# FENIX

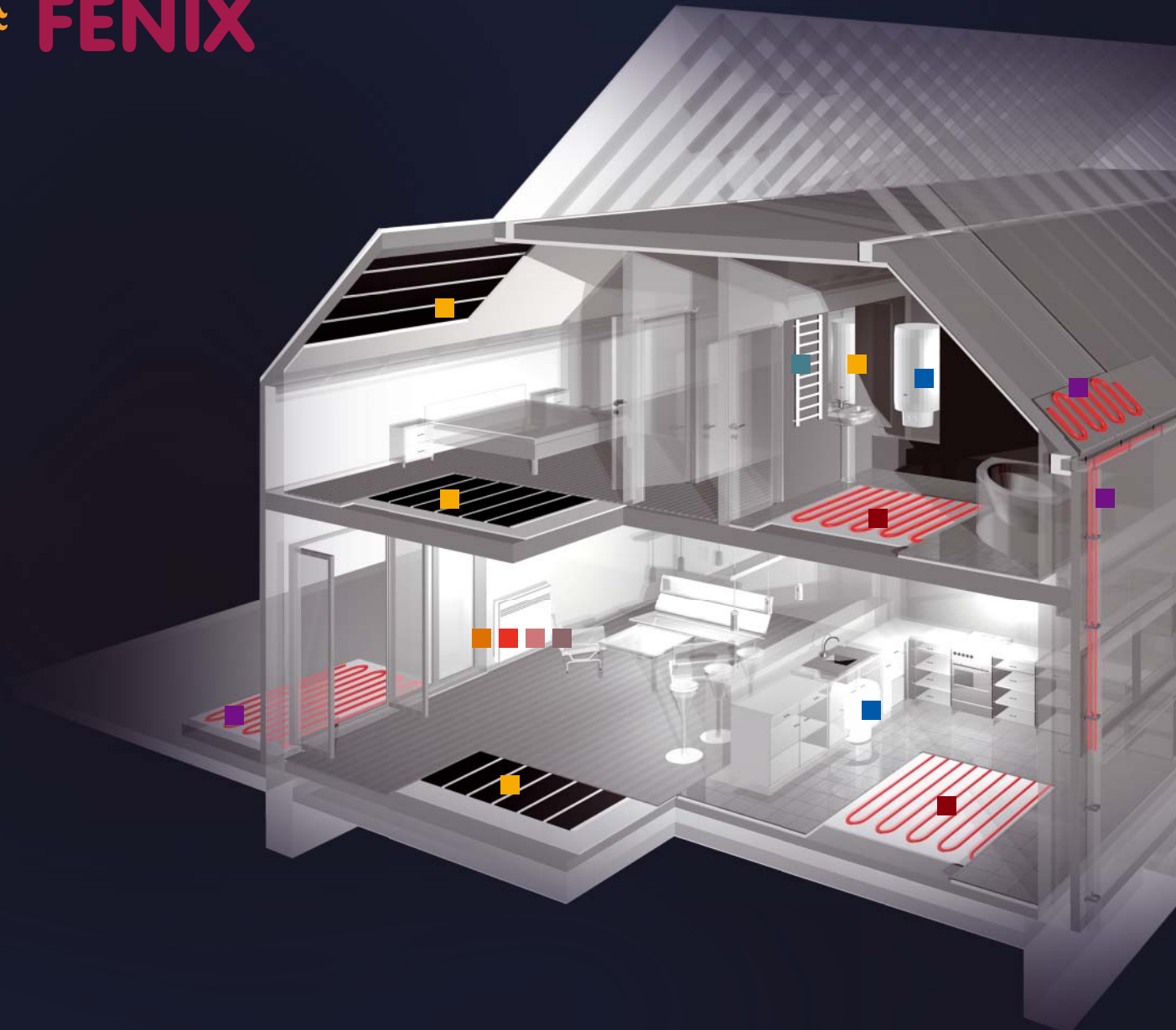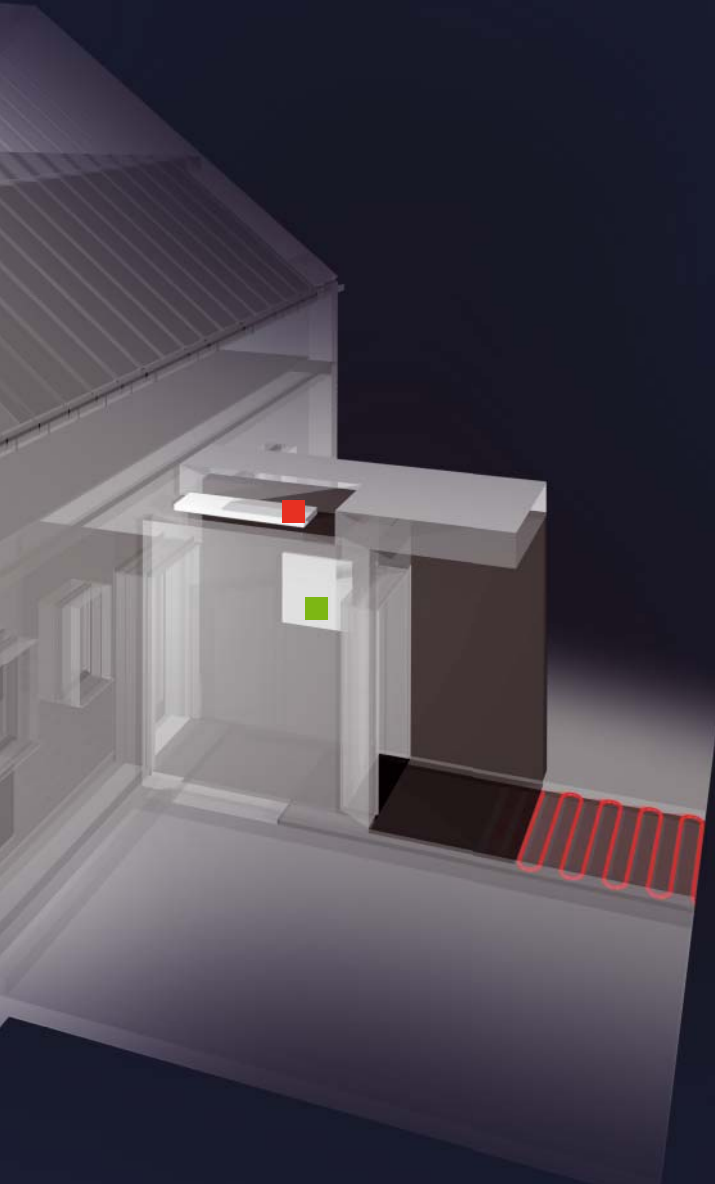# Product catalogue

# FENIX

Fenix was founded in 1990 as one of the first private companies in the Czech Republic following the "Velvet" Revolution. The first items produced were the successfully marketed ECOSUN electric radiant heating panels, however, as market demand increased these products were followed by ECOFLEX electric convectors, ECOFLOOR heating cables and mats and ECOFILM heating films.

The company also offers a wide range of supplementary products including heating system controls, cable kits and cable mats. With the increase in demand the structure of the company developed – for the reason of retaining maximum flexibility a holding company structure was chosen, with individual and independent members.

The following companies were incorporated successively:
Fenix s.r.o. – plant producing electrical heating systems
Fenix Trading s.r.o. – trading company
Fenix Slovakia s.r.o. – production and trading company, representing FENIX in Slovakia
Fenix Group a.s. – a company which provides property management and services (strategic planning, administration of property, economic and financial services)
Flexel International Ltd. – manufacturing and trading company located in the United Kingdom
In 2008 FENIX Holding – acquired the production and trading company
Aztec Europe Ltd., – manufacturer of special applications, such as mirror demisting heaters, vivarium heaters, caravan and mobile home heating equipment.

Presently, the company Fenix Holding s.r.o. is one of the largest European producers of surface electric heating systems, and currently exports to 52 countries worldwide.

## Principle of infrared heating

Whereas in **convection heating** the air is warmed by a convector which then transfers heat as it flows over the objects that are to be heated (walls, furniture), **Radiant heating** panels transfer heat mainly through radiant energy. Upon encountering objects (walls, furniture, floors), radiant energy is partially reflected (approx. 15 %), the majority (approx. 85 %) is absorbed by the objects. This radiant energy is converted to heating energy as it raises the temperature of the objects, which then transfer heat to the cooler air by convection.

Thanks to unique technology Silicating, high temperature radiant panels reach high emissivity up to 0,98 mu.

## The principles mentioned create the following advantages:

- the surface of the radiant panel generates a heat flow whose spectrum is in the wavelength not greater than 5 micrometers and is thus absorbed to a large degree by the human body: people are therefore heated in a manner similar to the objects in the room.
- when the radiant heat flow increases the temperature of the objects in the room of 20–22 °C, comfort conditions are achieved even with air temperatures of 18–19 °C which can lead to energy savings of 18–24 %.
- radiant panels permit the temperature distribution in a room to be more vertically balanced giving a 1–2 degree difference between the floor and the ceiling (for convection heating the difference is given as 1 °C per metre of height, 30–50 cm of height).
- there is less flow movement therefore dust particles due to brownian movement are less thus reducing the risk of illnesses – asthma, mucous membrane infection, etc.
- increased wall temperatures mean a lower possibility of surface condensation, albeit the humidity in the room is not lowered.
- glass is not "transparent" (we might say "transthermant") when it comes to radiation with wavelengths over 3 and thus the radiant flow is not lost through windowpanes.
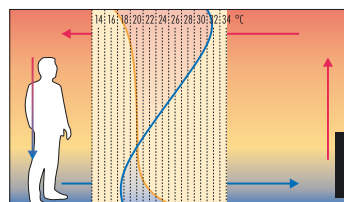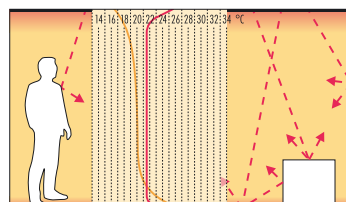- the panels do not require maintenance

## Unique technologies

Fenix utilises unique state-of-the art technology in respect of the finished panel surfaces. (Thermoquartz and Thermocrystal for low temperature panels and Silicating for high temperature panels).
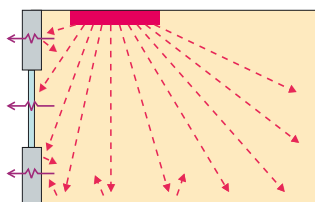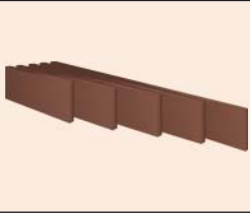
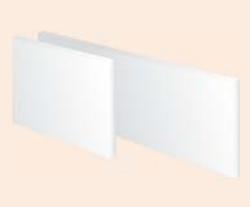*Radiant heating by ECOSUN*

*Convection heating*

# LOW TEMPERATURE PANELS

**ECOSUN K+** – heating panel used for warming church pews, desks in offices and administrative buildings.
**Basic color:** brown   **Connection cable:** 50 cm for 100–270 K+, 75 cm for 330–400K+

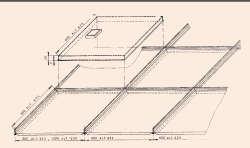| TYPE | [W] | [V] | Covering | Dimmensions [mm] | Weight [kg] | Recommended clearance [m] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| ECOSUN 100 K+ | 100 | | | 500×320×30 | 2,5 | | 60 | 5401200 |
| ECOSUN 200 K+ | 200 | | | 750×320×30 | 3,7 | | 45 | 5401205 |
| ECOSUN 270 K+ | 270 | 230 | IP 44 | 1000×320×30 | 5,2 | Mounted in | 30 | 5401210 |
| ECOSUN 330 K+ | 330 | | | 1250×320×30 | 6,6 | | 30 | 5401215 |
| ECOSUN 400 K+ | 400 | | | 1500×320×30 | 7,9 | | 30 | 5401220 |
| Ceiling fixing frame for ECOSUN 100 K+, 200 K+, 270 K+, 330 K+, 400 K+ | | | | | | | | |

**ECOSUN U** – universal panel for dwelling and non-dwelling spaces, possibly mounted onto ceilings or into suspended ceilings.
**Basic color:** white   **Connection cable:** 100 cm

| TYPE | [W] | [V] | Covering | Dimmensions [mm] | Weight [kg] | Recommended clearance [m] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| ECOSUN 300 U | 300 | | | 592×592×30 | 5,0 | 2,5–3,0 | 40 | 5401037 |
| ECOSUN 600 U | 600 | 230 | IP 44 | 1192×592×30 | 10,1 | 2,8–3,3 | 20 | 5401047 |
| ECOSUN 700 U | 700 | | | | 10,5 | 3,0–3,5 | 20 | 5401171 |
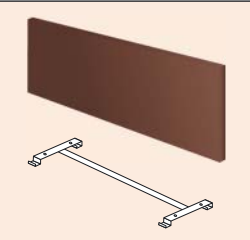
**ECOSUN C** – heating panels only for mounting into suspended ceilings.
**Basic color:** white

| TYPE | [W] | [V] | Covering | Dimmensions [mm] | Weight [kg] | Recommended clearance [m] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| ECOSUN 300 c 600/VT | 300 | 230 | IP 20 | 574×574×35 | 4,6 | 2,5–3,0 | 40 | 5401065 |
| ECOSUN 600 c 600/VT | 600 | | | 574×1174×35 | 9,4 | 2,8–3,3 | 20 | 5401075 |

**ECOSUN IKP, IN, IN-2** – panels for industrial and agricultural applications (i.e. in workshops, greenhouses, livestock facilities).
**Basic color:** brown   **Connection cable:** 100 cm

| TYPE | [W] | [V] | Covering | Dimmensions [mm] | Weight [kg] | Recommended clearance [m] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| ECOSUN 700 IKP | 700 | | IP 54 | 1192×592×30 | 10,6 | 2,5–3,0 | 20 | 5401176 |
| ECOSUN 700 IN | 700 | 230 | IP 65 | 1192×592×30 | 10,9 | 2,8–3,3 | 20 | 5401181 |
| ECOSUN 700 IN-2 | 700 | | IP 65 E Ex 2 | | | 3,0–3,5 | 20 | 5401186 |
| Ceiling fixing frame for type IKP, IN, IN-2 | | | | | | | | |

# HIGH TEMPERATURE PANELS

**ECOSUN SB** – panels for industrial and agricultural applications (i.e. in workshops, gyms, production bays, livestock facilities).
**Basic color:** white

| TYPE | [W] | [V] | Covering | Dimmensions [mm] | Weight [kg] | Recommended cclearance [m] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| ECOSUN SB 09 | 900 | 230 | | 1500×130×50 | 5,8 | | 75 | 5401609 |
| ECOSUN SB 12 | 1200 | | | | | | | 5401612 |
| ECOSUN SB 18 | 1800 | | IP x4 | 1500×230×50 | 9,9 | According to individual conditions, for full area 5–8 m, zonal 3,4–4,5 m | 45 | 5401618 |
| ECOSUN SB 24 | 2400 | 230 / 400 2N | | | | | | 5401624 |
| ECOSUN SB 30 | 3000 | | | 1500×330×50 | 13,9 | | 30 | 5401630 |
| ECOSUN SB 36 | 3600 | | | | | | | 5401636 |

*ECOSUN SB, profile*

## MR – marble radiant panels

MR marble radiant panels are primarily intended for heating reception rooms, halls, bathrooms and others.

MR panel has an extremely aesthetic appearance and the radiant heat from this natural material is very acceptable. The MR panel consists of a robust polished marble plate, a heating element, limiting thermostat , and a connection cable. This panel is intended to be installed as a fixed installation on a wall with the connection cable connected to the installation box. These panels are manufactured in various power outputs and are available in 5 marble designs.

As marble is a natural material there is the possibility of small colour and texture variances.

**MR PANELS** – marble radiant panels (thermo fuse) , IP 44, class II; **Connection cable** for 300–1000:100 cm, 1200: 150 cm;
**Type of marble:** Kavala, Volakas, Janina, Rosa, Veria Green;
**Needed clearance:** lower edge 5 cm / top and side edge 15 cm / front side 50 cm

| TYPE | OUTPUT [W] | Dimensions [mm] | Weight [kg] | Marble | Cat. No. |
|------|-----------|-----------------|-------------|--------|----------|
| MR300 | 300 | 500×500×30 | 20 | | 5438000 |
| MR500 | 500 | 700×500×30 | 28 | | 5438005 |
| MR800 | 800 | 900×600×30 | 43 | Volakas | 5438010 |
| MR1000 | 1000 | 1100×600×30 | 53 | | 5438015 |
| MR1200 | 1200 | 1300×600×30 | 62 | | 5438020 |
| MR300 | 300 | 500×500×30 | 20 | | 5438200 |
| MR500 | 500 | 700×500×30 | 28 | | 5438205 |
| MR800 | 800 | 900×600×30 | 43 | Kavala | 5438210 |
| MR1000 | 1000 | 1100×600×30 | 53 | | 5438215 |
| MR1200 | 1200 | 1300×600×30 | 62 | | 5438220 |
| MR300 | 300 | 500×500×30 | 20 | | 5438050 |
| MR500 | 500 | 700×500×30 | 28 | | 5438055 |
| MR800 | 800 | 900×600×30 | 43 | Janina | 5438060 |
| MR1000 | 1000 | 1100×600×30 | 53 | | 5438065 |
| MR1200 | 1200 | 1300×600×30 | 62 | | 5438070 |
| MR300 | 300 | 500×500×30 | 20 | | 5438100 |
| MR500 | 500 | 700×500×30 | 28 | | 5438105 |
| MR800 | 800 | 900×600×30 | 43 | Rosa | 5438110 |
| MR1000 | 1000 | 1100×600×30 | 53 | | 5438115 |
| MR1200 | 1200 | 1300×600×30 | 62 | | 5438120 |
| MR300 | 300 | 500×500×30 | 20 | | 5438250 |
| MR500 | 500 | 700×500×30 | 28 | | 5438255 |
| MR800 | 800 | 900×600×30 | 43 | Veria Green | 5438260 |
| MR1000 | 1000 | 1100×600×30 | 53 | | 5438265 |
| MR1200 | 1200 | 1300×600×30 | 62 | | 5438270 |
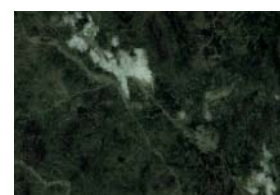
*KAVALA*  *VOLAKAS*  *JANINA*  *ROSA*  *VERIA GREEN*

# GR – glass radiant panels

GR glass radiant panels feature an attractive and timeless design. Due to the aesthetic appearance these panels are primarily intended for heating reception rooms, offices and others. Glass panels consist of a 12 mm toughened glass plate heating element, thermo fuse, and connection cable. They are designed to be mounted on a wall connecting the connection cable to the wiring box. For bathroom use GRT panels are available with a single or double towel rail.

**GR PANELS** – glass panels (thermo fuse), IP 44, class II; **Connection cable:** 100 cm;
Panels are manufactured in two series with different outputs. GR panels you can choose from four colors: white, black, red, yellow-green
**Needed clearance:** lower edge 5 cm / top and side edge 15 cm / front side 50 cm

| IP 44 | TYPE | OUTPUT [W] | Dimensions [mm] | Weight [kg] | Quantity | | Glass color | Cat. No. |
| | | | | | on pallet | in crate | | |
|---|---|---|---|---|---|---|---|---|
| | GR 500 | 500 | 700×500×12 | 16 | 10 | 20 | white | 5437232 |
| | GR 1000 | 1000 | 1100×600×12 | 25 | 5 | 12 | | 5437236 |
| | GR 500 | 500 | 700×500×12 | 16 | 10 | 20 | black | 5437202 |
| | GR 1000 | 1000 | 1100×600×12 | 25 | 5 | 12 | | 5437206 |
| | GR 500 | 500 | 700×500×12 | 16 | 10 | 20 | red | 5437212 |
| | GR 1000 | 1000 | 1100×600×12 | 25 | 5 | 12 | | 5437216 |
| | GR 500 | 500 | 700×500×12 | 16 | 10 | 20 | yellow-green | 5437222 |
| | GR 1000 | 1000 | 1100×600×12 | 25 | 5 | 12 | | 5437226 |

**GRT PANELS** – wall mounted glass radiator panels (thermo fuse) come available as a single towel rail, IP 44; Design possible in various coulours as GR panels; **Needed clearance:** lower edge 15 cm / top and side edge 15 cm / front side 50 cm

| IP 44 | TYPE | OUTPUT [W] | Dimensions [mm] | Weight [kg] | Glass color | Cat. No. |
|---|---|---|---|---|---|---|
| | GRT 500 | 500 | 700×500×12 | 17 | white | 5437243 |
| | GRT 1000 | 1000 | 1100×600×12 | 26 | | 5437246 |
| | GRT 500 | 500 | 700×500×12 | 17 | black | 5437242 |
| | GRT 1000 | 1000 | 1100×600×12 | 26 | | 5437244 |

## WIRELESS REGULATION SUITABLE FOR ECOSUN, MR AND GR PANELS

| Product | Cat. No. |
|---|---|
| **BPT-SP – wireless control unit – transmitter** <br> 2–39 °C, adjustable difference of switching 0.1–1.5 °C, PI-PWM, fuzzy logic, 9 select programmes, each programme up to six changes, option of differentiating between an odd and even week, 255 transmitters can be connected to different addresses, simple pairing receiver/transmitter, summer regime function, holiday, party, 2×1.5 V AA power supply, placement on a wall or on a stand, range 35 m in buildings , up to 300 m in open areas, frequency 433.92 MHz, option of control using a text message with the help of an additional GSM module, GST 1, (not included in the price). | 4500330 |
| **SP1 – wireless receiver – flush-mounted** <br> 16 A switches, 230 V power supply, IP20, receives information from BPT-SP and confirms the change, frequency 433.92 MHz, indication of operational status with LED diodes, connection in mounting box. | 4500332 |
| **SP2 – wireless receiver – wall-mounted** <br> 16 A switches, 230 V power supply, IP20, receives information from BPT-SP and confirms the change, frequency 433.92 MHz, indication of operational status with LED diodes, to be mounted on a wall or in mounting box. | 4500334 |
| **SP3 – wireless receiver – socket** <br> 16 A switches, 230 V power supply, IP20, receives information from BPT-SP and confirms the change, frequency 433.92 MHz, indication of operational status with LED diodes, insertion into a 230 V / 16 A socket. | 4500336 |

ECOFLOOR electric floor heating systems ensure ideal heat distribution and, by decreasing undesirable air circulation, reduce dust levels. These systems offer great comfort, economic and reliable operation, and long lifetime. They preserve free floor space by eliminating the need for various heating elements, radiators and heat distribution systems. The principal advantage of electric floor heating is easy and separate temperature control in individual rooms. Once installed, it is completely maintenance free.

**We provide 10 year warranty for underfloor heating cables and mats and 2 year warranty for cables used for outdoor application (gutter, eaves, pipes).**

## Overview of ECOFLOOR heating cables and recommended usage

| Type | Input [W/m] | Single-core cable | Double-core cable | Protection screen | Type of floor heating according to cable installation — Direct heating (cement under tiles) | Semistorage (concrete ~5 cm) | Semistorage (concrete ~8 cm) | Storage (concrete ~12 cm) | Outdoor heating | Process heating – protection of pipes | De-icing gutters and eaves | Protection against UV radiation | Thermal resistance of jacket |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ADSV** | 10 | | • | • | • | | | | | | | | 70 °C |
| | 15 | | • | • | • | • | | | | | | | |
| | 18 | | • | • | • | • | | | | | | | |
| **ADPSV** | 10 | | • | • | | | | | | • | | • | 80 °C |
| | 18 | | • | • | | | • | • | • | | • | • | |
| | 20 | | • | • | | | | | | | • | • | |
| **P1P** | 10 | • | | | • | | | | | | | | 70 °C |
| | 15 | • | | | | • | | | | | | | |
| **PSV** | 10 | • | | • | • | | | | | | | | 80 °C |
| | 15 | • | | • | | • | | | | | | | |
| **MPSV** | 15 | • | | • | | • | • | | | • | | • | 80 °C |
| | 20 | • | | • | | | • | • | • | | • | • | |
| | 25 | • | | • | | | | | • | | | • | |
| **MADPSP** | 20 | | • | • | | | • | • | • | | • | • | 90 °C |
| | 25 | | • | • | | | | • | • | | • | | 240 °C* |
| | 30 | | • | • | | | | | • | | | • | |
| **PPC** | 12 | • | | • | | | | | | • | | | 70 °C |
| **ELSR-M** | 10 | • | | • | | | | | | • | | | 65 °C |
| | 15 | • | | • | | | | | | • | | | |
| **ELSR-N** | 20 | • | | • | | | | | • | | • | • | 80 °C |
| | 30 | • | | • | | | | | • | | • | • | |

## Overview of ECOFLOOR heating mats and recommended usage

| Type | Surface input [W/m²] | Single-core cable | Double-core cable | Protection screen | Type of floor heating according to cable laying — Direct heating (cement under tiles) | Semistorage (concrete ~5 cm) | Semistorage (concrete ~8 cm) | Storage (concrete ~12 cm) | Outdoor heating | Protection against UV radiation | Thermal resistance of jacket |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **LDTS** | 100 | | • | • | • | • | | | | | 70 °C |
| | 160 | | • | • | • | • | | | | | |
| **LD** | 160 | • | | • | • | • | | | | | 70 °C |
| **LSDTS** | 80 | | • | • | • | | | | | | 70 °C |
| | 100 | | • | • | • | | | | | | |
| | 160 | | • | • | • | | | | | | |
| **MST** | 100 | • | | • | | • | | | | • | 80 °C |
| | 160 | • | | • | | • | • | | | • | |
| | 280 | • | | • | | | • | • | • | • | |
| **MDT** | 300 | | • | • | | | | • | • | • | 90 °C |

**Type of mat** / type of cable:
**LD** / ASL1P;   **L(S)DTS** / ADSV-T.

*) for a short term (installation under asphalt)

## Cable composition markings

**M A D P S P      20 240-165**

**Jacket**
**P** – XLPE (cross-linked polyethylene)
**1P** – PP-LDPE (mixed polypropylene & low density PE)
**V** – PVC (polyvinyl chloride)

**Protection screen** (for wet areas)
**S** – full screen protection (tinned copper wires and aluminium tape)
**SL** – linear screen protection
No letter is used for a cable without screen protection

**Plastic insulation** (for outdoor applications, higher mechanical ruggedness of cable)
**P** – XLPE (cross-linked polyethylene)
No letter is used for a cable without the second plastic insulation

**Number of heating cores**
**D** – double-core cable
No letter is used for a single-core cable

**Core insulation**
**A** – FEP (fluoropolymer)
**P** – XLPE (cross-linked polyethylene)

**Resistance (heating) wire**
**M** – multi-resistance - stranded resistance wire (to be used for higher outputs)
No letter is used for a non-stranded (simple) resistance wire

**Width of mat**
**3** = 300 mm
**5** = 500 mm

**Surface input of mat**
**08** = 80 W/m²
**10** = 100 W/m²
**16** = 160 W/m²
**28** = 280 W/m²
**30** = 300 W/m²

**Total input of circuit** [W]
**Linear input of cable** [W/m]

# DIRECT HEATING SYSTEMS
## ECOFLOOR CABLES AND MATS



ECOFLOOR heating systems are available in two basic variants – **heating cable circuits** and **heating mats.**
In fact the two systems do not differ from one another very much. In both cases, the heating system consists of a heating cable, either separate or fixed to a supporting fibreglass cloth (heating mat). This modern floor heating system permits easy and effective regulation. The heating cable circuit or mats are placed directly beneath tiles in a thin layer of permanently flexible cement so the tiled surface heats up relatively quickly (circa 20 min). Temperature control is sensitive and quick to react. Heating cable circuits or mats are suitable for renovated floors where the final floor height is not a constraint.

**DIRECT HEATING SYSTEM**

**1** base
**2** thermal insulation 5 cm (polystyrene of at least 25 kg/m$^3$)
**3** steel reinforcement—KARI steel mesh
**4** underlying concrete layer 3–4 cm thick
**5** flexible bonding cement
**6** ECOFLOOR heating element
**7** tiling
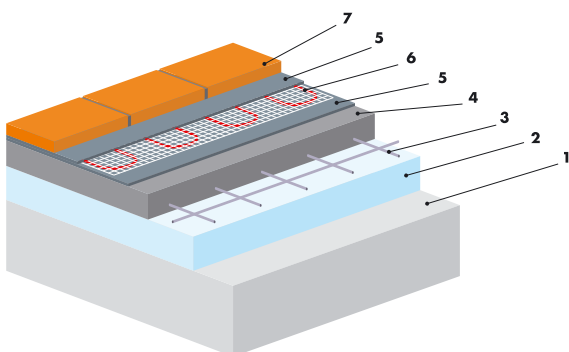
**DIRECT HEATING SYSTEM—RECONSTRUCTION**

**1** existing tiling or other base (e.g. concrete)
**2** flexible bonding cement
**3** F-BOARD insulation 6 or 10 mm **(see page 18)**
**4** ECOFLOOR heating element
**5** flexible bonding cement
**6** new tiling
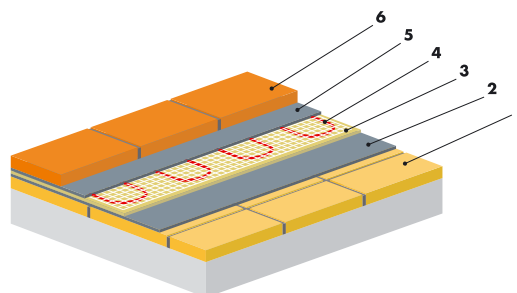
**LDTS or LSDTS (self-adhesive) heating mat**, twin conductor cable with a full protection screen, width 50 cm, cold lead 1×3 m. LDTS mats are provided with self-adhesive tape for affixing to the floor. LSDTS mats have a self-adhering mesh on their entire back surfaces.
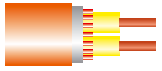
*LDTS / LSDTS heating mat*

*LDTS / LSDTS packing*

### LDTS / LSDTS 160 W/m²

| OUTPUT [W] | Type 160 W/m² | Surface [m²] | Length [m] | Cat. No. LDTS | Cat. No. LSDTS |
|---|---|---|---|---|---|
| 70 | 12070-165 | 0,5 | 0,9 | 5530200 | 5531005 |
| 130 | 12130-165 | 0,8 | 1,6 | 5530205 | 5531010 |
| 210 | 12210-165 | 1,3 | 2,6 | 5530210 | 5531015 |
| 260 | 12260-165 | 1,6 | 3,2 | 5530220 | 5531020 |
| 340 | 12340-165 | 2,1 | 4,2 | 5530230 | 5531025 |
| 410 | 12410-165 | 2,6 | 5,2 | 5530240 | 5531030 |
| 500 | 12500-165 | 3,0 | 6,0 | 5530250 | 5531035 |
| 560 | 12560-165 | 3,4 | 6,7 | 5530255 | 5531040 |
| 670 | 12670-165 | 4,2 | 8,3 | 5530260 | 5531045 |
| 810 | 12810-165 | 5,1 | 10,2 | 5530270 | 5531050 |
| 1000 | 121000-165 | 6,1 | 12,3 | 5530280 | 5531055 |
| 1210 | 121210-165 | 7,6 | 15,1 | 5530290 | 5531060 |
| 1400 | 181400-165 | 8,8 | 17,6 | 5530190 | 5531080 |
| 1800 | 181800-165 | 11,0 | 22,0 | 5530192 | 5531085 |
| 2150 | 182150-165 | 13,3 | 26,6 | 5530194 | 5531090 |
| 2600 | 182600-165 | 16,3 | 32,5 | 5530196 | 5531095 |

### LDTS 160 W/m²

| OUTPUT [W] | Type 160 W/m² | Surface [m²] | Length [m] | Cat. No. LDTS |
|---|---|---|---|---|
| 80 | 160-0,5 | 0,5 | 1,0 | 5540001 |
| 160 | 160-1 | 1,0 | 2,0 | 5540002 |
| 240 | 160-1,5 | 1,5 | 3,0 | 5540003 |
| 320 | 160-2 | 2,0 | 4,0 | 5540004 |
| 400 | 160-2,5 | 2,5 | 5,0 | 5540005 |
| 480 | 160-3 | 3,0 | 6,0 | 5540006 |
| 560 | 160-3,5 | 3,5 | 7,0 | 5540007 |
| 640 | 160-4 | 4,0 | 8,0 | 5540008 |
| 800 | 160-5 | 5,0 | 10,0 | 5540009 |
| 960 | 160-6 | 6,0 | 12,0 | 5540010 |

### LDTS / LSDTS 100 W/m²

| OUTPUT [W] | Type 100 W/m² | Surface [m²] | Length [m] | Cat. No. LDTS | Cat. No. LSDTS |
|---|---|---|---|---|---|
| 60 | 8060-105 | 0,6 | 1,2 | 5530401 | 5531105 |
| 105 | 8105-105 | 1,0 | 2,1 | 5530403 | 5531110 |
| 180 | 8180-105 | 1,8 | 3,6 | 5530405 | 5531115 |
| 220 | 8220-105 | 2,2 | 4,4 | 5530410 | 5531120 |
| 290 | 8290-105 | 2,9 | 5,8 | 5530415 | 5531125 |
| 410 | 8410-105 | 4,1 | 8,2 | 5530420 | 5531130 |
| 460 | 8460-105 | 4,7 | 9,4 | 5530425 | 5531135 |
| 560 | 8560-105 | 5,6 | 11,2 | 5530430 | 5531140 |
| 820 | 8820-105 | 8,2 | 16,5 | 5530440 | 5531145 |
| 1000 | 81000-105 | 10,2 | 20,3 | 5530450 | 5531150 |
| 1200 | 81200-105 | 11,8 | 23,7 | 5530460 | 5531155 |
| 1800 | 81800-105 | 17,9 | 35,8 | 5530470 | 5531160 |

### LSDTS 80 W/m²

| OUTPUT [W] | Type 80 W/m² | Surface [m²] | Length [m] | Cat. No. LSDTS |
|---|---|---|---|---|
| 60 | 8060-085 | 0,8 | 1,5 | 5531205 |
| 105 | 8105-085 | 1,3 | 2,6 | 5531210 |
| 180 | 8180-085 | 2,3 | 4,5 | 5531215 |
| 220 | 8220-085 | 2,8 | 5,5 | 5531220 |
| 290 | 8290-085 | 3,6 | 7,2 | 5531225 |
| 410 | 8410-085 | 5,1 | 10,2 | 5531230 |
| 460 | 8460-085 | 5,8 | 11,5 | 5531235 |
| 560 | 8560-085 | 7,0 | 14,0 | 5531240 |
| 820 | 8820-085 | 10,3 | 20,5 | 5531245 |
| 1000 | 81000-085 | 12,5 | 25,0 | 5531250 |
| 1200 | 81200-085 | 15,0 | 30,0 | 5531255 |
| 1800 | 81800-085 | 22,5 | 45,0 | 5531260 |

**LD heating mat** with a single conductor cable, width up to 3 m² – 30 cm, over 3 m² – 50 cm, cold lead 2×5 m
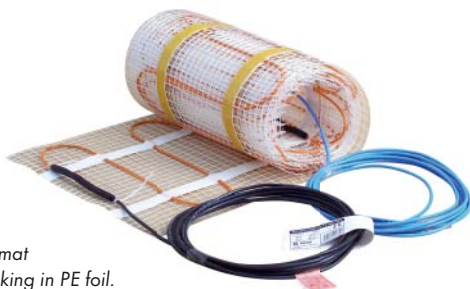
*LD mat*
*Packing in PE foil.*

### LD 160 W/m²

| OUTPUT [W] | Type LD 160 W/m² | Surface [m²] | Width [m] | Length [m] | Cat. No. | OUTPUT [W] | Type LD 160 W/m² | Surface [m²] | Width [m] | Length [m] | Cat. No. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 12100-163 | 0,6 | 0,3 | 2,0 | 5530005 | 850 | 12850-165 | 5,3 | 0,5 | 10,6 | 5530060 |
| 150 | 12150-163 | 0,9 | 0,3 | 3,0 | 5530007 | 950 | 12950-165 | 5,9 | 0,5 | 11,8 | 5530070 |
| 180 | 12180-163 | 1,1 | 0,3 | 3,6 | 5530010 | 1150 | 121150-165 | 7,2 | 0,5 | 14,4 | 5530080 |
| 300 | 12300-163 | 1,8 | 0,3 | 6,1 | 5530020 | 1700 | 121700-165 | 10,7 | 0,5 | 21,4 | 5530090 |
| 360 | 12360-163 | 2,3 | 0,3 | 7,6 | 5530030 | 2000 | 122000-165 | 12,4 | 0,5 | 24,9 | 5530100 |
| 500 | 12500-163 | 3,0 | 0,3 | 10,0 | 5530040 | 2500 | 122500-165 | 15,7 | 0,5 | 31,3 | 5530110 |
| 700 | 12700-165 | 4,3 | 0,5 | 8,6 | 5530050 | 3000 | 123000-165 | 18,8 | 0,5 | 37,6 | 5530120 |

## ECOFLOOR Installation – Heating Mat

1) Unroll the heating mat according to the layout drawing.
2) If you need to leave a space under fixed furniture, cut out the necessary part of the cloth and span the space with the cable (see fig. 2).
3) Level the layer of flexible cement with a smooth trowel.
4) Lay tiling on small areas (up to 4 m²) immediately, and on larger areas after 24 hours.
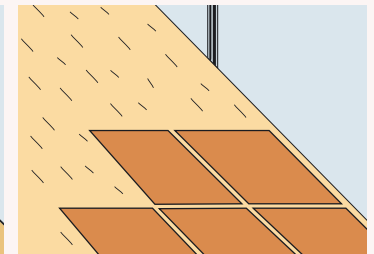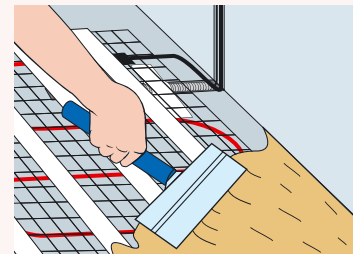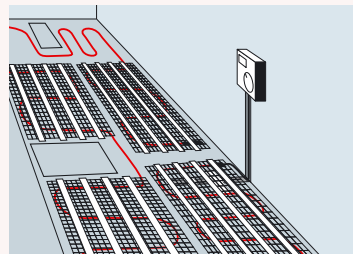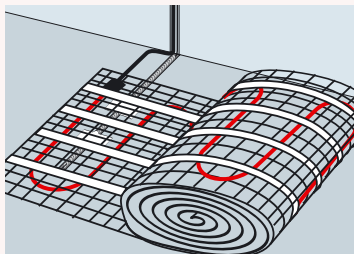
## ECOFLOOR HEATING CABLE CIRCUITS

**ADSV heating cable**, a twin conductor cable with a full protection screen suitable for wet areas. For direct floor heating or floor renovating (installation under tiles). Cold tail 1×3 m.
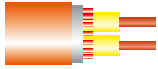
*Cable on drum*

*Cable circuit on carton reel.*
*Standard packing.*

*Packing in carton box available*

### Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 122,5 | 2001510 |
| 38,72 | 2001515 |
| 14,020 | 2001520 |
| 8,960 | 2001525 |
| 5,232 | 2001530 |
| 3,584 | 2001535 |
| 2,568 | 2001540 |
| 2,050 | 2001545 |
| 1,382 | 2001550 |
| 0,926 | 2001555 |
| 0,638 | 2001560 |
| 0,424 | 2001565 |
| 0,310 | 2001570 |
| 0,196 | 2001575 |
| 0,136 | 2001580 |

### Heating circuits

| OUTPUT [W] | Type ADSV 10 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 65 | 10065 | 6,6 | 2232100 |
| 120 | 10120 | 11,4 | 2232105 |
| 200 | 10200 | 18,9 | 2232110 |
| 250 | 10250 | 23,6 | 2232115 |
| 320 | 10320 | 31,6 | 2232120 |
| 400 | 10400 | 36,9 | 2232125 |
| 450 | 10450 | 45,9 | 2232130 |
| 520 | 10520 | 49,6 | 2232135 |
| 600 | 10600 | 63,9 | 2232140 |
| 750 | 10750 | 75,8 | 2232145 |
| 950 | 10950 | 87,0 | 2232150 |
| 1100 | 101100 | 114,5 | 2232155 |
| 1300 | 101300 | 131,3 | 2232160 |
| 1700 | 101700 | 158,5 | 2232165 |
| 2000 | 102000 | 194,5 | 2232170 |

| OUTPUT [W] | Type ADSV 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 80 | 15080 | 5,4 | 2242405 |
| 140 | 15140 | 9,8 | 2242407 |
| 240 | 15240 | 15,7 | 2242410 |
| 300 | 15300 | 19,7 | 2242415 |
| 400 | 15400 | 25,3 | 2242420 |
| 470 | 15470 | 31,4 | 2242425 |
| 550 | 15550 | 37,4 | 2242430 |
| 630 | 15630 | 41 | 2242435 |
| 750 | 15750 | 51,1 | 2242440 |
| 950 | 15950 | 59,9 | 2242445 |
| 1100 | 151100 | 75,1 | 2242450 |
| 1350 | 151350 | 93,3 | 2242455 |
| 1600 | 151600 | 106,7 | 2242460 |
| 2400 | 152400 | 162,1 | 2242465 |

| OUTPUT [W] | Type ADSV 18 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 160 | 18160 | 8,50 | 2243120 |
| 260 | 18260 | 14,50 | 2243125 |
| 320 | 18320 | 18,50 | 2243130 |
| 420 | 18420 | 24,00 | 2243135 |
| 520 | 18520 | 28,40 | 2243140 |
| 600 | 18600 | 34,4 | 2243145 |
| 680 | 18680 | 37,9 | 2243150 |
| 830 | 18830 | 46,1 | 2243155 |
| 1000 | 181000 | 57,5 | 2243160 |
| 1200 | 181200 | 68,9 | 2243165 |
| 1500 | 181500 | 83,2 | 2243170 |
| 1700 | 181700 | 100,4 | 2243175 |
| 2200 | 182200 | 122,7 | 2243180 |
| 2600 | 182600 | 149,6 | 2243185 |

**ASL1P heating cable,** a single-conductor cable with a full protection screen suitable for wet areas. For direct floor heating (installation under tiles). Cold lead 2×5 m. Packing in PE foil.

### Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 61,25 | 2005178 |
| 27,13 | 2005179 |
| 19,36 | 2005180 |
| 7,010 | 2005181 |
| 4,480 | 2005182 |
| 2,616 | 2005183 |
| 1,284 | 2005185 |
| 0,857 | 2005187 |
| 0,691 | 2005188 |
| 0,463 | 2005190 |
| 0,212 | 2005192 |
| 0,155 | 2005193 |
| 0,068 | 2005195 |

### Heating circuits

| OUTPUT [W] | Type ASL1P 10 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| | | | |
| | | | |
| 160 | 10160 | 17,0 | 2200160 |
| 280 | 10280 | 27,0 | 2200280 |
| 350 | 10350 | 33,7 | 2200350 |
| 450 | 10450 | 45,0 | 2200450 |
| 640 | 10640 | 64,0 | 2200640 |
| 800 | 10800 | 77,2 | 2200800 |
| 960 | 10960 | 80,0 | 2200960 |
| 1100 | 101100 | 103,9 | 2201100 |
| 1600 | 101600 | 156,0 | 2201600 |
| 1900 | 101900 | 179,6 | 2201900 |
| 3000 | 103000 | 259,3 | 2203000 |

| OUTPUT [W] | Type ASL1P 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| | | | |
| | | | |
| 200 | 15200 | 13,7 | 2201000 |
| 340 | 15340 | 22,2 | 2201005 |
| 420 | 15420 | 28,1 | 2201010 |
| 550 | 15550 | 36,8 | 2201015 |
| 800 | 15800 | 51,5 | 2201020 |
| 960 | 15960 | 64,3 | 2201025 |
| 1070 | 151070 | 71,5 | 2201030 |
| 1300 | 151300 | 87,9 | 2201035 |
| 1900 | 151900 | 131,3 | 2201040 |
| 2200 | 152200 | 155,1 | 2201045 |
| 3400 | 153400 | 228,8 | 2201055 |

| OUTPUT [W] | Type ASL1P 18 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 210 | 18210 | 11,9 | 2201060 |
| 350 | 18350 | 19,7 | 2201062 |
| 450 | 18450 | 24 | 2201064 |
| 570 | 18570 | 32,5 | 2201066 |
| 820 | 18820 | 46 | 2201068 |
| 1000 | 181000 | 56,5 | 2201070 |
| 1100 | 181100 | 63,7 | 2201072 |
| 1400 | 181400 | 74,7 | 2201074 |
| 2000 | 182000 | 114,2 | 2201076 |
| 2400 | 182400 | 130,1 | 2201078 |
| 3000 | 183000 | 164,6 | 2201080 |
| 3500 | 183500 | 203,4 | 2201082 |

## ECOFLOOR Installation – Heating Cable Circuit

1) Create loops of the heating cable across the entire base (a spacing guide may be used, as shown).
2) Fix the cable to the base using the self-adhesive tape or GRUFAST fastening strips.
3) Level the layer of flexible cement with a smooth trowel.
4) Lay tiling on small areas (up to 4 m$^2$) immediately, and on larger areas after 24 hours.
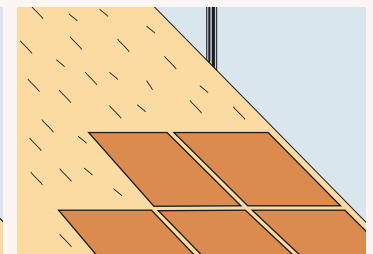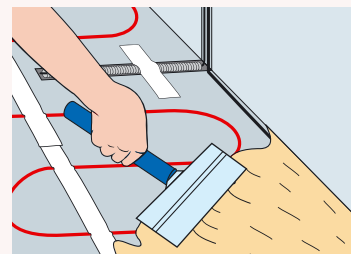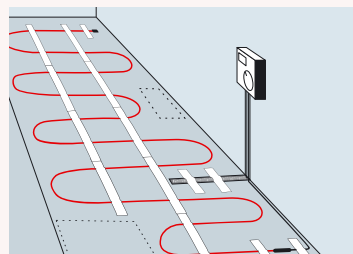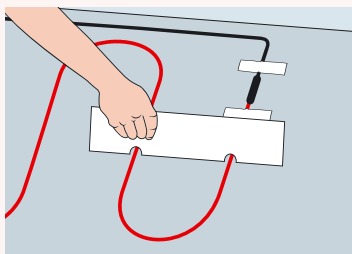
## KITS FOR DO-IT-YOURSELF INSTALLATION

Kits for do-it-yourself installation have been designed for those users who do not want a complete electrical heating system but a comfortable, warm floor in a specific area (e.g. bathroom or kitchen). The kits include everything needed to install the floor heating system and are very reasonably priced. They are sold in two variants:
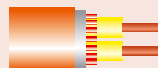
### ECOFLOOR CableKit

### ECOFLOOR ComfortMat

| OUTPUT [W] | Type CK (10 W/m) | AREA [m²] 160 W/m² | AREA [m²] 130 W/m² | AREA [m²] 100 W/m² | LENGTH [m] | Cat. No. |
|---|---|---|---|---|---|---|
| 65 | 10065 | 0,4 | 0,5 | 0,65 | 6,6 | 2360094 |
| 120 | 10120 | 0,75 | 0,95 | 1,2 | 11,4 | 2360097 |
| 200 | 10200 | 1,25 | 1,6 | 2,0 | 18,9 | 2360100 |
| 250 | 10250 | 1,6 | 2,0 | 2,5 | 23,6 | 2360102 |
| 320 | 10320 | 2,0 | 2,6 | 3,2 | 31,6 | 2360104 |
| 400 | 10400 | 2,5 | 3,2 | 4,0 | 36,9 | 2360106 |
| 450 | 10450 | 2,8 | 3,6 | 4,5 | 45,9 | 2360108 |
| 520 | 10520 | 3,25 | 4,0 | 5,2 | 49,6 | 2360109 |
| 600 | 10600 | 3,75 | 4,8 | 6,0 | 63,9 | 2360110 |
| 750 | 10750 | 4,7 | 6,1 | 7,5 | 75,8 | 2360112 |
| 950 | 10950 | 5,9 | 7,7 | 9,5 | 87,0 | 2360114 |
| 1100 | 101100 | 6,9 | 8,9 | 11,0 | 114,5 | 2360116 |
| 1300 | 101300 | 8,1 | 10,5 | 13,0 | 131,3 | 2360118 |
| 1700 | 101700 | 10,6 | 13,1 | 17,0 | 158,8 | 2360119 |
| 2000 | 102000 | 12,5 | 16,2 | 20,0 | 194,5 | 2360120 |

| OUTPUT [W] | Type CM 160 W/m² | AREA [m²] | LENGTH [m] | Cat. No. |
|---|---|---|---|---|
| 70 | 12070-165 | 0,5 | 0,9 | 5590094 |
| 130 | 12130-165 | 0,8 | 1,6 | 5590097 |
| 210 | 12210-165 | 1,3 | 2,6 | 5590100 |
| 260 | 12260-165 | 1,6 | 3,2 | 5590105 |
| 340 | 12340-165 | 2,1 | 4,2 | 5590110 |
| 410 | 12410-165 | 2,6 | 5,2 | 5590115 |
| 500 | 12500-165 | 3,0 | 6,1 | 5590120 |
| 560 | 12560-165 | 3,4 | 6,7 | 5590122 |
| 670 | 12670-165 | 4,2 | 8,3 | 5590125 |
| 810 | 12810-165 | 5,1 | 10,2 | 5590130 |
| 1000 | 121000-165 | 6,1 | 12,3 | 5590135 |
| 1210 | 121210-165 | 7,6 | 15,1 | 5590140 |
| 1400 | 121400-165 | 8,8 | 17,6 | 5590145 |

| OUTPUT [W] | Type CM 100 W/m² | AREA [m²] | LENGTH [m] | Cat. No. |
|---|---|---|---|---|
| 180 | 8180-105 | 3,6 | 1,9 | 5590148 |
| 220 | 8220-105 | 4,4 | 2,2 | 5590150 |
| 290 | 8290-105 | 5,8 | 2,9 | 5590152 |
| 410 | 8410-105 | 8,2 | 4,1 | 5590155 |
| 460 | 8460-105 | 9,4 | 4,7 | 5590157 |
| 560 | 8560-105 | 11,2 | 5,6 | 5590160 |
| 820 | 8820-105 | 16,5 | 8,2 | 5590165 |

Width of the heating mat is 50 cm

### Cable kit includes
- heating cable ADSV on carton reel
- thermostat Fenix Therm 100 with floor sensor
- protection tube for floor sensor
- adhesive fixing tape
- template to plane cable runs for 100 W/m², 130 W/m² and 160 W/m²
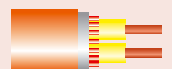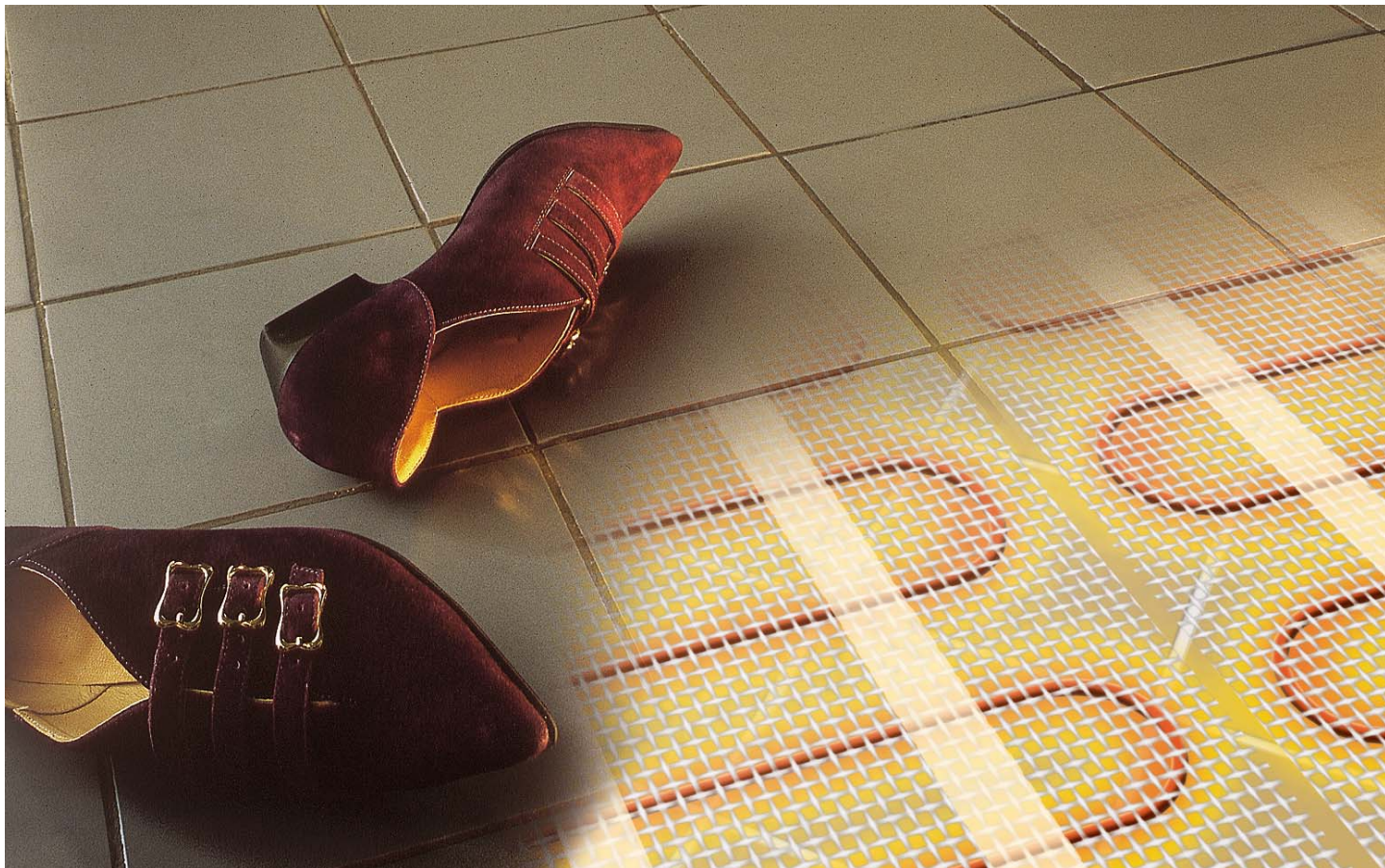- installation manual

### Comfort mat includes
- heating mat LDTS
- digital thermostat Aube TH 132 AF with floor sensor
- protection tube for floor sensor
- installation manual

**It is recommended** that you install F-Board insulated tile backer board before laying CK or CM. This will ensure quicker warm up times and reduce running costs (see page 18).

Heating cables or mats in semi-storage systems are placed in a layer of concrete 4–5 cm thick. The mat's recommended output wattage is 160 W/m². Heat is accumulated for 16 hours a day at a time when electricity costs are lowest. The accumulated heat is radiated from the floor surface not only during the process, but also for a further 8 hours. One efficient solution is to divide the total desired heating system 70/30 between the floor heating and another source, such as a convection heater or an ECOSUN radiant panel.

Storage floor heating is a system that takes advantage of cheaper electricity tariffs – usually at night. During this time, heat is accumulated into the mass of the floor using ECOFLOOR electrical heating cables or mats. Throughout the rest of the day, the heat is gradually released from the floor to the room. In storage systems, heating mats or cables are placed in a layer of concrete 10 to 14 cm thick. The accumulated—stored—heat is then released during the day into the area to be heated. We recommend an output wattage of 250 to 300 W/m² for ECOFLOOR mats used in this type of system. Eight hours of low-tariff electricity should be used to accumulate the heat.

**SEMI-STORAGE SYSTEM**
**1** base
**2** thermal insulation 7–8 cm (extruded polystyrene)
**3** steel reinforcement—KARI steel mesh
**4** ECOFLOOR heating cable/mat
**5** underlying concrete layer 4–5 cm thick
**6** protective tube for floor probe
**7** layer that is walked upon
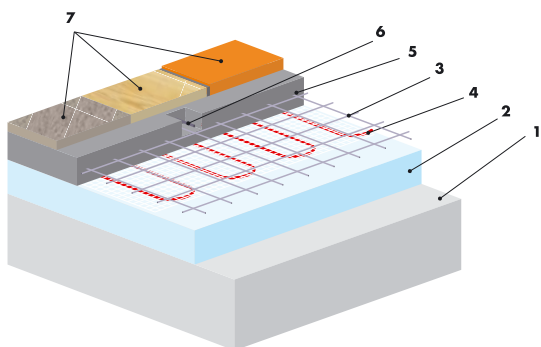
**STORAGE ECOFLOOR HEATING**
**1** base
**2** thermal insulation (extruded polystyrene)
**3** steel reinforcement—KARI steel mesh
**4** ECOFLOOR heating cable/mat
**5** concrete storage layer 12–14 cm thick
**6** protective tube for floor probe
**7** layer that is walked upon
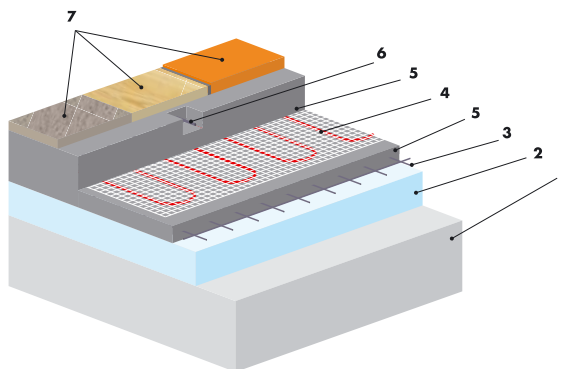
**ADPSV heating cable**, a twin conductor cable with a full protection screen is suitable for semi-storage and storage floor heating in living areas. Class C. Cold lead 1×5 m.
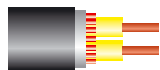
| OUTPUT [W] | Type ADPSV 18 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 160 | 18160 | 8,5 | 2249960 |
| 260 | 18260 | 14,5 | 2249963 |
| 320 | 18320 | 18,5 | 2249966 |
| 420 | 18420 | 24,0 | 2249969 |
| 520 | 18520 | 28,4 | 2249972 |
| 600 | 18600 | 34,4 | 2249975 |
| 740 | 18740 | 41,8 | 2249976 |
| 830 | 18830 | 46,1 | 2249978 |
| 1000 | 181000 | 57,5 | 2249981 |
| 1200 | 181200 | 68,9 | 2249984 |
| 1500 | 181500 | 83,2 | 2249987 |
| 1700 | 181700 | 100,4 | 2249990 |
| 2200 | 182200 | 122,7 | 2249992 |
| 2600 | 182600 | 149,6 | 2249993 |

**ADPSV cable circuit**
*a twin conductor cable*

*ADPSV packing*

**PSV heating cable**, a single-conductor cable with a full protection screen for storage and semi-storage heating. Cold lead 2×5 m. Cable diameter 4.3–4.8 mm.
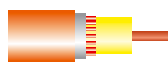
Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 19,36 | 2001210 |
| 7,01 | 2001215 |
| 4,48 | 2001220 |
| 2,616 | 2001225 |
| 1,792 | 2001230 |
| 1,284 | 2001235 |
| 1,025 | 2001240 |
| 0,857 | 2001245 |
| 0,691 | 2001250 |
| 0,54 | 2001255 |
| 0,463 | 2001260 |
| 0,319 | 2001265 |
| 0,212 | 2001270 |
| 0,155 | 2001275 |
| 0,098 | 2001280 |
| 0,068 | 2001285 |

Heating circuits

| OUTPUT [W] | Type PSV 10 W/m | LENGTH [m] | Cat. No. | OUTPUT [W] | Type PSV 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|---|---|---|---|
| 170 | 10170 | 16,1 | 2320020 | 200 | 15200 | 13,7 | 2320110 |
| 280 | 10280 | 28,0 | 2320025 | 340 | 15340 | 22,2 | 2320115 |
| 350 | 10350 | 34,0 | 2320030 | 420 | 15420 | 28,1 | 2320120 |
| 450 | 10450 | 46,0 | 2320035 | 550 | 15550 | 36,7 | 2320125 |
| 550 | 10550 | 53,7 | 2320040 | 660 | 15660 | 44,7 | 2320130 |
| 640 | 10640 | 64,4 | 2320045 | 800 | 15800 | 52,3 | 2320135 |
| 720 | 10720 | 71,7 | 2320050 | 880 | 15880 | 58,6 | 2320140 |
| 800 | 10800 | 79,1 | 2320055 | 960 | 15960 | 64,1 | 2320145 |
| 870 | 10870 | 88,0 | 2320060 | 1070 | 151070 | 71,5 | 2320150 |
| 960 | 10960 | 100,0 | 2320065 | 1210 | 151210 | 81,0 | 2320155 |
| 1100 | 101100 | 106,8 | 2320070 | 1300 | 151300 | 84,1 | 2320160 |
| 1280 | 101280 | 129,6 | 2320075 | 1580 | 151580 | 104,6 | 2320165 |
| 1600 | 101600 | 157,9 | 2320080 | 1900 | 151900 | 128,6 | 2320170 |
| 1900 | 101900 | 189,6 | 2320085 | 2200 | 152200 | 150,3 | 2320175 |
| 2500 | 102500 | 234,7 | 2320090 | 2800 | 152800 | 189,4 | 2320180 |
| 3000 | 103000 | 277,8 | 2320095 | 3400 | 153400 | 227,5 | 2320185 |

**PSV cable circuit**
*a single-conductor cable with 2×5 m cold leads. Packing in PE foil.*

**PV heating cable**, a single-conductor cable without a protection screen for storage and semi-storage heating. Cold lead 2×5 m. Cable diameter 3.9–4.4 mm.

Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 19,36 | 2000099 |
| 7,010 | 2000100 |
| 4,480 | 2000101 |
| 2,616 | 2000102 |
| 1,792 | 2000103 |
| 1,284 | 2000104 |
| 1,025 | 2000105 |
| 0,857 | 2000106 |
| 0,691 | 2000107 |
| 0,540 | 2000108 |
| 0,463 | 2000109 |
| 0,319 | 2000110 |
| 0,212 | 2000111 |
| 0,155 | 2000112 |
| 0,098 | 2000113 |
| 0,068 | 2000114 |

Heating circuits

| OUTPUT [W] | Type PV 10 W/m | LENGTH [m] | Cat. No. | OUTPUT [W] | Type PV 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|---|---|---|---|
| 170 | 10170 | 16,1 | 2318000 | 200 | 15200 | 13,7 | 2318190 |
| 280 | 10280 | 28 | 1218010 | 340 | 15340 | 22 | 2318200 |
| 350 | 10350 | 34 | 2318020 | 420 | 15420 | 28 | 2318210 |
| 450 | 10450 | 46 | 2318030 | 550 | 15550 | 37 | 2318220 |
| 550 | 10550 | 53,7 | 2318035 | 660 | 15660 | 45 | 2318225 |
| 640 | 10640 | 64,4 | 2318040 | 800 | 15800 | 52 | 2318230 |
| 720 | 10720 | 71,7 | 2318045 | 880 | 15880 | 59 | 2318235 |
| 800 | 10800 | 79,1 | 2318050 | 960 | 15960 | 64 | 2318240 |
| 870 | 10870 | 88 | 2318055 | 1070 | 151070 | 72 | 2318250 |
| 960 | 10960 | 100 | 2318060 | 1210 | 151210 | 81 | 2318255 |
| 1100 | 101100 | 106,8 | 2318065 | 1300 | 151300 | 84 | 2318260 |
| 1280 | 101280 | 129,6 | 2318070 | 1580 | 151580 | 105 | 2318265 |
| 1600 | 101600 | 157,9 | 2318080 | 1900 | 151900 | 129 | 2318270 |
| 1900 | 101900 | 189,6 | 2318090 | 2200 | 152200 | 150 | 2318280 |
| 2500 | 102500 | 234,7 | 2318100 | 2800 | 152800 | 189 | 2318290 |
| 3000 | 103000 | 277,8 | 2318110 | 3400 | 153400 | 228 | 2318300 |

**PV cable circuit**
*a single conductor cable with 2×5 m cold leads. Packing in PE foil.*

# OUTDOOR APPLICATIONS
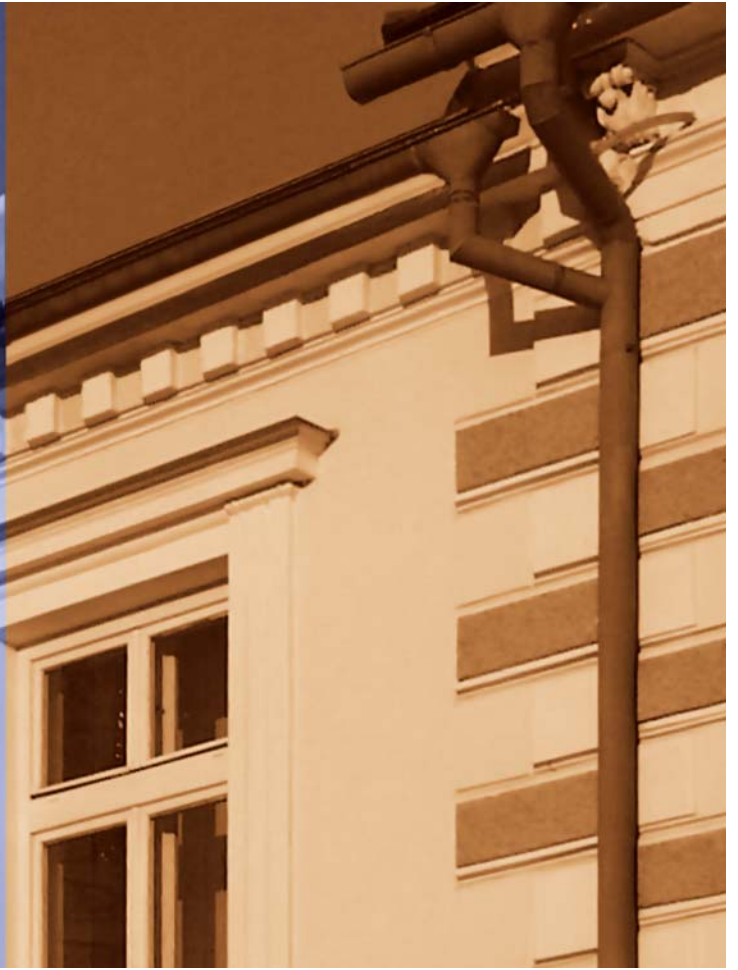
### Ice and snow melting

Installing electric heating cables in outdoor areas, together with a thermostat, prevents both ice formation and snow accumulation. Once installed, the system works entirely automatically and is only operational when it is snowing or if ice is forming on roads and walkways.

### De-icing gutters and eaves troughs

In all parts of Europe other than in the south, winter brings a heavy load to many buildings as ice builds up in the gutters and eaves troughs. Installing an ECOFLOOR electric heating cable (with a protective screen) into gutters and eaves troughs is a good solution for such problems. The cables are installed using special plastic clips placed inside gutters and eaves troughs. We recommend a linear wattage of 20 W/m for the de-icing cables.

### Frost protection of pipes

Many homeowners and other users of piping have many troubles in the winter due to freezing pipes. This especially applies to pipes for water piping, but other liquids used in industrial technologies can also freeze or solidify. During long spells of below-freezing temperatures, even very well-insulated piping can freeze. Supplementary heating is a reliable preventive solution.

## MPSV heating cable

**MPSV heating cable**, a single-conductor cable with a full protection screen and protection against UV radiation. Suitable for heating outdoor surfaces. Cold lead 2×5 m.
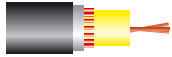
25 W/m (30 W/m for **removing ice and snow from roofs and gutters.** Must be used control system with air temperature and moisture sensor protecting cables to switch-on in temperature more than +5 °C). →

| TYPE | Suitability | Max. loading |
|---|---|---|
| Floor heating in living areas | Yes | 20 W/m |
| Outdoor surface heating | Yes | 25 W/m |
| Frost protection of pipes | Yes | 15 W/m |
| Pipe heating | Yes | 15 W/m |
| Removing ice and snow from roofs and gutters | Yes | 30 W/m |

### Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 9,00 | 2000800 |
| 6,50 | 2000805 |
| 3,20 | 2000810 |
| 1,35 | 2000815 |
| 1,00 | 2000820 |
| 0,60 | 2000825 |
| 0,36 | 2000830 |
| 0,18 | 2000835 |
| 0,04 | 2000840 |

### Heating circuits

| OUTPUT [W] | Type MPSV 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 300 | 15300 | 19,6 | 2322153 |
| 350 | 15350 | 23,3 | 2322156 |
| 500 | 15500 | 33,1 | 2322159 |
| 770 | 15770 | 50,9 | 2322162 |
| 900 | 15900 | 58,8 | 2322165 |
| 1150 | 151150 | 76,7 | 2322168 |
| 1500 | 151500 | 98,0 | 2322171 |
| 2100 | 152100 | 137,7 | 2322174 |
| 4500 | 154500 | 293,9 | 2322177 |

| OUTPUT [W] | Type MPSV 20 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 340 | 20340 | 17,3 | 2322203 |
| 400 | 20400 | 20,3 | 2322206 |
| 570 | 20570 | 29,0 | 2322209 |
| 880 | 20880 | 44,5 | 2322212 |
| 1030 | 201030 | 51,4 | 2322215 |
| 1350 | 201350 | 65,3 | 2322218 |
| 1750 | 201750 | 84,0 | 2322221 |
| 2400 | 202400 | 122,5 | 2322224 |
| 5100 | 205100 | 259,3 | 2322227 |

| OUTPUT [W] | Type MPSV 25 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 380 | 25380 | 15,5 | 2322253 |
| 450 | 25450 | 18,1 | 2322256 |
| 640 | 25640 | 25,8 | 2322259 |
| 990 | 25990 | 40,0 | 2322262 |
| 1150 | 251150 | 46,0 | 2322265 |
| 1480 | 251480 | 59,6 | 2322268 |
| 1900 | 251900 | 77,3 | 2322271 |
| 2700 | 252700 | 108,8 | 2322274 |
| 5700 | 255700 | 232,0 | 2322277 |

### MPSV cables 400 V

| OUTPUT [W] | Type MPSV 20 W/m – 400 V | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 600 | 20600 | 30,1 | 2322303 |
| 700 | 20700 | 35,2 | 2322306 |
| 1000 | 201000 | 50,0 | 2322309 |
| 1550 | 201550 | 76,5 | 2322312 |
| 1800 | 201800 | 88,9 | 2322315 |
| 2300 | 202300 | 115,9 | 2322318 |
| 3000 | 203000 | 148,1 | 2322321 |
| 4200 | 204200 | 211,6 | 2322324 |
| 9000 | 209000 | 444,4 | 2322327 |



### MST mats, 230 V, width 0,5 m

| OUTPUT [W] | Type MST 280 W/m² | AREA [m²] | LENGTH [m] | Cat. No. |
|---|---|---|---|---|
| 430 | 23MST 280/1,5-0,5 | 1,5 | 3,0 | 5500500 |
| 570 | 23MST 280/2-0,5 | 2,0 | 4,0 | 5500505 |
| 900 | 23MST 280/3-0,5 | 3,0 | 6,0 | 5500510 |
| 1150 | 23MST 280/4-0,5 | 4,0 | 8,0 | 5500515 |
| 1420 | 23MST 280/5-0,5 | 5,0 | 10,0 | 5500520 |
| 1700 | 23MST 280/6-0,5 | 6,0 | 12,0 | 5500525 |
| 2000 | 23MST 280/7-0,5 | 7,0 | 14,0 | 5500530 |
| 2500 | 23MST 280/9-0,5 | 9,0 | 18,0 | 5500535 |
| 2900 | 23MST 280/10-0,5 | 10,0 | 20,0 | 5500540 |
| 3700 | 23MST 280/13-0,5 | 13,0 | 26,0 | 5500545 |
| 4480 | 23MST 280/16-0,5 | 16,0 | 32,0 | 5500550 |

### MST mats, 400 V, width 0,5 m

| OUTPUT [W] | Type MST 280 W/m² | AREA [m²] | LENGTH [m] | Cat. No. |
|---|---|---|---|---|
| 600 | 40MST 280/2-0,5 | 2,0 | 4,0 | 5500800 |
| 700 | 40MST 280/2,5-, 5 | 2,5 | 5,0 | 5500805 |
| 1100 | 40MST 280/4-0,5 | 4,0 | 8,0 | 5500810 |
| 1500 | 40MST 280/5-0,5 | 5,0 | 10,0 | 5500815 |
| 1700 | 40MST 280/6-0,5 | 6,0 | 12,0 | 5500820 |
| 2300 | 40MST 280/8-0,5 | 8,0 | 16,0 | 5500825 |
| 2550 | 40MST 280/9-0,5 | 9,0 | 18,0 | 5500830 |
| 2900 | 40MST 280/10-0,5 | 10,0 | 20,0 | 5500835 |
| 3500 | 40MST 280/12-0,5 | 12,0 | 24,0 | 5500840 |
| 4800 | 40MST 280/16-0,5 | 16,0 | 32,0 | 5500845 |
| 5100 | 40MST 280/18-0,5 | 18,0 | 36,0 | 5500850 |
| 6500 | 40MST 280/22-0,5 | 22,0 | 44,0 | 5500855 |



For easy installation the heating mat MST is provided with 1×5 m cold lead and with other cold lead 1×5 m + lenght of the mat. Cables and mats are packing in PE foil.

## MADPSP heating cable

**MADPSP heating cable**, a two-conductor cable with a full protection screen and protection against UV radiation. Suitable for heating outdoor surfaces. Class C. Cold lead 1×5 m.
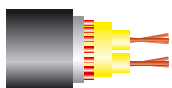
30 W/m (35 W/m for **removing ice and snow from roofs and gutters.** Must be used control system with air temperature and moisture sensor protecting cables to switch-on in temperature more than +5 °C). →

| TYPE | Suitability | Max. loading |
|---|---|---|
| Floor heating in living areas | Yes | 20 W/m |
| Outdoor surface heating | Yes | 30 W/m |
| Frost protection of pipes | Yes | 15 W/m |
| Pipe heating | Yes | 15 W/m |
| Removing ice and snow from roofs and gutters | Yes | 35 W/m |

### Cables on dr.

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 18,00 | 2000700 |
| 6,40 | 2000705 |
| 2,70 | 2000710 |
| 2,00 | 2000715 |
| 1,20 | 2000720 |
| 0,72 | 2000725 |
| 0,60 | 2000730 |
| 0,36 | 2000735 |
| 0,25 | 2000737 |
| 0,18 | 2000740 |
| 0,08 | 2000745 |
| 0,04 | 2000750 |

### Heating circuits

| OUTPUT [W] | MADPSP 15 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 210 | 15210 | 14,0 | 2323153 |
| 350 | 15350 | 23,6 | 2323156 |
| 540 | 15540 | 36,3 | 2323159 |
| 630 | 15630 | 42,0 | 2323162 |
| 810 | 15810 | 54,4 | 2323165 |
| 1050 | 151050 | 70,0 | 2323168 |
| 1150 | 151150 | 75,2 | 2323171 |
| 1500 | 151500 | 95,0 | 2323174 |
| 1800 | 151800 | 111,3 | 2323175 |
| 2100 | 152100 | 133,7 | 2323177 |
| 3150 | 153150 | 209,9 | 2323180 |
| 4500 | 154500 | 255,7 | 2323183 |

| OUTPUT [W] | MADPSP 20 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 240 | 20240 | 12,2 | 2323203 |
| 400 | 20400 | 20,7 | 2323206 |
| 630 | 20630 | 31,1 | 2323209 |
| 730 | 20730 | 36,2 | 2323212 |
| 950 | 20950 | 46,4 | 2323215 |
| 1200 | 201200 | 61,2 | 2323218 |
| 1300 | 201300 | 66,5 | 2323221 |
| 1700 | 201700 | 83,7 | 2323224 |
| 2000 | 202000 | 100,2 | 2323225 |
| 2400 | 202400 | 117,0 | 2323227 |
| 3600 | 203600 | 183,7 | 2323230 |
| 5100 | 205100 | 227,6 | 2323233 |

| OUTPUT [W] | MADPSP 25 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 270 | 25270 | 10,9 | 2323253 |
| 450 | 25450 | 18,4 | 2323256 |
| 700 | 25700 | 28,0 | 2323259 |
| 800 | 25800 | 33,1 | 2323262 |
| 1050 | 251050 | 42,0 | 2323265 |
| 1350 | 251350 | 54,4 | 2323268 |
| 1480 | 251480 | 58,5 | 2323271 |
| 1900 | 251900 | 74,8 | 2323274 |
| 2300 | 252300 | 87,2 | 2323275 |
| 2700 | 252700 | 103,9 | 2323277 |
| 4000 | 254000 | 165,3 | 2323280 |
| 5700 | 255700 | 203,5 | 2323283 |

| OUTPUT [W] | MADPSP 30 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 300 | 30300 | 9,8 | 2323303 |
| 500 | 30500 | 16,5 | 2323306 |
| 760 | 30760 | 25,8 | 2323309 |
| 880 | 30880 | 30,1 | 2323312 |
| 1150 | 301150 | 38,3 | 2323315 |
| 1500 | 301500 | 49,0 | 2323318 |
| 1600 | 301600 | 54,1 | 2323321 |
| 2100 | 302100 | 67,8 | 2323324 |
| 2500 | 302500 | 80,5 | 2323325 |
| 3000 | 303000 | 93,5 | 2323327 |
| 4400 | 304400 | 150,3 | 2323330 |
| 6300 | 306300 | 183,7 | 2323333 |

## MADPSP cable, 400 V

| OUTPUT [W] | MADPSP 20 W/m 400 V | LENGTH [m] | Kat.-Nr. | OUTPUT [W] | MADPSP 30 W/m 400 V | LENGTH [m] | Kat.-Nr. |
|---|---|---|---|---|---|---|---|
| 420 | 20420 | 21,2 | 2323403 | 520 | 30520 | 17,1 | 2323453 |
| 700 | 20700 | 35,7 | 2323406 | 860 | 30860 | 29,1 | 2323456 |
| 1100 | 201100 | 53,9 | 2323409 | 1330 | 301330 | 44,6 | 2323459 |
| 1250 | 201250 | 64,0 | 2323412 | 1550 | 301550 | 51,6 | 2323462 |
| 1600 | 201600 | 83,3 | 2323415 | 2000 | 302000 | 66,7 | 2323465 |
| 2100 | 202100 | 105,8 | 2323418 | 2600 | 302600 | 85,5 | 2323468 |
| 2300 | 202300 | 113,7 | 2323421 | 2800 | 302800 | 93,4 | 2323471 |
| 3000 | 203000 | 143,5 | 2323424 | 3600 | 303600 | 119,8 | 2323474 |
| 3600 | 203600 | 168,7 | 2323425 | 4500 | 304500 | 134,9 | 2323475 |
| 4200 | 204200 | 202,2 | 2323427 | 5100 | 305100 | 166,7 | 2323477 |
| 6300 | 206300 | 317,5 | 2323430 | 7700 | 307700 | 259,7 | 2323480 |

## MDT mat, 230 V, width 0,5 m

| OUTPUT [W] | MDT 300 W/m² | AREA [m²] | LENGTH [m] | Kat.-Nr. |
|---|---|---|---|---|
| 270 | 23MDT300/0,9-0,5 | 0,9 | 1,8 | 5500100 |
| 450 | 23MDT300/1,5-0,5 | 1,5 | 3,0 | 5500105 |
| 700 | 23MDT300/2,3-0,5 | 2,3 | 4,6 | 5500110 |
| 800 | 23MDT300/2,7-0,5 | 2,7 | 5,4 | 5500115 |
| 1050 | 23MDT300/3,5-0,5 | 3,5 | 7,0 | 5500120 |
| 1350 | 23MDT300/4,5-0,5 | 4,5 | 9,0 | 5500125 |
| 1480 | 23MDT300/5-0,5 | 5,0 | 10,0 | 5500130 |
| 1900 | 23MDT300/6,3-0,5 | 6,3 | 12,6 | 5500135 |
| 2300 | 23MDT300/7,8-0,5 | 7,8 | 15,6 | 5500140 |
| 4000 | 23MDT300/13,3-0,5 | 13,3 | 26,6 | 5500145 |

## MDT mat, 400 V, width 0,5 m

| OUTPUT [W] | MDT 300 W/m² | AREA [m²] | LENGTH [m] | Kat.-Nr. |
|---|---|---|---|---|
| 520 | 40MDT300/1,8-0,5 | 1,8 | 3,6 | 5500200 |
| 860 | 40MDT300/2,9-0,5 | 2,9 | 5,8 | 5500205 |
| 1330 | 40MDT300/4,5-0,5 | 4,5 | 9,0 | 5500210 |
| 1550 | 40MDT300/5,2-0,5 | 5,2 | 10,4 | 5500215 |
| 2000 | 40MDT300/6,7-0,5 | 6,7 | 13,4 | 5500220 |
| 2600 | 40MDT300/8,7-0,5 | 8,7 | 17,4 | 5500225 |
| 2800 | 40MDT300/9,3-0,5 | 9,3 | 18,6 | 5500230 |
| 3600 | 40MDT300/12-0,5 | 12,0 | 24,0 | 5500235 |
| 4500 | 40MDT300/15-0,5 | 15,0 | 30,0 | 5500240 |
| 7700 | 40MDT300/25,7-0,5 | 25,7 | 51,4 | 5500245 |

The heating mat MDT is provided with 1×5 m cold lead

Cables and mats are packing in PE foil.

---

**ADPSV heating cable**, a twin conductor, full protection screened cable with protection against UV radiation. This multipurpose cable is suitable for indoor and outdoor applications. Class C. Cold lead 1×5 m.
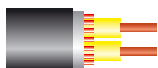


| TYPE | Suitability | Max. loading |
|---|---|---|
| Outdoor surface heating | Yes | 20 W/m |
| Frost protection of pipes | Yes | 10 W/m |
| Pipe heating | Yes | 10 W/m |
| Removing ice and snow from roofs and gutters | Yes | 20 W/m |

### Cables on drums

| TYPE (Ohm/m) | Cat. No. |
|---|---|
| 38,72 | 2000500 |
| 14,02 | 2000505 |
| 8,96 | 2000510 |
| 5,232 | 2000515 |
| 3,58 | 2000520 |
| 2,568 | 2000525 |
| 1,714 | 2000535 |
| 1,382 | 2000540 |
| 0,926 | 2000550 |
| 0,638 | 2000555 |
| 0,424 | 2000560 |
| 0,31 | 2000565 |
| 0,196 | 2000570 |
| 0,136 | 2000575 |

### Heating circuits

| OUTPUT [W] | Type ADPSV 20 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 160 | 20160 | 8,3 | 2252800 |
| 270 | 20270 | 14,0 | 2252805 |
| 340 | 20340 | 17,2 | 2252810 |
| 450 | 20450 | 22,5 | 2252815 |
| 540 | 20540 | 27,4 | 2252820 |
| 640 | 20640 | 32,1 | 2252825 |
| 780 | 20780 | 39,3 | 2252830 |
| 870 | 20870 | 43,8 | 2252835 |
| 1070 | 201070 | 53,5 | 2252840 |
| 1290 | 201290 | 64,4 | 2252845 |
| 1580 | 201580 | 79,0 | 2252850 |
| 1850 | 201850 | 92,4 | 2252855 |
| 2300 | 202300 | 117,3 | 2252865 |
| 2750 | 202750 | 141,4 | 2252870 |

| OUTPUT [W] | Type ADPSV 10 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 120 | 10120 | 11,4 | 2256010 |
| 200 | 10200 | 18,9 | 2256015 |
| 250 | 10250 | 23,6 | 2256020 |
| 320 | 10320 | 31,6 | 2256025 |
| 400 | 10400 | 36,9 | 2256030 |
| 450 | 10450 | 45,9 | 2256035 |
| 550 | 10550 | 56,1 | 2256040 |
| 600 | 10600 | 63,9 | 2256045 |
| 750 | 10750 | 75,8 | 2256050 |
| 950 | 10950 | 87,0 | 2256055 |
| 1100 | 101100 | 114,5 | 2256060 |
| 1300 | 101300 | 131,3 | 2256065 |
| 1700 | 101700 | 158,5 | 2256070 |
| 2000 | 102000 | 194,5 | 2256075 |



ADPSV cable.
Packing on carton reel.



---

**PPC 12 W/m heating cables for pipe protection** are provided with an integrated PG thermostat and a 230 V plug.

| OUTPUT [W] | Type PPC 12 W/m | LENGTH [m] | RESISTANCE [Ω] | Cat. No. |
|---|---|---|---|---|
| 24 | PPC - 2 | 2,0 | 2 200 | 2330102 |
| 37 | PPC - 3 | 3,0 | 1 440 | 2330103 |
| 59 | PPC - 5 | 5,0 | 900 | 2330105 |
| 76 | PPC - 7 | 7,0 | 700 | 2330107 |
| 118 | PPC - 10 | 10,0 | 448 | 2330110 |
| 185 | PPC - 15 | 15,0 | 286 | 2330115 |
| 259 | PPC - 21 | 21,0 | 204 | 2330121 |
| 335 | PPC - 30 | 30,0 | 158 | 2330130 |
| 508 | PPC - 42 | 42,0 | 104 | 2330142 |



Cable PPC
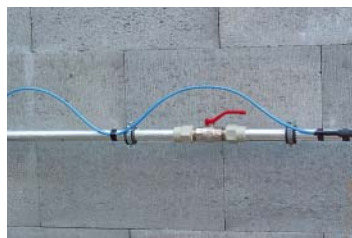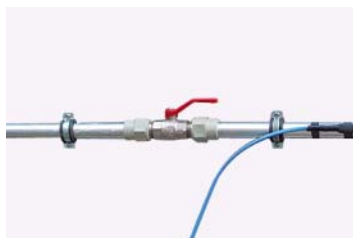
# SPECIAL APPLICATIONS

## CONCRETE CURING CABLE CIRCUITS

A twin conductor screened cable with a 1×3 m cold lead with plug connection

| OUTPUT [W] | Type PDS1P 40 W/m | LENGTH [m] | Cat. No. |
|---|---|---|---|
| 380 | 40380 | 10,0 | 2325005 |
| 760 | 40760 | 19,0 | 2325010 |
| 1500 | 401500 | 38,0 | 2325020 |
| 3300 | 403300 | 82,0 | 2325030 |

**PDS1P cable**
*for curing concrete.*
*Packing in PE foil.*

## SELF-REGULATING CABLES

The ELSR self-regulating cables are parallel electrical heating strips consisting of a specially finished plastic with embedded carbon particles that create an electrical path between two parallel copper bus bars.
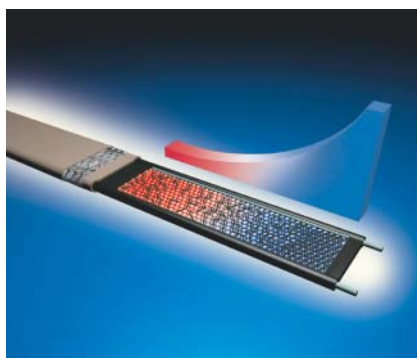
| Marking | Output W/m 10°C | Temperature tolerance [°C] | Limitation for instalation | | Max. length at the temperature setting | | | Cat. No. |
|---|---|---|---|---|---|---|---|---|
| | | | Min. temp. | Min. radius | | | | |
| **ELSR-M** – Frost protection of pipe | | | | | **6 A** | **10 A** | **16 A** | |
| ELSR-M – 10 BO | 10 | 65 | –30°C | 35 mm | 65 m | 95 m | 105 m | 2330310 |
| ELSR-M – 15 BO | 15 | 65 | –30°C | 35 mm | 37 m | 58 m | 65 m | 2330315 |
| **ELSR-N** – Frost protection of trays, gutters, roofs, technological heating | | | | | **16 A** | **20 A** | **25 A** | |
| ELSR-N – 20 BO | 20 | 80 | –10°C | 20 mm | 94 m | 116 m | 146 m | 2330320 |
| ELSR-N – 30 BO | 30 | 80 | –10°C | 20 mm | 70 m | 87 m | 109 m | 2330330 |
| KIT Nr. 4 | For connection and termination of self-limiting cables | | | | | | | 5030124 |
| **Cold lead for self-regulating cables** | | | | | | | | |
| SK 1,5 | Limitation: 12 A / 20 m | | | | | | | 2000790 |
| SK 2,5 | Limitation: 20 A / 20 m | | | | | | | 2000795 |
| SK 4 | Limitation: 20 m | | | | | | | 2000796 |

### Industrial applications:
- Analyzer lines – prevent condensation
- Cooling water lines – anti-freeze protection
- Potable water lines – anti-freeze protection
- Caustic soda – prevent crystallization under 30 °C
- Oils and fats – maintain pumpable viscosity
- Heating oil – prevent wax dispersion
- Vessel – anti-freeze and condensation protection

## F-BOARD FLOOR INSULATION

F-boards prevent heat losses to the subfloor structure. Recommended for floor reconstructions.

| Type | Dimensions [mm] | Thickness [mm] | Packaging [boards in packet] | Packets on the pallet | Cat. No. |
|---|---|---|---|---|---|
| F-BOARD 6 | 1250×600×6 | 6 | 6 | 67 | 5442016 |
| F-BOARD10 | 1250×600×10 | 10 | 6 | 43 | 5442019 |
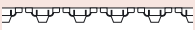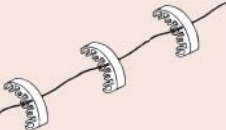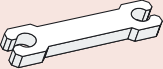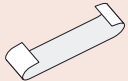
### Useful information

| | |
|---|---|
| Dimensions | 600 mm × 1250 mm (0,75 m² each) |
| Thickness | 6 mm or 10 mm |
| Weight (kg/board) | 1,8 (6 mm) 2,0 (10 mm) |
| Material | Extruded Polystyrene core with Polymer cement outer skin |
| Density | 32 kg/m³ |
| Thermal Conductivity | 0,029 W/m°k |
| Compresive strenght | 300 kN/m² |
| Water absorption (immersion) | < 1,5 % by vol |
| Water absorption (capillary) | Nil |
| Co-efficient of Linear Expansion | 0,07 mm/mK |
| Flamibility | B1 |

Floor Tiles

Tile Adhesive

**ECOFLOOR Mat**

**F-BOARD**

Tile Adhesive

Sub-Floor – or Existing Floor (before renovation)
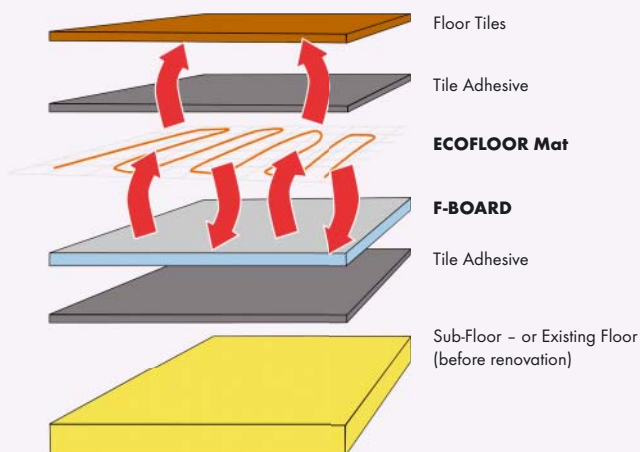
# ECOFLOOR ACCESSORIES

| Product | Description | Quantity supplied | Cat. No. |
|---|---|---|---|
| | Eaves trough clip | 25 pcs | 2350000 |
| | Gutter clip | 25 pcs | 2350003 |
| | Chain (1 m = 22 links) | 10 m | 2350004 |
| | GRUFAST fastening strip, 1 unit=10m | 1 unit | 4200013 |
| | Plastic cable clip | 50 pcs | 1200000 |
| | Ecofloor strip, 0.5 m length | 1 | 2350001 |
| | Flex strip, 0.5 m length | 1 | 2350002 |
| **REPAIR KIT** | | | |
| | Kit no. 1 for P1P cable repair | 1 | 5030121 |
| | Kit no. 2 for ADSV, ASL1P Mat LD and LDTS cable repair | 1 | 5030122 |
| | Kit no. 3 for PSV, MADPSP and ADPSV cable and mat repair | 1 | 5030123 |
| | Kit no. 4 for connection and termination of self-limiting cables | 1 | 5030124 |
| | Kit no. 5 for MADPSP installed under asphalt | 1 | 5030125 |
| **OTHER ACCESSORIES** | | | |
| | Aluminium self-adhesive tape, 50 mm width, 50 m length | 1 | 2832515 |
| | SYFOK-B – fixation cables for nonstandard eaves and valleys | 20 m | 2350010 |
| | SYFOK-P – fixation cables for nonstandard eaves, gutters and valleys | 20 m | 2350012 |
| | Cable spacer for 4,5 cm loops | 25 pcs | 2350014 |
| | C-shaped copper roof spacer | 25 pcs | 2350005 |





Chain

Eaves trough clip

Gutter clip
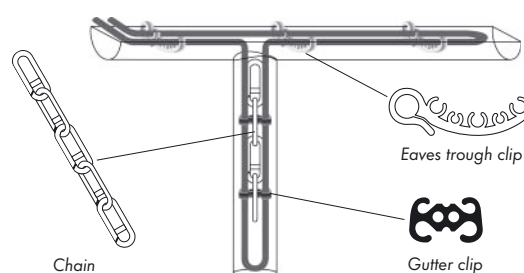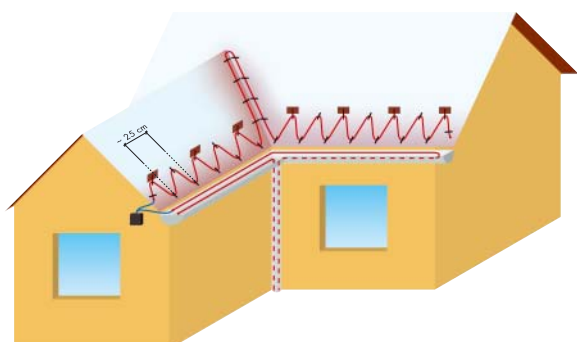
Ecofilm heating films use state of the art technology and are primarily used for heating large surfaces. These heating systems are composed of laminated polyester films with a graphite coating, supply leads, and accessories. We offer ECOFILM films in 3 versions: underfloor heating films ("F"), ceiling films ("C") and mirror heating films.

The F film is installed directly beneath a floating floor. Due to its ultra thin profile (max 0,4 mm thick) the original construction height of the floating floor is hardly affected. This silent, unobtrusive and dry-laid underfoot heating system is highly reliable and has a long life span. We provide a 10-year warranty for ECOFILM heating films, however their operational life can be longer (30–50 years). The product has been tested according to European standards.

## ECOFILM set

The do-it-yourself kit for underfloor heating may be installed easily, quickly by following the relevant instructions. No professional installation company required. The final electrical connection must be carried out by a qualified electrician. As the Ecofilm set comes complete for installation, no accessories are needed. We recommend 60 W/m² for a floating wooden floor and 80 W/m² for a floating laminated floor.

### The Ecofilm set includes:

■ Ecofilm F608/55 (F606/55, 1008) electrical heating film delivered in rolls of various lengths according to the customer's requirements and layout plan. The heating film is supplied with insulated cut edges and cold leads.
■ An additional pair of insulation discs for insulating the copper electrodes of the heating film in the event that there is a requirement to shorten the length of the heating film.
■ Installation manual.

The film is fitted with two SK AV1.5 cold leads 3 mm in diameter and 5 m long.

**Simplified Example of ECOFILM Set**
Design Total surface area 4.3×3.1 m. Heating under laminated floor.
**Recommended application:** ECOFILM Set 80 W/m².
**Note: Heating Parts of the film must not overlap and their minimal distance from fixtures and wall shall be 5 cm.**
Owing to the following note, 3 film strips (1000 mm wide) 3 m long and 2 m long and 2 film strips (600 mm wide) 3 m and 2 m long may be used. For the given application it is recommended 2×Eset 80-3/234, 1×Eset 80-3/132, 1×Eset 80-2/156 and 1×Eset 80-2/88 + temperature control.

| TYPE | WIDTH [mm] | | Output (W/m²) | LENGTH [m] | Total Output [W] | Cat. No. |
|------|-----------|--------|---------------|-----------|---------------|----------|
| | TOTAL | ACTIVE | | | | |
| Eset 60-2/66 | | | | 2 | 66 | 6652500 |
| Eset 60-3/99 | | | | 3 | 99 | 6652505 |
| Eset 60-4/132 | | | | 4 | 132 | 6652510 |
| Eset 60-5/165 | 600 | 550 | 60 W/m² (230V) | 5 | 165 | 6652515 |
| Eset 60-6/198 | | | | 6 | 198 | 6652520 |
| Eset 60-8/264 | | | | 8 | 264 | 6652525 |
| Eset 60-10/330 | | | | 10 | 330 | 6652530 |
| Eset 80-2/88 | | | | 2 | 88 | 6652540 |
| Eset 80-3/132 | | | | 3 | 132 | 6652545 |
| Eset 80-4/176 | | | | 4 | 176 | 6652550 |
| Eset 80-5/220 | 600 | 550 | 80 W/m² (230V) | 5 | 220 | 6652555 |
| Eset 80-6/264 | | | | 6 | 264 | 6652560 |
| Eset 80-8/352 | | | | 8 | 352 | 6652565 |
| Eset 80-10/440 | | | | 10 | 440 | 6652570 |
| Eset 80-2/156 | | | | 2 | 156 | 6652710 |
| Eset 80-3/234 | | | | 3 | 234 | 6652715 |
| Eset 80-4/312 | | | | 4 | 312 | 6652720 |
| Eset 80-5/390 | 1000 | 970 | 80 W/m² (230V) | 5 | 390 | 6652725 |
| Eset 80-6/468 | | | | 6 | 468 | 6652730 |
| Eset 80-8/624 | | | | 8 | 624 | 6652735 |
| Eset 80-10/780 | | | | 10 | 780 | 6652740 |
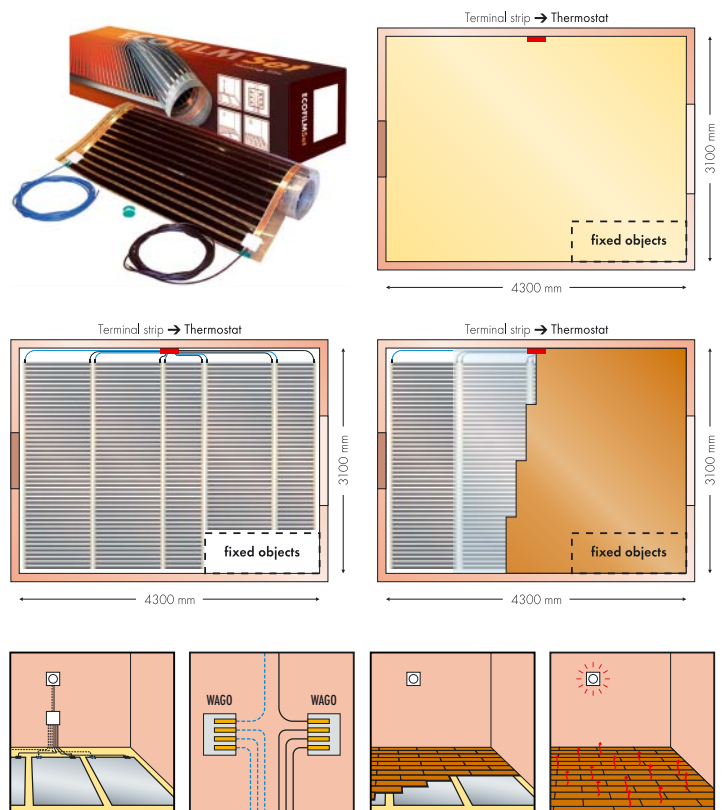
# ECOFILM F – underfloor heating film

Flexible Ecofilm heating film is the ideal solution for economical electric underfloor heating for laminated and wooden floating floors. The product is ultrathin, yet robust, and is a dry-laid system that is easy to install.

## Easy, precise and fast installation

The heating film is produced in rolls 600 mm wide (550 mm heating surface, two 25 mm non-heating edges) and 1 000 mm wide (970 mm heating surface, two 15 mm non-heating edges). Thanks to its special material composition, the heating film may be cut every 10 mm to obtain exactly the required length of strips. The strips are laid side-by-side across the entire heating surface and are interconnected in parallel using cables with connectors. ECOFILM F heating components must neither overlap nor cross one another. This method of laying the film saves time and especially reduces labor costs. Installers will appreciate that the floating or wooden floor may be laid immediately after the heating film is installed and connected.

## Gentle and safe heating for your comfort

Heating film makes an ideal floor heating system for laminated or wooden floating floors. The technical parameters of the heating film ensure that the materials' temperature resistance values are observed. Health safety standards are also maintained too as the maximum floor surface temperature is thermostatically limited to 27 °C. Traditional heaters which utilise a liquid to transfer the heat, operate at for example, significantly higher temperature sand results in a greater fluctuation in air humidity and undesirable effects on wooden and laminated floors. It is hardly surprising that this sophisticated system has been used to safely and comfortably heat in excess of 2,5 million m² of floors throughout Europe and has been warmly endorsed by such leading floor manufacturers as PERGO, SCANDIFLOOR, ALLOC, KÄHRS and JUNCKERS.



| TYPE * | WIDTH [mm] | | Output [W/m²] | Output [W/m] | Cat. No. |
|--------|------------|--------|---------------|--------------|----------|
| | TOTAL | ACTIVE | | | |
| **Laminate, wood or real timber floor** | | | | | |
| ECOFILM F 608/55 | 600 | 550 | 80 | 44 | 6652302 |
| ECOFILM F 606/55 | 600 | 550 | 60 | 33 | 6652301 |
| ECOFILM F 1008 | 1000 | 970 | 80 | 78 | 6652310 |
| **Other types of floor film** | | | | | |
| ECOFILM F 630 | 600 | 500 | 300 | 150 | 6652003 |
| ECOFILM F 624 | 600 | 500 | 240 | 120 | 6652006 |
| ECOFILM F 620 | 600 | 500 | 200 | 100 | 6652001 |
| ECOFILM F 615 | 600 | 500 | 150 | 75 | 6652005 |

*) delivered in roll, order accessories required for installation



■ ideal temperature characteristic
■ under-floor heating temperature characteristic
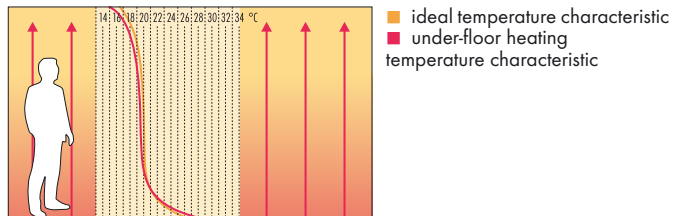
ECOFILM F
with accessories





ECOFILM F connection in parallel with Mastic
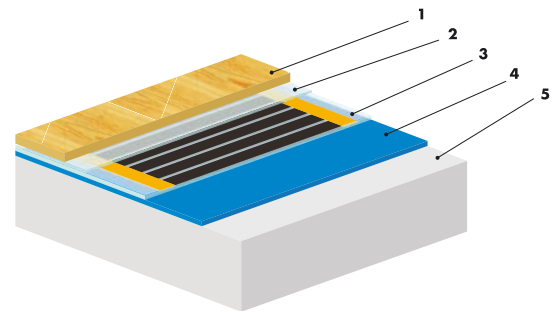
**Sectional view of laminated** (wooden) **floor** (reconstruction)
***Concrete base***

**5**) Prepare the floor base. **4**) Lay insulation (e.g. Extrupor – **see page 23**).
**3**) Spread the ECOFILM F heating film. **2**) Complete wiring and cover the floor with polyethylene (protective) film. **1**) Lay laminated floor.

Illustration photo—installation of ECOFILM F608 under floating floor

# ECOFILM C – ceiling heating film

ECOFILM C heating films provide an ideal ceiling heating system with balanced heat distribution throughout the room (without temperature gradients). Control of the ECOFILM C'S temperature I achieved by the use of an electronic thermostat which controls the room temperature. As it is a radiant heating system, the same comfort level as achieved by convection heating may be obtained at lower temperatures. Generally, reducing the temperature by 1 °C lowers total heating costs by 6 %.
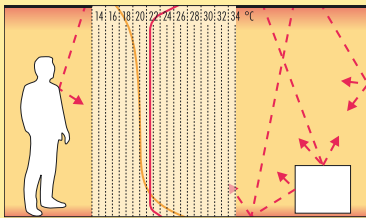
■ ideal temperature characteristic
■ ceiling radiant heating temperature characteristic

ECOFILM C
with connected cold lead
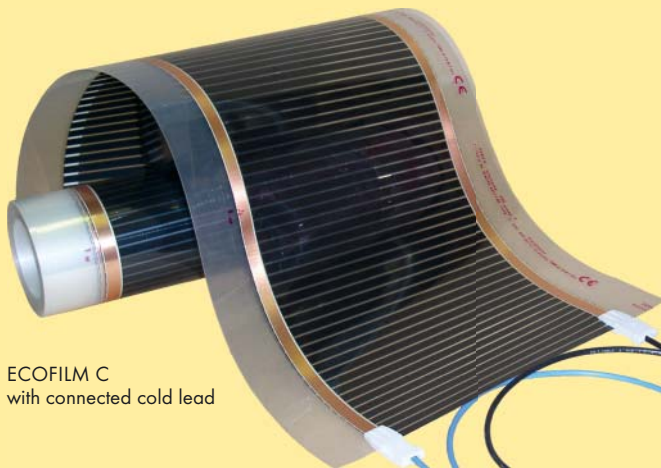
| TYPE * | WIDTH [mm] | | Output [W/m²] | Output [W/m] | Cat. No. |
|---|---|---|---|---|---|
| | TOTAL | ACTIVE | | | |
| ECOFILM C 420 | 400 | 300 | 200 | 60 | 6652102 |
| ECOFILM C 414 | 400 | 300 | 140 | 42 | 6652202 |
| ECOFILM C 520 | 500 | 400 | 200 | 80 | 6652210 |
| ECOFILM C 514 | 500 | 400 | 140 | 56 | 6652220 |
| ECOFILM C 620 | 600 | 500 | 200 | 100 | 6652004 |
| ECOFILM C 614 | 600 | 500 | 140 | 70 | 6652002 |

*) delivered in roll, order accessories required for installation

Installation of connector cover
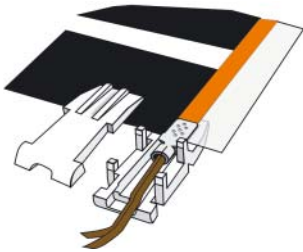
Installation: Crimp connector and cold lead
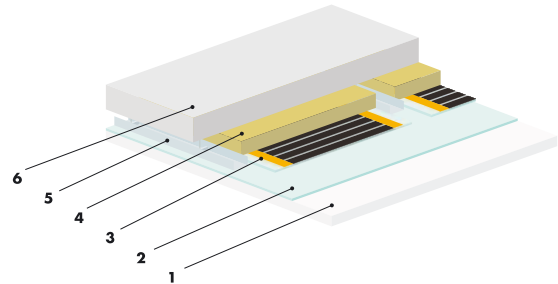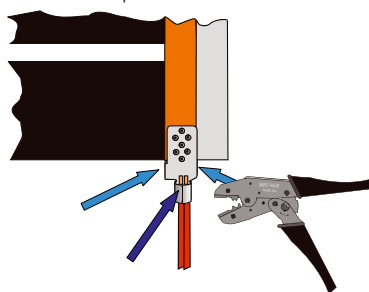
**Sectional view of ceiling structure**

***Metal joists***

Install joists (**5**) to the ceiling structure (**6**). Lay thermal insulation (min. 50 mm) (**4**). Spread the ECOFILM C heating film (**3**). Lay PE film as moisture barrier (**2**). Complete wiring and cover with plasterboard (max. 16 mm thick) (**1**).
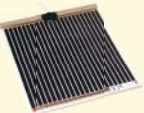
Illustrative photos of ECOFILM C installation on metal joists

## MIRROR HEATING FILM – perfectly prevents mirror fogging

Safety operation

The Ecofilm MHF film operates at low temperatures and prevents overheating or damage to the mirror. Installation is simple and fast. The MHF film has an adhesive layer (with release backing) that easily sticks to the rear of a mirror. The mirror heater can be wired into the electric circuit of a lighting fixture so that it is activated whenever the light is switched on. Considering its low input, the heating films operating costs are negligible. The ECOFILM MHF heating film requires no maintenance.

| TYPE | Output [W] | Dimension [mm] | Cat. No. |
|---|---|---|---|
| MHF 12 | 12,5 | 274×252 | 6651850 |
| MHF 25 | 25 | 274×574 | 6651860 |
| MHF 50 | 50 | 524×519 | 6651870 |
| MHF 100 | 100 | 524×1004 | 6651880 |

1 m cold lead
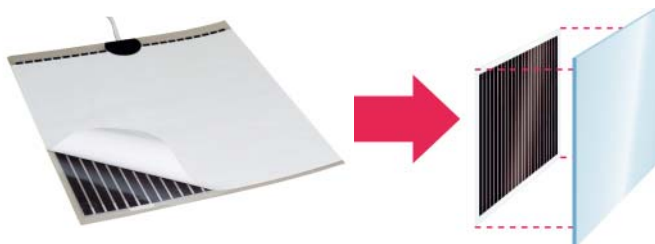
## ECOFILM ACCESSORIES

| Product | Description | Amount supplied | Cat. No. |
|---|---|---|---|
| | **Crimp connector** for Ecofilm C and F | 1 unit | 6651001 |
| | **Crimp cover** for Ecofilm C | 1 unit | 6651002 |
| black blue | **Cold lead 1,5 for Ecofilm C** | 1 m | 665100x |
| | **Cold lead AV 1,5 for Ecofilm F** | 1 m | 66510x0 |
| | **Cold lead AV 2,5 for Ecofilm F** | 1 m | 66510x0 |
| | Crimp tool | 1 unit | 6651003 |
| | **Insulating tape for sealing cut edges of heating film** 28 mm width/33 m length 38 mm width/33 m length | 1 roll | 6651026 6651028 |
| | **MASTIC VM** connector insulation for Ecofilm F 38 mm width (1 connector requires 0.1 m) | 1 m | 6651012 |
| | **WAGO connector (terminal strip)** for Ecofilm set | 1 unit | 6651007 |

| INSULATION | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Thickness [mm] | Capacity [kg/m³] | Conductivity [W/mK] | Pressing by 0,5 mm compressive strength | Dimension [mm] | Package | Cat. No. |
| CLIMAPOR 3 | 3 | 32 | 0,031 | 5 t/m² | 590×790 | 6,99 m² | 5442003 |
| EXTRUPOR 6 | 6 | 38,5 | min. 0,025 max. 0,035 | 20 t/m² | 1250×800 | 20 m² | 5442006 |

Wood / Laminate floor

Polyester Vapour Barrier

**ECOFILM Set**

**CLIMAPOR / EXTRUPOR**

Sub-Floor
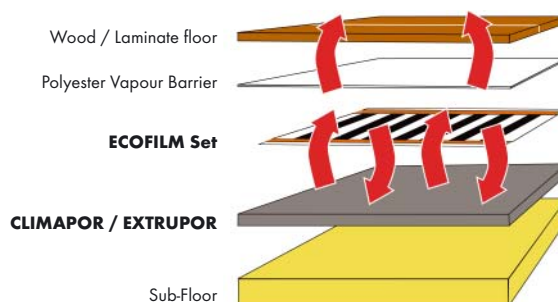
In convection heating, a heating body is used to warm the air which then distributes – transfers - heat as it flows over the surfaces of the objects to be heated. Most electrical convector heaters that our firm distributes comes with a precise electronic thermostat, as standard, with a contact variation of +0.5 °C.

**ECOFLEX EL** – electric convector with electronic thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Color: white with gray grid.

IP 24, class II; can be installed on C1 and C2 flammable surfaces; needed clearance (cm): bottom edge, 15 / top edge, 15 / front side, 10

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ECOFLEX EL 500 | 500 | 360×400×80 | 3,7 | 28 | 5415205 |
| | ECOFLEX EL 750 | 750 | 360×400×80 | 3,7 | 28 | 5415207 |
| | ECOFLEX EL 1000 | 1000 | 440×400×80 | 4,2 | 26 | 5415210 |
| | ECOFLEX EL 1250 | 1250 | 520×400×80 | 4,9 | 24 | 5415212 |
| | ECOFLEX EL 1500 | 1500 | 600×400×80 | 5,5 | 20 | 5415215 |
| | ECOFLEX EL 1750 | 1750 | 680×400×80 | 6,1 | 18 | 5415217 |
| | ECOFLEX EL 2000 | 2000 | 760×400×80 | 6,8 | 12 | 5415220 |

**ECOFLEX SL** – electric convector with electromechanical thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Color: white with gray grid.

IP 24, class II; can be installed on C1 and C2 flammable surfaces; needed clearance (cm): bottom edge, 15 / top edge, 15 / front side, 10

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ECOFLEX SL 500 | 500 | 280×400×80 | 3,7 | 40 | 5415105 |
| | ECOFLEX SL 750 | 750 | 360×400×80 | 3,7 | 28 | 5415107 |
| | ECOFLEX SL 1000 | 1000 | 440×400×80 | 4,2 | 26 | 5415110 |
| | ECOFLEX SL 1250 | 1250 | 520×400×80 | 4,9 | 24 | 5415112 |
| | ECOFLEX SL 1500 | 1500 | 600×400×80 | 5,5 | 20 | 5415115 |
| | ECOFLEX SL 1750 | 1750 | 760×400×80 | 6,1 | 12 | 5415117 |
| | ECOFLEX SL 2000 | 2000 | 840×400×80 | 6,8 | 12 | 5415120 |
| | ECOFLEX SL 2500 | 2500 | 1000×400×80 | 9,0 | 12 | 5415125 |

**ELITE PLINTHE ETP** – electric convector with electronic thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Compatible with RF Box. Color: white with white grid.

IP 24, class II; needed clearance (cm): bottom edge, 8 / top edge, 20 / front side, 10

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ELITE Plinthe ETP 05 | 500 | 600×245×80 | 3,0 | 36 | 5424305 |
| | ELITE Plinthe ETP 10 | 1000 | 920×245×80 | 5,0 | 18 | 5424310 |
| | ELITE Plinthe ETP 12 | 1250 | 1080×245×80 | 6,0 | 18 | 5424312 |

**ATLANTIC** – electric convector with electromechanical thermostat without pilot wire, for areas not requiring precise temperature regulation, such as stores and workshops. Color: white with white grid.
IP 24, class II; can be installed on C1 and C2 flammable surfaces; needed clearance (cm): bottom edge, 15 / top edge, 15 / front side, 15

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ATLANTIC 05 | 500 | 370×450×78 | 3,5 | 44 | 5412105 |
| | ATLANTIC 07 | 750 | 370×450×78 | 3,5 | 44 | 5412107 |
| | ATLANTIC 10 | 1000 | 445×450×78 | 4,1 | 34 | 5412110 |
| | ATLANTIC 12 | 1250 | 520×450×78 | 4,8 | 28 | 5412112 |
| | ATLANTIC 15 | 1500 | 590×450×78 | 5,4 | 24 | 5412115 |
| | ATLANTIC 17 | 1750 | 665×450×78 | 6,0 | 20 | 5412117 |
| | ATLANTIC 20 | 2000 | 740×450×78 | 6,5 | 18 | 5412120 |
| | ATLANTIC 25 | 2500 | 890×450×78 | 7,6 | 14 | 5412126 |

**ACTUA ETP** – electric convector with electronic thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Compatible with RF Box. Color: white with white grid.
IP 24, class II; needed clearance (cm): bottom edge, 15 / top edge, 20 / front side, 10

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ACTUA ETP 05 | 500 | 409×470×87 | 409×470×87 | 20 | 5424405 |
| | ACTUA ETP 07 | 750 | 409×470×87 | 409×470×87 | 20 | 5424407 |
| | ACTUA ETP 10 | 1000 | 489×470×87 | 489×470×87 | 16 | 5424410 |
| | ACTUA ETP 12 | 1250 | 569×470×87 | 569×470×87 | 16 | 5424412 |
| | ACTUA ETP 15 | 1500 | 649×470×87 | 649×470×87 | 14 | 5424415 |
| | ACTUA ETP 17 | 1750 | 769×470×87 | 769×470×87 | 8 | 5424417 |
| | ACTUA ETP 20 | 2000 | 849×470×87 | 849×470×87 | 8 | 5424420 |

**AIXANCE PRO** – radiant convector with electronic thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Compatible with RF Box. Color: white with white grid.
IP 24, class II; needed clearance (cm): bottom edge, 15 / top edge, 15 / front side, 10

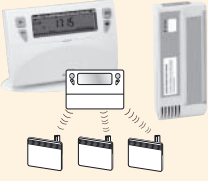| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | AIXANCE Pro 07 | 750 | 494×454×108 | 4,5 | 18 | 5435107 |
| | AIXANCE Pro 10 | 1000 | 599×454×108 | 5,5 | 16 | 5435110 |
| | AIXANCE Pro 15 | 1500 | 809×454×108 | 7,4 | 11 | 5435115 |
| | AIXANCE Pro 20 | 2000 | 1019×454×108 | 9,2 | 11 | 5435120 |

**CH 2000 B TURBO** – portable convector with electromechanical thermostat
IP 20, class I; needed clearance (cm): bottom edge, 5 / top edge, 10 / front side, 5

| IP 20 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | CH 2000B - TURBO | 750/1250/2000 | 580×375×110 | 5,0 | 20 | 5410010 |

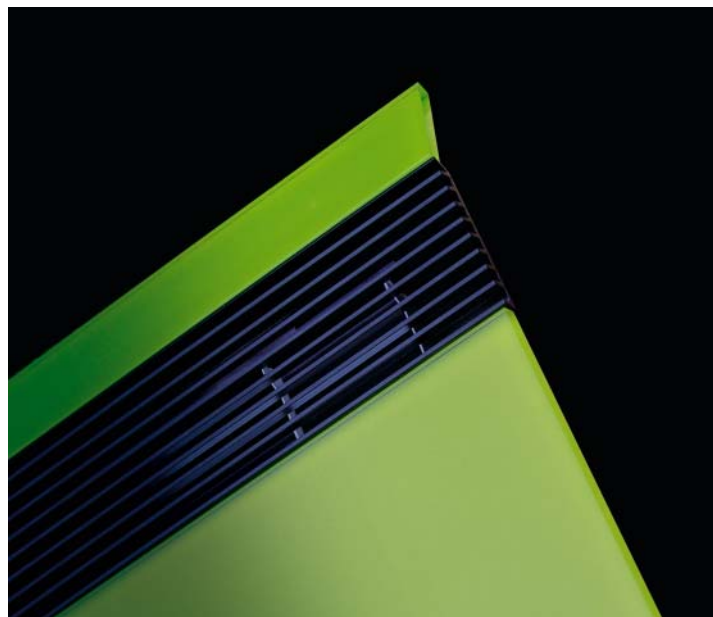**RF BOX, ECOBOX FP** – wireless regulation and regulation for pilot wire

By setting the thermostat regulations, it is possible to divide spaces into zones (ECOBOX FP: two zones, RF BOX: three zones) and to set a separate weekly program for each zone. Possibility of "holiday" setting to keep temperatures above freezing (at around 7 °C) for a set numbers of days (1–99), after which the system automatically returns to its normal regime.

| Product | Description | Cat. No. |
|---|---|---|
| RF transmitter | Pilot programmable unit for convector heating system. Wireless control | 4500320 |
| RF receiver | (radio frequency) system: transmitter-receiver. Installation: wall or freely portable. Unit for receiving signal from RF transmitter. Receiver must be installed directly in the convector (Actua, Elite, Aixance) and must be in any convector that is to be controlled by an RF transmitter. | 4500322 |
| Ecobox FP | Programmable unit for heating control transmitted over a pilot lead. ECOBOX FP should be installed on one of the convection heaters. The other convection heaters are connected to the main unit through the pilot wire and do not need additional equipment for receiving the signal. | 4500317 |

**ECOFLEX G** – glass convector with electronic thermostat and pilot wire, 4–5 °C setback control, 230 V/50 Hz. Available in black, red, or yellow-green.
IP 24, class II; needed clearance (cm): bottom edge, 15 / top edge, 15 / front side, 15

| IP 24 | Type | [W] | Dimmensions [mm] | Weight [kg] | Quantity on pallet | Cat. No. |
|---|---|---|---|---|---|---|
| | ECOFLEX G 10 | 1 000 | 500×520×100 | 14 | 6 | 54367**X**0 |
| | ECOFLEX G 15 | 1 500 | 660×520×100 | 18 | 6 | 54367**X**2 |
| | ECOFLEX G 20 | 2 000 | 900×520×100 | 27 | 3 | 54367**X**4 |

# THERMOSTATS AND CONTROLS

| Product | Description | Cat. No. |
|---|---|---|
| **ANALOG ROOM THERMOSTAT** | | |
| FLASH 25800 | 10 A, bimetallic thermostat with signaling, without temperature setback, 5–35 °C | 4200110 |
| FLASH 25805 | Same as a 25800, with temperature setback 3–7 K, invisible control, IP 30. | 4200111 |
| FLASH 25614 | Same as a 25800, with temperature setback 3–7 K, accuracy 0.5 K, IP 30. | 4200112 |
| EBERLE RTR - E 6202 | 10 A, with temperature setback 5 K, accuracy 0.5 K, switch, 5–30 °C | 4066026 |
| EBERLE RTR - E 6124 | 10 A, with temperature setback 5 K, accuracy 0.5 K, 5–30 °C | 4066020 |
| FENIX-Therm 100 | 12 A, IP 21, heat differential of 0.5 °C, switch, 0–45 5–30 °C (ambient air), 5–50 °C (floor) | 4200130 |
| Frame for FENIX-Therm 100 | Frame for use in wall mounting. | 4200131 |
| **DIGITAL ROOM THERMOSTAT** | | |
| FENIX Therm 350 | Programmable digital thermostat with fuzzy logic and three separate functions: room and floor thermostat, floor thermostat (factory set) or room thermostat;two preset programs, possible to use own settings. Each day can be set separately, four events per day. Air temp. range/ floor range 5–37 °C, 16 A, frost protection program, IP 21, power reserve 36 hours, 230 V; equipped with a LED dual function, switch on/off, lock, adaptive function and switch-on time (as a percentage for the last 24 hours, 7 days, 30 days or 365 days). | 4200128 |
| EBERLE INSTAT 2 | Programmable digital thermostat. Week divided into workdays and weekends, with four changes per day possible. Heating indicator on display, accuracy 0.5 K, 8 A, IP 30, air sensor 5–30 °C. | 4065003 |
| EBERLE INSTAT 8 | Digital thermostat with fuzzy logic. 3 adjustable temperatures, 6 variable time periods per day, anti-freezing protection, "party" function, operating clock counter, manual operation possible, temperature display, button locking. Heating indicator on display, accuracy 0.1 K, 8 A, IP 34, air sensor 5–40 °C, floor sensor 5–50 °C. | 4065008 |
| TH 810 T | The outlet thermostat adjusts the outlet according to the set room temperature. Temperature range is 5–30 °C (±1 °C). Optional mode for cooling/heating.Maximum switched current is 16 A (3,500 W). Maximum time for backed-up operation is 3 hours. Displays both set and current temperature in the room. Does not allow time programming. | 4065110 |
| **TEMPERATURE REGULATORS FOR SUPPLEMENTAL UNDERFLOOR HEATING** | | |
| FENIX Therm 350 | Programmable digital thermostat with fuzzy logic and three separate functions: room and floor thermostat, floor thermostat (factory set) or room thermostat;two preset programs, possible to use own settings. Each day can be set separately, four events per day. Air temp. range/ floor range 5–37 °C, 16 A, frost protection program, IP 21, power reserve 36 hours, 230 V; equipped with a LED dual function, switch on/off, lock, adaptive function and switch-on time (as a percentage for the last 24 hours, 7 days, 30 days or 365 days). | 4200128 |
| FENIX-Therm 100 | 12 A, IP 21, heat differential of 0.5 °C, two-pole switch, 0–45 5–30 °C (ambient air), 5–50 °C (floor) | 4200130 |
| Frame for FENIX-Therm 100 | Frame for use in wall mounting. | 4200131 |
| EBERLE FR - E 525 31 | With floor sensor (4 m), 10–60 °C, 14 A, accuracy 1 K, IP 40, switch. | 4070004 |
| EBERLE Fre 525 22 | With floor sensor (4 m), 10–50 °C, 10 A, with temperature setback, accuracy 1 K, IP 30, Switch | 4070006 |
| ENSTO ECO 16 FRJ | 16 A, temperature setback +5, -15 K, IP 30, two-pole switch, 5–35 °C (ambient), 25–40 °C (floor), | 4200094 |
| ELFC 44 | Capping strip for ECO 16 FRJ thermostat for increased IP coverage on IP 44. | 4200093 |
| MICROLINE OCC2 - 1991 H | Digital thermostat with fuzzy logic, floor probe (3 m) 5–40 °C, weekly program, 16 A, preset with 6 set programs, IP 21, time meter, two-pole switch. | 4200012 |
| Aube TH 132-AF | Digital thermostat with fuzzy logic, ambient air sensor 5–30 °C, floor (3 m) +5 °C to +40 °C, programming: 7 day, 4 time periods/day, 2 temperature settings, accuracy 0.5 K, IP 20. | 4200125 |
| Snubber AC130-03 | If a contactor is used between the thermostat TH132-AF and the load, install a snubber at the contactor's coil terminal to ensure the proper operation of the thermostat | 4200127 |
| EBERLE INSTAT 8 | Digital thermostat with fuzzy logic. 3 adjustable temperatures, 6 variable time periods per day, anti-freezing protection, "party" function, operating clock counter, manual operation possible, temperature display, button locking. Heating indicator on display, accuracy 0.1 K, 8 A, IP 34, air sensor 5–40 °C, floor sensor 5–50 °C. | 4065008 |
| F 193720 | Floor sensor (4 m) for Instat 8, fit with probe for Fre 525xx. | 4071006 |
| **TEMPERATURE REGULATION FOR MAIN UNDERFLOOR HEATING** | | |
| FENIX Therm 350 | Programmable digital thermostat with fuzzy logic and three separate functions: room and floor thermostat, floor thermostat (factory set) or room thermostat;two preset programs, possible to use own settings. Each day can be set separately, four events per day. Air temp. range/ floor range 5–37 °C, 16 A, frost protection program, IP 21, power reserve 36 hours, 230 V; equipped with a LED dual function, switch on/off, lock, adaptive function and switch-on time (as a percentage for the last 24 hours, 7 days, 30 days or 365 days). | 4200128 |
| FENIX-Therm 100 | 0–45 5–30 °C (ambient air), 5–50 °C (floor), 12 A, IP 21, heat differential of 0.5 °C, two-pole switch. | 4200130 |
| Frame for FENIX-Therm 100 | Frame for use in wall mounting. | 4200131 |

| Product | | Description | Cat. No. |
|---|---|---|---|
| | Aube TH 132-AF | Digital thermostat with fuzzy logic, ambient air sensor 5–30 °C, floor (3 m) +5 °C to +40 °C, programming: 7 day, 4 time periods/day, 2 temperature settings, accuracy 0.5 K, IP 20. | 4200125 |
| | Snubber AC130-03 | If a contactor is used between the thermostat TH132-AF and the load, install a snubber at the contactor's coil terminal to ensure the proper operation of the thermostat | 4200127 |
| | EBERLE INSTAT 8 rw range 5–50 °C, switch over 8 A Placed on KP/KU 68 | Digital thermostat with fuzzy logic. 3 adjustable temperatures, 6 variable time periods per day, anti-freezing protection, "party" function, operating clock counter, manual operation possible, temperature display, button locking. Heating indicator on display, accuracy 0.1 K, 8 A, IP 34, air sensor 5–40 °C, floor sensor 5–50 °C. | 4065008 |
| | ENSTO ECO 16 FRJ | 5–35 °C (ambient), 25–40 °C (floor), 16 A, temperature setback +5, -15 K, IP 30, two-pole switch. | 4200094 |
| | ELFC 44 | Capping strip for ECO 16 FRJ thermostat for increased IP coverage on IP 44. | 4200093 |
| | MICROLINE OCD 2-1999 H | Digital thermostat with fuzzy logic, weekly program, 16 A, ambient air sensor 5–40 °C, floor (3 m) 5–55 °C, preset with 6 set programs, time meter, IP 20, two-pole switch. | 4200085 |
| | F 193 720 | Floor sensor (4 m) for Instat 8, fit with probe for Fre 525xx. | 4071006 |

## INDUSTRIAL ROOM THERMOSTAT
ANALOG WALL-MOUNTED THERMOSTATS WITH INCREASED PROTECTION (IP 54)

| Product | | Description | Cat. No. |
|---|---|---|---|
| | EBERLE AZT - A 524510 | Industrial thermostat with built-in space sensor and exterior scale. Ambient air sensor 5–35 °C, 10 A, accuracy 1–5 K. | 4066010 |
| | EBERLE AZT - A 524410 | Industrial thermostat with built-in space sensor and exterior scale. Ambient air sensor -15–15 °C, 10 A, accuracy 1–5 K. | 4066005 |
| | EBERLE AZT - I - 524510 | Industrial thermostat with built-in space sensor and interior scale. Ambient air sensor 5–35 °C, 10 A, accuracy 1–5 K. | 4066012 |
| | EBERLE AZT - I - 524410 | Industrial thermostat with built-in space sensor and interior scale. Ambient air sensor -15–15 °C, 10 A, accuracy 1–5 K. | 4066007 |

## INDUSTRIAL THERMOSTATS WITH SEPARATE SENSOR

| Product | | Description | Cat. No. |
|---|---|---|---|
| | EBERLE UTR/60 | 16 A, exterior/interior control, temperature range 0–60 °C, IP 65. | 4066037 |
| | EBERLE ITR-3 528 800 | 10 A, temperature range 0–60 °C, exterior and interior control, suitable for mounting on DIN strip, IP 40. | 4066040 |
| | EBERLE F 891 000 | Standard sensor, 4 m, PVC, IP 64. | 4066137 |
| | EBERLE F 892 002 | Placement sensor for UTR and ITR, IP 64 coverage and silicon insulation, 1.5 m. | |
| | EBERLE F 893 002 | Space sensor for UTR and ITR, IP 30, silicon insulation, 1.5m. | |
| | EBERLE F 897 001 | Space sensor without supply cable, IP 65. | |

## REGULATORS TO CONTROL HEATING OF ROOF DRAINS AND FREE AREAS

| Product | | Description | Cat. No. |
|---|---|---|---|
| | EBERLE EM 524 87 | Controller for regulating the heating of large surfaces or eaves troughs, Can be installed on a DIN strip. Preset standard program, LCD display, 8 modules, 10 A, IP 20. | 4600015 |
| | EBERLE ESF 524 001 | Snow/ice sensor for heating ground areas, 15 m. | 4610001 |
| | EBERLE TFF 524 002 | Temperature/humidity sensor for heating ground areas, 15 m. | 4610002 |
| | EBERLE ESD 524 003 | Snow and ice sensor for heating eaves troughs and gutters, 4 m. | 4610003 |
| | EBERLE TFD 524 004 | Temperature sensor for heating eaves troughs and gutters, 4 m. | 4610004 |
| | EBERLE DTR-E 3102 | Differential thermostat, 1 make contact, 16 A, temperature range -15–10 °C, IP 20. To be mounted on wall or DIN rail (3 modules), IP44. Only measures temperature; does not monitor the presence of water/snow/ice. | 4066038 |
| | OJ Electronik ETR/F-1447A | Differential thermostat, 230 V, 1 make contact, 16 A, temperature range -15–10 °C, IP 20. To be mounted on a DIN rail (3 modules), space sensor (IP44). Only measures temperature; does not monitor the presence of water/snow/ice. | 4600010 |

## REGULATORS TO CONTROL ATTENUATION AND TIME PROGRAMMABLE SWITCHES

| Product | | Description | Cat. No. |
|---|---|---|---|
| | FLASH Programer 2 | Control device with weekly planning for a full setback regime. Manual control possible, 8 circuits, 2 hour min. setting interval, 0.5 A, 250 V, IP 30. | 4100026 |
| | FLASH 23802 Monotron 200 | Control device with weekly planning for full settings. One-minute min. setting interval, 250 V, switching 2×16 A, can be mounted on DIN strip. | 4100030 |

## REGULATORS FOR REDUCTION OF MAIN CIRCUIT BREAKER VALUE

| Product | | Description | Cat. No. |
|---|---|---|---|
| | BMR HJ 101 | One-level regulation with breaking for three phases, 1×3 A, current settings of 1 to 120 A with precision to 1 A. | 4200230 |
| | BMR HJ 102 | Two-level regulation with breaking for three phases, 2×3 A, current settings of 1 to 120 A with precision to 1 A. | 4200231 |
| | BMR HJ 103 | Three-level regulation with breaking for three phases, 3×3 A, current settings of 1 to 120 A with precision to 1 A. | 4200232 |
| | BMR HJ 303 | One-level regulation with separate breaking for individual phases, 3×3 A, current settings of 1 to 120 A with precision to 1 A, size 6 modules. | 4200030 |
| | BMR HJ 306 | Two-level regulation with separate breaking for individual phases, 6×3 A, current settings of 1 to 120 A with precision to 1 A, size 6 modules. | 4200032 |
| | BMR HJ 316 | Two-level regulation with indirect measuring, separate breaking for individual phases, 6×3 A, current setting from 4 to 1024 A in increments of 4 A. | |

Three-phase current-load reliever – 6 modules.

# STORAGE HEATERS

## ECOSTATIC – Static Storage Heater

Basic Characteristics and Benefits

- Manually controlled electric storage heater
- Input and output adjustment according to the required comfort
- Attractively styled to suit modern home and office decor
- Very low lifetime maintenance
- Safe, easily controllable and highly reliable
- Upgraded and adjusted for use in bathrooms (IP X2)

| IP X2 | Type | Input [kW] | Max. capacity [kWh] | Voltage [V] | Dimmensions [mm] | Weight [kg] | Cat. No. |
|---|---|---|---|---|---|---|---|
| | WMX 706 | 0,85 | 6 | | 332×700×183 | 41 | 5604706 |
| | WMX 712 | 1,70 | 12 | 230~50Hz | 560×700×183 | 77 | 5604712 |
| | WMX 718 | 2,55 | 18 | | 788×700×183 | 110 | 5604718 |
| | WMX 724 | 3,40 | 24 | | 1016×700×183 | 140 | 5604724 |
| Towel racks | TR 706 N | Towel rack as an accessory for WMX 706 | | | | | 5604704 |

## ECODYNAMIC – Dynamic Storage Heater

Basic Characteristics and Benefits

- Electric fan storage heater with controllable heat output according to the Standards DIN 44574, IEC 60531 and the Safety Standard VDE 0720
- Equipped with a thermomechanical charge controller (liquid filled) and a thermomechanical safety controller (bimetal)
- Airflow in two channels inside the core
- One brick type for all heater models (material: magnesite MgO)
- High-quality Vermiculite and Microtherm® insulation (achieving lower surface temperatures and better heat accumulation)
- Only 25 cm deep
- No start-up procedure; may be operated by user immediately after installation
- Tube heating elements (special alloy steel)
- Radial flow fan for quiet and steady heat output
- Discharge controlled with an external room thermostat*
- Air outlet with bimetal flap system for high and constant heat output (automatic)
- Auxiliary heating element* installed in the air outlet area
- Sheet steel casing, phosphatized and enameled; color: creme-white with gray-brown air outlet grill
- With a wall spacer and either supporting feet* or a floor plate*
- Protective cover* for bathrooms
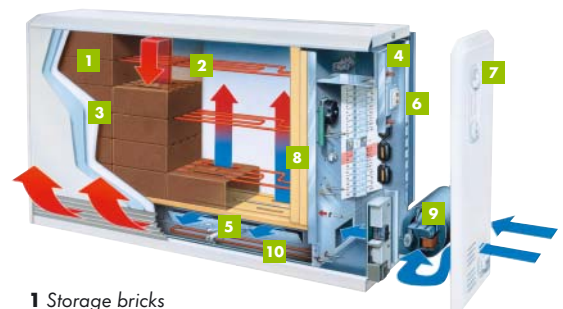
1 Storage bricks
2 Heating elements  3 Microtherm® insulation
4 Charge controller  5 Bypass system  6 Wall bracket
7 Charge adjustment  8 Vermiculite insulation  9 Fan
10 Auxiliary heating element (optional)

| IP X0 | Type | Input [kW] | Max. capacity [kWh] | Voltage [V] | Dimmensions [mm] | Weight [kg] | Cat. No. |
|---|---|---|---|---|---|---|---|
| | VFMi 20 | 2,0 | 16 | | 626×672×250 | 98 | 5604020 |
| | VFMi 30 | 3,0 | 24 | factory setting | 776×672×250 | 137 | 5604030 |
| | VFMi 40 | 4,0 | 32 | 400–3N~50Hz | 926×672×250 | 176 | 5604040 |
| | VFMi 50 | 5,0 | 40 | may be changed | 1076×672×250 | 215 | 5604050 |
| | VFMi 60 | 6,0 | 48 | by a qualified | 1226×672×250 | 254 | 5604060 |
| | VFMi 70 | 7,0 | 56 | technician to 230~50Hz | 1376×672×250 | 293 | 5604070 |

* available on a special order

# ATLANTIC

## electric water heater

Local heating not only provides you extra comfort, it also conserves electricity and water. Since these heaters are quite small, you can easily build one into a kitchen counter or the cabinet under the sink. Your kitchen's aesthetics can thereby be preserved.
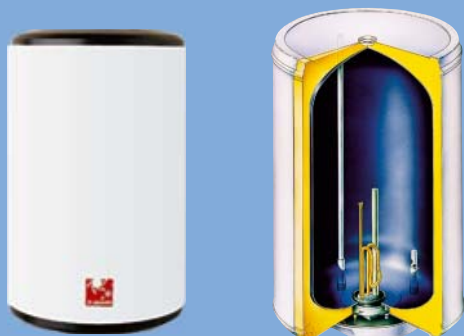
### Principal characteristics and advantages

- thermal insulation from polyurethane foam
- hot water outlet pipe
- enameled inner pressure tank
- exchangeable magnesium anode
- thermostat temperature sensor
- cold water inlet
- electrical heating element
- removable access flange
- thermostat

Low-volume units heat water very close to the place where it is to be used. This eliminates the large losses typical of central hot water sources, where pipes leading from the central boiler sap the water's heat as they pass through walls.

| Type | Capacity [l] | Voltage [V] | Input [W] | IP protection | Heating time | Net weight [kg] | Height [mm] | Diameter [mm] | Cat. No. |
|---|---|---|---|---|---|---|---|---|---|
| ATL 10 L | 10 | | 1600 | IP 25 | 0h 24min | 8 | 456 | 255 | 5451001 |
| ATL 10 LU | 10 | | 2000 | IP 24 | 0h 19min | 8 | 456 | 255 | 5451002 |
| ATL 15 L | 15 | | 1600 | IP 25 | 0h 35min | 9 | 399 | 338 | 5451500 |
| ATL 15 LU | 15 | | | IP 24 | 0h 28min | 9 | 399 | 338 | 5451502 |
| ATL 30 L | 30 | 220–240 | | | 0h 57min | 13 | 623 | 338 | 5453000 |
| ATL 50 L | 50 | | 2000 | | 1h 30min | 16 | 559 | 433 | 5455001 |
| ATL 80 L | 80 | | | | 2h 26min | 20 | 791 | 433 | 5455010 |
| ATL 100 L | 100 | | | IP 25 | 3h 02min | 22 | 948 | 433 | 5455020 |
| ATL 120 L | 120 | | | | 3h 35min | 29 | 1111 | 433 | 5455025 |
| ATL 150 L | 150 | | 2200 | | 4h 36min | 40 | 1241 | 505 | 5455030 |
| ATL 200 L | 200 | | | | 5h 50min | 50 | 1568 | 505 | 5455040 |

# SUPPLEMENTARY PRODUCTS

**HAND DRYERS** – electric hot-air units with fans for hands drying. Wall-mountable. Automatic sensor switch ensures hygienic operation.

| Type | Output | Switching sensor | Air temperature | Tension | Dimension [mm] | Weight [kg] | Cat. No. |
|---|---|---|---|---|---|---|---|
| ZY - 203 A (plastic) | 1800 W | 14–18 cm | 50–70°C | ~230 V 50 Hz | 240×240×240 | 2,5 | 5440010 |
| ZY - 202 A (metal) | 2700 W | 12–18 cm | 45–55°C | | 361×242×156 | 5,0 | 5440005 |

**TOWEL RADIATORS** – A towel radiator consists of a steel tube with an electric heating insert for wall mounting, most generally in bathrooms. It is suitable for drying towels as well as heating. Radiators come assembled, filled with freeze-resistant fluid, and equipped with a power supply cord and plug. Versions offered: Primo (straight horizontal tubing) and Rondo (curved horizontal tubing). Heating ladders are not supplied with thermostats but may be used with the TH 810 T thermostat. Color: white. IP 44.

| Type | | Output | Width | Hight | Cat. No. |
|---|---|---|---|---|---|
| **Primo 03** | | | | | |
| TP-03-500.1160 E | | 400 | 500 | 1 160 | 5441050 |
| TP-03-600.1160 E | Primo | 400 | 600 | 1 160 | 5441052 |
| TP-03-500.1424 E | | 500 | 500 | 1 424 | 5441054 |
| TP-03-600.1424 E | | 600 | 600 | 1 424 | 5441056 |
| TP-03-750.1732 E | | 800 | 750 | 1 732 | 5441058 |
| **Rondo 03** | | | | | |
| TR-03-500.1160 E | | 400 | 500 | 1 160 | 5441060 |
| TR-03-600.1160 E | Rondo | 400 | 600 | 1 160 | 5441062 |
| TR-03-500.1424 E | | 500 | 500 | 1 424 | 5441064 |
| TR-03-600.1424 E | | 600 | 600 | 1 424 | 5441066 |
| TR-03-750.1732 E | | 800 | 750 | 1 732 | 5441068 |

IP 44

# EXPORT MARKETS



| Argentina | Bulgaria | France | Japan | Netherlands | Slovenia |
|---|---|---|---|---|---|
| Armenia | Canada | Georgia | Korea | New Zealand | Spain |
| Australia | Columbia | Germany | Kazakhstan | Norway | Sweden |
| Austria | Croatia | **Great Britain** | Kingdom of Jordan | Poland | Switzerland |
| Belorussia | Cyprus | Greece | Latvia | Portugal | Syria |
| Benelux | **Czech republic** | Hungary | Lithuania | Romania | Ukraine |
| Bosnia and | Denmark | Chile | Macedonia | Russia | Uruguay |
| Herzegovina | Estonia | Ireland | Malta | Serbia | |
| Brazil | Finland | Italy | Montenegro | **Slovakia** | |

**FENIX**

# www.fenixgroup.eu

**HEADQUARTERS**
**FENIX GROUP a.s. • FENIX TRADING s.r.o.**
Slezská 2, 790 01  Jeseník, Czech republic;
Tel.: +420 584 495 111, 584 495 302;
Fax: +420 584 495 303;
E-mail: fenix@fenixgroup.cz



**PRODUCTION PLANT**
**FENIX s.r.o.**,
Jaroslava Ježka 1338/18a,
790 01  Jeseník, Czech republic
obchod@fenixgroup.cz



**BRANCH STORE**
**FENIX BOHEMIA**
Vejvanov 17, 338 28  Radnice
Czech republic
bohemia@fenixgroup.cz



**FLEXEL INTERNATIONAL LTD.**
Glenrothes, Fife, Scotland, www.flexel.co.uk
sales@flexel.co.uk



**FENIX SLOVENSKO s.r.o.**
Iliašská cesta 86, 974 01  Bánská Bystrica,
Slovakia, fenix@fenix.sk



**FENIX**