
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Etim Artikelklasse: Doos voor montage op de wand/plafond

Max. aderdoorsnede:	4
Uitgerust met:	Geen
Vorm:	Vierkant
Montagewijze:	Universeel
Achterinvoer:	Ja
Lengte:	120
Breedte:	120
Diepte:	40
Rijgbaar:	Nee
Aantal invoeren:	2
Type behuizingsdoorvoer:	Uitbreekpoort
Materiaal:	Kunststof
Halogeenvrij:	Ja
Oppervlaktebescherming:	Geen (onbehandeld)
Kleur:	Grijs
Beschermingsgraad (IP):	IP40
Deksel:	Niet transparant
Dekselbevestiging:	Opklemmend (snap)
Toepasbaar met giethars:	Nee
Giethars meegeleverd:	Nee
Verzegelbaar:	Nee
Nom. isolatiespanning Ui:	400
Functiebehoud:	Geen
Met afscherming:	Nee
Weersbestendig:	Nee
Gebruikstemperatuur:	-40.000 - 70.000
Explosiegeteste uitvoering:	Nee
Voor explosieveilige zone gas:	Geen
Voor explosieveilige zone stof:	Geen

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Vernieuwende ideeën voor 'n veranderende wereld



EXIDE GEL

THE BATTERY FOR EXTREME CYCLING REQUIREMENTS

04.01.4123 Battery solar panel system

EXIDE EQUIPMENT GEL is designed for use in highly demanding applications such as ambulances, police cars/boats, campervans, pleasure boats and buses containing a lot of electrical equipment (AC, GPS, two-way radios, card terminals, TV, video, etc). This series of batteries is true gel technology. The battery acid has the consistency of a gel, which provides considerably improved tolerance to deep discharging and vibration. In addition, the batteries have extremely low self-discharge due to the lead/calcium alloy in the plates. Gel batteries don't require any fluid level checks or distilled water refills. The recombination technology means that only small volumes of gas develop if any over-charging should occur. So very low level of ventilation is required.



PROPERTIES



No check on fluid level. No topping-up with distilled water. The battery does not need to be installed into a specific place.



Stands up to repeated deep discharges. You can therefore use batteries with fewer amp-hours than equivalent standard batteries and still have access to the same amount of power.



The battery can be installed and used in various positions. Even if the battery is turned upside-down, no acid will leak out.



The battery acid is combined in gel form – no risk of acid leakage



The plate packages are compact and in-built in the cells and the plates sit firmly anchored in the gel. Gel batteries are therefore able to withstand severe vibration.



Extremely low level of self-discharge. A gel battery can be stored at +20 degrees C for approx 2 years and still have 50% of its original capacity left.

TECHNICAL PROPERTIES

Valve-controlled recombination battery

Lead/calcium alloys in both positive and negative electrodes

Thick plates with mechanical strengthening of the positive mass.

Acid in gel form

Robust design

ADVANTAGES

100% maintenance-free
Clean –no oxidation on the poles
No emissions of battery acid
Extremely low gas development

Always constant cold start properties
Minimal self-discharge

Withstands constant deep discharges

Leak-proof.
Permits installation of battery at various angles
Robust against deep discharges
No acid leakage

Withstands extreme vibrations

RELIABLE RESULTS

No topping up with water, no maintenance costs
Higher power reserves than ordinary standard batteries
Safe use in poorly ventilated spaces

Reliable starting
Perfect for vehicles that in seasonal use and are stationary for long periods

Long useful life – even in the case of repeated deep discharges
Works in extreme situations

No acid leakage even if there are holes in the battery compartment
Deep-discharged batteries can be re-charged
Can be connected for solar panel operation

For agricultural and construction machinery

TECHNICAL SPECIFICATION FOR EXIDE EQUIPMENT GEL

CODE	PERFORMANCE				DIMENSIONS**			TECHNICAL CHARACTERISTICS				
	Wh*	Capacity Ah (20h)	CCA A (EN)	Volt (V)	L (mm)	W (mm)	H (mm)	Polarity	Terminal	Weight (kg)	Box	Hold down
G14 80014	-	14	150	12	150	87	145	1	Screw terminal M6	5.1	C56	-
G16 80016	-	16	100	12	180	75	165	0	M11	6.5	C64	-
G19 80019	-	19	170	12	185	80	170	0	M11	6.5	C66	-
ES 290	290	25	240	12	165	175	125	0	M5	10	P24	-
G30 80030	-	30	180	12	197	132	186	1	19	12	U01	-
ES 450	450	40	280	12	210	175	175	0	19	15	LB1	B4
ES 650	650	56	460	12	278	175	190	0	1	21	L03	B13
ES 900	900	80	540	12	353	175	190	0	1	27	L05	B13
ES 950	950	85	460	12	350	175	235	1	1	30	D02	-
ES1200	1200	110	760	12	286	270	230	2	1	39	D07	-
ES1300	1300	120	750	12	350	175	290	0	1	39	D03	-
ES1350	1350	120	760	12	515	190	225	3	1	40	D04	-
ES1600	1600	140	900	12	515	225	225	3	1	47	D05	-
ES2400	2400	210	1030	12	520	280	240	3	1	67	D06	-
ES1000-6	1000	195	900	6	245	190	275	0	1	29	GC2	-
ES1100-6	1100	200	950	6	245	190	275	0	Screw terminal M10	32	GC2	-

* Wh = Battery's available power. The power measured over 20 hours' use that a battery can emit, without exceeding the recommended maximum discharge depth. Wh not indicated for MC-sized batteries

** Tolerance approx 2 mm.

CHARGING GEL BATTERIES

SEPARATE CHARGING WITH EXTERNAL CHARGER

- We recommend chargers that can be set for charging AGM/gel batteries (valve-controlled batteries).
- We recommend the use of a charger with an output amps that is, a maximum, 25% of the battery's capacity (Ah figure).
- It is particularly important that the charger should have a voltage control that, except for during short periods, limits the charge voltage to approx 14.4V at room temperature.
- If the batteries are used at temperatures that deviate significantly from room temperature, the charger selected ought to possess temperature compensation for achieving correct charging.
- A constant voltage of 13.7V (6.9V for 6V batteries) is recommended. The batteries ought to be fully charged before being connected to trickle charging. Automatically controlled chargers give a normal indication once the battery is fully charged. When charging with a charger that is not automatically controlled, charging should last from 8 to 20 hours, depending on the battery's degree of discharge and the size of the battery, before trickle charging is connected.

CHARGING VIA THE ELECTRICITY SYSTEM'S INBUILT GENERATOR

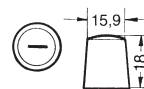
- A 7.2V control voltage is used for 6V systems
- A 14.4V control voltage is used for 12 V systems
- A 28.8V control voltage is used for 24 V systems

FOR PHOTOVOLTAIC PANEL ARRAYS

- 14.2V constant - 12V array

TERMINAL TYPES

Terminal 1



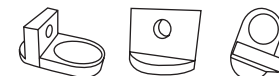
Terminal M5



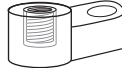
Terminal M11



Terminal 19



Screw terminal M10



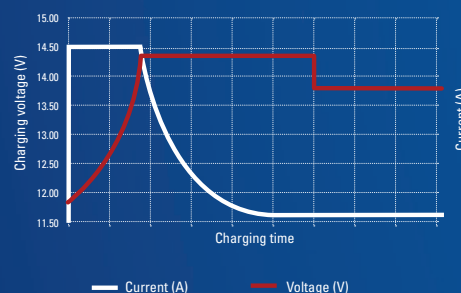
Screw terminal M6



TERMINAL POSITIONS 12V



CHARGING GRAPH FOR GEL 12V



EXIDE

BATTERIES

By Exide Technologies / www.exide.com

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Main

Range of product	U.Motion
Range compatibility	KNX
Product or component type	Video door station package
Product destination	U.Motion system IP touch panel
Calling button	1 bell button
Light source	LED illuminated nameplate + bell button (white LED) (similar RAL 1017)
Width compatibility	130 mm
Height compatibility	331 mm
Depth compatibility	52 mm

Complementary

Device composition	Video camera module Weatherproof built-in loudspeaker IP switching device Door station Video encoder
Mounting mode	Flush-mounted
Fixing mode	Concealed screws
Surface finish	Stainless steel
Mechanical robustness	Vandal-proof
Function available	Mechanically adjustable colour camera Replaceable nameplate from the front
Connections - terminals	Screw terminals
Detection angle	150° horizontal 90° vertical
View angle horiz x vert	60° vertical 70° horizontal
Label dimensions	64 x 16 mm
Mounting height	1500...1650 mm
Width	154 mm

Height	355 mm
Depth	2.5 mm

Environment

Environmental characteristic	Weatherproof
Ambient air temperature for operation	-20...40 °C

Offer Sustainability

Sustainable offer status	Not Green Premium product
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4-channel constant voltage PWM dimmer in DIN rail for DC LED loads with 6 binary/analogue inputs

ZDI-RGBDX4

Technical Documentation

FEATURES

- 4 constant voltage channels configurable as:
 - 4 independent LED channels.
 - 1 RGBW channel.
 - RGB + W channels.
- 6 inputs configurable as:
 - Binary inputs.
 - Motion detector with luminosity sensor.
- Master Light Control.
- External 12-30VDC power supply required.
- Total data saving on KNX bus failure.
- Manual control through buttons and status indicator LED.
- Integrated KNX BCU.
- Dimensions 67 x 90 x 79mm (4.5 DIN units).
- DIN rail unit assembly (EN 50022), through pressure.
- Conformity with the CE directives (CE-mark on the right side).

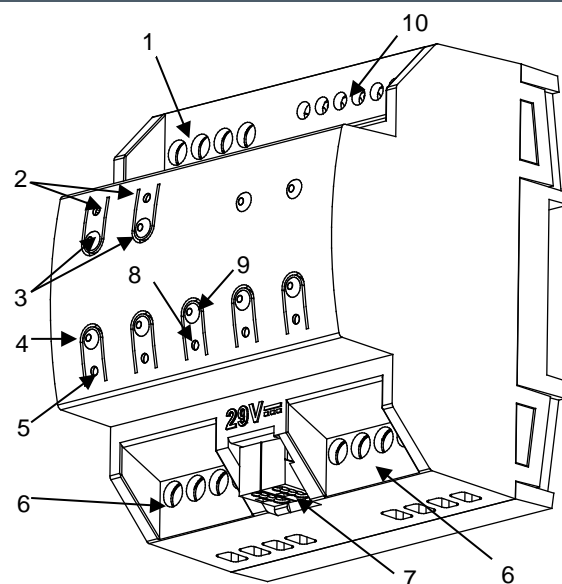


Figure 1. Lumento DX4

1. External power supply	2. Colour shift status LED*	3. Colour shift control buttons*	4. Channel control button	5. Channel status LED
6. Output channels	7. KNX connector	8. Programming/Test LED	9. Programming/Test button	10. Inputs

Programming/test button: short button press to set programming mode. If this button is held while plugging the device into the KNX bus, it enters in safe mode. If this button is held more than 3 seconds, the device enters into manual mode (test mode)

Programming/Test LED: programming mode indicator (red). When the device enters into safe mode, it blinks (red) every half second. The manual mode is indicated by the green color. During the start-up (after reset or knx bus failure) and if the device is not in safe mode, it emits a red flash. A blue blink represents an error (see figure 2)

GENERAL SPECIFICATIONS

CONCEPT		DESCRIPTION		
Type of device		Electric operation control device		
KNX supply	Voltage (typical)	29VDC SELV		
	Voltage range	21...31VDC		
	Maximum consumption	Voltage	mA	mW
		29VDC (typical)	6.5	188.5
24VDC ⁽¹⁾	10	240		
Connection type		Typical TP1 bus connector; 0.80mm ² section		
External power supply		12 to 30 VDC (voltage in concordance with voltage LEDs to be controlled)		
Operation temperature		0°C to +45°C		
Storage temperature		-20°C to +70°C		
Operation humidity		5 to 95% RH (no condensation)		
Storage humidity		5 to 95% RH (no condensation)		
Complementary characteristics		Class B		
Protection class		III		
Operation type		Continuous operation		
Device action type		Type 1		
Electrical stress period		Long		
Degree of protection		IP20, clean environment		
Installation		Independent device to be mounted inside electrical panels with DIN rail (EN 50022)		
Minimum clearances		Not required		
Response on bus KNX bus failure		Data saving according to parameterization		
Response on KNX bus restart		Data recovery according to parameterization		
Operation indicator		Programming LED indicates programming mode (red), test mode (green) and error (blue blinking). Colour shift LEDs show the current colour*. The LED of each channel indicates its status (fixed = active channel; flashing = error). For more information about error notification, see Fig. 2.		
Weight		184g		
PCB CTI index		175V		
Housing material		PC FR V0 halogen free		

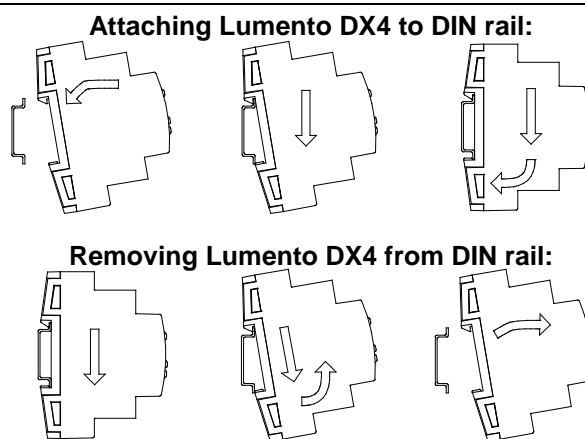
⁽¹⁾ Maximum consumption in the worst case scenario (KNX Fan-In model)

* Only available when RGB / RGBW is parameterized

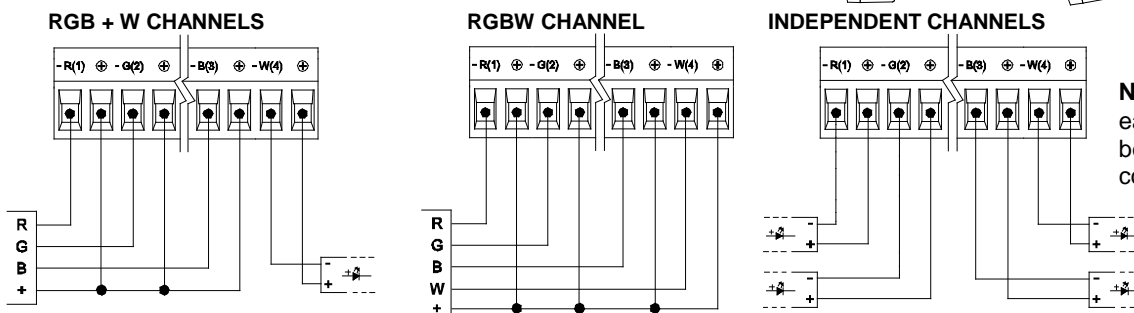
OUTPUTS SPECIFICATIONS AND CONNECTIONS	
CONCEPT	DESCRIPTION
Maximum current per channel	6A @ 25°C ambient temperature
Number of channels	4
Connection type	Screw terminal block
Cable section	0.5mm ² to 4.0mm ² (26-10 AWG)
Load type	LED strip (monochrome, RGB or RGBW) with common anode (+)
Short circuit protection	Yes
Overload protection	Yes
Overheating protection	Yes

EXTERNAL POWER SUPPLY SPECIFICATIONS AND CONNECTIONS	
CONCEPT	DESCRIPTION
Voltage range	12 to 30VDC (voltage in concordance with voltage LED strips to be connected)
Current range	Depending upon the load to be controlled up to a maximum of 24A
Connection method	Screw terminal block
Cable cross-section	0.5mm ² to 4mm ² (26-10 AWG)

INPUTS SPECIFICATIONS AND CONNECTIONS	
CONCEPT	DESCRIPTION
Number of inputs per common	6
Operation voltage	+3.3VDC in the common
Operation current	1.0mA @ 3.3VDC (each input)
Maximum impedance	Aprox. 3.3kΩ
Switching type	Dry voltage contacts
Connection method	Screw terminal block
Maximum cable length	30m
Cable cross-section	0.5mm ² to 2.5mm ² (26-12 AWG)
Response time	10ms

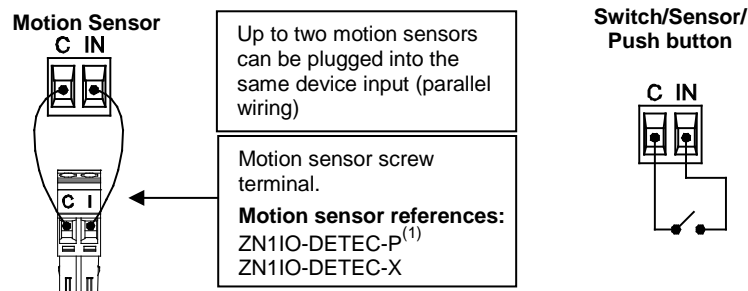


CONNECTION SCHEMATICS



NOTE: The ⊕ pole of each channel in use must be mandatorily connected.

Any combination of the next accessories is allowed in the inputs:



(1) The micro switch number 2 in the ZN110-DETEC-P sensor **must be in Type B position** to work properly.

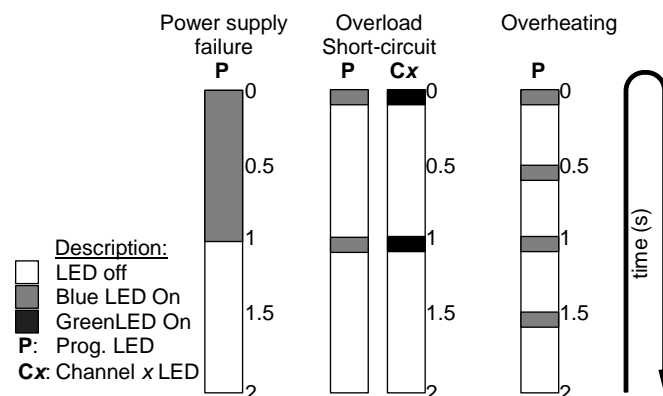
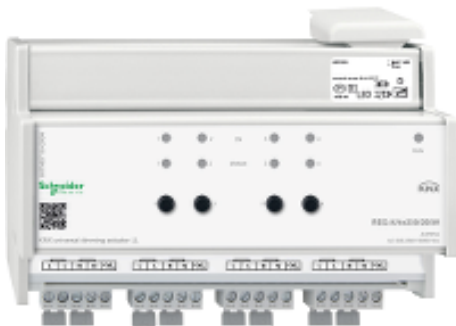


Figure 2. Error notification LED codes

SAFETY INSTRUCTIONS

- Installation should only be performed by qualified professionals according to the laws and regulations applicable in each country.
- Do not connect the mains voltage nor any other external voltage to any point of the KNX bus; it would represent a risk for the entire KNX system. The facility must have enough insulation between the mains (or auxiliary) voltage and the KNX bus or the wires of other accessories, in case of being installed.
- Once the device is installed (in the panel or box), it must not be accessible from outside.
- Keep the device away from water and do not cover it with clothes, paper or any other material while in use.
- The WEEE logo means that this device contains electronic parts and it must be properly disposed of by following the instructions at <http://zennio.com/wEEE-regulation>.



Main

Range of product	KNX
Product or component type	Dimming actuator
Operating mode	KNX bus system Manual
Bus type	KNX

Complementary

18 mm pitches	8
Mounting support	DIN rail
[Ue] rated operational voltage	220...230 V
Network frequency	50/60 Hz
Number of outputs	4
Local signalling	LED
Load type	Incandescent lamps : 4...250 W, 230 V AC Halogen lamps : 4...250 W, 230 V AC LV halogen lamps : 25...250 VA, 12 V AC (wound transformer) LV halogen lamps : 4...250 W, 12 V AC (electronic transformer) Compact fluorescent lamp : 4...125 W, 230 V AC (RC mode) Energy saving lamp : 4...125 W, 230 V AC (RC mode) LED lamp : 4...125 W, 230 V AC (RC mode) Compact fluorescent lamp : 25...45 W, 230 V AC (RL LED mode) Energy saving lamp : 25...45 W, 230 V AC (RL LED mode) LED lamp : 25...45 W, 230 V AC (RL LED mode)

Environment

IP degree of protection	IP20
Environmental health and issues	Halogen free

Offer Sustainability

Sustainable offer status	Green Premium product
--------------------------	-----------------------

RoHS (date code: YYWW)	Compliant - since 1524 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available Product environmental
Product end of life instructions	Available End of life manual

Duroplast flush-mounted socket outlet**Perilex**

2421110




**General information**

Item number	2421110
Model	Duroplast flush-mounted socket outlet
Colour	white

Electrical parameters

Amperage	16A
Voltage	230/400V
Poles	3P +N+ PE

Standards/Directives

According to	DIN 49445/46
Standard	Perilex
Certification marks	  

Operating conditions

Storage temperature	-15°C to +60°C
Operating temperature	-15°C to +35°C
Relative humidity	5 to 95%, no condensation
Degree of protection	IP20

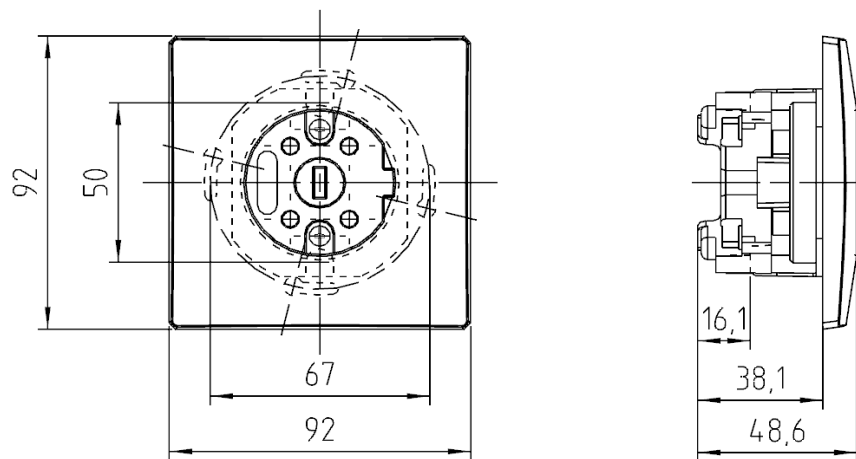
Materials

Contact Carrier	Duroplast
Housing	Duroplast

Connection screws

Max. torque for screws L-N/PE	1,2 Nm
Screw drive L-N/PE	Combined slot/PZ2
Max. torque for screws housing	0,8 Nm
Screw drive housing	Combined slot/PZ2

Subject to modifications



If the application requires extended specifications, we recommend to test the application under real or simulated conditions. Parameters like duration, quantity and temperature will effect the result significantly

04.04.2487 Electric socket



Main

Range of product	Merten System Design
Aesthetic name	System Design
Product or component type	Power socket-outlet
Device presentation	Complete product
Outlet standard	Schuko
Number of gangs	1 gang
Outlet standard description	Side earth

Complementary

Outlet poles configuration	2P + E with shutters
Device mounting	Flush
Fixing mode	By screws and claws
[In] rated current	16 A 250 V DIN 49440 AC
Colour tint	Anthracite
Material	PC (polycarbonate) (matt)
Surface treatment	Varnished
Connections - terminals	Screwless terminals
Standards	DIN 49440
Length	71 mm
Height	40 mm
Width	71 mm



Stekerbare installaties

oplossingen voor installateur, systeem integrator,
adviseur en eindgebruiker

Uitgave augustus 2013



Isolectra, partner van de installateur

Isolectra is een Value-Added Reseller van systemen voor elektrotechniek, communicatie en beveiliging. Met onze high-end producten en diensten participeren wij samen met onze partners in complexe, geïntegreerde en multidisciplinaire projecten in building, care, industry, infra en marine & offshore. Van advisering en ondersteuning bij ontwerp tot systeembeheer en projectmanagement, wij helpen graag. We denken met u mee hoe onze producten en oplossingen optimaal in de behoeften van uw opdrachtgever kunnen voorzien.

Isolectra's Expertises:

- Safety
- Security
- Communication
- Building Management
- 230V Infrastructure
- Integration

Inleiding

Stekerbaar installeren

Meer dan 20 jaar geleden heeft Isolectra het Wieland GST18 systeem op de Nederlandse markt gebracht.

Samen met Wieland heeft Isolectra dit systeem verder doorontwikkeld, waarbij de Nederlandse installatiemarkt als voorbeeld voor Europa wordt gezien. Isolectra loopt hier voorop als het gaat om innovatief installeren.

De belangrijkste redenen dat stekerbaar installeren zo sterk groeit, zijn:

- ▶ Tijdsbesparing
- ▶ Kostenbesparing
- ▶ Faalkostenreductie
- ▶ Flexibiliteit
- ▶ Milieuvriendelijk

Stekerbaar installeren is inmiddels niet meer weg te denken. Steeds meer projecten, maar ook steeds meer delen van de elektrische infrastructuur worden stekerbaar uitgevoerd.

NEN 1010

Een volledig stekerbare installatie is een veilige installatie, mits voldaan wordt aan de belangrijkste regel uit de NEN-1010.

Producten dienen strikt volgens de productspecificatie te worden toegepast. Met name is van belang dat in de NEN-EN-IEC 61535 staat dat het gebruik van verschillende fabrikaten door elkaar, tot gevaarlijke situaties kan leiden.

Wieland GST18 heeft het grootste en breedste assortiment aan stekerbare componenten, zodat iedere gewenste oplossing stekerbaar – en veilig, conform de NEN 1010 – kan worden gebouwd.

Voor de duidelijkheid Wieland is de fabrikant van GST18.

Zelf makkelijk ontwerpen

Een groot en breed assortiment heeft heel veel voordelen, maar maakt het zoeken in de diverse catalogi ingewikkeld.

Om die reden hebben wij nu een compact overzicht samengesteld van de veruit meest gebruikte producten binnen een stekerbare installatie.

Aan de hand van deze brochure kunt u zelfstandig en eenvoudig een eigen ontwerp maken voor een stekerbare installatie.

Heeft u nog vragen?



Neem dan gerust contact met ons op.

T 010 - 285 52 85 • F 010 - 285 54 00 • E info@isolectra.nl



1. Bepaal de applicatie die u stekerbaar wilt realiseren
2. Kies een oplossing
3. Kies schakel / verdeelcomponenten (p. 7 t/m 21)
4. Kies leidingen (p. 22 t/m 30)
5. Bekijk de aanwijzingen op p. 35 en onze gebruiksaanwijzing en norm-infobladen op www.isolectra.nl/downloads (klik op “normen stekerbaar”)

Applicatie	Oplossing	Schakel/verdeelcomponent	Leidingen
Hoofdvoeding distributie	5x10mm ² Vlakbandleidingstelsysteem NRG 10, 230V / 50A	Vlakband p. 33 Aftakkingen p. 33	Voeding p. 22
	 5x16mm ² Vlakbandleidingstelsysteem NRG 16, 230V / 63A	Vlakband p. 33 Aftakkingen p. 33	Voeding p. 22
Distributie vanaf verdeler	5x2½mm ² Vlakbandleidingstelsysteem 230V / 20A	Vlakband p. 33 Aftakkingen p. 33	Voeding p. 22
	5x2½mm ² + KNX bus Vlakbandleidingstelsysteem NRG2,5 230V / 20A	Vlakband p. 33 Aftakkingen p. 33	Voeding p. 22 KNX bus p. 30
	230V; 20A 1-fase verdeling	Verdelers p. 7, 8	Voeding 3x2½mm ² p. 22
	230/400V; 20A 3-faseverdeling	Verdelers p. 9, 10	Voeding 5x 2½mm ² p. 27
	 Losse konnektoren voor 1e aansluiting	Verdelers p. 9, 10	
WCD's aansluiten	230V; 20A 1-fase verdeling	Verdelers p. 7, 8	Voeding 3x2½mm ² p. 22 aansluitleidingen p. 25
	230/400V; 20A 3-faseverdeling	Verdelers p. 9, 10	Voeding 5x 2½mm ² p. 27
	 Contactdozen	Contactdoos p. 18, 19	Voeding p. 22
Verlichting-schakelingen	Gang met noodverlichting centraal geschakeld	LTB gang p. 12	Voeding 4x2½mm ² p. 26 Voeding 3x2½mm ² p. 22
	Schakelaar voor verlichting	LTB schakel p. 11	Schakel p. 24 Voeding p. 22
	Schakelaar voor noodverlichting	LTB schakel NV p. 11	Schakel p. 24 Voeding p. 22, 26
	Wisselschakelaar voor verlichting	LTB wissel p. 11	Schakel p. 24 Voeding p. 22, 26
	Wisselschakelaar voor noodverlichting	LTB wissel NV p. 11	Schakel p. 24 Voeding p. 22, 26
	Serieschakelaar voor verlichting	LTB wissel NV p. 11	Schakel p. 24 Voeding p. 22, 26
	 Hotelkamer schakeling compleet	Hotelbox p. 14	Schakel p. 24 Voeding p. 22, 26

Applicatie	Oplossing	Schakel/verdeelcomponent	Leidingen
Aanwezigheidsdetectie in ruimtes	Aanwezigheidsdetector voor verlichting	Aanwezigheidsdetector..... p. 15	Voeding p. 22
	Aanwezigheidsdetector met noodverlichting	Sensor..... p. 15 LTB sensor NV..... p. 12	Voeding p. 22, 26
	Aanwezigheidsdetector met dimbare verlichting	Sensor..... p. 16 LTB sensor..... p. 12	Voeding p. 22 Dim p. 29
	Aanwezigheidsdetector voor dimbare noodverlichting	Sensor..... p. 16 LTB sensor NV..... p. 12	Voeding p. 22, 26 Dim p. 29
	Aanwezigheidsdetector, handmatige bediening, slaves	Sensor..... p. 17 Sensormasterbox p. 17	Schakel p. 24 Voeding p. 24 Dim p. 29
	 Aanwezigheidsdetectie over 2 voedingsgroepen	Sensor..... p. 15, 16 Greybox p. 14	Voeding p. 22, 26 Dim p. 29
Draadloze schakelingen	Verlichting draadloos	Radiografische aktor..... p. 20 Schakelaar..... p. 20	Voeding p. 22
	Verlichting dimbaar draadloos	Radiografische aktor..... p. 20 Schakelaar..... p. 20	Voeding p. 22
	Zonwering draadloos	Radiografische aktor..... p. 20 Schakelaar..... p. 20	Voeding p. 22, 26
	 Hotelkaartschakelaar draadloos	Radiografische aktor..... p. 20 Schakelaar..... p. 20, 21	Voeding p. 22
KNX bus bekabeling	Vlakbandleidingssysteem NRG2,5 230V / 20A + KNX bus	Vlakband..... p. 32 Aftakkingen..... p. 32	Niet in deze catalogus opgenomen
	BST14i2 systeem groene codering	BST14i2 groen KNX Verdelers... p. 30	BST14i2 groen KNX leidingen..... p. 30
	 KNX actoren en systeemcomponenten	Niet in deze catalogus opgenomen	Zie Wieland KNXcatalogus
DALI en 1-10V signalen	BST14 systeem blauwe codering	BST14i2 blauw Verdelers..... p. 29	BST14i2 blauw KNX leidingen..... p. 29
Vergrendelingen en accessoires	 p. 34	

Deze brochure biedt een overzicht van de meest gebruikte producten binnen een stekerbare installatie.

Mocht uw oplossing niet in onze brochure staan, neemt u dan contact met ons op. Wij helpen u graag bij de keuze voor de beste componenten voor uw project.

GST18i3 [®] verdelers	p. 7
GST18i4 [®] en GST18i5 [®] verdelers	p. 9
GST18i5 [®] verdelers	p. 10
LTB verdelers met schakelfuncties	p. 11
Blackbox verdelers met schakelfuncties	p. 13
Greybox verdelers met schakelfuncties	p. 14
Isolectra stekerbare aanwezigheidsdetectie	p. 15
Meyer contactdozen	p. 18
Wieland RC draadloos schakelsysteem	p. 20
GST18i3 [®] zwart leidingen	p. 22
GST18i3 [®] bruin schakelaar leidingen	p. 24
GST18i3 [®] zwart aansluitleidingen extra lang gestript voor WCD's en verlichting	p. 25
GST18i4 [®] zwart leidingen	p. 26
GST18i5 [®] zwart leidingen	p. 27
GST18i5 [®] pastelblauw leidingen	p. 28
BST14 [®] blauw 1-10V dim en DALI leidingen	p. 29
BST14 [®] groen KNX leidingen	p. 30
GST18 [®] en BST14 [®] kabelstekers	p. 31
Wieland vlakbandleiding 5x2½mm ² en 5x2½mm ² +bus	p. 32
Wieland vlakbandleiding 10mm ² en 16mm ²	p. 33
Accessoires	p. 34
Aanwijzingen	p. 35



GST18i3® standaard verdelers 3-polig

Wieland GST18i3 Tussenkoppeling t.b.v. enkelzijdige vergrendeling

	Artikelnr.	Kleur		
	92.030.5958.1	Zwart		
	92.030.5958.0	Wit		

Wieland GST18i3 Tussenkoppeling t.b.v. 2-zijdige vergrendeling

	Artikelnr.	Kleur		
	99.452.9920.0	Zwart		

Wieland GST18i3 U-koppeling

	Artikelnr.	Kleur		
	92.030.5853.0	Wit		

Wieland GST18i3 T-splitter **

	Artikelnr.	Kleur		
	92.030.1053.1*	Zwart		
	K92.030.1053.1	Wit		

Wieland GST18i3 Platte T-splitter **

	Artikelnr.	Kleur	
	92.030.1253.1	Zwart	
	92.030.1253.0	Wit	
	92.030.1353.0	Wit	

Wieland GST18i3 h-splitter **

	Artikelnr.	Kleur		
	92.030.6053.1*	Zwart		
	K92.030.6053.1	Wit		

Wieland GST18i3 IDC adapter t.b.v. GST18 aftakking in bestaande YMKV leiding

	Artikelnr.	Kleur		
	92.731.6053.0	Wit		

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

** Op een T-, of h-splitter mogen 2 leidingen worden aangesloten, de derde aansluiting dient op een male chassisdeel met vergrendeling aangesloten te worden. Gebruik voor verdelingen van 3 of meer leidingen een H-verdeler of HH-verdeler.

GST18i3® standaard verdelers 3-polig

Wieland GST18i3 H-verdeler

	Artikelnr.	Kleur	
	92.030.4853.1* K92.030.4853.1	Zwart	
	92.030.4853.0	Wit	

Wieland GST18i3 HH-verdeler

	Artikelnr.	Kleur	
	92.030.5353.1* K92.030.5353.1	Zwart	
	92.030.5353.0	Wit	

RAPID montageplaat voor H-verdeler en HH-verdeler voor schroefloze kabelgootmontage

	Artikelnr.	Kleur	
	700.130	Wit	
	700.131	Zwart	

Wieland GST18i3 H-verdeler op universele gootklikbeugel

	Artikelnr.	Kleur	1 in / 3 uit	
	S92.030.4853.1	Zwart		

Wieland GST18i3 H-verdeler op universele gootklikbeugel

	Artikelnr.	Kleur	1 in / 5 uit	
	S92.030.5353.1	Zwart		

Wieland GST18i3 2 x H-verdeler op universele gootklikbeugel

	Artikelnr.	Kleur	2x(1 in / 3 uit) op 1 beugel	
	S92.030.5353.1B			


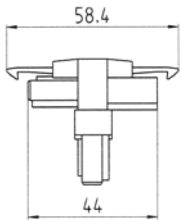
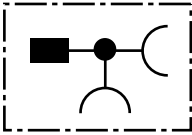
Wieland GST18i3 H-verdeler code 2 grijs en code 3 rood

	Artikelnr.	Kleur	
	99.500.0028.0	Grijs	
	99.501.0028.0	Rood	


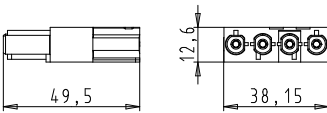
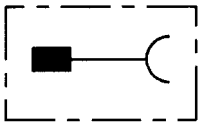
* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

GST18® standaard verdeler 4-, en 5-polig


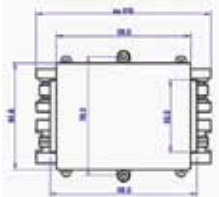
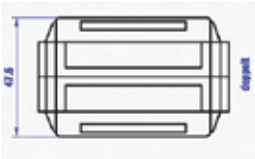
Wieland GST18i4 T-splitter 4-polig*

	Artikelnr.	Kleur		
	92.040.1053.1* K92.040.1053.1	Zwart		
	92.040.1053.0	Wit		
	92.040.1153.0	Grijs		

Wieland GST18i4 Tussenkoppeling 4-polig t.b.v. 2-zijdige vergrendeling

	Artikelnr.	Kleur		
	99.453.9920.0	Zwart		

Wieland GST18i4 H-verdeler 4-polig

	Artikelnr.	Kleur		
	LTB zonder beugel 2L8CG41003	Zwart		
	LTB met beugel 2L8DG41003	Zwart		

* Op een T- of h-splitter mogen 2 leidingen worden aangesloten, de derde aansluiting dient op een male chassisdeel met vergrendeling aangesloten te worden. Gebruik voor verdelingen van 3 of meer leidingen een H-verdeler of HH-verdeler.


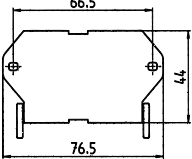
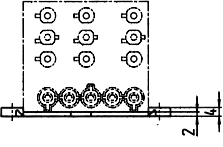
Wieland GST18i5 H-verdeler

	Artikelnr.	Kleur	
	92.050.0353.1* K92.050.0353.1	Zwart	
	92.050.1853.0* K92.050.1853.0	Pastelblauw	

Wieland GST18i5 H-verdeler op universele gootklikbeugel

	Artikelnr.	Kleur	
	S92.050.0353.1	Zwart	
	S92.050.1853.0	Pastelblauw	

Montageplaat voor GST18i5 H-verdeler en 3-faseverdeler

	Artikelnr.	Kleur		
	07.413.5453.1	Zwart		

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

Wieland GST18i5 3-fase verdeler

	Artikelnr.		
	92.050.0153.1* K92.050.0153.1		

Wieland GST18i5 3-fase verdeler op universele gootklikbeugel

	Artikelnr.	Kleur		
	S92.050.0153.1	Zwart		

Wieland GST18i5 T-splitter** met vergrendeling op 2 zijden (t.b.v. 2 kabels op 5-polige snap-in)

	Artikelnr.	Kleur		
	92.050.1053.1* K92.050.1053.1	Zwart		
	92.050.1453.0* K92.050.1453.0	Pastelblauw		

Wieland GST18i5 T-splitter** met vergrendeling aan 1 zijde (t.b.v. 1 doorkoppeling meerdere T-verdelers)

	Artikelnr.	Kleur	
	99.470.5772.2	Zwart	

Wieland GST18i5>3 T-splitter** met vergrendeling aan 2 zijden (t.b.v. 2 kabels op 3-polige snap-in)

	Artikelnr.	Kleur		
	L1: 92.050.4153.1* K92.050.4153.1	Zwart		
	L2: 92.050.4253.1* K92.050.4253.1	Zwart		
L3: 92.050.4353.1* K92.050.4353.1	Zwart			

Wieland GST18i3 Wieland GST18i5>3 T-splitter** vergrendeling aan 1 zijde (t.b.v. doorkoppeling meerdere T verdelers)

	Artikelnr.	Kleur	
	L1: 99.420.5772.2	Zwart	
	L2: 99.421.5772.2	Zwart	
	L3: 99.422.5772.2	Zwart	

Afbeelding van soortgelijk product

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.


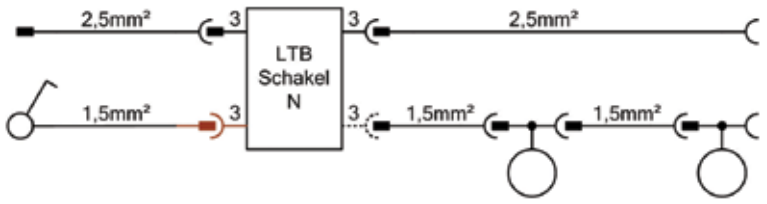
** Op een T-, of h-splitter mogen 2 leidingen worden aangesloten, de derde aansluiting dient op een male chassisdeel met vergrendeling aangesloten te worden. Gebruik voor verdelingen van 3 of meer leidingen een H-verdeler of HH-verdeler.

LTB verdelers met schakelfuncties

LTB verdelers zijn zeer compacte verdelers voor eenvoudige schakel en verdeelfuncties.
De LTB verdeler kan met of zonder snelle universele gootklikbeugel worden geleverd.

LTB schakel N


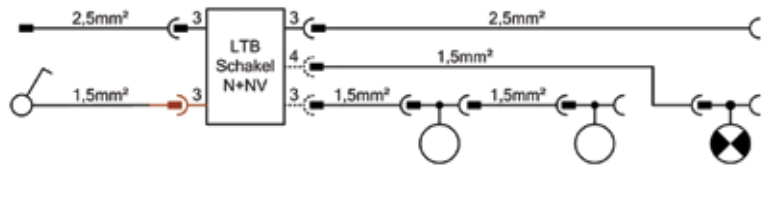
Schakelfunctie voor verlichting met GST18i3 aansluiting.

	Artikelnr.	
	Zonder beugel: 2L8CG35003	
	Met gootklikbeugel: 2L8DG35003	

GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

LTB schakel N+NV

Schakelfunctie voor verlichting met GST18i3 aansluiting en decentrale noodverlichting met GST18i4 aansluiting.


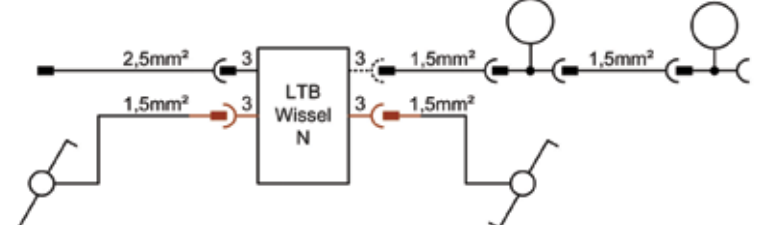
	Artikelnr.	
	Zonder beugel: 2L8CG48003	
	Met gootklikbeugel: 2L8DG48003	

Afbeelding van soortgelijk product

GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

LTB wissel N


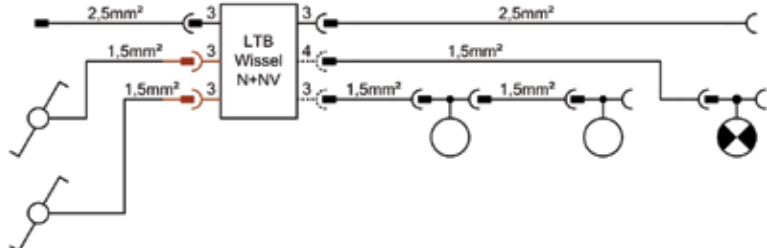
Wisselschakelfunctie voor verlichting met GST18i3 aansluiting.

	Artikelnr.	
	Zonder beugel: 2L8CG17003	
	Met gootklikbeugel: 2L8DG17003	

GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

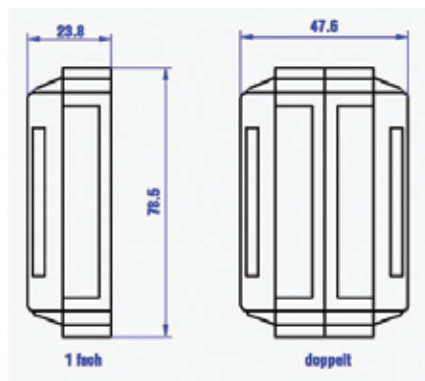
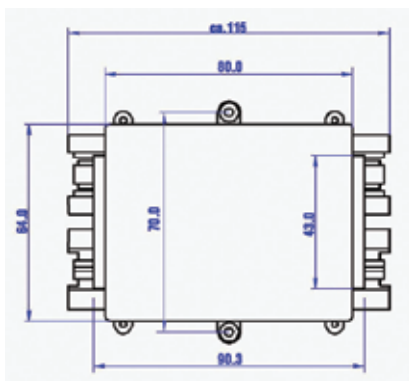
LTB wissel N+NV

Wisselschakelfunctie voor verlichting met GST18i3 aansluiting en decentrale noodverlichting met GST18i4 aansluiting.

	Artikelnr.	
	Zonder beugel: 2L8CG49003	
	Met gootklikbeugel 22L8DG49003	

Afbeelding van soortgelijk product

GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

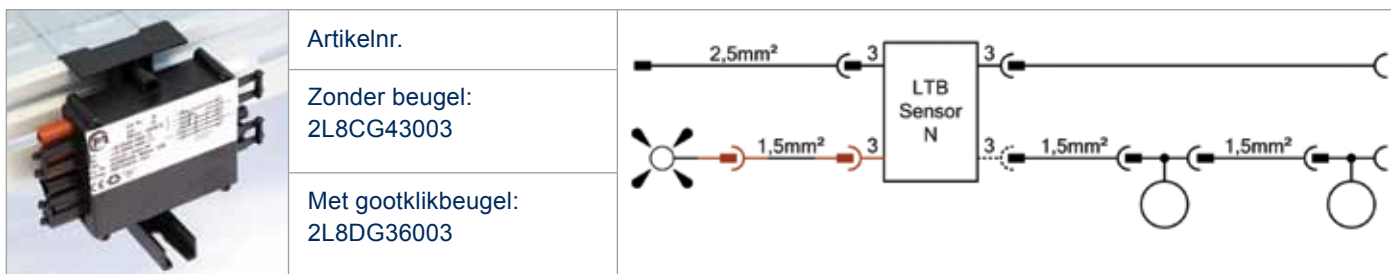


LTB Sensor N

Schakelfunctie voor verlichting met GST18i3 aansluiting.

Geschikt voor Isolectra - BEG aanwezigheidsdetectoren uit de SB0x.50x serie.

Ook geschikt voor schakelaar met interne beletlamp.



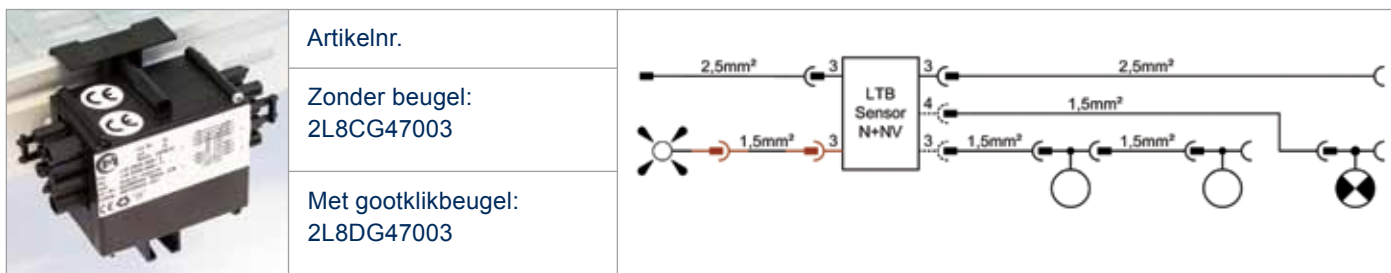
Aanwezigheidsdetectoren met GST18i3 bruin leiding zie p. 15+16

LTB sensor N+NV

Sensorfunctie voor verlichting met GST18i3 aansluiting en decentrale noodverlichting met GST18i4 aansluiting.

Geschikt voor Isolectra - BEG aanwezigheidsdetectoren uit de SB0x.50x serie.

Ook geschikt voor schakelaar met interne beletlamp.

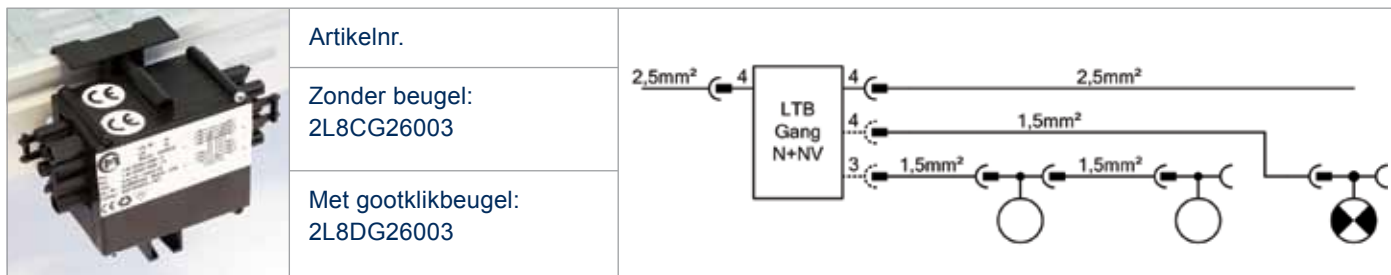


Afbeelding van soortgelijk product

Aanwezigheidsdetectoren met GST18i3 bruin leiding zie p. 15+16

LTB gang N+NV centraal

Schakelt met 1 sensor 2 voedingsgroepen gelijktijdig.



Blackbox verdelers

Blackboxen zijn verdelers waarmee functieschakelingen op maat kunnen worden aangeboden.
De Blackbox kan op een schetsplaat gemonteerd geleverd worden.

Blackbox 3-fase verdeler

1x GST18i5 connector in en uit, en per fase 2x GST18i3 connector female uit.

	Artikelnr.	
	1½mm²: 2980G01003	
	2½mm²: 2980H01003 LSOH : 2980HFI003	

Blackbox 1in / 7uit verdeler

1x GST18i3 male in, 7x GST18i3 female uit.

	Artikelnr.	
	1½mm²: 2980G017003	
	2½mm²: 2980H017003	

Blackbox 3x aan/uit schakelaar

1x GST18i3 male in, 1x GST18i3 female uit, 3x GST18i3 bruin female schakelaaraansluiting; 3x GST18i3 wit geschakelde uitgang.

	Artikelnr.	
	1½mm²: 2980GFQ003	

Voor GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

Blackbox serieschakeling

1x GST18i3 male in, 1x GST18i3 female uit, 1x GST18i3 bruin serieschakelaaraansluiting, 2x2 GST18i3 wit geschakelde uitgangen.

	Artikelnr.	
	1½mm²: 2980GFR003	

Voor GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

Greyboxen zijn verdelers waarmee functieschakelingen op maat kunnen worden aangeboden.
 Greybox verdelers kunnen op een schetsplaat gemonteerd geleverd worden.

Blackbox wisselschakeling

1xGST18i3 male in, 1x GST18i3 female uit, 2xGST18i3 bruin schakelaaraansluiting, 2 GST18i3wit geschakelde uitgangen
 + 1 GST18i4wit geschakelde uitgang voor decentrale noodverlichting.



Afbeelding van soortgelijk product

Voor GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

Greybox sensor relais 2 groepen

Schakelt met 1 sensor (met GST18i3 bruine leiding) 2 voedingsgroepen gelijktijdig.



Afbeelding van soortgelijk product

Aanwezigheidsdetectoren met GST18i3 bruin leiding zie p. 15, 16

Greybox 2 sensor groepen parallel

Schakelt met 2 sensoren (GST18i3 bruin) 2 voedingsgroepen gelijktijdig als een van beide sensoren een aanwezigheid meldt.



Afbeelding van soortgelijk product

Aanwezigheidsdetectoren met GST18i3 bruin leiding zie p. 15, 16

Hotelbox

Aansluitingen en relaisschakelingen voor schakelaars, kaartschakelaars, wisselschakelaars, verlichting, WCD's etc.



Voor GST18i3 bruin schakelaarleidingen met fase en 2 schakeldraden zie p. 24

SBO3 / SB03N

<p><i>SB03 NIET geschikt voor IR afstandsbediening. SB03N geschikt voor IR afstandsbediening</i></p>	Artikelnr. Met 30cm GST18i3 in en uitgang: • SB03.000 / SB03N.000	Bewegingsdetector: Bereik: kleine beweging 4m; frontaal lopend 6m; dwars lopend 10m Toepassing: Kleine kantoorruimtes, kleedruimtes, kasten, toiletten.	<p>68 mm IR afst.bediening. SB.IRmini SB.IR03</p>
	Met 1 male GST18i3 bruin aansluitleiding • 1 mtr :SB03.501 / SB03N.501 • 5 mtr : SB03.505 / SB03N.505		

SBO2M

	Artikelnr. Met 30cm GST18i3 in en uitgang • SB02M.000	Aanwezigheidsdetector: Bereik: kleine beweging 4m; frontaal lopend 6m; dwars lopend 10m Toepassing: Kantoren, scholen, ziekenhuizen etc.	<p>68 mm IR afst.bediening. SB.IRmini SB.IR03</p>
	Met 1 male GST18i3 bruin aansluitleiding • 1 mtr : SB02M.501 • 5 mtr : SB02M.505		

SBO4

	Artikelnr. Met 30cm GST18i3 in en uitgang • SB04.000	Aanwezigheidsdetector: Bereik: kleine beweging 7m; frontaal lopend 8m; dwars lopend 24m Toepassing: Kantoren, kantoortuinen, vergaderzalen, klaslokalen, werkplaatsen etc.	<p>68 mm IR afst.bediening. SB.IRmini SB.IR03</p>
	Met 1 male GST18i3 bruin aansluitleiding • 1 mtr : SB04.501 • 5 mtr : SB04.505		

SBO9

	Artikelnr. Met 30cm GST18i3 in en uitgang • op aanvraag	Miniatuur aanwezigheidsdetector: Bereik: kleine beweging 4m; frontaal lopend 6m; dwars lopend 10m Toepassing: Kantoren, scholen, ziekenhuizen etc.	<p>Melder 34 mm Vermogensonderdeel L 165 x B 24 x H 24 mm</p>
	Met 1 male GST18i3 bruin aansluitleiding • 1 mtr : SB09.501 • 5 mtr : SB09.505		

SBO4 Corridor

	Artikelnr. Met 30cm GST18i3 in en uitgang • SB04COR.000	Aanwezigheidsdetector: Bereik: frontaal lopend 20m; dwars lopend 40m Toepassing: Gangen etc.	<p>68 mm IR afst.bediening. SB.IRmini SB.IR03</p>
	Met 1 male GST18i3 bruin aansluitleiding • 1 mtr : SB04COR.501 • 5 mtr : SB04COR.505		

Sensoren met bruine aansluitleiding moeten aangesloten worden op een "LTB sensor N" of "LTB sensor N+NV" zie p. 12
 Andere sensoren met afstandsbediening, 1-10V dim, DALI, KNX, LON, potentiaalvrije contacten, microfoon; voor grote hoogtes of natte ruimtes etc. zijn ook verkrijgbaar.
 Zie hiervoor de Isolectra - BEG catalogus stekerbare aanwezigheidsdetectie op www.isolectra.nl/downloads-aanwezigheidsdetectie

SBO2 dimbaar

	Artikelnr. 1-10 V: GST18i3 bruin+BST14i2blauw • 1 mtr :S B02MDIM.501 • 5 mtr : SB02MDIM.505	Aanwezigheidsdetector met dimkanaal Bereik: kleine beweging 4m; frontaal lopend 6m; dwars lopend 10m Toepassing: Kantoren, scholen, ziekenhuizen etc.		
	DALI: GST18i3 zwart+BST14i2blauw • 1 mtr : SB02DALI.001 • 5 mtr : SB02DALI.005			

SBO4 dimbaar

	Artikelnr. 1-10 V: GST18i3 bruin+BST14i2blauw • 1 mtr : SB04DIM.501 • 5 mtr : SB04DIM.505	Aanwezigheidsdetector met dimkanaal Bereik: kleine beweging 7m; frontaal lopend 8m; dwars lopend 24m Toepassing: Kantoren, kantoortuinen, vergaderzalen, klaslokalen, werkplaatsen etc.		
	DALI: GST18i3 zwart+BST14i2blauw • 1 mtr : SB04DALI.001 • 5 mtr : SB04DALI.005			

SBO4 DUO dimbaar

	Artikelnr. 1-10 V: GST18i3 bruin + 2xBST14i2blauw • 1 mtr : SB04DIMDUO.501 • 5 mtr : SB04DIMDUO.505	Aanwezigheidsdetector met 2 dimkanalen Bereik: kleine beweging 7m; frontaal lopend 8m; dwars lopend 24m Toepassing: Kantoren, Kantoortuinen, vergaderzalen, klaslokalen etc.		
	DALI: GST18i3 zwart+BST14i2blauw • 1 mtr : SB04DUODALI.001 • 5 mtr : SB04DUODALI.005			

SBO9 dimbaar

	Artikelnr. 1-10 V: GST18i3 bruin + BST14i2blauw • 1 mtr : SB09DIM.501 • 5 mtr : SB09DIM.505	Aanwezigheidsdetector met dimkanaal Bereik: kleine beweging 4m; frontaal lopend 6m; dwars lopend 10m Toepassing: Kantoren, Scholen, Ziekenhuizen etc.		
	DALI: GST18i3 zwart+BST14i2blauw • 1 mtr : SB09DALI.001 • 5 mtr : SB09DALI.005			

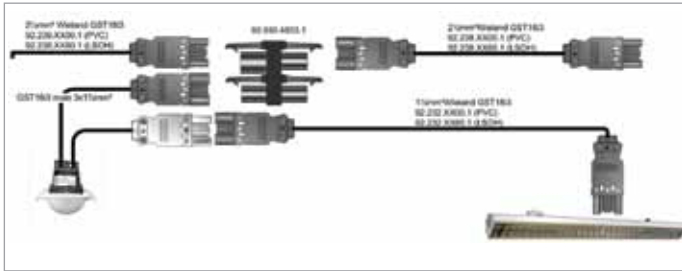
SBO4 Corridor dimbaar

	Artikelnr. 1-10 V: GST18i3 bruin + BST14i2blauw • 1 mtr : SB04DIMCOR.501 • 5 mtr : SB04DIMCOR.505	Aanwezigheidsdetector met dimkanaal Bereik: frontaal lopend 20m; dwars lopend 40m Toepassing: Gangen etc.		
	DALI: GST18i3 zwart+BST14i2blauw • 1 mtr : SB04CORDALI.001 • 5 mtr : SB04CORDALI.005			

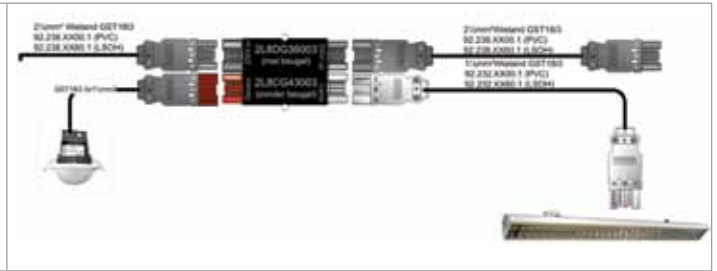
Sensoren met bruine aansluitleiding moeten aangesloten worden op een "LTB sensor N" of "LTB sensor N+NV" zie p. 12
 Andere sensoren met afstandsbediening, 1-10V dim, DALI, KNX, LON, potentiaalvrije contacten, microfoon; voor grote hoogtes of natte ruimtes etc. zijn ook verkrijgbaar.

Zie hiervoor de Isolectra - BEG catalogus stekerbare aanwezigheidsdetectie op www.isolectra.nl/downloads-aanwezigheidsdetectie

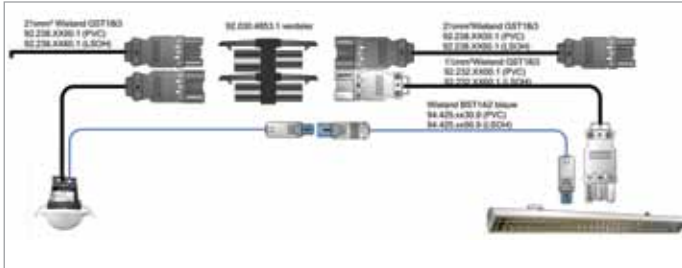
Aansluitschema sensor GST18i3 in+ uit (SB0x.000)



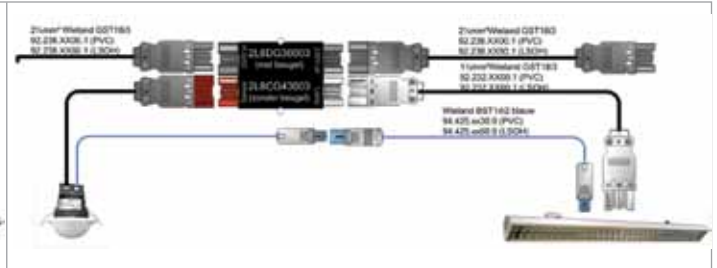
Aansluitschema sensor (SB0x.50x) met "LTB sensor"



Aansluitschema sensor DALI (SB0xDALI.50x)

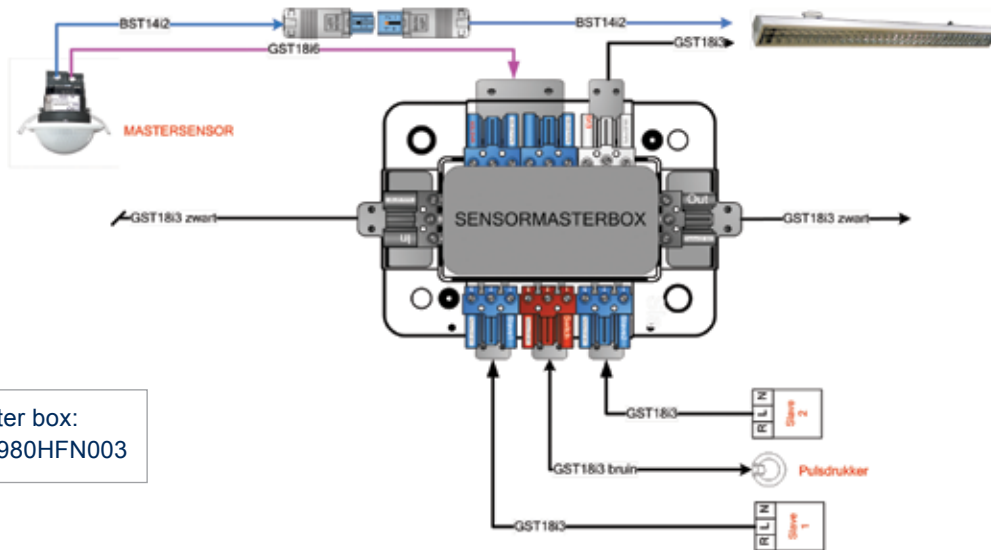


Aansluitschema sensor DIM (SB0xDIM.50x) met "LTB sensor"



Master-Slave sensoren

Sensor met mastersensor box. Geschikt voor aansluiten van 2 slave sensoren voor uitbreiding van het meetbereik en geschikt voor handmatige bediening van de verlichting middels een drukknop.


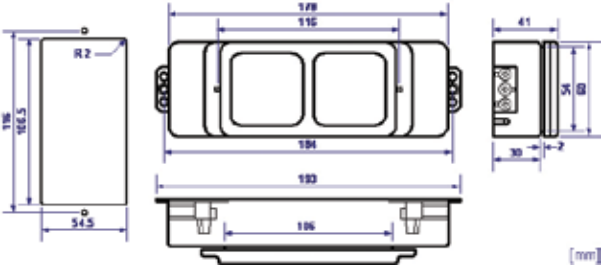
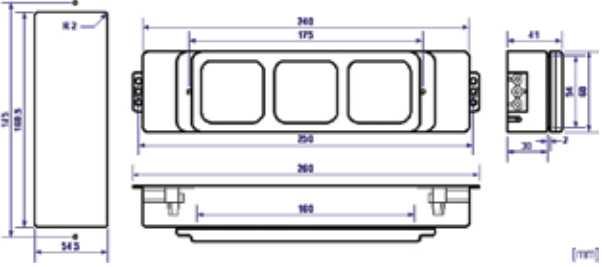
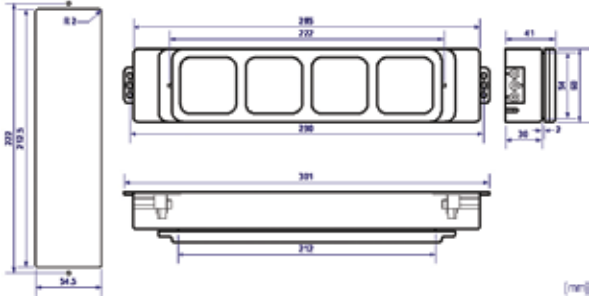


Sensormaster box:
Artikelnr. :2980HFN003

Master sensor	Bereik (zittend/frontaal/dwars)	Functie	Bijbehorende slave
SB02M.705	Ø 4/6/10m	Kantoor	SB02S.405
SB04M.705	Ø 6,4/8/24m	Kantoortuin	SB04S.405
SB04MCOR 705	Ø 0/20/40m	Gang	SB04CORS.405
SB09M.705	Ø 4/6/10m	Kantoor	SB09S.405
SB02MDIM.705	Ø 4/6/10m	Kantoor + DIM	SB02S.405
SB04MDIM.705	Ø 6,4/8/24m	Kantoortuin + DIM	SB04S.405
SB04MCORDIM.705	Ø 20/40m	Gang + DIM	SB04CORS.405
SB09MDIM.705	Ø 4/6/10m	Kantoor + DIM	SB09S.405


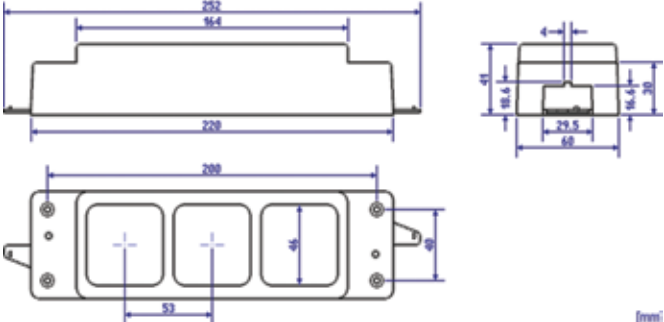
Netbox M

Contactdoos met bevestigingsogen en afdekplaat, kunnen ingebouwd worden in plaatmateriaal tot 2mm dikte.

	Artikelnr. 2-VOUDIG • 2½mm² : M28 TG0 3013	
	3-VOUDIG • 2½mm² : 2N8 OG0 3013	
	4-VOUDIG • 2½mm² : M48 TG0 3013	

Netbox MK

Direct aan elkaar koppelbare contactdoos.



	Artikelnr. 2-VOUDIG • 2½mm² : 2U8 OG0 3013 + beugels : 2U8 OG0 3013S	<table border="1"> <tr> <td colspan="2"> Netbox MK Direct aan elkaar koppelbare contactdoos </td> </tr> <tr> <td> 2 = VOUDIG • 2 Varianten* : 2U8 OG0 3013 </td> <td></td> </tr> <tr> <td> 3 = VOUDIG • 2 Varianten* : 2N8 OG1 3013 </td> <td></td> </tr> </table>	Netbox MK Direct aan elkaar koppelbare contactdoos		2 = VOUDIG • 2 Varianten* : 2U8 OG0 3013		3 = VOUDIG • 2 Varianten* : 2N8 OG1 3013	
	Netbox MK Direct aan elkaar koppelbare contactdoos							
2 = VOUDIG • 2 Varianten* : 2U8 OG0 3013								
3 = VOUDIG • 2 Varianten* : 2N8 OG1 3013								
3-VOUDIG • 2½mm² : 2K8 OG1 3013 + beugels : 2K8 OG1 3013S								

Isolectra voert een uitgebreid pakket contactdozen en bureau contactdozen. Meer informatie op www.isolectra.nl/downloads-deskmanagement

Contactblokken met GST18® aansluiting

Netbox Global

Contactdoos voor op bureaublad, kleur ALU/ZWART

	Artikelnr.		
	2xWCD:	2G030BQ01Z	3m. netsnoer
	4xWCD:	2G0401801Z	4m. netsnoer
	4xWCD+2xRJ45:	2G0401901z	3m. Cat5e datasnoer en netsnoer
	5xWCD+2xRJ45:	2G0701201z	3m. Cat5e data en netsnoer
	Tafelmontageclip:	430 70000 030	Losneembare bevestigingsclip. Met schroef of met TESA powerstrip aan bureaublad te bevestigen.

Netbox Point

Compacte contactdoos inbouw in bureaublad Ø 80mm

	Artikelnr.		
	1xWCD	2IK0G41093	1m. netsnr, zwart, afdekraam mat-chroom 90x90mm
	1xWCD+RJ45	2IK0071093	1m. netsnr, 1xRJ45 Cat6 gender-changer, zwart, afdekraam mat-chroom 90x90mm
	1xWCD+RJ45	2IK0079093	3m. netsnr, 1xRJ45 Cat6 gender-changer, zwart, afdekraam RVS, 90x90mm
	1xWCD+RJ45+USB	2IK0G34093	2m. GST18i3 snr, 1xRJ45 Cat6 gender-changer, USB gender-changer, zwart, afdekraam chroom glans 90x90mm
	1xWCD+2xRJ45	2IK0G61093	20cm. GST18i3 snr, 2xRJ45 Cat6 gender-changer, zwart, afdekraam chroom glans 90x90mm

Netbox PB

Contactdoos opbouw

	Artikelnr.		
	4xWCD	2P14G03013	GST18i3 ingang + uitgang
	6xWCD	2P16G03013	GST18i3 ingang + uitgang
	5xWCD+schakelaar	2P16G13013	GST18i3 ingang + uitgang
	8 x WCD	2P18G03013	GST18i3 ingang + uitgang
	Schroefbevestiging	420 850 0023	Clip wordt aan zijkant/achterzijde contactslof ingestoken 2 stuks nodig voor montage
	Frontmontageclip	420 800 0103	Clip wordt aan zijkant/voorzijde contactslof ingestoken 2 stuks nodig voor montage

Isolectra voert een uitgebreid pakket contactdozen en bureau contactdozen. Meer informatie op www.isolectra.nl/downloads-deskmanagement

Draadloos en batterijloos lichtschakelsysteem

Een piëzo element of zonnecellen in de schakelaar wekken energie op om een draadloos signaal te verzenden. Elke schakelaar heeft een veilige unieke 32 bits adrescode. Bereik in vrije veld ca 300m, in gebouwen afhankelijk van constructie. Zeer eenvoudig te programmeren met drukknop op aktor of met handheld programmeerunit.

Draadloze verlichtingsaktor 4-voudig

	Artikelnr.	1x Wieland GST18i3 male ingang 4x Wieland GST18i3 female uitgang geschakeld Voeding: 230V/16A, Belastbaarheid relais: 230V/16A Ohms
	Met interne antenne 83.020.0500.0	
	Met aansluiting voor externe antenne 83.020.0500.2	

Draadloze zoneringsaktor 2-voudig

	Artikelnr.	1x Wieland GST18i3 male ingang 2x Wieland GST18i4 female uitgang geschakeld Voeding: 230V/16A, Belastbaarheid relais: 230V/5A Ohms
	Met interne antenne 83.020.0501.1	
	Met aansluiting voor externe antenne 83.020.0501.2	

Draadloze schakelaktor of dimaktor 1-voudig

	Artikelnr.	1x Wieland GST18i3 male ingang 4x Wieland GST18i3 female uitgang geschakeld Ingangsspanning 230V/16A, Schakelvermogen: 230V/10A Ohms
	Schakelaktor 10A F0.000.0016.9	
	230V Dimaktor 60-210W F0.000.0017.0	

Draadloze schakelaktor of dimaktor 1-voudig

	Artikelnr.	Batterij-loos en onderhoudsvrij.
	I/O wit 2-kanaals : F0.000.0005.6	Montage op gladde oppervlakken met meegeleverde sticker passen in 55mm frames van verschillende producenten:
	I/O zwart 2-kanaals : F0.000.0007.5	
	I/O alu 2-kanaals : F0.000.0007.6	
	I/O wit 4-kanaals : F0.000.0005.7	
	I/O zwart 4-kanaals : F0.000.0007.9	
	I/O alu 4-kanaals : F0.000.0008.0	
	△▼wit 2-kanaals : F0.000.0005.8	
	△▼zwart 2-kanaals : F0.000.0007.7	
	△▼alu 2-kanaals : F0.000.0007.8	
	△▼wit 4-kanaals : F0.000.0005.9	
	△▼zwart 4-kanaals : F0.000.0008.1	
	△▼alu 4-kanaals : F0.000.0008.2	
Handheld ral9010 : F0.000.0009.1		
Handheld ral9005 : F0.000.0009.2		
Handheld Alu-kleur : F0.000.0009.3		

- Berker : S1, B1, B3, B7
- Jung : A500, Aplus
- GIRA : Standard55, E2, Event, Esprit
- Merten : M-Smart, M-Arc, M-plan

Andere uitvoeringen schakelaars verkrijgbaar. Zie hiervoor de Wieland electronics catalogus KNX-LON-RC op www.isolectra.nl/downloads-gebouwbeheersystemen

Draadloos en batterijloos lichtschakelsysteem


Raamcontact

	Artikelnr.	Voeding: Solarcellen: min. lichtsterkte 100lux, optimaal vanaf 400lux. Reserve: min. 14uur indien volledig geladen. Contact: Magneet 23x14x6mm Afmetingen: 110x19x15mm
	Schakelaktor 10A F0.000.0009.0	


Hotelcard schakelaar

	Artikelnr.	Energie wordt geproduceerd als de hotelkaart ingestoken wordt. Bevestiging: sticker of schroef, of op een standaard wandinbouwdoos. Hotelkaart afmetingen: 55x85mm (standaard) De hotelcard schakelaar zendt een Enocan telegram, waarmee de voeding van de ruimte direct kan worden geschakeld, of waarmee een gebouwbesturingssysteem aangestuurd kan worden via Wieland gesis KNX of LON besturingssystemen.
	Wit : F0.000.0024.6 Zwart : F0.000.0024.7 Alu : F0.000.0024.8	

Handheld programmeerunit

	Artikelnr.	512 radio kanalen, 32 levels, tijd, datum, temperatuur, 32 kamers, 8 sneltoetsen. Met deze handige programmeerunit zijn complexe besturingen voor een compleet gebouw eenvoudig te programmeren. Eenvoudige symbolen zorgen voor intuïtieve menunavigatie. De programmeerunit heeft verder servicefuncties voor de installateur en kan functionele testen tijdens in bedrijf stelling van de installatie ondersteunen.
	F0.000.0024.4	
	Inclusief oplaadbare batterijen en USB lader.	


Repeater

	Artikelnr.	Voeding 230V t.b.v. inbouw in wanddoos. De repeater herkent Enocan telegrammen en verzendt deze ongewijzigd met maximaal vermogen in 1 of 2 laags bedrijf. Dit versterkt het radiosignaal 2x en vergroot het bereik significant.
	Repeater, 2 levels F0.000.0024.5	

Externe antenne

	Artikelnr.	868,3 MHz antenne Bevestiging met magneetvoet Inclusief ca 2,5m kabel en SMA connector
	83.020.0503.0	

Alarmzender

	Artikelnr.	Voeding 24V / 35mA. 8 alarmingangen digitaal, 8 alarm ingangen binair. Externe voeding en externe antenne noodzakelijk. De alarmzender heeft 8 digitale alarmingangen en 8 binaire ingangen en zendt Enocan telegrammen uit welke door de gesis RC jaloezie en schakelactoren ontvangen kunnen worden. Hiermee kunnen jaloezieën, rolluiken en verlichting aangestuurd worden vanuit een weerstation, alarmcentrale of gebouwbesturingssysteem.
	83.020.0502.0	

Wieland GST18i3 zwart wordt toegepast om: 1-fase 230V voedingsnetwerken aan te leggen én om verlichtingsarmaturen, wandcontactdozen en apparaten te voeden.



GST18i3® zwart leidingen 3x1½mm² 16A max

Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.232.1000.1	92.232.1060.1	92.232.1004.1	92.232.1064.1	92.232.1003.1	92.232.1063.1
2m.	92.232.2000.1	92.232.2060.1	92.232.2004.1	92.232.2064.1	92.232.2003.1	92.232.2063.1
3m.	92.232.3000.1	92.232.3060.1	92.232.3004.1	92.232.3064.1	92.232.3003.1	92.232.3063.1
4m.	92.232.4000.1	92.232.4060.1	92.232.4004.1	92.232.4064.1	92.232.4003.1	92.232.4063.1
5m.	92.232.5000.1	92.232.5060.1	92.232.5004.1	92.232.5064.1	92.232.5003.1	92.232.5063.1
6m.	92.232.6000.1	92.232.6060.1	92.232.6004.1	92.232.6064.1	92.232.6003.1	92.232.6063.1
7m.	92.232.7000.1	92.232.7060.1	92.232.7004.1	92.232.7064.1	92.232.7003.1	92.232.7063.1
8m.	92.232.8000.1	92.232.8060.1	92.232.8004.1	92.232.8064.1	92.232.8003.1	92.232.8063.1
9m.	92.232.9000.1	92.232.9060.1	92.232.9004.1	92.232.9064.1	92.232.9003.1	92.232.9063.1
10m.	92.232.9900.1	92.232.9960.1	92.232.9904.1	92.232.9964.1	92.232.9903.1	92.232.9963.1



GST18i3® zwart voedingsleidingen 3x2½mm² 20A max

Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.238.1000.1	92.238.1060.1	92.238.1004.1	92.238.1064.1	92.238.1003.1	92.238.1063.1
2m.	92.238.2000.1	92.238.2060.1	92.238.2004.1	92.238.2064.1	92.238.2003.1	92.238.2063.1
3m.	92.238.3000.1	92.238.3060.1	92.238.3004.1	92.238.3064.1	92.238.3003.1	92.238.3063.1
4m.	92.238.4000.1	92.238.4060.1	92.238.4004.1	92.238.4064.1	92.238.4003.1	92.238.4063.1
5m.	92.238.5000.1	92.238.5060.1	92.238.5004.1	92.238.5064.1	92.238.5003.1	92.238.5063.1
6m.	92.238.6000.1	92.238.6060.1	92.238.6004.1	92.238.6064.1	92.238.6003.1	92.238.6063.1
7m.	92.238.7000.1	92.238.7060.1	92.238.7004.1	92.238.7064.1	92.238.7003.1	92.238.7063.1
8m.	92.238.8000.1	92.238.8060.1	92.238.8004.1	92.238.8064.1	92.238.8003.1	92.238.8063.1
9m.	92.238.9000.1	92.238.9060.1	92.238.9004.1	92.238.9064.1	92.238.9003.1	92.238.9063.1
10m.	92.238.9900.1	92.238.9960.1	92.238.9904.1	92.238.9964.1	92.238.9903.1	92.238.9963.1

De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen). LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen). De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

Wieland GST18i3 zwart wordt toegepast om: 1-fase 230V voedingsnetwerken aan te leggen én om verlichtingsarmaturen, wandcontactdozen en apparaten te voeden.



GST18i3® zwart leidingen 3x1½mm² 90 °C 16A max

Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.232.1010.1	Op aanvraag	92.232.1014.1	Op aanvraag	92.232.1013.1	Op aanvraag
2m.	92.232.2010.1	Op aanvraag	92.232.2014.1	Op aanvraag	92.232.2013.1	Op aanvraag
3m.	92.232.3010.1	Op aanvraag	92.232.3014.1	Op aanvraag	92.232.3013.1	Op aanvraag
4m.	92.232.4010.1	Op aanvraag	92.232.4014.1	Op aanvraag	92.232.4013.1	Op aanvraag
5m.	92.232.5010.1	Op aanvraag	92.232.5014.1	Op aanvraag	92.232.5013.1	Op aanvraag
6m.	92.232.6010.1	Op aanvraag	92.232.6014.1	Op aanvraag	92.232.6013.1	Op aanvraag
7m.	92.232.7010.1	Op aanvraag	92.232.7014.1	Op aanvraag	92.232.7013.1	Op aanvraag
8m.	92.232.8010.1	Op aanvraag	92.232.8014.1	Op aanvraag	92.232.8013.1	Op aanvraag
9m.	92.232.9010.1	Op aanvraag	92.232.9014.1	Op aanvraag	92.232.9013.1	Op aanvraag
10m.	92.232.9910.1	Op aanvraag	92.232.9914.1	Op aanvraag	92.232.9913.1	Op aanvraag



GST18i3® zwart voedingsleidingen 3x2½mm² 90 °C 20A max

Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.238.1010.1	Op aanvraag	92.238.1014.1	Op aanvraag	92.238.1013.1	Op aanvraag
2m.	92.238.2010.1	Op aanvraag	92.238.2014.1	Op aanvraag	92.238.2013.1	Op aanvraag
3m.	92.238.3010.1	Op aanvraag	92.238.3014.1	Op aanvraag	92.238.3013.1	Op aanvraag
4m.	92.238.4010.1	Op aanvraag	92.238.4014.1	Op aanvraag	92.238.4013.1	Op aanvraag
5m.	92.238.5010.1	Op aanvraag	92.238.5014.1	Op aanvraag	92.238.5013.1	Op aanvraag
6m.	92.238.6010.1	Op aanvraag	92.238.6014.1	Op aanvraag	92.238.6013.1	Op aanvraag
7m.	92.238.7010.1	Op aanvraag	92.238.7014.1	Op aanvraag	92.238.7013.1	Op aanvraag
8m.	92.238.8010.1	Op aanvraag	92.238.8014.1	Op aanvraag	92.238.8013.1	Op aanvraag
9m.	92.238.9010.1	Op aanvraag	92.238.9014.1	Op aanvraag	92.238.9013.1	Op aanvraag
10m.	92.238.9910.1	Op aanvraag	92.238.9914.1	Op aanvraag	92.238.9913.1	Op aanvraag

De gebruikte PVC leidingen (H05V2V2-F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).
De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

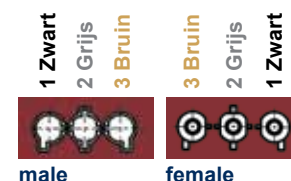
GST18i3® zwart voedingsleidingen 3x4mm² 20A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.234.1000.1A	92.234.1060.1A	92.234.1004.1A	92.234.1064.1A	92.234.1003.1A	92.234.1063.1A
2m.	92.234.2000.1A	92.234.2060.1A	92.234.2004.1A	92.234.2064.1A	92.234.2003.1A	92.234.2063.1A
3m.	92.234.3000.1A	92.234.3060.1A	92.234.3004.1A	92.234.3064.1A	92.234.3003.1A	92.234.3063.1A
4m.	92.234.4000.1A	92.234.4060.1A	92.234.4004.1A	92.234.4064.1A	92.234.4003.1A	92.234.4063.1A
5m.	92.234.5000.1A	92.234.5060.1A	92.234.5004.1A	92.234.5064.1A	92.234.5003.1A	92.234.5063.1A
6m.	92.234.6000.1A	92.234.6060.1A	92.234.6004.1A	92.234.6064.1A	92.234.6003.1A	92.234.6063.1A
7m.	92.234.7000.1A	92.234.7060.1A	92.234.7004.1A	92.234.7064.1A	92.234.7003.1A	92.234.7063.1A
8m.	92.234.8000.1A	92.234.8060.1A	92.234.8004.1A	92.234.8064.1A	92.234.8003.1A	92.234.8063.1A
9m.	92.234.9000.1A	92.234.9060.1A	92.234.9004.1A	92.234.9064.1A	92.234.9003.1A	92.234.9063.1A
10m.	92.234.9900.1A	92.234.9960.1A	92.234.9904.1A	92.234.9964.1A	92.234.9903.1A	92.234.9963.1A

GST18i3® bruin schakelaarleidingen 3x1½mm² 16A max

Wieland schakelleidingen zijn voorzien van 2 schakeldraden en 1 fase draad.



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.232.1000.4	92.232.1060.4	92.232.1004.4	92.232.1064.4	92.232.1003.4	92.232.1063.4
2m.	92.232.2000.4	92.232.2060.4	92.232.2004.4	92.232.2064.4	92.232.2003.4	92.232.2063.4
3m.	92.232.3000.4	92.232.3060.4	92.232.3004.4	92.232.3064.4	92.232.3003.4	92.232.3063.4
4m.	92.232.4000.4	92.232.4060.4	92.232.4004.4	92.232.4064.4	92.232.4003.4	92.232.4063.4
5m.	92.232.5000.4	92.232.5060.4	92.232.5004.4	92.232.5064.4	92.232.5003.4	92.232.5063.4
6m.	92.232.6000.4	92.232.6060.4	92.232.6004.4	92.232.6064.4	92.232.6003.4	92.232.6063.4
7m.	92.232.7000.4	92.232.7060.4	92.232.7004.4	92.232.7064.4	92.232.7003.4	92.232.7063.4
8m.	92.232.8000.4	92.232.8060.4	92.232.8004.4	92.232.8064.4	92.232.8003.4	92.232.8063.4
9m.	92.232.9000.4	92.232.9060.4	92.232.9004.4	92.232.9064.4	92.232.9003.4	92.232.9063.4
10m.	92.232.9900.4	92.232.9960.4	92.232.9904.4	92.232.9964.4	92.232.9903.4	92.232.9963.4

De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).



LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen).

De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

Normale GST18 aansluitleidingen zijn 35mm ontmanteld en 9mm gestript.



Wieland GST18i3 zwart lang gestripte aansluitleidingen worden gebruikt om bijv. standaard WCD's van een stekerbare aansluiting te voorzien. De adereinden zijn ultrasoon verdicht.

GST18i3® zwart leiding 3x1½mm² 16A max

	 100mm ontmanteld, 14mm gestript +verdicht		 100mm ontmanteld, 14mm gestript +verdicht	
Lengte	Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH
1m.	Op aanvraag	G0.000.0588.5	Op aanvraag	Op aanvraag
2m.	Op aanvraag	G0.000.0588.6	Op aanvraag	Op aanvraag
3m.	Op aanvraag	G0.000.0588.7	Op aanvraag	Op aanvraag
4m.	Op aanvraag	G0.000.0588.8	Op aanvraag	Op aanvraag
5m.	Op aanvraag	G0.000.0588.9	Op aanvraag	Op aanvraag
6m.	Op aanvraag	G0.000.0589.0	Op aanvraag	Op aanvraag
7m.	Op aanvraag	G0.000.0589.1	Op aanvraag	Op aanvraag
8m.	Op aanvraag	G0.000.0589.2	Op aanvraag	Op aanvraag
9m.	Op aanvraag	G0.000.0589.3	Op aanvraag	Op aanvraag
10m.	Op aanvraag	G0.000.0589.4	Op aanvraag	Op aanvraag



GST18i3® zwart leiding 3x2½mm² 20A max

	 100mm ontmanteld, 14 mm gestript +verdicht		 100mm ontmanteld, 14mm gestript +verdicht	
Lengte	Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH
1m.	Op aanvraag	G0.000.0588.5	Op aanvraag	Op aanvraag
2m.	Op aanvraag	G0.000.0588.6	Op aanvraag	Op aanvraag
3m.	Op aanvraag	G0.000.0588.7	Op aanvraag	Op aanvraag
4m.	Op aanvraag	G0.000.0588.8	Op aanvraag	Op aanvraag
5m.	Op aanvraag	G0.000.0588.9	Op aanvraag	Op aanvraag
6m.	Op aanvraag	G0.000.0589.0	Op aanvraag	Op aanvraag
7m.	Op aanvraag	G0.000.0589.1	Op aanvraag	Op aanvraag
8m.	Op aanvraag	G0.000.0589.2	Op aanvraag	Op aanvraag
9m.	Op aanvraag	G0.000.0589.3	Op aanvraag	Op aanvraag
10m.	Op aanvraag	G0.000.0589.4	Op aanvraag	Op aanvraag



K.99.40s.8325.s DOORKOPPELSET WCD's:

1xGST18i3 male aansluitleiding,
1 meter, 3x2½mm², H05VV-F,
zwart, 12mm gestript



+
1xGST18i3 female aansluit-
leiding,
1 meter, 3x2½mm², H05VV-F,
wit, 12mm gestript



De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).

LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen).

De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

Wieland GST18i4 zwart wordt toegepast voor het aansturen van geschakelde decentrale noodverlichtingsarmaturen én voor het aansluiten van zonweringsmotoren op een besturingsunit.

GST18i4® zwart lampleidingen 4x1½mm² 16A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.207.1000.1	92.207.1060.1	92.207.1004.1	92.207.1064.1	92.207.1003.1	92.207.1063.1
2m.	92.207.2000.1	92.207.2060.1	92.207.2004.1	92.207.2064.1	92.207.2003.1	92.207.2063.1
3m.	92.207.3000.1	92.207.3060.1	92.207.3004.1	92.207.3064.1	92.207.3003.1	92.207.3063.1
4m.	92.207.4000.1	92.207.4060.1	92.207.4004.1	92.207.4064.1	92.207.4003.1	92.207.4063.1
5m.	92.207.5000.1	92.207.5060.1	92.207.5004.1	92.207.5064.1	92.207.5003.1	92.207.5063.1
6m.	92.207.6000.1	92.207.6060.1	92.207.6004.1	92.207.6064.1	92.207.6003.1	92.207.6063.1
7m.	92.207.7000.1	92.207.7060.1	92.207.7004.1	92.207.7064.1	92.207.7003.1	92.207.7063.1
8m.	92.207.8000.1	92.207.8060.1	92.207.8004.1	92.207.8064.1	92.207.8003.1	92.207.8063.1
9m.	92.207.9000.1	92.207.9060.1	92.207.9004.1	92.207.9064.1	92.207.9003.1	92.207.9063.1
10m.	92.207.9900.1	92.207.9960.1	92.207.9904.1	92.207.9964.1	92.207.9903.1	92.207.9963.1

GST18i4® zwart lampleidingen 4x2½mm² 20A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.208.1000.1	92.208.1060.1	92.208.1004.1	92.208.1064.1	92.208.1003.1	92.208.1063.1
2m.	92.208.2000.1	92.208.2060.1	92.208.2004.1	92.208.2064.1	92.208.2003.1	92.208.2063.1
3m.	92.208.3000.1	92.208.3060.1	92.208.3004.1	92.208.3064.1	92.208.3003.1	92.208.3063.1
4m.	92.208.4000.1	92.208.4060.1	92.208.4004.1	92.208.4064.1	92.208.4003.1	92.208.4063.1
5m.	92.208.5000.1	92.208.5060.1	92.208.5004.1	92.208.5064.1	92.208.5003.1	92.208.5063.1
6m.	92.208.6000.1	92.208.6060.1	92.208.6004.1	92.208.6064.1	92.208.6003.1	92.208.6063.1
7m.	92.208.7000.1	92.208.7060.1	92.208.7004.1	92.208.7064.1	92.208.7003.1	92.208.7063.1
8m.	92.208.8000.1	92.208.8060.1	92.208.8004.1	92.208.8064.1	92.208.8003.1	92.208.8063.1
9m.	92.208.9000.1	92.208.9060.1	92.208.9004.1	92.208.9064.1	92.208.9003.1	92.208.9063.1
10m.	92.208.9900.1	92.208.9960.1	92.208.9904.1	92.208.9964.1	92.208.9903.1	92.208.9963.1

De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).

LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen).

De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

Wieland GST18i5 zwart wordt gebruikt voor het aanleggen van 3-fase voedingsleidingen.

GST18i5® zwart apparaat leidingen 5x1½mm² 16A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.257.1000.1	92.257.1060.1	92.257.1004.1	92.257.1064.1	92.257.1003.1	92.257.1063.1
2m.	92.257.2000.1	92.257.2060.1	92.257.2004.1	92.257.2064.1	92.257.2003.1	92.257.2063.1
3m.	92.257.3000.1	92.257.3060.1	92.257.3004.1	92.257.3064.1	92.257.3003.1	92.257.3063.1
4m.	92.257.4000.1	92.257.4060.1	92.257.4004.1	92.257.4064.1	92.257.4003.1	92.257.4063.1
5m.	92.257.5000.1	92.257.5060.1	92.257.5004.1	92.257.5064.1	92.257.5003.1	92.257.5063.1
6m.	92.257.6000.1	92.257.6060.1	92.257.6004.1	92.257.6064.1	92.257.6003.1	92.257.6063.1
7m.	92.257.7000.1	92.257.7060.1	92.257.7004.1	92.257.7064.1	92.257.7003.1	92.257.7063.1
8m.	92.257.8000.1	92.257.8060.1	92.257.8004.1	92.257.8064.1	92.257.8003.1	92.257.8063.1
9m.	92.257.9000.1	92.257.9060.1	92.257.9004.1	92.257.9064.1	92.257.9003.1	92.257.9063.1
10m.	92.257.9900.1	92.257.9960.1	92.257.9904.1	92.257.9964.1	92.257.9903.1	92.257.9963.1

GST18i5® zwart voedingsleidingen 5x2½mm² 20A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	92.258.1000.1	92.258.1060.1	92.258.1004.1	92.258.1064.1	92.258.1003.1	92.258.1063.1
2m.	92.258.2000.1	92.258.2060.1	92.258.2004.1	92.258.2064.1	92.258.2003.1	92.258.2063.1
3m.	92.258.3000.1	92.258.3060.1	92.258.3004.1	92.258.3064.1	92.258.3003.1	92.258.3063.1
4m.	92.258.4000.1	92.258.4060.1	92.258.4004.1	92.258.4064.1	92.258.4003.1	92.258.4063.1
5m.	92.258.5000.1	92.258.5060.1	92.258.5004.1	92.258.5064.1	92.258.5003.1	92.258.5063.1
6m.	92.258.6000.1	92.258.6060.1	92.258.6004.1	92.258.6064.1	92.258.6003.1	92.258.6063.1
7m.	92.258.7000.1	92.258.7060.1	92.258.7004.1	92.258.7064.1	92.258.7003.1	92.258.7063.1
8m.	92.258.8000.1	92.258.8060.1	92.258.8004.1	92.258.8064.1	92.258.8003.1	92.258.8063.1
9m.	92.258.9000.1	92.258.9060.1	92.258.9004.1	92.258.9064.1	92.258.9003.1	92.258.9063.1
10m.	92.258.9900.1	92.258.9960.1	92.258.9904.1	92.258.9964.1	92.258.9903.1	92.258.9963.1

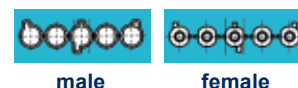
De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).

LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen).

De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

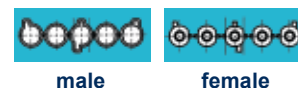
Wieland GST18i5 pastelblauw wordt toegepast om zowel 230V (L,PE,N) als een 1-10V signaal (-,+)
of DALI signaal met 1 leiding en 1 connector op een verlichtingsarmatuur aan te sluiten.

GST18i5® pastelblauw lampleidingen 5x1½mm² 16A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
	1m.	92.257.1000.9	92.257.1060.9	92.257.1004.9	92.257.1064.9	92.257.1003.9
2m.	92.257.2000.9	92.257.2060.9	92.257.2004.9	92.257.2064.9	92.257.2003.9	92.257.2063.9
3m.	92.257.3000.9	92.257.3060.9	92.257.3004.9	92.257.3064.9	92.257.3003.9	92.257.3063.9
4m.	92.257.4000.9	92.257.4060.9	92.257.4004.9	92.257.4064.9	92.257.4003.9	92.257.4063.9
5m.	92.257.5000.9	92.257.5060.9	92.257.5004.9	92.257.5064.9	92.257.5003.9	92.257.5063.9
6m.	92.257.6000.9	92.257.6060.9	92.257.6004.9	92.257.6064.9	92.257.6003.9	92.257.6063.9
7m.	92.257.7000.9	92.257.7060.9	92.257.7004.9	92.257.7064.9	92.257.7003.9	92.257.7063.9
8m.	92.257.8000.9	92.257.8060.9	92.257.8004.9	92.257.8064.9	92.257.8003.9	92.257.8063.9
9m.	92.257.9000.9	92.257.9060.9	92.257.9004.9	92.257.9064.9	92.257.9003.9	92.257.9063.9
10m.	92.257.9900.9	92.257.9960.9	92.257.9904.9	92.257.9964.9	92.257.9903.9	92.257.9963.9

GST18i5® pastelblauw voedingsleidingen 5x2½mm² 20A max



Lengte	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
	1m.	92.258.1000.9	92.258.1060.9	92.258.1004.9	92.258.1064.9	92.258.1003.9
2m.	92.258.2000.9	92.258.2060.9	92.258.2004.9	92.258.2064.9	92.258.2003.9	92.258.2063.9
3m.	92.258.3000.9	92.258.3060.9	92.258.3004.9	92.258.3064.9	92.258.3003.9	92.258.3063.9
4m.	92.258.4000.9	92.258.4060.9	92.258.4004.9	92.258.4064.9	92.258.4003.9	92.258.4063.9
5m.	92.258.5000.9	92.258.5060.9	92.258.5004.9	92.258.5064.9	92.258.5003.9	92.258.5063.9
6m.	92.258.6000.9	92.258.6060.9	92.258.6004.9	92.258.6064.9	92.258.6003.9	92.258.6063.9
7m.	92.258.7000.9	92.258.7060.9	92.258.7004.9	92.258.7064.9	92.258.7003.9	92.258.7063.9
8m.	92.258.8000.9	92.258.8060.9	92.258.8004.9	92.258.8064.9	92.258.8003.9	92.258.8063.9
9m.	92.258.9000.9	92.258.9060.9	92.258.9004.9	92.258.9064.9	92.258.9003.9	92.258.9063.9
10m.	92.258.9900.9	92.258.9960.9	92.258.9904.9	92.258.9964.9	92.258.9903.9	92.258.9963.9

De gebruikte PVC leidingen (H05VV-F) en LSOH leidingen (S05Z1Z1F) zijn moeilijk brandbaar conform EN6033-1-2 (losse leidingen).

LSOH leidingen zijn op aanvraag leverbaar als moeilijk brandbaar volgens EN60332-3-22 (bundels leidingen).

De gebruikte Wieland GST18 connectoren zijn halogeenvrij en moeilijk brandbaar conform UL94V-0.

BST14® systeem voor 1-10V & DALI signalen

Wieland BST14 is het meest toegepaste systeem om 1-10V of DALI dimsignalen voor verlichtingsarmaturen te verzorgen. Isolectra levert ook aanwezigheidsdetectoren met DALI en/of 1-10V DIM uitgangen.

Zie hiervoor de Isolectra BEG catalogus stekerbare aanwezigheidsdetectie op www.isolectra.nl/downloads-aanwezigheidsdetectie

Wieland BST14i2® T-splitter

	Artikelnr.	Kleur	
	93.420.4653.0* K93.420.4653.0	Pastelblauw	




BST1412® pastelblauw dimleidingen 2x0,8mm



male



female

Lengte						
	Koppelleiding		Male aansluitleiding		Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	94.425.1030.9	94.425.1090.9	94.425.1034.1	94.425.1094.9	94.425.1033.9	94.425.1093.9
2m.	94.425.2030.9	94.425.2090.9	94.425.2034.1	94.425.2094.9	94.425.2033.9	94.425.2093.9
3m.	94.425.3030.9	94.425.3090.9	94.425.3034.1	94.425.3094.9	94.425.3033.9	94.425.3093.9
4m.	94.425.4030.9	94.425.4090.9	94.425.4034.1	94.425.4094.9	94.425.4033.9	94.425.4093.9
5m.	94.425.5030.9	94.425.5090.9	94.425.5034.1	94.425.5094.9	94.425.5033.9	94.425.5093.9
6m.	94.425.6030.9	94.425.6090.9	94.425.6034.1	94.425.6094.9	94.425.6033.9	94.425.6093.9
7m.	94.425.7030.9	94.425.7090.9	94.425.7034.1	94.425.7094.9	94.425.7033.9	94.425.7093.9
8m.	94.425.8030.9	94.425.8090.9	94.425.8034.1	94.425.8094.9	94.425.8033.9	94.425.8093.9
9m.	94.425.9030.9	94.425.9090.9	94.425.9034.1	94.425.9094.9	94.425.9033.9	94.425.9093.9
10m.	94.425.9930.9	94.425.9990.9	94.425.9934.1	94.425.9994.9	94.425.9933.9	94.425.9993.9

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

Wieland BST14i2 T-splitter & verdelers

	Artikelnr.	Kleur	
	93.420.0653.0	Groen	
	93.420.0053.0	Groen	
	93.420.0453.0	Groen	

BST14i2® groen 2x(2x0,8) leidingen



male



female

Lengte	 Koppelleiding		 Male aansluitleiding		 Female aansluitleidingen	
	PVC	LSOH	PVC	LSOH	PVC	LSOH
1m.	94.425.1000.7	94.425.1000.7	94.425.1004.7	94.425.1064.7	94.425.1003.7	94.425.1063.7
2m.	94.425.2000.7	94.425.2000.7	94.425.2004.7	94.425.2064.7	94.425.2003.7	94.425.2063.7
3m.	94.425.3000.7	94.425.3000.7	94.425.3004.7	94.425.3064.7	94.425.3003.7	94.425.3063.7
4m.	94.425.4000.7	94.425.4000.7	94.425.4004.7	94.425.4064.7	94.425.4003.7	94.425.4063.7
5m.	94.425.5000.7	94.425.5000.7	94.425.5004.7	94.425.5064.7	94.425.5003.7	94.425.5063.7
6m.	94.425.6000.7	94.425.6000.7	94.425.6004.7	94.425.6064.7	94.425.6003.7	94.425.6063.7
7m.	94.425.7000.7	94.425.7000.7	94.425.7004.7	94.425.7064.7	94.425.7003.7	94.425.7063.7
8m.	94.425.8000.7	94.425.8000.7	94.425.8004.7	94.425.8064.7	94.425.8003.7	94.425.8063.7
9m.	94.425.9000.7	94.425.9000.7	94.425.9004.7	94.425.9064.7	94.425.9003.7	94.425.9063.7
10m.	94.425.9900.7	94.425.9900.7	94.425.9904.7	94.425.9964.7	94.425.9903.7	94.425.9963.7

Wieland GST18i3 schroefstekers code 1 zwart

male	female	Artikelnr.	Type
		92.932.3053.1* K92.932.3053.1	male
		92.931.3053.1* K92.931.3053.1	female

Wieland GST18i3 veerklem chassis code 1 zwart

male	female	Artikelnr.	Type
		92.032.9658.1* K92.032.9658.1	male
		92.031.9658.1* K92.031.9658.1	female

Wieland GST18i3 schroefstekers code 4 bruin

male	female	Artikelnr.	Type
		92.932.3853.0* K92.932.3853.0	male
		92.931.3853.0* K92.931.3853.0	female

Wieland GST18i3 veerklem chassis code 4 bruin

male	female	Artikelnr.	Type
		92.032.8458.0	male
		92.031.8458.0	female

Wieland GST18i4 schroefstekers 4-polig code 1 zwart

male	female	Artikelnr.	Type
		92.944.3053.1* K92.944.3053.1	male
		92.943.3053.1* K92.943.3053.1	female

Wieland GST18i4 veerklem chassis 4-polig code 1 zwart

male	female	Artikelnr.	Type
		92.042.9658.1* K92.042.9658.1	male
		92.041.9658.1* K92.041.9658.1	female

Wieland GST18i15 schroefstekers 5-p. code 1 zwart

male	female	Artikelnr.	Type
		92.954.4053.1* K92.954.4053.1	male
		92.953.4053.1* K92.953.4053.1	female

Wieland GST18i15 veerklem chassis 5-p. code 1 zwart

male	female	Artikelnr.	Type
		92.052.9658.1* K92.052.9658.1	male
		92.051.9658.1* K92.051.9658.1	female

Wieland GST18i5 schroefstekers 5-p code 2 pastelblauw

male	female	Artikelnr.	Type
		92.954.4453.0* K92.954.4453.0	male pastel
		92.953.4453.0* K92.953.4453.0	female pastel

Wieland GST18i5 veerklem chassis 5-p code 2 pastelblauw

male	female	Artikelnr.	Type
		92.052.8658.0	male pastel
		92.051.8658.0	female pastel

Wieland BST14i2 veerklemstekers 2-p code 2 pastelblauw

male	female	Artikelnr.	Type
		93.422.4553.1	male pastel
		93.421.4553.1	female pastel

Wieland BST14i2 veerklem chassis 2-p code 2 pastelblauw

male	female	Artikelnr.	Type
		93.422.4353.1	male pastel
		93.421.4353.1	female pastel

Wieland BST14i2 veerklemstekers 2-polig code 1 groen

male	female	Artikelnr.	Type
		93.422.0553.1	male groen
		93.421.0553.1	female groen

Wieland BST14i2 veerklem chassis 2-polig code 1 groen

male	female	Artikelnr.	Type
		93.422.0353.1	male groen
		93.421.0353.1	female groen

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

Vlakband gesis® NRG 5x2½mm² GST18®

Vlakband kabel

	Artikelnr.
	PVC: 00.702.0303.7
	LSOH: 00.709.0303.7

Vlakband voeding 5x2½mm², 5-13mm

	Artikelnr.
	92.050.8153.0
	Set 1x voeding 230V + 2x eindkap K99.050.8153.0X

Vlakband eindkap

	Artikelnr.
	05.563.4700.0

Aftakkingen 230V: GST18

	Artikelnr.
	3-pol L1: 92.031.5153.1
	3-pol L2: 92.031.5253.1
	3-pol L3: 92.031.5353.1
	Set 2xL1 + 2xL2 + 2xL3 K92.031.5x53.1
	5-pol : 92.051.0553.1

Voeding / Aftakking 5-polig kabel 230V

	Artikelnr.
	92.050.8653.0

Vlakband gesis® NRG 5x2½mm² GST18® + 2x1½mm² BST14i2® groen

Vlakband kabel

	Artikelnr.
	PVC: 00.702.0323.9
	LSOH: 00.709.0323.9

Vlakband eindkap

	Artikelnr.
	05.562.2900.0

Vlakband voeding

	Artikelnr.
	PVC: 92.050.8053.0
	Set voeding 230V + voedingbus + 2x eindkap K99.050.8053.x

Vlakband voeding bussignaal 2x 1½mm², 3-8mm

	Artikelnr.
	93.420.1053.0

Aftakkingen 230V: GST18

	Artikelnr.
	L1: 92.031.4153.1
	L2: 92.031.4253.1
	L3: 92.031.4353.1
	Set 2xL1 + 2xL2 + 2xL3 K92.031 4x53.1
	3-fase: 92.051.0353.1

Voeding / Aftakking 5-polig kabel 230V

	Artikelnr.
	groen: 93.421.08530 K93.421.0853.0*
	Zwart: 93.421.2853.1

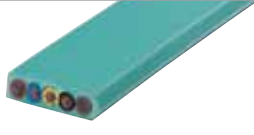
Vlakband accessoires

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

Vergrendeling	Striptang	Kniptang	Beugel kabelgoot	Clip wand	Clip wand
05.587.3156.1	95.350.0200.0	95.300.0300.0	700.150	05.562.3000.0	G0.500.0009.4

Vlakband systeem gesis® NRG 10mm²

NRG10 kabel

	Artikelnr.
	PVC: 00.702.0306.7
	LSOH: 00.709.0306.7

NRG10 eindkap

	Artikelnr.
	05.563.9553.0

NRG10 voeding 5x10mm², M32 wartel

	Artikelnr.
	92.050.8253.0

NRG10 aftakking 5x4mm²


	Artikelnr.
	92.050.8353.0

NRG10 middenvoeding 5x10mm², M32 wartel

	Artikelnr.
	92.050.8853.0 Aansluitkast voor 1x10mm ² rondkabel en 2 stuks NRG10 vlakbandleidingen.

Vlakband systeem gesis® NRG 16mm²

NRG16 kabel

	Artikelnr.
	PVC: 00.702.0307.3
	LSOH: 00.709.0307.3

NRG16 eindkap

	Artikelnr.
	05.563.9453.0

NRG16 voeding 5x16mm², excl. wartel

	Artikelnr.
	92.050.8453.0

NRG16 aftakking 2 x 5x6mm², excl. wartel

	Artikelnr.
	92.050.8553.0

Wartels voor voeding en adapters

	Artikelnr.
	M25 : Z5.507.1553.0
	M25 metal; Z5.507.1521.0
	M40 : Z5.507.1953.0
	Blind dop: 05.507.4153.0

NRG16 adapter met 3xB16 zekeringsautomaat + GST18 uit

	Artikelnr.
	G0.000.0044.7 Uitgangen 1x GST18i5, 3x GST18i3
	Andere uitvoeringen op aanvraag.

NRG10 en NRG16 accessoires

NRG10 stripper	NRG16 stripper	Kniptang	NRG10 kabelclip
95.350.0500.0	95.350.0600.0	95.300.0300.0	05.563.9753.0
			

Wieland GST18 vergrendeling voor vliegende verbindingen

	Artikelnr.	Kleur
	05.587.3156.1* K05.587.3156.1	Zwart
	05.587.3156.0	Wit

Wieland GST18i3 Afdekkap voor female contacten 3-polig

	Artikelnr.	Kleur
	05.561.3653.1	Zwart
	05.561.3653.0	Wit

Wieland GST18 vergrendeling voor printconnectoren

	Artikelnr.	Kleur
	05.590.4556.1	Zwart
	05.590.4556.0	Wit

Wieland GST18i3 Afdekkap voor male contacten 3-polig

	Artikelnr.	Kleur
	05.594.4253.0	Zwart
	05.594.4250.0	Wit

Wieland GST18 losse vergrendeling voor chassisdelen

	Artikelnr.	Kleur
	05.595.1453.0	Zwart
	05.595.1453.2	Wit

Wieland GST18i4 Afdekkap voor female contacten 4-polig

	Artikelnr.	Kleur
	05.566.9153.0	Zwart

Wieland GST18 losse vergrendeling voor verdelers

	Artikelnr.	Kleur
	05.588.5753.1	Zwart
	05.588.5753.0	Wit


Wieland GST18i5 afdekkap voor female contacten 5-polig

	Artikelnr.	Kleur
	05.562.9253.0	Zwart

Wieland GST18 afdekking sparing chassisdeel 3-polig

	Artikelnr.
	07.425.8753.0


Wieland GST18i5 afdekkap voor male contacten 5-polig

	Artikelnr.	Kleur
	05.583.1853.0	Zwart

Wieland GST18 afdekking sparing chassisdeel 3-polig

	Artikelnr.
	07.425.8853.0

Wieland GST18 Afdekkap voor female contacten 3-4-5-6 polig

	Artikelnr.	Kleur
	05.564.5353.0	Zwart
	05.564.5353.2	Wit

Wieland GST18 afdekking sparing chassisdeel 3-polig

	Artikelnr.	Kleur
	07.425.8953.0	Wit

Wieland GST18 montageframe voor kabelstekers

	Artikelnr.	Voor
	Op aanvraag	3-polig
	Op aanvraag	5-polig

* Ook leverbaar in kleinverpakking, zie 2^e artikelnr.

Snap in montageframe om een GST18 kabelconnector in een paneel te kunnen bevestigen. Geschikt voor platte schroefstekers en fabrieksleidingen.

Certificeringen

- Wieland GST18 is gecertificeerd vlg. NEN-EN-IEC61535 en toegestaan als stekerbare verbinding in een vaste installatie.
- Het gehele Wieland GST18 systeem is gecertificeerd voor 20A bij 250/400V.

Montage instructies

- Gebruik alleen originele Wieland GST18 producten om stekerbare verbindingen te maken. Gebruik nooit producten van andere merken in combinatie met Wieland GST18 connectoren!
 - ▶ Verbindingen met connectoren van verschillende merken zijn volgens NEN-EN-EN61535 en NEN1010 niet toegestaan in elektrische installaties. Zie NEN1010 bepaling 526.1.
- Alle voorschriften volgens NEN1010 dienen nageleefd te worden. Hierbij moet naast het gebruikelijke in het bijzonder gelet worden op:
 - ▶ Maximale belasting bij de gekozen installatiemethode (tabel A.52-1 t/m 14).
 - ▶ Correctiefactoren voor omgevingstemperatuur (tabel A.52-16).
 - ▶ Correctiefactoren voor gebundelde leidingen (tabel A.52-18).
 - ▶ Hogere harmonische vervormingen bij 3-fase leidingen (Bijlage 52C).
 - ▶ Elektrisch materieel dient voldoende bereikbaar te zijn voor controle, inspectie en reparatie (132.12). Plaats verbindingen en verdelers op een hiervoor geschikte plaats.
 - ▶ Al het elektrisch materieel moet voldoen aan de desbetreffende Europese Norm (EN) (133.1).
- Alle stekerbare verbindingen dienen vergrendeld te worden met een daarvoor bedoelde vergrendeling (Zie NEN1010 526.1 en EN61535).
 - ▶ Vergrendelde Wieland gesis GST18 connectoren mogen nooit met geweld ontkoppeld worden. De vergrendeling moet geopend worden met een schroevendraaier waarna de stekerverbinding ontkoppeld kan worden.
- Leidingen dienen zodanig geïnstalleerd te worden dat deze niet kunnen beschadigen. Hierbij moet rekening gehouden worden met de eigenschappen en specificaties van de leidingsoort.

Installatiearchitectuur

- Vrouwelijke (female) GST18 connectoren zijn spanning voerend.
- Mannelijke (male) GST18 connectoren zijn spanningsvrij.
- Voor de keuze van het toe te passen leidingtype dient de selectiemethodiek van NTA8012 gevolgd te worden.
- Het is niet toegestaan een verdeler direct zonder tussenliggende koppelleiding op een andere verdeler aan te sluiten als deze verdeler daar niet specifiek voor bedoeld is. Dit om zogenaamde “kerstbomen” en grote mechanische belastingen te voorkomen.
- Op een normale T-splitter mogen 2 leidingen worden aangesloten, de derde aansluiting dient op een male chassisdeel met vergrendeling aangesloten te worden. Gebruik voor verdelingen van 3 of meer leidingen een H of HH verdeler.
- Kleuren van de GST18 connectorcoderingen:
 - ▶ Algemeen: zwarte en witte coderingen van GST18 connectoren passen op elkaar, ander coderingskleuren zijn niet verwisselbaar.
 - ▶ 3-,4-,5-, polig zwart : voedingsleidingen of geschakelde leidingen.
 - ▶ 3-,4-,5-, polig wit : geschakelde leidingen of voedingsleidingen.
 - ▶ 3-, 4-, 5 polig grijs : voedingsleidingen alternatief circuit of schone voeding.
 - ▶ 3-polig rood : voedingsleidingen alternatief circuit of schone voeding.
 - ▶ 3-polig rood met 5kV symbool : secundaire leiding voor remote VSA's met 5kV ontsteekpuls.
 - ▶ 3-polig bruin : schakelaarleidingen, diversen (3=bruin=fase; 2=grijs=schakeldraad of blauw=nul; 1=zwart=schakeldraad).
 - ▶ 3-polig turquoise : schakelaarleidingen, stuurleidingen, diversen.
 - ▶ 3-polig pastelblauw : slave sensor, schakelaarleidingen, stuurleidingen, diversen.
 - ▶ 5-polig pastelblauw : 230V en 1-10V dimleiding.
 - ▶ 5-polig blauw : schakelaarleidingen, stuurleidingen, diversen.
 - ▶ 6 polig wit/zwart : noodverlichting en dimleiding (UK).
 - ▶ 6-polig blauw/zwart : noodverlichting en dimleiding (UK).
 - ▶ 6-polig blauw/blauw : sensoren master/slave leiding.

Meer informatie

- Informatie m.b.t. stekbaar installeren, normen en handleidingen: www.isolectra.nl/downloads-normen%20stekbaar.htm
- Wieland GST18 catalogus: www.isolectra.nl/downloads-230v_stekbaar_gebouwen
- Isolectra BEG catalogus stekerbare aanwezigheidsdetectie: www.isolectra.nl/downloads-aanwezigheidsdetectie
- Wieland gesis RC productinformatie: Electronics catalogus KNX-LON-RC: www.isolectra.nl/downloads-gebouwbeheersystemen



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www.isolectra.nl

Installatie instructie

Installation manual

MONACO LED

IP20 CE 

04.04.2517 Lighting spot



Let op!

Voor u aan de slag gaat met het installeren van deze inbouwLEDspot, moet u in uw meterkast de betreffende groep uitschakelen.

Warning!

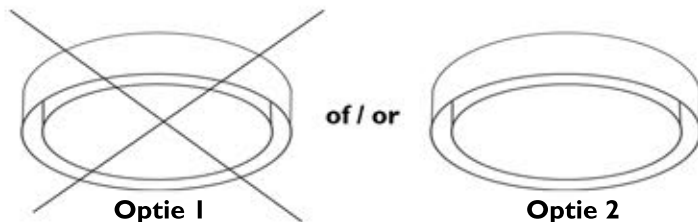
Switch off the power at the circuit breaker/fuse before installing,

Deze spot is op twee manieren te installeren:

1. Als inbouwspot: U heeft de ring niet nodig.
2. Als opbouwspot: U maakt dan gebruik van de ring.

This spotlight can be installed in two ways:

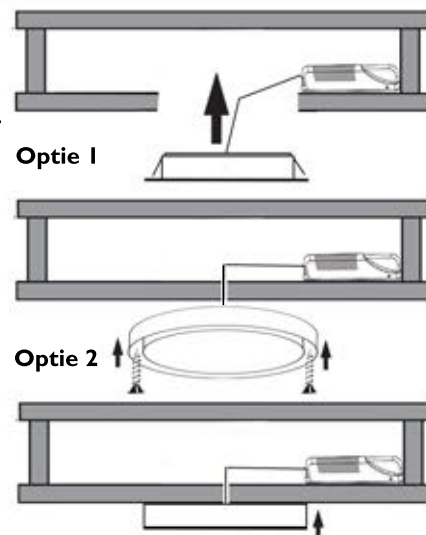
1. As a recessed spotlight: You do not need the ring.
2. As a mounted spotlight.: You will need to use the ring.



Optie 1: Zaag in uw plafond een gat van minimaal 62 mm.

Sluit de driver / transformator (niet standaard meegeleverd) aan de 230 Volt zijde, aan op uw 230 Volt bedrading. Sluit de bedrading van de spot aan op de LED zijde van de driver. De rode draad op de + en de zwarte draad op de - aansluiting. Duw de spot naar boven in het gat totdat hij goed vastklemt.

Optie 2: Boor een gat van 5 mm voor de draad naar de driver. Voor het aansluiten van de driver zie optie 1. Schroef de ring met twee schroeven vast aan uw plafond. Sluit de spot aan op de driver en klik de spot vast in de ring.



Option 1: Cut a hole in the ceiling of at least 62 mm.

Connect the driver / transformer (not included) on the 230 Volt side, to your 230 volt wiring. Connect the wires of the spotlight on the LED side of the driver. The red wire on the + and the black wire black to the - connector. Push the spotlight upward into the hole until it firmly clamps .

Option 2: Drill a 5 mm hole for the wire, which will connect to the driver. For connecting the driver see option 1. Tighten the ring with two screws onto your ceiling. Connect the spot to the driver and click the spotlight into the ring .

Gewenste specificaties van de driver / transformator:

Desired specifications of the driver / transformer :

Leddriver: Constant Current 220-240 V AC 50/60 Hz

Output: 350 mA 6-14V

Soms is het mogelijk, bij een output van minimaal 24 Volt van de driver, om 2 spots op 1 driver aan te sluiten: Sluit de twee rode draden aan op de + van de LED zijde aan de driver. Sluit de twee zwarte draden aan op de - van de LED zijde aan de driver.

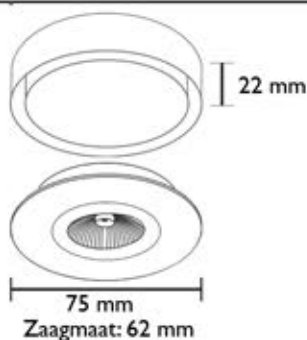
Sometimes it is possible, at an output with a minimum of 24 volts from the driver, to connect two spots on one driver: Connect the two red wires to the + side of the LED side on the driver. Connect the two black wires on the - side of the LED side on the driver.

Warmteontwikkeling?

Door het lage wattage en de uitstekende warmteafvoer wordt de spot niet heet.

Heat generation ?

Due to the low wattage and excellent heat dissipation, the temperature of the spotlight is low.



Wattage	4 Watt
Lichtsterkte	250 lumen
Lichtkleur	Warm Wit
Kelvin	2700 Kelvin
Lichtbundel	40 graden
Zaagmaat	62 mm
Diameter	75 mm
Inbouwdiepte	20 mm

Twijfelt u over het aansluiten van de elektra?

Neem contact op met een gekwalificeerde electricien.

If you are in doubt regarding the above, please consult a qualified electrician.



Philips LED
Lamp (dimbaar)

11,5W (75W)

E27
Warm wit
Dimbaar

8718696577998



Ervaar dimbaar, warm witte LED-verlichting

Creëer de gewenste sfeer met dimbaar LED-licht

De LED-lampen geven direct warm wit licht. Het licht knippert niet en heeft een hoge kleurweergave-index, zodat voorwerpen hun natuurlijke kleuren behouden. Dit zorgt voor de perfecte lichtkwaliteit en een huiselijke sfeer.

Creëer een warme sfeer

- Echt warm wit licht zoals van een gloeilamp (2700 K)

Puur en elegant ontwerp

- Perfecte vorm en hoogwaardige afwerking

Direct op volle sterkte

- Direct licht bij het inschakelen

Zie objecten in hun ware, natuurlijke kleuren

- Hoge kleurweergave (CRI > 80) voor levendige kleuren

Creëer de gewenste sfeer

- Het licht kan worden gedimd

PHILIPS

Lamp (dimbaar)
11,5W (75W) E27, Warm wit, Dimbaar

Specificaties

Lampkenmerken

- Vorm: Lamp
- Fitting: E27
- Voltage: 220-240 V/50-60 Hz volt
- Dimbaar
- Voltage: 220 - 240 V

Energieverbruik

- Wattage: 11,5 W
- Wattage-equivalent: 75 W
- Energiezuinigheidslabel: A+
- Energieverbruik per 1000 uur: 11,5 kWh

Lichtkenmerken

- Lichtopbrengst: 1055 lumen
- Lichthoek: 200 graad
- Kleur: Warm wit
- Kleurtemperatuur: 2700 K
- Lichteffect/afwerking: Warm wit

- Kleurweergave-index (CRI): 80
- Starttijd: <0,5 s
- Toepassing: Zacht licht

Prestaties

- Levensduur van lamp: 15.000 uur
- Aantal schakelcycli: 50000
- Lumen-onderhoudsfactor: 0,7
- Gemiddelde levensduur (bij 2,7 uur per dag): 15 jaar

Lampafmetingen

- Hoogte: 110 mm
- Breedte: 60 mm

Overige kenmerken

- Stroomsterkte lamp: 70 mA
- Lampclassificatie, risicogroep: RG0

8718696577998

Kenmerken

Warm wit licht (2700 K)

Licht kan verschillende kleurtemperaturen hebben die worden aangegeven in de eenheid Kelvin (K). Lampen met een lage Kelvin-waarde produceren een warmer, gezelliger licht, terwijl lampen met een hoge Kelvin-waarde een koeler, meer energiek licht produceren.

Direct licht bij het inschakelen



Wachten hoeft niet meer: LED-lampen van Philips geven meteen na het inschakelen hun volledige licht.

Hoge kleurweergave (CRI>80)



De kleurweergave-index (CRI) wordt gebruikt om het effect van een lichtbron op de kleurweergave te beschrijven. Natuurlijk buitenlicht heeft een CRI van 100 en wordt gebruikt als vergelijkingsstandaard voor alle andere lichtbronnen. De CRI van de LED-lampen van Philips ligt altijd hoger dan 80, dicht bij de waarde van de zon, waardoor kleuren levensecht en natuurlijk worden weergegeven.

Prachtig, zowel aan als uit

Bekende vormen passen goed op de armaturen: we hebben vastgehouden aan de vorm en het uiterlijk van de klassieke lamp.

Dimbare [LED-lampen]



Ontworpen voor kwalitatief dimmen om de juiste sfeer te creëren voor elke activiteit. Van een ontspannen tot actieve sfeer



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Main

Range of product	KNX
Aesthetic name	System Design
Product or component type	Push-button pro
Number of FUNCTION keys	4
Colour tint	Anthracite matt
Colour code	RAL 7024

Complementary

Control type	Proximity function
Wiring device mounting	Flush
Device mounting	Flush
Function available	<ul style="list-style-type: none"> Pulse edges with 2-byte telegrams Switching, toggling, dimming (single/dual-surface) Behaviour and brightness of the status displays Advanced setting: Individual configuration Pulse edges trigger 1-, 2-, 4- or 8-bit telegrams Programmable with ETS4 and higher Express setting: Calls up a pre-set configuration Dismantling protection with accessories 8-bit linear regulator Push-button with 1 to 4 operating buttons Scene saving Scene retrieval With status displays Blind (single/dual-surface) Night mode: LEDs light up with reduced brightness Backlit symbols Disable functions
Local signalling	LED
Marking	With symbols
Material	Plastic
Surface treatment	Varnished

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Environment

IP degree of protection	IP20
Environmental health and issues	Halogen free



Main

Range of product	KNX
Aesthetic name	System Design D-Life
Product or component type	Room controller
Device presentation	Insert with central cover plate
Bus type	KNX
Colour tint	Black

Complementary


Fixing mode	By 2 screws
Function available	<p>Controller type: continuous-action PI control</p> <p>Scene saving</p> <p>Operating modes</p> <p>Proximity function: for the display and the start screen</p> <p>8-bit linear regulator</p> <p>Fan control</p> <p>Scene retrieval</p> <p>Output: switching ON/OFF</p> <p>Switch-on behaviour of the user interface</p> <p>Signal function</p> <p>Gesture function: the device recognises a gesture</p> <p>Switching, toggling, dimming</p> <p>Cleaning mode</p> <p>All functions are displayed on a touch screen</p> <p>Integrated room temperature controller</p> <p>Screen saver</p> <p>Valve protection function</p> <p>32 functions room controller</p> <p>Background lighting</p> <p>Controller type: switching PI control (PWM)</p> <p>Blind control</p> <p>Setpoint adjustment</p> <p>Pulse edges trigger 1-, 2-, 4- or 8-bit telegrams</p> <p>Output: continuous in the range 0 to 100%</p> <p>Controller type: 2-step controller</p> <p>Pulse edges with 2-byte telegrams</p>

Display type	Colour TFT display
Control type	Touch screen
Mechanical robustness	With optional anti-theft or dismantling protection
Material	Plastic
Height	71 mm
Width	71 mm
Depth	30 mm

Environment

IP degree of protection	IP20
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Offer Sustainability

Sustainable offer status	Not Green Premium product
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available  Product environmental
Product end of life instructions	Available



Main

Range of product	U.Motion
Range compatibility	KNX
Product or component type	KNX server
Product compatibility	U.Motion touch panel Client Touch 7 Smartphone Tablet PC Computer U.Motion touch panel Client Touch 10 U.Motion touch panel Client Touch 15
Bus type	KNX Ethernet
Provided equipment	USB stick with additional software and documentation Plug-in screw terminals

Complementary

Connector type	1 x RJ45
Mounting support	DIN rail TH35 according to EN 60715
[Ue] rated operational voltage	12...24 V DC
Power consumption in W	3 W (240 mA @ 12 V)
18 mm pitches	9
Height	95 mm
Width	162 mm
Depth	63 mm

Environment

IP degree of protection	IP20
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Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1422 - Schneider Electric declaration of conformity

 [Schneider Electric declaration of conformity](#)

REACH

Reference contains SVHC above the threshold - [Go to CaP for more details](#)

 [Go to CaP for more details](#)

Product environmental profile

Available

 [Product environmental](#)

Product end of life instructions

Available

 [End of life manual](#)



Main

Range of product	KNX
Product or component type	Binary input
Bus type	KNX

Complementary

18 mm pitches	4
Wiring device mounting	DIN rail
[Ue] rated operational voltage	10 V AC 50 Hz
Output type	Provide signal voltage
Number of inputs	8
Input type	Binary
Local signalling	LED

Environment

IP degree of protection	IP20
Environmental health and issues	Halogen free

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 0806 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference contains SVHC above the threshold - Go to CaP for more details Go to CaP for more details
Product environmental profile	Available Product environmental
Product end of life instructions	Available End of life manual

Contractual warranty

Warranty period	18 months
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Main

Range	ARGUS
Product or component type	Smoke detector
Device application	Early detection of smouldering fires and open fires
Power supply type	Battery
Battery type	Lithium 3.6 V
Colour tint	Polar white (RAL 9010)
Quantity per set	Set of 1
Type of packing	Carton
Market segment	Residential

Complementary

Detection type	Smoke
Battery life	10 yr
Device composition	2 screws 1 smoke detector 1 mounting base 1 dust protection foil 2 wall plugs 1 user guide
Communication network type	Wireless 868 MHz Wired
Number of devices	40
Function available	Function button Hush function Self-test of smoke detection Alarm memory Local alarm Remote alarm wired or wireless network
Operating distance	<= 100 m outdoor <= 30 m indoor
Technology type	Scattered light (Tyndall effect)
Type of measurement	Optic

Local signalling	Visual : red LED Visual : yellow LED Sound : alarm Sound : signal
Noise level	85 dB at 3 m
Type of cable	Separate twin core line
Cable length	> 0...500 m total > 0...25 m between two devices
Cable cross section	0.5...1.5 mm ² 2 wires solid
Wire stripping length	9 mm
Material	PC (polycarbonate)
Type of installation	Indoor
Device mounting	Wall Ceiling
Fixing mode	By screws
Diameter	112 mm
Height	49 mm
Product weight	0.179 kg

Environment

IP degree of protection	IP20
Ambient air temperature for operation	0...60 °C
Standards	EN 14604
Directives	14/01 - vfdb directive
Quality labels	Q

Offer Sustainability

Sustainable offer status	Not Green Premium product
REACH	Reference contains SVHC above the threshold - Go to CaP for more details Go to CaP for more details
Product environmental profile	Available Product environmental
Product end of life instructions	Available End of life manual



Main

Range of product	ARGUS smoke detector
Product or component type	Flush-mounted system relay
Product destination	ARGUS smoke detector

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS (date code: YYWW)	Compliant - since 1342 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold

Contractual warranty

Warranty period	18 months
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Main

Range	Acti 9
Product name	PowerTag
Product or component type	Energy sensor
Number of channels	26 conforming to IEEE 802.15.4
Product specific application	Cost allocation Overload alarm Breaker voltage monitoring
Range compatibility	Acti 9: Acti 9 iKQE RCBO Multi 9: Multi 9 C60 Multi 9: Multi 9 ID Acti 9: Acti 9 iC65 Acti 9: Acti 9 iID Acti 9: Acti 9 DT60 Multi 9: Multi 9 C32N Multi 9: Multi 9 C65 Acti 9: Acti 9 iID K Acti 9: Acti 9 iK60 Acti 9: Acti 9 iKQ Acti 9: Acti 9 K60 Acti 9: Acti 9 Reflex iC60 Acti 9: Acti 9 Smartlink SI B Acti 9: Acti 9 Smartlink SI D Wiser: Wiser Link Acti 9: Acti 9 iC60 (single terminal)
Communication port protocol	Modbus TCP/IP via Smartlink SI D Modbus TCP/IP via Smartlink SI B
Mounting location	Top
Poles description	1P + N 2P
[In] rated current	63 A
Accuracy class	Class 1 current IEC 61557-12 Class 0.5 voltage IEC 61557-12 Class 1 active power IEC 61557-12 Class 1 active energy IEC 61557-12 Class 1 power factor IEC 61557-12

Mounting support	On circuit breaker
Communication network type	Wireless
Product destination	Switchboard
Type of measurement	Power factor Active power Voltage Active energy Current
Mounting mode	Plug-on
Measurement current	0...63 A
9 mm pitches	0
Type of alarms	Overload 50 % Overload 80 % Voltage loss
Transmission support medium	Radio frequency 2.4...2.4835 GHz in compliance with IEEE 802.15.4

Complementary

Electrical connection	Connector tooth
[Us] rated supply voltage	Between phase and neutral: 230 V AC +/- 20 % Between phases: 400 V AC +/- 20 %
Network frequency	50/60 Hz
Saturation current	130 A
Power consumption in VA	2 VA
Operating altitude	0...2000 m
Ambient air temperature for operation	-25...60 °C
Ambient air temperature for storage	-40...85 °C
Overvoltage category	III conforming to IEC 61010-1
Measurement category	Category III conforming to IEC 61010-2-30
Height	16.5 mm
Width	35.4 mm
Depth	42.7 mm
Product weight	17.5 g
Colour	White RAL 9003
Connections - terminals	Cable, inside the device, for 1x 1.5...16 mm ² Cable, inside the device, for 2x 1.5...2.5 mm ²
Wire stripping length	18 mm

Environment

IP degree of protection	IP20 conforming to IEC 60529
IK degree of protection	IK05
Pollution degree	3
Relative humidity	0...95 % (in operation) at 45 °C conforming to IEC 60721-3-3
Vibration resistance	3M4 conforming to IEC 60721-3-3
Environmental characteristic	Dustproof: class 3S3 conforming to IEC 60721-3-3 Salt mist: class 3C2 conforming to IEC 60721-3-3

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS (date code: YYWW)	Compliant - since 1605 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold

A9XMZA08

Acti9 Smartlink SI B - Modbus TCP/IP and Wireless communication module



Main

Range	Acti 9
Product name	Acti 9 Smartlink
Product or component type	Smart communication module
Device short name	Smartlink SI B Ethernet
Device application	Improved load monitoring E, U, I, P, Pf Breaker status monitoring Load alarming Basic energy metering E Load control
Connected auxiliaries	Up to 7 More than 7
Group of channels	1 group of 7 digital channels 1 group of 1 analog channel
Supply current	1.5 A
[Us] rated supply voltage	24 V DC +/- 20 %
Mounting location	Between 2 horizontal DIN rails
Product compatibility	Wireless energy sensor Analog input Pulse output meter Modbus RS485 meter Digital input and output Modbus RS485 slave
Communication service	Ethernet Modbus TCP/IP server Web server
Web server	BMS controller compatible Embedded web page
Transmission support medium	Radio frequency 2.4 GHz PowerTag 20

Complementary

Application specific I/O	Pulse converter Pulse totalising counter
Protection type	Short-circuit protection for digital output

Overvoltage at <= 33 V DC for digital output
 Against reverse polarity for auxiliary supply
 Against reverse polarity for input

Immunity to microbreaks	10 ms
Reset	Factory reset on front face
Input/Output type	2 inputs per analog channel 2 inputs + 1 output per digital channel
Input type	Voltage for analog input, 0...10 V DC Current for analog input, 4...20 mA Current sink for digital input, 24 V DC +/- 20 % at 2.5 µA
Maximum permanent current	0.005 A for digital input
Absolute accuracy error	+/- 1 % of full scale for analog input 12 bits
Electronic filtering time	1 ms for digital input 30 ms for analog input
Output type	Logic current source at 24 V DC, 100 mA
Voltage drop	< 1 V digital output
Inrush current	0.5 A for digital output 3 A for power supply
Leakage current	0.1 mA for digital output
Local signalling	1 LED yellow color for communication 1 LED green, orange and red color for NS (Network Status) 1 LED green and yellow color for communication (LK/ACT 10/100) 1 LED green, orange and red color for status
Mounting position	Horizontal Vertical
Mounting support	DIN rail
Colour	White (RAL 9003)
Location of connection	Front
Connections - terminals	Plug-in connector qty: 1 for supply circuit Plug-in connector qty: 1 for communication bus Spring-loaded terminal Ti24 qty: 7 for digital input/output, ordered separately Plug-in connector qty: 1 for analog input RJ45 connector qty: 1 for ETHERNET, ordered separately
Clamping connection capacity	1 x 0.5...1 x 1.5 mm ² , flexible with cable end for control 1 x 0.5...1 x 1.5 mm ² , flexible without cable end for control 1 x 0.5...1 x 1.5 mm ² , rigid with cable end for control 1 x 0.5...1 x 1.5 mm ² , rigid without cable end for control 2 x 0.2...2 x 1.5 mm ² , flexible with cable end for supply circuit 2 x 0.2...2 x 1.5 mm ² , flexible without cable end for supply circuit 2 x 0.2...2 x 1.5 mm ² , rigid with cable end for supply circuit 2 x 0.2...2 x 1.5 mm ² , rigid without cable end for supply circuit 2 x 0.25 mm ² for twisted shielded pairs cable, flexible with cable end for communication bus 2 x 0.25 mm ² for twisted shielded pairs cable, flexible without cable end for communication bus 2 x 0.25 mm ² for twisted shielded pairs cable, rigid with cable end for communication bus 2 x 0.25 mm ² for twisted shielded pairs cable, rigid without cable end for communication bus 2 x 0.25...2 x 1.5 mm ² for twisted shielded pairs cable, rigid with cable end for analog input 2 x 0.25...2 x 1.5 mm ² for twisted shielded pairs cable, rigid without cable end for analog input 2 x 0.25...2 x 1.5 mm ² for twisted shielded pairs cable, flexible with cable end for analog input 2 x 0.25...2 x 1.5 mm ² for twisted shielded pairs cable, flexible without cable end for analog input
Wire stripping length	7 mm for supply circuit 7 mm for analog input 10 mm for control 7 mm for communication bus
Communication network type	RS485, Modbus RTU, master with connector SUB-D 9 at 9.6...19.2 kbauds Ethernet, Modbus TCP/IP, server with connector RJ45 at 10, 100 Mbit/s
9 mm pitches	0 modules useful on Din rail
Height	23 mm
Width	359 mm
Depth	40 mm
Range compatibility	Multi 9 C60 Acti 9 iC60 Acti 9 iD Acti 9 iSW-NA Clario iDPN Vigi Librio C40

ProDis DT40
 ProDis DT60
 Acti 9 I-NA
 ProDis ITG40
 Clario iDPN
 Linergy Linergy FM
 Acti 9 iOF+SD 24
 Acti 9 iACT24
 Acti 9 iATL24
 Acti 9 PowerTag (wireless energy sensor)
 Acti 9 iCT (auxiliary)
 Acti 9 iTL (auxiliary)
 Acti 9 RCA iC60 Ti24 (connector)
 Acti 9 Reflex iC60 Ti24 (connector)
 Powerlogic (pulse output meter)
 Powerlogic (Modbus meter)

Commissioning interface	Web page Acti 9 Smart test
Web services	Web page

Environment

Pollution degree	3
Electromagnetic compatibility	Resistance to electrostatic discharge at 8 kV at air discharge conforming to IEC 61000-4-2 Resistance to electrostatic discharge at 4 kV at contact discharge conforming to IEC 61000-4-2 Resistance to radiated electromagnetic fields at 10 V/m at 80 MHz...3 GHz conforming to IEC 61000-4-3 Resistance to fast transient at 2 kV at 5...100 kHz for power supply conforming to IEC 61000-4-4 Resistance to fast transient at 1 kV for input/output conforming to IEC 61000-4-4 Resistance to fast transient at 1 kV for communication bus conforming to IEC 61000-4-4 Conducted EMC at 10 V at 0.15...80 MHz conforming to IEC 61000-4-6 Immunity to magnetic fields at network frequency at 30 A/m conforming to IEC 61000-4-8 Radiated emission, class A at 30...1000 MHz conforming to IEC 61131-3 Ed.3 Conducted emission, class A at 0.15...30 MHz conforming to IEC 61131-2
Tropicalisation	2
Relative humidity	90 % at 40 °C
Operating altitude	2000 m
Ambient air temperature for operation	-25...60 °C
Ambient air temperature for storage	-40...85 °C
Standards	EN/IEC 61131-2 EN/IEC 62053-31

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1703 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference contains SVHC above the threshold - Go to CaP for more details Go to CaP for more details
Product environmental profile	Available
Product end of life instructions	Available

CONNECT

TURN YOUR STEREO INTO A MIND BLOWING,
MUSIC STREAMING SONOS SYSTEM

SONOS
THE WIRELESS HiFi SYSTEM



CONNECT BENEFITS

WORKS WITH THE AUDIO EQUIPMENT YOU OWN.

Seamlessly integrates your stereo, home theater system and other amplified audio devices into your Sonos Wireless HiFi System.

SUPERIOR AUDIO QUALITY.

Analog, optical and coaxial digital audio outputs are engineered for premium performance. And fixed or variable audio output options provide flexible volume control.

START WITH ONE, EXPAND ANYWHERE.

Add as many Sonos players as you want throughout your home. Wirelessly. Play different songs in every room or the same song everywhere, in perfect sync.

WIRELESS, EASY TO SET UP.

No rewiring. No complex programming. Simply connect a SONOS BRIDGE or CONNECT to your wireless router and link all your Sonos players wirelessly with one touch.

STREAM ALL THE MUSIC ON EARTH.

Enjoy a universe of music everyday – your iTunes® library, your favorite music services, and more than 100,000 free Internet radio stations, shows and podcasts.



CONTROL YOUR WAY.

Search, browse and play your music with the dedicated SONOS CONTROL or free Sonos Controller Apps for your Android® smartphone, iPhone®, iPod touch®, or iPad®.



CONNECT SPECS

AUDIO

LINE-IN CONNECTIONS Auto-detecting analog (RCA)

LINE-OUT CONNECTIONS Analog (RCA), digital (optical and coaxial).

SOUND QUALITY THD+N <0.009%, 20Hz-20kHz.

ADJUSTABLE TONE AND VOLUME CONTROLS Optimize sound performance using zone-specific bass, treble, balance, and loudness controls.

MUSIC

AUDIO FORMATS SUPPORTED Support for compressed MP3, iTunes Plus, WMA (including purchased Windows Media downloads), AAC (MPEG4), Ogg Vorbis, Audible (format 4), Apple Lossless, Flac (lossless) music files, as well as uncompressed WAV and AIFF files. Indexes up to 65,000 tracks.

Native support for 44.1kHz sample rates. Additional support for 48kHz, 32kHz, 24kHz, 22kHz, 16kHz, 11kHz, and 8kHz sample rates.

Note: Apple "Fairplay", AAC Enhanced and WMA Lossless formats not currently supported. Previously purchased Apple "Fairplay" DRM-protected songs may be upgraded. See Apple for details.

MUSIC SERVICES SUPPORTED Anubis.fm, AUPEO!, Deezer, iheartradio, Last.fm, MOG, Napster®, Pandora®, Rdio®, Rhapsody®, SiriusXM™ Internet Radio, Spotify®, Stitcher SmartRadio™, TuneIn, Wolfgang's Vault®, and downloads from any service offering DRM-free tracks. Service availability varies by region.

OPERATING SYSTEMS (FOR STORED FILES) Windows® XP SP2 and higher; Mac OS X v10.4 and higher; NAS (Network Attached Storage) devices supporting CIFS

INTERNET RADIO SUPPORTED Streaming MP3, WMA

ALBUM ART SUPPORTED JPEG, PNG, BMP, GIF

PLAYLISTS SUPPORTED iTunes®, Rhapsody, WinAmp®, Windows Media Player®, and MusicMatch™ (.m3u, .pls, .wpl)

PLAYBACK MODES Crossfade, shuffle, repeat

NETWORKING*

WIRELESS CONNECTIVITY SonosNet 2.0, a secure AES encrypted, peer-to-peer wireless mesh network

NETWORK BRIDGING 2-port switch (10/100Mbps, auto MDI/MDIX) brings standard Internet connectivity to your set-top box, DVR, PC, Game Console or NAS drive

GENERAL

POWER SUPPLY AC 120/240V, 50-60Hz, auto-switchable

TOP-PANEL BUTTONS Volume and Mute

TOP-PANEL LIGHTS Indicate CONNECT status and Mute status

DIMENSIONS (H X W X D) 2.91 x 5.35 x 5.51 in (74 x 136 x 140 mm)

WEIGHT 1.5 lbs (0.69 kg)

OPERATING TEMPERATURE 32°F to 104°F (0°C to 40°C)

PRODUCT FINISH White/high-quality polycarbonate material

MULTI-LANGUAGE SUPPORT Sonos System Software supports Dutch, English, French, German, Italian, Japanese, Simplified Chinese, Spanish, and Swedish

PACKAGE CONTENTS SONOS CONNECT, power cord, flat Ethernet cable, Sonos QuickStart Guide with Setup CD, one RCA stereo audio cable, one stereo mini to RCA Y audio cable.

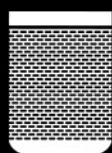
** Internet connection required for access to Internet radio stations, online music services and software updates (DSL, cable modem or LAN-based high-speed Internet connection required.) Internet functionality may require payment of separate fee to a service provider; local and/or long distance telephone charges may apply.*

Note: All specifications subject to change without notice.

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SONOS



PLAY:1

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Sonos uses MSNTP software, which was developed by N.M. Maclaren at the University of Cambridge.

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May 2016

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Sonos PLAY:1

The PLAY:1® is the newest, most compact Sonos wireless speaker that lets you use any Sonos controller to control and enjoy all the music you want all over your home (see **The Sonos App** for more information).

- Two custom-designed drivers, 3.5 in / 9 cm mid-woofer and tweeter, each with a dedicated amplifier.
- Play/Pause functionality remembers the last thing you were listening to. You can even skip to the next track with a double press.
- Pair two PLAY:1s for amazing stereo sound or use two PLAY:1s as rear speakers for your Sonos PLAYBAR® home theater system.
- Works seamlessly with the complete range of Sonos products.

New to Sonos?

It takes just a few steps to get your Sonos system up and running—simply follow the setup instructions packaged with your PLAY:1. Once you've got it set up, you can add additional Sonos products any time.

Adding to an existing Sonos system?

Sonos can be easily expanded room by room. If you are adding a PLAY:1 to an existing Sonos system, see **Adding to an Existing Sonos System** for more information.



Your Home Network

To access Internet music services, Internet radio, and any digital music stored on your computer or Network-Attached Storage (NAS) device, your home network must meet the following requirements:

Home network requirements

Note: Your network must have a high-speed Internet connection, as the Sonos system is designed to provide you with free, online software updates. Your Sonos system must be registered to receive these updates so **be sure to register** during the setup process. We do not share your e-mail address with other companies.

- High-speed DSL/Cable modem, or fiber-to-the-home broadband connection for proper playback of Internet-based music services. (If your Internet service provider only offers Satellite Internet access, you may experience playback issues due to fluctuating download rates.)
- If your modem is not a modem/router combination and you want to take advantage of Sonos' automatic online updates, or stream music from an Internet-based music service, **you must install a router in your home network**. If you do not have a router, purchase and install one before proceeding. If you are going to use the Sonos app on an Android™ or iOS device, or you are setting up Sonos wirelessly, you will need a *wireless* router.

Note: Sonos communicates over a 2.4GHz home network supporting 802.11 b/g/n wireless technology. 5GHz networks are not supported in a completely wireless Sonos setup.

- Connect a Sonos BRIDGE, BOOST™ or player to your router if:
 - You have a larger home where the WiFi performance isn't reliable and you want to strengthen the wireless performance of your Sonos system.
 - Your WiFi network is already in high demand with streaming video and web surfing and you want to create a separate wireless network exclusively for your Sonos speakers.
 - Your home network is 5GHz only (not switchable to 2.4GHz).
- For best results, you should connect the computer or NAS drive that contains your personal music library collection to your home network router using an Ethernet cable.

The Sonos App

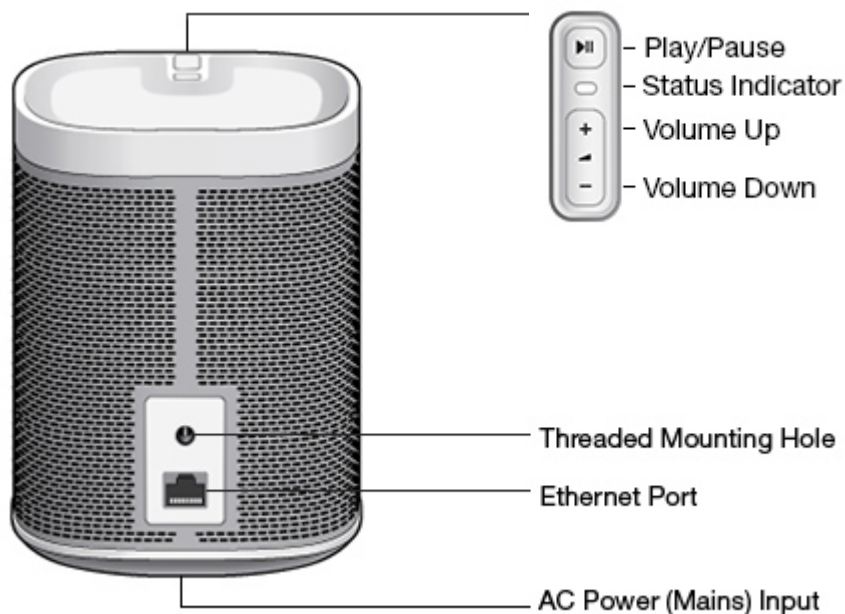
You can use the free Sonos app with any compatible device, including:

- **Sonos app (Android)**—Android 2.2 and higher; certain features require later versions. (Standard wireless setup is only supported on Android 2.3 or 4.0 and higher.)
Touch the **Play Store** or **Market** button on your Android device to download the free Sonos app from Google Play.
- **Sonos app (iOS)**—iPhone, iPad and iPod touch running iOS 7.0 or later; certain features may require later versions.
Touch the **App Store** button on your iPhone, iPod touch or iPad to download the free Sonos app, or download the application from iTunes®. (If you download from iTunes, you will need to sync before you see the Sonos logo display on your device.)
- **Sonos app (PC)**—Windows® XP SP3 and higher; certain features require later versions. (Standard wireless setup is only supported on Windows 7 and higher.)
Download from our website at www.sonos.com/support/downloads.

- **Sonos app (Mac)**—Macintosh® OS X 10.7 or later
Download from our website at www.sonos.com/support/downloads.

Note: Sonos CONTROL has been discontinued, but it's compatible with your new Sonos product.

PLAY:1 Top / Back



On/Off

Your Sonos system is designed to be always on; the system uses minimal electricity whenever it is not playing music. To quickly stop streaming audio in all rooms, select **Pause All** from the **Rooms** menu. To stop streaming audio in one room, press the **Play/Pause** button on the player.

Play/Pause button

Toggles between playing and pausing the audio in this room (defaults to restarting the same music source when pressed unless a different source is selected).

- Press *once* to start or stop streaming audio
- Press *twice* to skip to the next track (if applicable to the selected music source)

Status indicator

Indicates the current status. During normal operation the white light is dimly lit. If desired, you can turn off the white light from **Room Settings**.

See **Player Status Indicators** for a complete list of status indications.

**Volume up (+)
Volume down (-)**

Press these buttons to adjust the volume up and down.

**Threaded mounting hole
1/4 inch /
20-thread**

The PLAY:1 has an integrated mounting hole on the back of the unit so it can be wall-mounted if desired (mounting bracket not included.) See **Wall Mounting** for more information.

Ethernet port

You can use an Ethernet cable (supplied) to connect the PLAY:1 to a router, computer, or additional network device such as a network-attached storage (NAS) device.

**AC power (mains) input
(100 - 240 VAC, 50/60 Hz)**

Use only the supplied power cord to connect to a power outlet (using a third-party power cord will void your warranty).

Insert the power cord firmly into the PLAY:1 until it is flush with the bottom of the unit.

Selecting a Location

You can locate a Sonos PLAY:1 just about anywhere. For maximum enjoyment, we have a few guidelines:

- The PLAY:1 is designed to work well even when placed next to a wall or other surface. For optimum performance, maintaining more than 1 inch (2.5 cm) clearance around the back of the unit is recommended.
- Care should be taken if placing the PLAY:1 close to an older CRT (cathode ray tube) television. If you notice any discoloration or distortion of your picture quality, simply move the PLAY:1 further from the television.
- The PLAY:1 is *humidity*-resistant so you can use it in the bathroom; however it is not *water*-resistant so don't position it near water or leave it outside during a rain storm.

Wall Mounting

The Sonos PLAY:1 has a standard 1/4"-20 threaded mounting socket. If desired, you can easily wall mount your PLAY:1 using a suitable mounting bracket (not included). Simply choose a location that's close to an electrical outlet (power cord length is 2m), taking care to avoid heat, steam, dripping water or hidden wiring, and follow the instructions included with the wall mount kit. You can hang it right side up (control buttons on top) or upside down (control buttons on the bottom).

Note: Be sure the wall mount bracket you purchase will support at least 8lbs. (3.6 kgs) and has a 1/4"-20 threaded post.

Adding to an Existing Sonos System

Once you've got your Sonos music system set up, you can easily add more Sonos products any time (up to 32).

1. Select a location for your PLAY:1 (see **Selecting a Location** above for optimal placement guidelines.)

2. Attach the power cord to the PLAY:1 and apply power. *Be sure to push the power cord firmly into the bottom of the PLAY:1 until it is flush with the bottom of the unit.*

Note: If you want to make a wired connection, connect a standard Ethernet cable from your router or another Sonos product (or a live network wall plate if you have built-in wiring) to an Ethernet port on the back of the PLAY:1.

3. Choose one of the following options:
 - Using a handheld Sonos controller: Select **Add a Player or SUB** from the **Settings** menu and follow the on-screen prompts to add this product to your Sonos system.
 - Using the Sonos app for Mac or PC: Select **Add a Player or SUB** from the **Manage** menu and follow the prompts to add this product to your Sonos system.

Thick walls, 2.4 GHz cordless telephones, or the presence of other wireless devices can interfere with or block the wireless network signals from your Sonos system. If you experience difficulty after positioning a Sonos product, try one or more of the following resolutions—relocate the Sonos product; change the wireless channel your music system is operating on; connect a Sonos product to your router if your setup is currently wireless.

Tune Your Room with Trueplay™

While you can locate Sonos speakers just about anywhere, the size and shape of your room and the objects in it can distort your speaker's sound. To ensure a speaker sounds right no matter where you place it, Sonos speakers include Trueplay. If you have an iPhone (4S or later), iPad, or iPod Touch running iOS7 or later, you can use Trueplay tuning to make every Sonos speaker sound right for the room and true to the music.

Sonos uses your iOS device's microphone to measure acoustic distortion in the room and then Trueplay adapts your Sonos speaker's sound for its position in the room.

1. Select **Settings** -> **Room Settings**.
2. Select the room your speaker is located in.
3. Select **Trueplay Tuning** and follow the on-screen prompts.

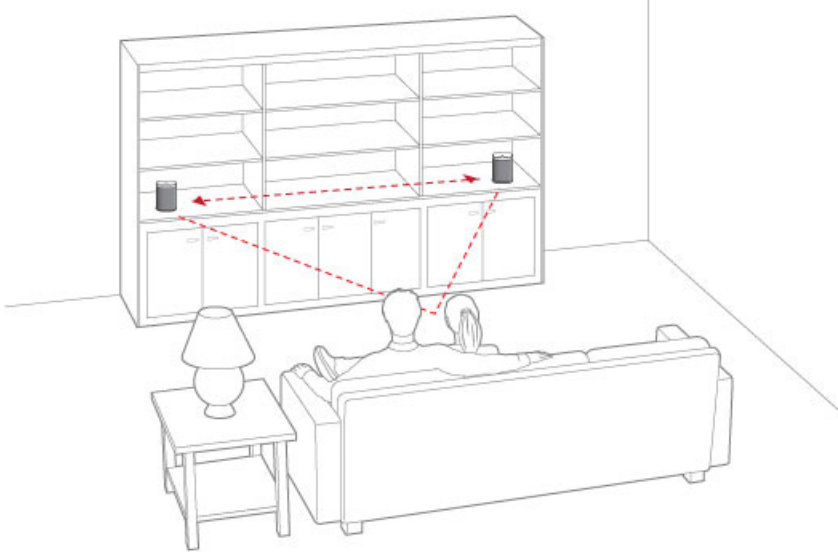
Note: Trueplay tuning is not available if VoiceOver is enabled on your iOS device. If you want to tune your speakers, first turn VoiceOver off on your device and then select **Settings** -> **Room Settings** from the Sonos app.

Creating a Stereo Pair

The stereo pair setting allows you to group two PLAY:1s, PLAY:3s or PLAY:5@s in the same room to create a wider stereo experience. In this configuration, one unit serves as the left channel and the other serves as the right channel. You cannot create a mixed stereo pair—the Sonos products in the stereo pair must be the same.

Optimum placement information

- When creating a stereo pair, it is best to place the two Sonos products 8 to 10 feet away from each other.
- Your favorite listening position should be 8 to 12 feet from the paired Sonos products. Less distance will increase bass, more distance will improve stereo imaging.



Note: The stereo pair setting is for use with PLAY:1, PLAY:3 and PLAY:5 units only. You cannot create a mixed stereo pair—both Sonos products in the stereo pair must be the same.

Using the Sonos app on a mobile device

1. Select **Settings** -> **Room Settings**.
2. Select a PLAY:1 to pair.
3. Select **Create Stereo Pair**, and follow the prompts to set up the stereo pair.

To separate a stereo pair:

1. Select **Settings** -> **Room Settings**.
2. Select the stereo pair you wish to separate (the stereo pair appears with **L + R** in the room name.)
3. Select **Separate Stereo Pair**.

Using the Sonos app on a Mac or PC

1. Choose one of the following:
 - Using your PC, select **Settings** from the **Manage** menu.
 - Using your Mac, select **Preferences** -> **Room Settings** from the **Sonos** menu.
2. Select a PLAY:1 you want to pair from the **Room Settings for** drop-down list.
3. Click **Create Stereo Pair** and follow the prompts to set up the stereo pair.

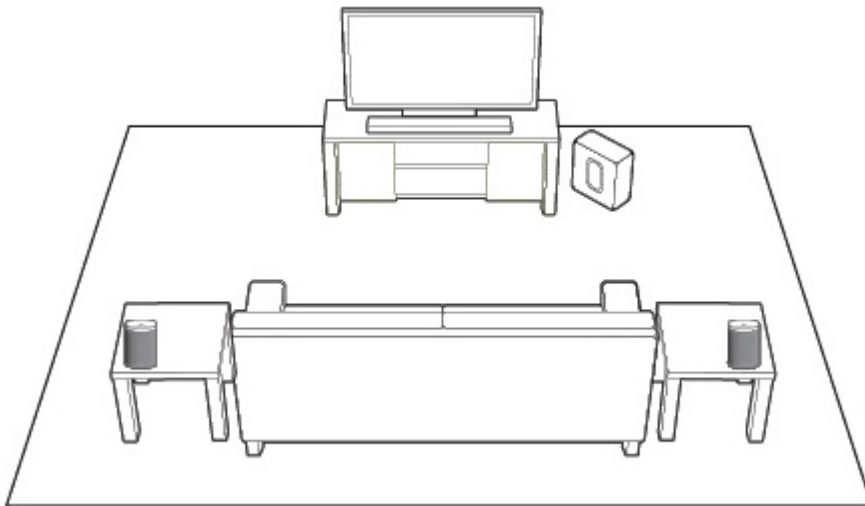
To separate a stereo pair:

1. Choose one of the following:
 - Using your PC, select **Settings** from the **Manage** menu.
 - Using your Mac, select **Preferences** -> **Room Settings** from the **Sonos** menu.
2. Select the Sonos stereo pair you wish to separate from the **Room Settings for** drop-down (the stereo pair will appear with **L + R** in the room name).
3. On the **Basic** tab, click **Separate Stereo Pair**.

Adding Surround Speakers

You can easily pair two PLAY:1, PLAY:3 or PLAY:5 (gen2) speakers with a PLAYBAR to function as left and right surround channels in your Sonos surround sound experience. You can either configure surround speakers during the setup process, or follow the steps below to add them.

- Make sure the Sonos products are the same—you cannot combine a PLAY:1 and a PLAY:3 to function as surround speakers.
- Be sure to follow these instructions to set up your surround speakers. Do not create a room group or stereo pair as these will not achieve the left and right surround channel functionality.



Using the Sonos app on a mobile device

1. From the **Settings** menu, select **Room Settings**.
2. Select the room the PLAYBAR is located in.
3. Select **Add Surround Speakers**.
4. Follow the prompts to add first a left and then a right surround speaker.

Removing surround speakers

1. From the **Settings** menu, select **Room Settings**.
2. Select the room the surround speakers are associated with. The room name appears as *Room (+LS+RS)* on the **Room Settings** menu.

3. Select **Remove Surround Speakers**.
4. Select **Next** to drop the surround sound speakers from your surround system. If these were newly purchased PLAY:1s they will appear as **Unused** on the **Rooms** menu. If these PLAY:1s existed in your household previously, they revert back to their previous state.
You can now move them to another room for individual use.

Changing the surround settings

The default setting is determined by the calibration process. If you wish to make a change, you can follow the steps below.

1. From the **Settings** menu, select **Room Settings**.
2. Select the room the PLAYBAR and surround speakers are located in. It appears as *Room (+LS+RS)* on the **Room Settings** menu.
3. Select **Advanced Audio** -> **Surround Settings**.
4. Choose one of the following:
 - **Surrounds:** Choose **On** or **Off** to turn the sound from the surround speakers on and off.
 - **TV Level:** Drag your finger across the slider to increase or decrease the volume of the surround speakers for playing TV audio.
 - **Music Level:** Drag your finger across the slider to increase or decrease the volume of the surround speakers for playing music.
 - **Music Playback:** Choose **Ambient** (default; subtle, ambient sound) or **Full** (enables louder, full range sound). This setting applies only to music playback, not TV audio.

Using the Sonos app on a Mac or PC

1. Select **Manage** -> **Settings** (PC) or **Sonos** -> **Preferences** (Mac).
2. Select **Room Settings** if it is not already highlighted on the left.
3. From the **Basic** tab, select **Add Surround Speakers**.
4. Follow the prompts to add first a left and then a right surround speaker.

Removing surround speakers

1. Select **Manage** -> **Settings** (PC) or **Sonos** -> **Preferences** (Mac).
2. Select **Room Settings** if it is not already highlighted on the left.
3. Choose the room the PLAYBAR is located in from the **Room Settings for** drop-down list. The room name appears as *Room (+LS+RS)*.
4. From the **Basic** tab, click **Remove Surround Speakers**. If these were newly purchased PLAY:1s, they will appear as **Unused** in the **Rooms** pane. If these PLAY:1s existed in your household previously, they revert back to their previous state.

Changing the surround settings

The default setting is determined by the calibration process. If you wish to make a change, you can follow the steps below.

1. Select **Manage** -> **Settings** (PC) or **Sonos** -> **Preferences** (Mac).
2. Select **Room Settings** if it is not already highlighted on the left.
3. Choose the room the PLAYBAR and surround speakers are located in from the **Room Settings for** drop-down.

4. Select the **Surrounds** tab.
5. Choose one of the following:
 - **Surrounds**: Check to turn the sound from the surround speakers on; uncheck to turn it off.
 - **TV Level Adjustment**: Click and drag the slider to increase or decrease the volume of the surround speakers for playing TV audio.
 - **Music Level Adjustment**: Click and drag the slider to increase or decrease the volume of the surround speakers for playing music.
 - **Music Playback**: Choose **Ambient** (default; subtle, ambient sound) or **Full** (enables louder, full range sound). This setting applies only to music playback, not TV audio.

Playing Music

Make a selection from the Sonos music menu on your mobile device or from the **MUSIC** pane on a Mac or PC.

Radio

Sonos includes a radio guide that provides immediate access to thousands of free Internet radio stations and broadcast programs. You can easily find radio stations from all over the world—music, news, and variety programming, including archived shows and podcasts.

To select a radio station, simply select **Radio** and choose a station.

Music services

A music service is an online music store or online service that sells audio on a per-song, per audiobook, or subscription basis. Sonos is compatible with several music services - you can visit our website at www.sonos.com/music for the latest list. (Some music services may not be available in your country. Please check the individual music service's website for more information.)

If you are currently subscribed to a music service that's compatible with Sonos, simply add your music service user name and password information to Sonos as needed and you'll have instant access to the music service from your Sonos system.

1. To add a music service, touch **Add Music Services** from the Sonos music menu.
2. Select the Sonos-compatible music service you would like to add.
3. Select **Add Account**, and then follow the on-screen prompts. Your login and password will be verified with the music service. As soon as your credentials have been verified, the music service displays on the Sonos music menu.

Free music service trials are available in some countries. (Please check the individual music service's website for more information.) If there is a music service trial visible on the **Music Services** menu, simply touch it to select. Touch **Add Account** -> **I'm new to [music service]**, and then follow the prompts to activate the music trial. After the trial period is up, you will need to subscribe to the music service to keep the music playing.

Local music library

The Sonos system can play music from any computer or network-attached storage (NAS) device on your home network where you have shared music folders. During the setup process, you are guided through the process of accessing your local music library (such as your iTunes library). Over time, you may wish to add or remove folders from this list.

Note: We recommend using the Sonos app for Mac or PC to add shared folders. For more information, please visit our website at <http://faq.sonos.com/manage>.

To make changes to your local music library, select the **Settings** menu from a handheld Sonos controller and then choose one of the following options:

- To add a new music folder, select **Manage Music Library** -> **Music Library Setup** -> **Add New Share**.
- To remove a music folders, select **Manage Music Library** -> **Music Library Setup**. Touch the share you wish to remove and then select **Remove**.

The Sonos system indexes your local music so you can view your music collection by categories (such as artists, albums, composers, genres, or tracks.) If you add new music, simply update your music index to add this music to your Sonos music library.

- To update your music library, select **Manage Music Library** -> **Update Music Index Now**. If you'd like your music library to update automatically each day, select **Schedule Music Index Updates** and then select an update time.

Wireless iTunes playback

You can select and play music and podcasts stored on any iOS device that's on the same wireless network as your Sonos products. Playback is perfectly synchronized, in any or every room of your home. Simply choose **On this iPad**, **On this iPhone**, or **On this iPod touch** from the Sonos app on your iOS device to make audio selections.

Wireless playback from Android devices

You can select and play music stored on any Android device that's on the same wireless network as your Sonos products. Playback is perfectly synchronized, in any or every room of your home. Simply choose **On this Mobile Device** from the Sonos app on your Android smartphone or tablet to make audio selections.

Google Play Music (Android devices)

You can play music to your Sonos system directly from the Google Play Music app on any Android device. This feature is available for both Standard and All Access Google Play Music customers.

To play music directly from the Google Play Music app to your Sonos system, you must have both the Google Play Music app and the Sonos app installed on your mobile device.

Simply open the Google Play Music app and connect to a Sonos room or room group to start the music.

Equalization Settings

The Sonos PLAY:1 ships with the equalization settings preset to provide the optimal playback experience. If desired, you can change the sound settings (bass, treble, balance, or loudness) to suit your personal preferences.

Note: Balance is only adjustable when the PLAY:1 is used in a stereo pair.

1. Using a handheld controller, select **Settings -> Room Settings**.
2. Touch to select a room.
3. Select **Music Equalization**, and then drag your finger across the sliders to make adjustments.
4. To change the Loudness setting, touch **On** or **Off**. (The loudness setting boosts certain frequencies, including bass, to improve the sound at low volume.)

Player Status Indicators

Indicator Lights	Player State	Sonos Product	Additional Information
Flashing white	Powering up	BRIDGE, BOOST, CONNECT, SUB, CONNECT:AMP, DOCK, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	
Solid white (<i>dimly lit</i>)	Powered up and associated with a Sonos system (normal operation)	BRIDGE, BOOST, CONNECT, SUB, CONNECT:AMP, DOCK, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	If desired, when the product is in normal operation, you can turn the white status indicator light on or off from Room Settings . (The SUB and any players set to surround reflect the same setting as the player they are paired with.)
Solid white (<i>brightly lit</i>)	Touch control(s) active	PLAY:5 (gen2)	Brightens when touch controls are activated and remains at full brightness for the duration of contact.
Flashing green	Powered up, not yet associated with a Sonos system <i>Or,</i> WAC (wireless access configuration) join ready	BRIDGE, BOOST, CONNECT, SUB, CONNECT:AMP, DOCK, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	For a SUB, this may indicate the SUB is not yet paired with a player.
Slowly flashing green	Surround audio is off or SUB audio is off	PLAY:1, PLAY:3, PLAY:5 (gen2), SUB	Applicable for player configured as a PLAYBAR surround speaker, or for a SUB paired with a PLAYBAR

Indicator Lights	Player State	Sonos Product	Additional Information
Solid green	Volume set to zero or muted	CONNECT, CONNECT:AMP, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	
Flashing orange	During SonosNet setup, this occurs after a button press while the product is searching for a household to join.	BRIDGE, BOOST, CONNECT, SUB, CONNECT:AMP, DOCK, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	
Rapidly flashing orange	Playback / Next Track failed	CONNECT, CONNECT:AMP, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	Indicates either playback or next track was not possible
Solid orange	During wireless setup, this occurs while the Sonos open access point is temporarily active. If you are not setting up your Sonos system, this may indicate warning mode.	CONNECT, SUB, CONNECT:AMP, PLAY:1, PLAY:3, PLAY:5, PLAYBAR	If the orange light is on AND the player's volume level automatically reduces, this indicates the player is in warning mode. <ul style="list-style-type: none"> • Press the Pause button to stop the audio • For Sonos products with a vent opening (SUB, CONNECT:AMP), check to make sure it's not blocked • Check the room temperature to make sure it's less than 104°F/ 40° C • If the player is in direct sunlight, provide shade • Allow the player to cool for several minutes and then press Play to restart the audio • If the problem does not resolve, please contact Customer Support

Important Safety Information

Warning: Do not open Sonos products as there is a risk of electric shock. Under no circumstances should Sonos products be repaired by anyone other than an authorized Sonos repair center, as this will invalidate the warranty. Please contact Sonos Customer Support for more information.

1. Read these instructions.
2. Keep these instructions.

3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry soft cloth. Household cleaners or solvents can damage the finish on your Sonos products.
7. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
8. Protect the power cable from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
9. Only use attachments/accessories specified by the manufacturer.
10. Unplug this apparatus during lightning storms or when unused for long periods of time.
11. Refer all servicing to Sonos qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cable or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
12. The AC Mains plug should be readily available to disconnect the equipment.
13. **Warning:** To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
14. Do not expose apparatus to dripping or splashing and do not place objects filled with liquids, such as vases, on the apparatus.
15. If wall mounting your Sonos products, make sure to use proper third-party wall mounting hardware and follow all their instructions.

Specifications

Feature	Description
Audio	
Amplifier	Two Class-D digital amplifiers
Tweeter	One tweeter creates a crisp and accurate high frequency response
Mid-Woofer	One mid-woofer ensures the faithful reproduction of mid-range frequencies crucial for accurate playback of vocals and instruments, as well as delivery of deep, rich bass
Stereo Pair setting	Turns two PLAY:1s into separate left and right channel speakers
5.1 Home Theater	Add two PLAY:1 speakers to PLAYBAR and SUB for a true surround sound experience
Music	

Feature	Description
Audio Formats Supported	<p>Support for compressed MP3, AAC (without DRM), WMA without DRM (including purchased Windows Media downloads), AAC (MPEG4), AAC+, Ogg Vorbis, Apple Lossless, Flac (lossless) music files, as well as uncompressed WAV and AIFF files.</p> <p>Native support for 44.1kHz sample rates. Additional support for 48kHz, 32kHz, 24kHz, 22kHz, 16kHz, 11kHz, and 8kHz sample rates. MP3 supports all rates except 11kHz and 8kHz.</p> <p>Note: Apple “Fairplay”, WMA DRM and WMA Lossless formats not currently supported. Previously purchased Apple “Fairplay” DRM-protected songs may be upgraded.</p>
Music Services Supported	<p>Sonos works seamlessly with most music services, including Apple Music™, Deezer, Google Play Music, Pandora, Spotify and Radio by Tuneln, as well as downloads from any service offering DRM-free tracks. Service availability varies by region. For a complete list, see http://www.sonos.com/music.</p>
Operating Systems (for stored files)	<p>Windows® XP SP3 and higher; Macintosh OS X 10.6 or later; NAS (network-attached storage) devices supporting CIFS</p>
Internet Radio Supported	<p>Streaming MP3, HLS/AAC, WMA</p>
Album Art Supported	<p>JPEG, PNG, BMP, GIF</p>
Playlists Supported	<p>Rhapsody, iTunes, WinAmp, and Windows Media Player (.m3u, .pls, .wpl)</p>
Networking*	
Wireless Connectivity	<p>Connects to your home WiFi network with any 802.11 b/g/n, 3x3 MIMO, dual-band (2.4GHz/5GHz) router.</p>
SonosNet™ Extender	<p>Functions to extend and enhance the power of SonosNet, a secure AES encrypted, peer-to-peer wireless mesh network dedicated exclusively for your Sonos system to reduce WiFi interference.</p>
Ethernet Port	<p>One 10/100Mbps Ethernet port</p>
SonosNet Extender	<p>Functions to extend and enhance the power of SonosNet 2.0</p>
General	
Power Supply	<p>100 - 240 VAC, 50/60 Hz, auto-switchable</p>
Top Panel Buttons	<p>Volume and Play/Pause. Press Play/Pause button once to start or stop the music; twice to skip to the next track</p>
Top Panel LED	<p>Indicates PLAY:1 status</p>
Dimensions (H x W x D)	<p>6.36 x 4.69 x 4.69 (in) / 161.45 x 119.7 X 119.7 (mm)</p>
Threaded mount	<p>Standard 1/4”-20 threaded mounting socket</p>
Weight	<p>4.08 lb (1.85 kg)</p>

Feature	Description
Operating Temperature	32° to 104° F (0° to 40° C)
Storage Temperature	4° to 158° F (-20° to 70° C)
Humidity Resistant	Designed to withstand high-humidity, such as in a bathroom with a running shower. (The PLAY:1 is not waterproof or water-resistant.)
Product Finish	White with light metallic grille; black with graphite grille

* Specifications subject to change without notice.

Need More Help?

- Visit our Frequently Asked Questions (FAQ) pages at www.sonos.com/support.
- Ask us a question at <http://www.sonos.com/emailsupport>.

Submit Feedback

We'd love to hear from you! Send us feedback on our guides at: docfeedback@sonos.com



De vormgeving van een screen is makkelijk te combineren met elk type gevel. De werking van het screen is even simpel als doeltreffend.

Screens zijn een ideale vorm van zonwering. Een van de eigenschappen van screendoek is dat de zonne-energie wordt gefilterd, terwijl het zicht naar buiten deels behouden blijft. Zonnewarmte en licht worden tot 90% gereflecteerd, waardoor de temperatuur binnenshuis aangenaam laag blijft. U heeft hierbij de keuze uit een ruim scala aan doekkleuren.

Door de verticale montage steken er geen onderdelen buiten de gevel en blijft een vrije doorloop langs uw raam mogelijk. Nog een ander voordeel ten opzichte van conventionele uitval-schermen is dat het volledige raam is afgedekt. Screens zijn hierdoor ook bijzonder effectief bij laagstaande zon.

De maximale afmeting van (ongekoppelde) screens is 320 x 340 cm (breedte x hoogte) met een maximale overspanning van 7 m².


SMITS

 ROLLUIKEN
ZONWERING

SCREENS

SCREEN | WINDVASTE SCREEN

De bediening

Uw screen is standaard geschikt voor een elektrische bediening met schakelaar. Natuurlijk behoort ook een draadloze afstandsbediening tot de mogelijkheden.



Nog comfortabeler en gebruiksvriendelijker wordt een screen door plaatsing van een zon-/windautomaat, waardoor het product automatisch wordt bediend.

Optioneel is handmatige bediening door bijv. band, slingerstang of windwerk verkrijgbaar (afhankelijk van type screen).

Specificaties

Beschikbare afmetingen (afhankelijk van type screen)

- max. 340 cm breed
- max. 340 cm hoog
- max. 7 m²



Techniek

Het doek van een screen glijdt door een geleider naar beneden of naar boven. Voor situaties waar doorgaans rekening moet worden gehouden met meer wind zijn de windvaste screens ontwikkeld. De windvaste screen is door een vernuftig veersysteem, waardoor het doek constant op de juiste spanning wordt gehouden, in elke stand windvast.

Afwerking

De omkasting van een screen is ondermeer verkrijgbaar in blank geanodiseerd aluminium, gemoffeld wit (Ral 9010) en gemoffeld crèmewit (Ral 9001). Tegen meerprijs is een kleur naar keuze mogelijk.

De speciale gemoffelde laklaag zorgt ervoor dat het scherm aanzienlijk beter slag- en slijtvast is. Bovendien is het op deze manier goed bestand tegen UV-straling en corrosiebestendig.

Onderzoek

Uit TNO-onderzoek blijkt dat toepassing van buitenzonwering veel energie kan besparen. Door toepassing van automatisch geregelde buitenzonwering gedurende de zomer kan voor kantoren tot 29 procent en voor woningen tot 12 procent op energie voor koelen worden bespaard.

TÜV- en CE-gekeurd

Alle screens zijn getest door het Duitse keuringsinstituut TÜV en voldoen aan de hoge kwaliteitscriteria die hierbij gehanteerd worden. De schermen zijn tevens voorzien van CE-markering. Uw garantie voor een veilig en betrouwbaar product waar u jaren plezier aan zult beleven.



Uitvoering

Screens zijn, afhankelijk van maatvoering en type, verkrijgbaar in vier verschillende kapuitvoeringen.

Afgeschuind

75mm / 85mm / 95mm / 95mm WV

Vierkant

75mm / 85mm / 95mm

Half rond

85mm

Rond

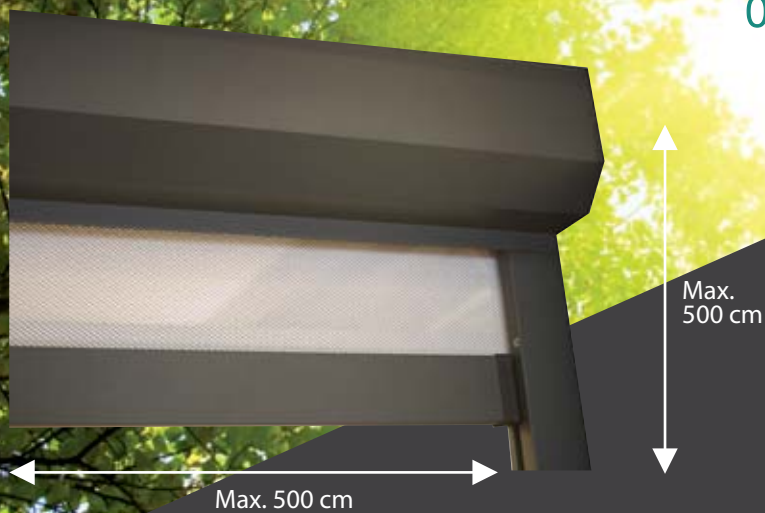
95mm / 95mm WV

SMITS

ROLLUIKEN
ZONWERING

Art. Nr. FL00210101

Uw zonweringspecialist



De SR-screen is een bijzonder type screen waarbij aan de zijkanten een geleidingssysteem met rits zit. Dit maakt de SR-screen in elke stand windvast tot windkracht 8. Omdat het doek opgesloten zit in de geleiders, is de screen in gesloten stand zelfs insectenwerend.

Screens zijn een ideale vorm van zonwering. Een van de eigenschappen van screendoek is dat de zonne-energie wordt gefilterd, terwijl het zicht naar buiten behouden blijft. Zonnewarmte en licht tot 90% worden gereflecteerd, waardoor de temperatuur binnenshuis aangenaam laag blijft. U heeft hierbij de keuze uit een zeer ruime screendoekcollectie.

Door de verticale montage steken er geen onderdelen buiten de gevel en blijft een vrije doorloop langs uw raam mogelijk. Dit is een esthetisch en praktisch voordeel ten opzichte van conventionele uitvalschermen. Screens zijn hierdoor ook bijzonder effectief bij laagstaande zon.

De maximale afmeting van de SR-screen is 500 x 300 cm of 300 x 500 cm (breedte x hoogte) met een maximale overspanning van 15 m².


SMITS

 ROLLUIKEN
ZONWERING

SCREENS

SR-SCREEN



De bediening

Uw screen is standaard geschikt voor een elektrische bediening met schakelaar. Natuurlijk behoort ook een draadloze afstandsbediening tot de mogelijkheden.

Nog comfortabeler en gebruiksvriendelijker wordt een screen door plaatsing van een zon-/windautomaat, waardoor het product automatisch wordt bediend.

Specificaties

Beschikbare afmeting (afhankelijk van type screen)

- max. 500 cm breed
- max. 500 cm hoog
- max. 15 m²





Techniek

Het doek van een SR-screen glijdt door een ritsgeleidingssysteem naar beneden of naar boven. Door deze ritsgeleiding kan de SR-screen ook dienen als windscherm (tot windkracht 6), bijvoorbeeld onder uw terrasoverkapping, balkon of tuinhuis. U kunt zo de windlast tot 85% reduceren en een aangename plek creëren waar u heerlijk kunt vertoeven.

Tussen doek en geleider zit geen opening, waardoor het screen dan ook compleet verduisterend is in combinatie met verduisteringsdoek (in bijv. projectieruimtes).

Onderzoek

Uit TNO-onderzoek blijkt dat toepassing van buitenzonwering veel energie kan besparen. Door toepassing van automatisch geregelde buitenzonwering gedurende de zomer kan voor kantoren tot 29 procent en voor woningen tot 12 procent op energie voor koelen worden bespaard.

Afwerking

De omkasting van een SR-screen is ondermeer verkrijgbaar in geanodiseerd aluminium of gemoffeld in wit (Ral 9010), crèmewit (Ral 9001) en antraciet (Ral 7016). Tegen meerprijs is een (structuur)lakkleur naar keuze mogelijk.

De speciale gemoffelde laklaag zorgt ervoor dat het scherm aanzienlijk beter slag- en slijtvast is. Bovendien is het op deze manier goed bestand tegen UV-straling en corrosiebestendig.

TÜV- en CE-gekeurd

Alle screens zijn getest door het Duitse keuringsinstituut TÜV en voldoen aan de hoge kwaliteitscriteria die hierbij gehanteerd worden. De schermen zijn tevens voorzien van CE-markering. Uw garantie voor een veilig en betrouwbaar product waar u jaren plezier aan zult beleven.



Uitvoering

SR-screens zijn verkrijgbaar in drie verschillende kapuitvoeringen.

Afgeschuind

95mm / 105mm

Vierkant

95mm

Softline

105mm

Uw zonweringspecialist

SMITS

ROLLUIKEN
ZONWERING

04.05.4110 Control unit bus system



Main

Product name	HomeLYnk
Product or component type	Logic controller

Complementary

Communication port protocol	Modbus KNX IP (Internet Protocol) BACnet
[Us] rated supply voltage	24 V DC
Power consumption in W	2 W
Local signalling	Green LED (CPU load) Green/Red LED (KNX powered/reset)
Physical interface	1 x RJ45 1 x RS485 1 x RS232 1 x TP-UART2
Port Ethernet	10BASE-T/100BASE-TX
Integrated connection type	1 x USB 2.0 port
Control type	RESET push-button
Connections - terminals	KNX bus : bus terminal, 2 x 0.8 mm ² Power supply : clamp terminal, 1.5 mm ² Serial : clamp terminal, 1.5 mm ²
Mounting support	DIN rail
Height	90 mm
Width	52 mm
Depth	58 mm

Environment

Ambient air temperature for operation	-5...45 °C
Operating altitude	<= 2000 m
Relative humidity	<= 93 %

IP degree of protection	IP20
Directives	2002/96/EC - WEEE directive
Standards	IEC 60950-1

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1426 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available

04.05.4110 Control unit bus system



8-Port Gigabit Desktop Switch with 4-Port PoE

TL-SG1008P

Overview

The TL-SG1008P provides 8 10/100/1000Mbps RJ45 ports, port 1 to port 4 of the switch support the 802.3af-compliant PoE standard with total PoE power budget of 55W. The TL-SG1008P is an unmanaged switch with desktop design, outstanding performance and quality, which is a great selection for expanding your home or office network.

Power Over Ethernet

- IEEE 802.3af standard
- Supports PoE power up to 15.4W for each PoE port
- Supports PoE power up to 55W for all PoE ports
- Supports Priority function to protect the system when the system power is overloaded

High Performance

- Auto-MDI/MDIX
- Auto-negotiation
- Store and forward
- IEEE 802.3x flow control for Full-duplex Mode
- Backpressure for Half-duplex Mode
- 4k MAC address auto-learning and auto-aging

Easy to use

- Plug and Play design
- Fanless design



- Details:<http://www.tp-link.com/support/Localesupport.asp>
- German/Austrian/Swiss users are

04.05.4110 Control unit bus system



8-Port Gigabit Desktop Switch with 4-Port PoE
TL-SG1008P

Power Over Ethernet

4 of the 8 Auto-Negotiation RJ45 ports (port 1 to port 4) of the switch support Power over Ethernet (PoE) function. These PoE ports can automatically detect and supply power with those IEEE 802.3af compliant Powered Devices (PDs).

- Overload Arrangement

TL-SG1008P has the priority function which will help protect the system when the system power is overloaded. If all connected PoE devices' total power consumption exceeds 55W, a priority will be arranged among the PoE ports, then the system will cut off the power of the lowest-priority port.

- Port Priority Function


Priority (port 1=port 2>port 3>port 4): This function will help protect the system if the system power becomes overloaded. For example, Port 1, 2 and 4 are using 15.4W (maximum power per port is 15.4W), the system power is 46.2W in total. If there is an additional PD inserted to port 3 with 10W then the system will cut off port 4 to protect the system, this means port 1, 2 will use 15.4W, and port 3 will use 10W, and no power will be supplied to port 4.

Easy To Use

TL-SG1008P is easy to install and use. It requires no configuration and installation. With desktop design, outstanding performance and quality, the TP-LINK TL-SG1008P 8-Port Gigabit Desktop Switch with 4-Port PoE is a great selection for expanding your home or office network.

Specifications

Hardware Features & Performance

Product Picture	
Model	TL-SG1008P
Standards	IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE 802.3x, IEEE 802.3af, 802.1p
Network Ports	8*10/100/1000Mbps RJ45 ports with 4 PoE ports (port 1 to port 4)
Network Media(Cable)	10Base-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 100Base-TX: UTP category 5, 5e or above cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 1000Base-T: UTP category 5, 5e cable or above cable(maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
Auto Negotiation	YES
Auto MDI/MDIX	YES
Power Consumption	5.5W (max. no PD connected) 65.2W (max. with 55w PD connected)
Forwarding Mode	Store and Forward
Switch Capacity	16Gbps
MAC Address Table	4k, Auto-learning, Auto-aging
Flow Control	YES
Fanless	YES
LED	Power, 1000Mbps, Link/Act, PoE Status, PoE MAX
Dimensions	6.7x3.9x1.1in.(171x98x27mm)
Certification	CE,FCC
Operating Temperature	0°C ~40 °C (32 °F ~104°F)
Storage Temperature	-40 °C ~70 °C (-40 °F ~158°F)
Operating Humidity	10%~90% non-condensing
Storage Humidity	5%~90% non-condensing

Ordering Information

Host Switches	
Product Model	Description
TL-SG1008P	8-Port Gigabit Desktop Switch with 4-Port PoE
TL-SG1008PE	8-Port Gigabit Desktop Switch with 8-Port PoE
PoE Adapter	
Product Model	Description
TL-POE10R	PoE Splitter
Router	
Product Model	Description
TL-ER604W	SafeStream Wireless N Gigabit Broadband VPN Router

24-port Gigabit Fast Ethernet Switch

04.05.4110 Control unit bus system

TL-SG1024



Expands your network,
adding more devices
and computers to the network

No configuration required,
just connects it to your network

Delivers up to 2000Mbps
throughput in full-duplex mode



Description:

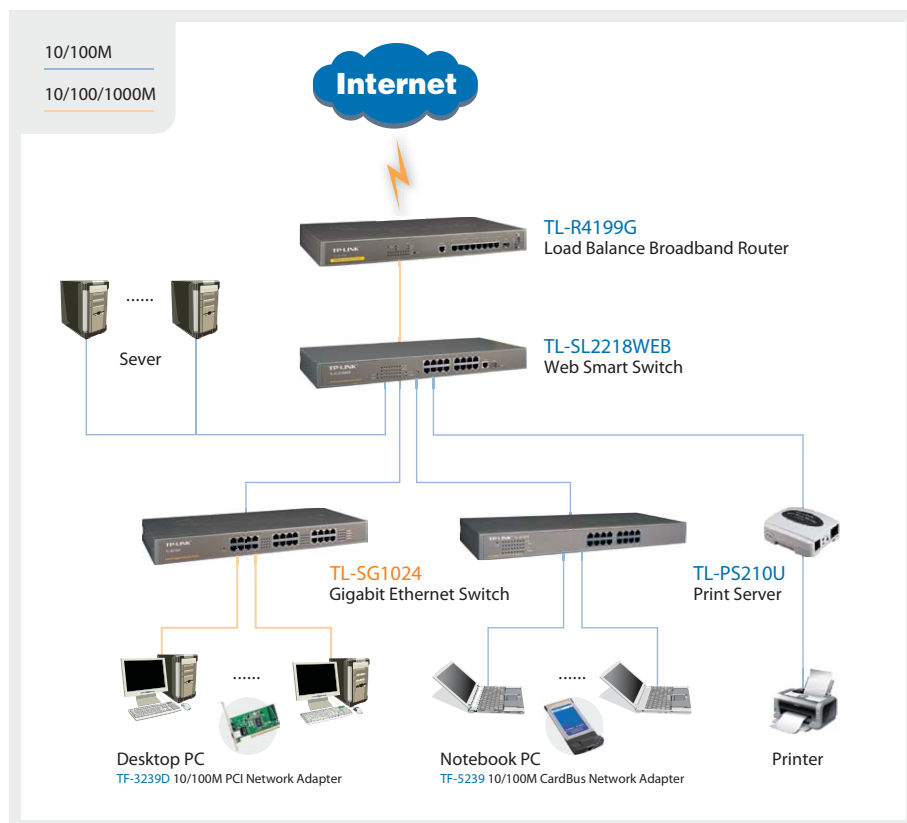
TL-SG1024 24-port Gigabit Fast Ethernet Switch provides 24 Gigabit Auto-Negotiation RJ45 ports. Each port of the TL-SG1024 supports Auto MDI/MDIX function, eliminating the need for crossover cables or uplink ports. The Switch is Plug-and-Play and any port can be simply plugged into a server, a hub, a switch, a router, and so on, to expand your network.

TP-LINK TL-SG1024 provides you a low-cost, easy-to-use, high-performance, seamless and standard upgrade to improve your old network to a 1000Mbps network. It will boost your network performance up to full duplex data transfer.

Specifications:

Standards	IEEE 802.3 10Base-T, IEEE 802.3u 100Base-TX
Protocol	CSMA/CD
Ports	24 Gigabit Auto-Negotiation RJ45
Network Media (Cable)	10/100Base-T: UTP category 3, 4, 5 (5e) cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m) 1000Base-Tx: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
Switching Capacity	64Gbps
MAC Address Table	8k
Data Transfer Rate	Ethernet: 10/100Mbps (Half Duplex), 20/200Mbps (Full Duplex) Fast Ethernet: 1000Mbps (Half Duplex), 2000Mbps (Full Duplex)
LED indicators	Power, Link/Act, 10/100Mbps, 1000Mbps
Transfer Method	Store-and-Forward
MAC Address Learning	Automatically learning, automatically update
Frame Filtering and Forward Rate	10Mbps: 14880pps, 100Mbps: 148800pps 1000Mbps: 1488000pps
Power Supply	100-240V~ 50-60Hz (Internal universal power supply)
Safety & Emission	CE, FCC
Operating Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-40°C ~ 70°C (-40°F ~ 158°F)
Operating Humidity	10% ~ 90% RH non-condensing
Storage Humidity	5% ~ 90% RH non-condensing
Dimensions(L x W x H)	17.3*7.1*1.7 in. (440*180*44 mm)

Diagram:



Features:

- Complies with IEEE 802.3, IEEE 802.3u standards
- 24 Gigabit Auto-Negotiation RJ45 ports supporting Auto-MDI/MDIX
- Supports IEEE 802.3x flow control for Full Duplex mode and backpressure for half-duplex mode
- Supports MAC address auto-learning and auto-aging
- LED indicators for monitoring power, link, activity, 10/100Mbps, 1000Mbps
- Internal universal power supply

Package:

- TP-LINK TL-SG1024 Switch
- Power cord
- User Guide
- Rackmount Kit
- Rubber Feet

Related Products:

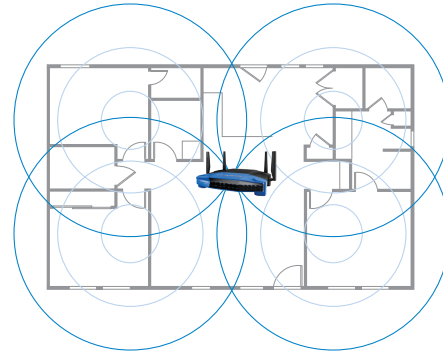
- TL-R480T SMB Broadband Router
- TL-R4199G Load Balance Broadband Router
- TL-SL3428 24+4G Gigabit-Uplink Managed Switch
- TL-SL2218WEB 24+2G Gigabit-Uplink Web Smart Switch
- TL-SL1226 24+2G Unmanaged Gigabit-Uplink Switch
- TL-PS210U Single USB2.0 Port MFP Print Server
- TG-3269D Gigabit PCI Network Adapter
- TG-5269 Gigabit CardBus Network Adapter

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LINKSYS™

PERFORMANCE PERFECTED™

04.05.4110 Control unit bus system



4 ANTENNAS PROVIDE GREATER COVERAGE AND SIGNAL STRENGTH IN MULTI-STORY BUILDINGS



SMART Wi-Fi WITH NETWORK MAP

WRT1900ACS DUAL-BAND GIGABIT Wi-Fi ROUTER

The Linksys WRT1900ACS Dual-Band Gigabit Wi-Fi Router is engineered with upgraded hardware features to deliver uncompromised AC1900 Wi-Fi speeds to today's connected homes and offices.

Linksys debuts the advanced WRT1900ACS Router which features an impressive 1.6 GHz dual-core processor and double the memory capacity. The faster processor and added memory work in tandem to deliver improved wired, wireless, and storage device performance.

Cutting-edge software includes Linksys Smart Wi-Fi with Network Map allowing users to remotely monitor and control their network anywhere, anytime. Advanced users can also customize the WRT1900ACS via open source software from third-party websites.

The Linksys WRT1900ACS is truly Performance Perfected™.

Key Features

- **Wireless-AC, up to 4.3x faster than N technology:** Simultaneous dual-band speed up to 600 Mbps (2.4 GHz) + 1300 Mbps (5 GHz)* for media-intensive applications
- **4 high-performance antennas:** Engineered to enhance dual-band communication, four external, adjustable antennas ensure supreme Wi-Fi signal strength in multi-level homes and small offices
- **eSATA, USB 3.0 and USB 2.0 ports:** Share content via an external storage device with ultra-fast data transfer speeds. USB 3.0* delivers enhanced performance over USB 2.0; eSATA delivers optimal data transfer speeds from external SATA drives and accommodates USB 2.0
- **Open Source ready:** Users gain unprecedented access to customize the router

Package Includes:

- Linksys Dual-Band Gigabit Wi-Fi Router AC1900, WRT1900ACS
- Quick Start Guide
- CD-ROM with Documentation
- 4 External, Dual-Band Detachable Antennas
- Ethernet Cable
- Power Adapter

Processor:

1.6 GHz dual-core ARM-based

System Requirements:

For Router Setup and Linksys Smart Wi-Fi access:

Internet Explorer® 8, Safari® 5 (for Mac®), Firefox® 8, or Google Chrome™

For Printer Sharing and User Documentation:

PC: Wi-Fi enabled with CD or DVD drive, Windows® XP SP3, Windows Vista® SP1 or later, Windows 7, Windows 8, or Windows 10
Mac: Wi-Fi enabled with CD or DVD drive, Mac OS® X Leopard v10.5.8 or later, Snow Leopard v10.6.1 or later, Lion v10.7, or Mountain Lion v10.8

User Documentation is also available at: www.linksys.com/support



Specifications:

802.11b: up to 11 Mbps
802.11a/g: up to 54 Mbps
802.11n (2.4 GHz): up to 600 Mbps
802.11ac (5 GHz): up to 1.3 Gbps

Wireless Operating Spectrum:

Simultaneous Dual-Band
2.4 GHz and 5 GHz
Wireless-AC Technology For Powerful Networking.

Wireless Encryption:

64/128-bit WEP
WPA2-Personal
WPA2-Enterprise

VPN Support:

PPTP
IPSec pass-through

Media Specifications:

UPnP Server

Memory:

128MB Flash
512MB DDR3 RAM

LED:

Power, Internet, 2.4 GHz, 5 GHz, LAN 1-4 (10/100 Mbps or 1 Gbps), USB 3.0, USB 2.0, eSATA, Wi-Fi Protected Setup™

Storage File System Support:

FAT, NTFS, and HFS+

Power Adapter:

Input: 100-240V ~ 50-60 Hz
Output: 12V/3A

Ports:

1x Gigabit WAN port
4x Gigabit LAN ports
1x USB 3.0 port*
1x eSATA/USB 2.0 port*

* USB/eSATA ports for sharing photos, videos, music, and files on an attached storage drive via SAMBA or FTP, or for sharing a printer.

Operating Frequencies:
2412-2472MHz & 5180-5240MHz
Output Power (E.I.R.P.): 2.4GHz: 18.94dBm, 5GHz: 21.97dBm
Antenna Type: External di-Pole (x4)
Antenna Gain: 2.4GHz: 2dBi, 5GHz: 1.7

Product Weight: 1.03 kg
Product Depth: 5.18 cm
Product Width: 24.58 cm
Product Height: 19.38 cm
Unit Weight: 1.90 kg
Unit Depth: 11.5 cm
Unit Width: 32.3 cm
Unit Height: 23.7 cm
Case Pack Quantity: 6
Case Pack Weight: 13.5 kg
Case Pack Length: 34.8 cm
Case Pack Width: 49 cm
Case Pack Height: 37 cm

Specifications are subject to change without notice.

An active, customer-purchased Internet Service Provider broadband account is required for connection of this router and other connected computers and devices to the Internet.

Some devices may require additional wireless adapters or an Ethernet cable to connect to this router.

* The standard transmission rates—450 Mbps or 1300 Mbps (for 5 GHz), 600 Mbps (for 2.4 GHz), 54 Mbps, and 11 Mbps—are the physical data rates. Actual data throughput will be lower and may depend on the mix of wireless products used and external factors.

* May require a software/firmware update available for download at linksys.com/support.

Part Number
WRT1900ACS-EU

UPC
745883701797
EAN:4260184666171

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The Netherlands
Made in China



04.05.1007 Energy monitoring



Main

Range	Acti 9
Product name	Acti 9 iEM2100
Device short name	IEM2155
Product or component type	Energy meter

Complementary

Poles description	1P + N
Type of measurement	Active and reactive power Active and reactive energy Voltage Current
Metering type	Active, reactive, apparent energy (signed, four quadrant)
Device application	Partial meter Sub billing Multi-tariff
Accuracy class	Active energy : class 1 according to IEC 62053-21 Active energy : class B according to EN 50470-3 Reactive energy : class 2 according to IEC 62053-23
Analogue input type	Direct input
[In] rated current	63 A
Rated voltage	230 V +/- 20%
Network frequency	50 Hz 60 Hz
Frequency measurement range	45...65 Hz
Technology type	Electronic
Display type	LCD display
Sampling rate	32 samples/cycle
Measurement current	<= 63 A
Display digits	8
Maximum value measured	999999.99 kWh

Information displayed	2 tariff
Communication port protocol	Modbus RTU 3 wires, : 1.2, 2.4, 4.8, 9.6, 19.2 and 38.4 kbauds, even/odd or none, insulation: 4000 V
Communication port support	RS485 (screw terminals)
Local signalling	LED (red) : accuracy checking, 1...1000 p/kWh
Number of inputs	1 digital (tariff switching)
Number of outputs	0
[Us] rated supply voltage	96...276 V AC 50 Hz
Power consumption in VA	2 VA
Power consumption in W	1 W
[Uimp] rated impulse withstand voltage	6 kV 1.2/50 µs
Mounting mode	Clip-on
Mounting support	DIN rail
Connections - terminals	Power circuit : bottom tunnel type terminals for 1 1.65...33 mm ² solid cable(s) Power circuit : bottom tunnel type terminals for 1 1.65...33 mm ² stranded cable(s) with cable end Communication : top screw clamp terminals for 1 1...4 mm ² solid cable(s) Communication : top screw clamp terminals for 1 1...2.5 mm ² stranded cable(s) with cable end
Tightening torque	Power circuit : 2 N.m with PZ2 Communication : 0.5 N.m (3.5 mm blade)
Wire stripping length	Power circuit : 17 mm Communication : 7 mm
Standards	IEC 62052-31 IEC 62053-21 IEC 62052-11 IEC 62053-23
Product certifications	MID conforming to EN 50470-1 MID conforming to EN 50470-3 CE

Environment

IP degree of protection	IP20 conforming to IEC 60529
Overvoltage category	III
Pollution degree	2
Flame retardance	V0 conforming to UL 94
Ambient air temperature for operation	-25...55 °C
Ambient air temperature for storage	-25...70 °C
Relative humidity	95 %
Colour	White
9 mm pitches	4
Width	36 mm
Height	90 mm
Depth	64 mm
Product weight	0.175 kg

Offer Sustainability

Sustainable offer status	Not Green Premium product
RoHS (date code: YYWW)	Compliant - since 1610 - Schneider Electric declaration of conformity Schneider Electric declaration of conformity
REACH	Reference not containing SVHC above the threshold Reference not containing SVHC above the threshold