

**ELECTRIC**

# **UNDERFLOOR ALUMINIUM FOIL HEATING MATS**

**EN**

**INSTALLATION INSTRUCTIONS**



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## WARNING

- This appliance should be kept away from children aged under 3, unless they are under constant supervision.
- Children aged between 3 and 8 may only switch the appliance on or off, on condition that it is placed or installed in a normal, intended position and that the children are supervised or have received instructions concerning the safe use of the appliance and clearly understand the potential dangers. Children aged between 3 and 8 must not connect, adjust or clean the appliance or perform user maintenance.
- This appliance may be used by children aged 8 or older and persons with reduced physical, sensory or mental capacities, or lacking experience and knowledge, if they are properly supervised or if they have received instructions for using the appliance safely and if the risks entailed are taken into account. Children must not play with the appliance. The unit must not be cleaned or serviced by children without supervision.
- This appliance must only be connected by an authorised person in accordance with the rules and standards in force.
- You can access the user manual for this appliance by visiting the manufacturer's website indicated on the warranty card in this manual.

Appliances carrying this symbol must not be disposed of with household waste. They must be collected separately and recycled. Products at the end of their life must be collected and recycled in accordance with the local provisions and decrees.

## GENERAL INFORMATION TO INSTALLATION

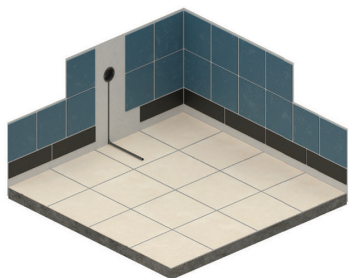
- The heating mat is intended exclusively for floating installation under removable floor coverings. This includes, in particular, laminate and other imitation wood flooring (e.g. click vinyl), but also parquet (if not glued) or carpet. In any case, the floor covering used must be applicable with underfloor heating.
- Floating floors compatible with low – temperature electric floors.
- The coverings must comply with the relevant standards, and adhere to a minimum thickness of 5 mm.
- The heating mat is not allowed for installation under ceramic and stone tiles, natural stone floors or similar hard floor coverings.
- Never electrically connect or turn the heating mats on while coiled.
- Only the heating mat cold lead wires are allowed to be lengthened or shortened during the installation.
- Never electrically connect or shorten the heating wires.
- Always install the electrical underfloor heating mat strictly using an all pole disconnection (e.g. relay, power contactor) with a contact opening of minimum 3 mm.
- Multiple heating mats must be connected parallel in a recessed electrical box.
- Always connect the braided shield or screen to the PE ground conductor.
- Always install the thermostat outside of the protected zone 2, according to VDE 0100.
- Always connect the electrical underfloor heating mat, by means of an electrical box, firmly to the power supply 230 VAC (3x1,5mm<sup>2</sup>). Electrical installation is only allowed according to DIN-VDE or local regulations and installation by a qualified electrician.
- Never exceed the total amperage of the thermostat (refer to thermostat specifications and installation instructions) by parallel connected heating mats.
- Never cross or fold the heating wires.
- Never bend the heating cables less than 30 mm radius at the turnings.
- Always operate the electrical underfloor heating mat with a ground fault circuit breaker (30mA).
- Never impact the termination joints more than 120 N.
- Never install the heating cable over a building expansion joint.
- The minimum installation temperature is +5°C.
- Never install the heating conductors through or behind insulation material. Further, they can't be laid under furniture, bathtubs, shower trays or similar.
- Heat accumulation in these areas and the fasteners (nails, screws, etc.) used to install the fixed objects could damage the heating cable.
- The minimum distance of the heating mat to the wall or to ascending components (e.g. bathtubs, shower trays) must be 5 cm. The distance to conductive building parts (e.g. hot water pipes) must be at least 3 cm. In order to remain flexible in the positioning of the furniture, or in cases where the final position of the furniture is not yet known, a distance of 60 cm to the partition wall should be kept free.
- Before and after the installation, always measure and record the total resistance of the heating mat and the insulation resistance.
- Always make sure all electrical work is executed by qualified persons in accordance with the local building regulations, electrical codes and the latest VDE regulations (for example VDE 0700 Part 753, VDE 0700 Part 701 and DIN VDE 1264-3).

- Always verify that the existing floor thermal insulation complies with the latest technical standards and regulations. Therefore, a high energy consumption is excluded.
- Make sure that the complete room floor is covered with a special sustainable and temperature-resistant impact sound insulation before installation of the heating mat.
- Never install the electrical heating mat in walls or ceilings.
- The heating mat must not be embedded in screed, cement, levelling compound or similar materials. It must always be laid floating and must not be glued.
- We guarantee that our products are free from defects in materials and workmanship. Products that have been mechanically damaged due to incorrect connection or due to disregard of the terms of operating rules and servicing, are not subject to warranty repairs, replacement or return.
- The subfloor should be even, secure, solid and with an appropriate load capacity. The surface has to be dry, clean, free of grease, dust and sharp objects.
- If the subfloor is uneven, it is necessary to level it, using a self-leveling floor compound before installation of the heating section in order to avoid air cavities underneath the heating section. Never turn on the underfloor heating system before the leveling compound or spattling compound is fully hardened.
- Always use materials for the installation which are certified by the manufacturer for underfloor heating systems.
- Always install the cold lead cable of the heating mat inside a separate corrugated tube (DIN EN 61386-1).
- Always install the floor temperature sensor cable inside a separate corrugated tube (DIN EN 61386-1).
- The heating mat should not be exposed to temperatures above 80°C (rated limit temperature, heating element).

## INSTALLATION PLAN

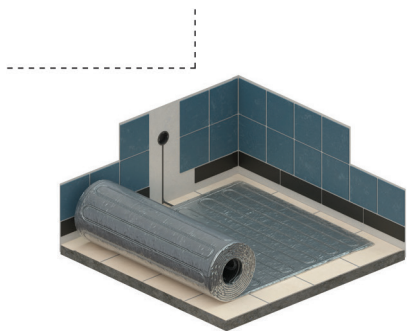
Draw the layout of the electrical underfloor heating mat and write down the zones free of the heating mat and spacings at the surrounding walls. The distance of the electrical heating mat and any conductive parts of the building have to be at a minimum of 30 mm (for example, water pipe).

## INSTALLATION



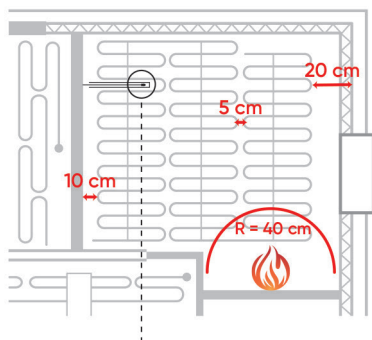
### SUBFLOOR PREPARATION

The subfloor should be even, secure, solid and with an appropriate load capacity. The surface has to be dry, clean, free of grease, dust and sharp objects. If the subfloor is uneven, it is necessary to level it, using a self leveling floor compound before installation of the heating mat, in order to avoid air cavities underneath the heating mat. Never install the heating cable over a building expansion joint. The unevenness of the prepared support must be less than or equal to 5 mm under a 2 m ruler, and 2 mm under a 0.2 m ruler. If the evenness tolerances are not observed, an evenness adjustment must be made on the prepared support (old covering preserved, or underlying support bared), using a floor finish designed to restore the floor concerned



### THERMOSTAT INSTALLATION PREPARATION

Chisel out channels for the power supply wires, cold leads and temperature sensor in the wall and floor (Attention! Cold leads and sensor cable have to be installed into two separate corrugation tubes!). A standard plastic round recessed electrical box with 230 VAC power supply is preferred for installation at the chosen thermostat location. A ground fault circuit breaker (30 mA) must be provided.



## MAT ADJUSTMENT

Lay a **rigid and temperature resistant sound insulation** before installing the heating mat. Cutting of the heating mat aluminum carrier may be necessary to lay the heating system on the required surface form. To do this, cut the heating mat aluminum foil at the intended turning point (**ATTENTION!!! Do not damage the heating cable!**) and expose the heating cable loop at the long edge. Lift the heating cable out of the way while cutting.

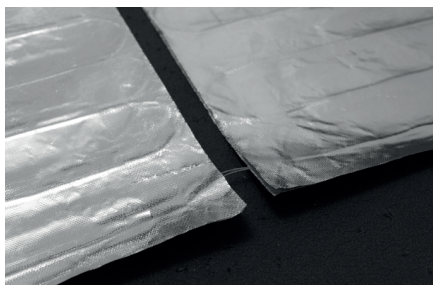
After the heating mat has been cut and the planned installation layout has been achieved, use **the included aluminum foil adhesive strips**. At the turning point, first stick an adhesive strip onto the previously installed impact sound insulation. Position the adhesive strip in the way that both parts of the mat are in contact with the adhesive strip when the heating mat is in final laying position. This is important to restore the electrical grounding of the heating mat to the cut-off part of the mat. **ATTENTION!!! It is not sufficient to simply stick the adhesive strip from above onto both parts of the mat, as the adhesive layer is not conductive, and thus earthing cannot be established.** Next, stick a second aluminium foil adhesive strip over the cable exposed at the turning point to additionally protect from mechanical damage and to fix the heating mat (cf. page 6). The exposed heating cable **must be completely (!) covered with the adhesive strip. Do not overlap (!) adjacent parts of the heating mat, any exposed heating cables must not cross (!).** If the heatingmat has been turned several times, the steps described before must be performed at each turning point.

The heating mat must be laid without creases on the floor!

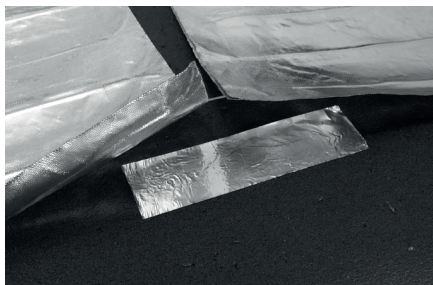
**Never install the heating mats under floor boards or other wooden floors, fastened or connected with nails or brackets!** The heating mat can be installed either sided as there is no predefined upper or bottom side. Be careful not to damage the heating conductor insulation during the laying of the flooring.



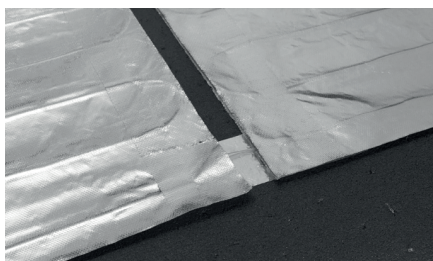
Cut the heating mat at the intended turning point (**ATTENTION!!! Do not damage the heating cable!**) and turn the mat.



Stick a first adhesive strip onto the previously installed impact sound insulation.



The adhesive strip to be positioned **so that both parts of the mat are in contact with the adhesive strip (!)**. The heating cable exposed at the turning point rests on the adhesive strip.



Then stick a second aluminium foil adhesive strip above the cable exposed at the turning point.

## KEEPING THE SAFETY DISTANCE

Keep a safety distance of 2 cm minimum between the turnings of the mat. Take caution not to drop sharp objects or stepping on the heating cables in order to avoid damage to the heating mat. Wear soft elastic sole shoes and cover the mat surface with lightweight plywood boards or other material in order to prevent damage of the heating mat cables during installation.

## INSTALLATION WITH DIFFERENT FLOOR FINISHINGS

PVC and carpet floor finishings: Attention must be paid to an appropriate thermal conductivity of the surface covering. Insulation values and thicknesses should not exceed those stated under THERMOSTAT INSTALLATION AND FLOOR CONSTRUCTION. If the subfloor is uneven, it is necessary to level it using a self-leveling floor compound before installation of the heating mat in order to avoid air pockets underneath the heating mat. Never install the heating cable over a building expansion joint.

## FLOOR TEMPERATURE SENSOR INSTALLATION

The floor temperature sensor cable has to be placed into a separate conduit according to EN 61386-1. It should be placed at heating level directly underneath the heating mat by chiselling out a groove in the subfloor. The sensor should be centrally positioned between two heating conductors, which is in the middle of a cable loop. Route the heating mat cold lead through a separate corrugated tube sideward to the recessed electrical box with not crossing the heating conductor! Do not cross the cold lead over or place it closer than about 2 cm to the mat heating wires. Thermostat installation requires a standard plastic wall mounting box with 230 V AC mains connection cable from the local wiring at the intended location. A fault-current circuit breaker (30 mA) has to be used. **Double-check that the floor temperature sensor is positioned in a corrugated tube (Ø16mm) and can be easily removed from; check this during installation of the conduit and again before installation of the screed and floor covering respectively!**

Before fitting the heating foil on the floor, you need to fit the floor sensor:

1. Unroll the foil into the floor.
2. Position the foil in its final position, in the vicinity of the thermostat position.
3. Mark out the position of the sensor on the floor, before making a groove for it: the position must be parallel to the foil heating cable, and equidistant between 2 loops of the heating cable.
4. Make a 50 cm long groove in the floor (20 mm x 20 mm) starting from the wall, and perpendicular to the wall.
5. Insert the floor sensor in a Ø16 mm electrical sheath, which has been cut to length in advance, and one end of which you have plugged with a leaktight seal.
6. Fit the sheath equipped with the sensor in the groove and feed it through to the position on the receiver for subsequent connection.
7. Fix the sheath in the floor, using binding mortar.
8. Mark on the floor the position of the sensor to ensure that the heating foil is correctly positioned in relation to the sensor.

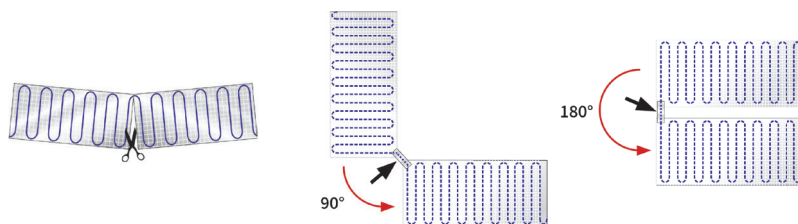
# THERMOSTAT INSTALLATION AND FLOOR CONSTRUCTION

|                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------|
| Electrical thermostat; Power supply distribution cable NYM 3 x 1,5 mm²                                          |
| Corrugated tube for the temperature sensor or the cold lead (both are not to be installed inside the same tube) |
| Recessed electrical box (only necessary for more than one heating mat)                                          |
| Floor finishing*                                                                                                |
| Electro-Comfort Ultra-Thin heating mat embedded in tile adhesive                                                |
| Temperature sensor, centered between two heating conductors                                                     |
| Subfloor with thermal insulation                                                                                |

| Floor finishing* |  | Rλ          |            |
|------------------|-----------------------------------------------------------------------------------|-------------|------------|
| Tile             | ≤ 13 mm                                                                           | 0.012 m²K/W | (0.12 TOG) |
| Carpet           | ≤ 10 mm                                                                           | 0.09 m²K/W  | (0.90 TOG) |
| PVC              | ≤ 2 mm                                                                            | 0.01 m²K/W  | (0.10 TOG) |
| Cork             | ≤ 11 mm                                                                           | 0.13 m²K/W  | (1.30 TOG) |
| Parquet          | ≤ 22 mm                                                                           | 0.11 m²K/W  | (1.10 TOG) |

Information from the floor covering producer on required temperature limits for the floor covering used (e.g. laminate, click vinyl) must always be observed.

## APPLICATION EXAMPLES



## SAFETY WARNINGS

The electrical connection and connection to the power supply must be performed by a professional electrician, observing the applicable national laws, rules and regulations. Otherwise, the warranty invalidates. Disconnect your local wiring from the mains before connecting the thermostat or disconnecting it to check or replace it. Only use plastic electrical wall mounting boxes for the thermostat installation. The installation instructions and wiring diagram do not replace the professional skill of the device installer. Ensure that the sensor can be placed into and removed from the corrugated tube ( $\varnothing$  16mm); once during installation of the tubing and again before installation of the screed and the floor finishing.

## CLAIMS

In case of failure during the warranty period, please contact the seller.

## WARRANTY

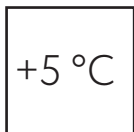
The manufacturer guarantees the conformity of the heating mat with the design description, assuming compliance with the installation and operating instructions.

**Warranty period – 30 years from date of purchase.**

In case of a failure during guarantee period caused by a manufacturing defect, the customer has the right to supplementary performance. The warranty does not cover any damages due to inadequate handling, damages through a third party, wrong installation (not following the manual) or its consequential damages. Please keep your receipt. For any warranty claims you have to show your sales receipt.



Follow the installation manual instructions



Minimum installation temperature



Protect against damage



Power supply

# GUARANTEE CARD AND TEST RECORD

The completed resistance acceptance test certificate/guarantee card are necessary for warranty claims.

|                   |
|-------------------|
| Heating mat type: |
| Customer          |

|                    |
|--------------------|
| Name               |
| Street             |
| Postal Code, City  |
| Country            |
| Tel                |
| e-mail             |
| Purchase date      |
|                    |
|                    |
| Client's signature |

|               |
|---------------|
| Company stamp |
| Name          |

|                       |
|-----------------------|
| Company name          |
| Tel                   |
| e-mail                |
| Street                |
| Postal Code, City     |
| Country               |
| Installation date     |
| Installation date     |
|                       |
| Installer's signature |



First measurement: Before and after installation of the heating mat.

| Total resistance inW |                    | Isolation resistance in MW (>10 MW) |                    |
|----------------------|--------------------|-------------------------------------|--------------------|
| before installation  | after installation | before installation                 | after installation |
| $\Omega$             | $\Omega$           | $M\Omega$                           | $M\Omega$          |



The sensor can be removed through the corrugated tube (Ø 16mm) during installation of the heating mat.



Second measurement: Before and after installation of the flooring.

| Total resistance inW |                    | Isolation resistance in MW (>10 MW) |                    |
|----------------------|--------------------|-------------------------------------|--------------------|
| before installation  | after installation | before installation                 | after installation |
| $\Omega$             | $\Omega$           | $M\Omega$                           | $M\Omega$          |



The sensor can be removed through the corrugated tube (Ø 16mm) before installation of the flooring.

# INSTALLATION PLAN

Please prepare an exact drawing of the room, the installed heating mat(s) and the floor temperatur sensor.

|    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9  |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 18 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 19 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 20 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 21 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 22 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 23 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 24 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 25 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

# TECHNICAL DATA

The double-core heating mat Warm-on ALU is based on double-core thin heating cable, sandwiched between two layers of specially reinforced aluminium foil. The heating conductors are arranged meandering, and thus with constant cable-to-cable distance. The Warm-on ALU heating mat is equipped with a power-supply cable and a reliable coupling.

| Warm-on ALU                      |                                                                     |
|----------------------------------|---------------------------------------------------------------------|
| Supply voltage                   | 230 VAC, 50 Hz                                                      |
| IP rate                          | IPX7                                                                |
| Minimum installation temperature | +5 °C                                                               |
| Heating cable diameter           | 1,2-1,52 mm                                                         |
| Cold lead length                 | up to 3 m <sup>2</sup> (inclusive) 3 m, over 3 m <sup>2</sup> – 4 m |

| WARMON ALU 150 W/m2         | l < > l, m | $\sqrt{\frac{l}{w}}$ , m | m <sup>2</sup> | W    | $\Omega$ @ +20°C (-5%, +10%) |                 | A    |
|-----------------------------|------------|--------------------------|----------------|------|------------------------------|-----------------|------|
| WARMON ALU (150)-150-1,00   | 0,5        | 2                        | 1,0            | 150  | 320,78                       | 304,74 - 352,85 | 0,72 |
| WARMON ALU (150)-225-1,50   | 0,5        | 3                        | 1,5            | 225  | 240,69                       | 228,66 - 264,76 | 0,96 |
| WARMON ALU (150)-300-2,00   | 0,5        | 4                        | 2,0            | 300  | 171,12                       | 162,57 - 188,24 | 1,28 |
| WARMON ALU (150)-375-2,50   | 0,5        | 5                        | 2,5            | 375  | 131,49                       | 124,91 - 144,63 | 1,63 |
| WARMON ALU (150)-450-3,00   | 0,5        | 6                        | 3,0            | 450  | 108,91                       | 103,46 - 119,80 | 1,97 |
| WARMON ALU (150)-525-3,50   | 0,5        | 7                        | 3,5            | 525  | 95,63                        | 90,84 - 105,19  | 2,25 |
| WARMON ALU (150)-600-4,00   | 0,5        | 8                        | 4,0            | 600  | 84,47                        | 80,25 - 92,92   | 2,54 |
| WARMON ALU (150)-750-5,00   | 0,5        | 10                       | 5,0            | 750  | 68,41                        | 64,99 - 75,26   | 3,20 |
| WARMON ALU (150)-900-6,00   | 0,5        | 12                       | 6,0            | 900  | 57,77                        | 54,88 - 63,55   | 3,79 |
| WARMON ALU (150)-1050-7,00  | 0,5        | 14                       | 7,0            | 1050 | 43,32                        | 41,16 - 47,65   | 4,62 |
| WARMON ALU (150)-1200-8,00  | 0,5        | 16                       | 8,0            | 1200 | 38,82                        | 36,88 - 42,70   | 5,15 |
| WARMON ALU (150)-1500-10,00 | 0,5        | 20                       | 10,0           | 1500 | 31,41                        | 29,84 - 34,55   | 6,37 |
| WARMON ALU (150)-1800-12,00 | 0,5        | 24                       | 12,0           | 1800 | 25,95                        | 24,65 - 28,54   | 7,71 |
| WARMON ALU (150)-2250-15,00 | 0,5        | 30                       | 15,0           | 2250 | 20,78                        | 19,74 - 22,86   | 9,62 |

## CONFIRMITY

Heating mat ALU 150 complies with the following directives:

- **Low voltage Directive 2014/35/EU**
- **RoHS Directive 2011/65/EU**
- **WEEE directive 2012/19/EU**

[https://warm-on.com/media/DoC\\_wmal-150.pdf](https://warm-on.com/media/DoC_wmal-150.pdf)

## RESERVATION

All information given are believed to be reliable and correct according to the best of our knowledge. Modifications, mistakes and printing errors do not justify claims for compensation. Liability is governed exclusively by the general terms and conditions.

Specifications are subject to change without prior notice.

**Important: Safety and installation instructions**

- Carefully follow the installation instructions provided with the product.
- De-energize all power circuits before installation or service.
- DO NOT damage any part of the cable.
- DO NOT install the same heating mat in different rooms
- DO NOT attempt to repair or apply power to a damaged heating cable.
- DO NOT cut or alter the cable length in any way. Any change may result in electric shock or fire.
- Use installation materials according to the instructions
- Do NOT use nails or screws
- Always keep cable ends dry according to installation instructions.
- DO NOT use an extension cord to reach the outlet.
- Ground fault protection and equipment overcurrent protection must be provided.

## **MANUFACTURER**

SST Thermal Solutions ME FZE  
RA08 JA-01 & 02  
PO Box No. 392750  
Jebel Ali Free Zone, Dubai, United Arab Emirates

## **IMPORTER**

Sigmian GmbH  
Rastatter Str. 30  
75179 Pforzheim  
Germany

## **DISTRIBUTOR**

warm-on GmbH  
Rastatter Str. 30  
75179 Pforzheim  
Germany