Installation Manual

Warmset

Warmset srl

Floor heating system

warmset®
LAMINATED HEATING TECHNOLOGY

General instructions before starting!!

- **The device can be used by children elder than 8 years, by persons with reduced physical, mental and sensitive capabilities and/or lack of knowledge and experience, only under proper supervision or if they have been trained on the safe use of the appliance and the relative risks.**
- **Children should not play with the appliance.**
- **Cleaning and maintenance must not be carried out by children without supervision.**
- **Always install the heating unit away from other heat sources such as lighting fixtures and chimneys.**
- **Avoid, while laying down the product, the build-up of air pockets in the stratigraphy, optimizing the compactness and proper filling of the screed, as well as the contact between the various layers in case of dry-laying; you should perform the installation on a surface as flat and smooth as possible. The heating unit is not to be installed on irregular surfaces.**
- **Leave as little time as possible between the laying down of the heating element and the covering of the same, avoiding to drop or leave any sharp metal object on it, stepping as little as possible, only if strictly necessary and with the due attention.**
- **Regardless of the coverage choice, it is important to remember that furniture and furnishings that for some reason happen to be over heated areas must have a lower open space of at least 5 cm. Otherwise you might run into overheating and consequent damage of the heating element and floor.**

The heating units must be installed through a differential device with rated operating current not exceeding 30 mA, and a multi-pole safety switch category 3, the two in accordance with the local standards.

Be sure to read all the technical documentation included with the thermostat. The settings for adjusting the temperature of the probe will be kept in a max-min range of 26 - 24 °C. The thermostat setting mode to be used is that of the "Room / floor limiting".

Use a coverage with a maximum resistance of less than 1.5 m^2K / W

Choose for the floor materials compatible with the temperatures that will be reached, asking for counselling the manufacturer about materials not mentioned in these instructions; the thickness of the floor must be more than 5 mm.

It is advisable to provide, under the heating element, a layer of insulating material with performance better than 1.5 m^2K / W.

The labels on the product should be attached in the log of installation manual and kept in the vicinity of the electrical control panel.

Always use a thermostat with floor temperature limiting mode, as OJ mod. OCS4-10-10 MCS4, OSC4/OSD4, MSC4/ MSD4, OSA4-10-10 MSA4 Connect the sensors provided the thermostat. The floor sensor must be installed at about 30 cm from a wall. It is important that the floor sensor is positioned exactly halfway between two heating segments and 10 cm from the heating curves.

Local building codes and regulations may require all or part of the installation of this product, and/or the corresponding thermostat, to be performed by a licensed electrician. Leave this manual with the end-user.

Direct heating for indoor under floor applications.

The present instructions can be found in digital format at our website www.warmset.com

Contents

Warmset Heating System is an electrical appliance and should be installed in accordance with IEC

Specifications

Warmset Mat

The Warmset system is a self-contained heating mat, designed for use embedded in a layer of concrete subfloor, thin-set or directly underneath laminated floor or tiles. It consists of a thin heating ribbon fitted onto a polypropylene mesh **(type P)** or fiber glass mesh **(type G).**

Although this mesh is designed to be cut in order to facilitate installation around objects and corners, it is important that you note that:
The heating ribbon cannot be cut.
This includes shorting the lengths to fit, or splicing two lengths together.

Skill level requirements

All Warmset products must be installed by knowledgeable and qualified persons. An intermediate skill level in electrical wiring is required. Although Warmset products may be installed by any qualified person (pending local codes), it is recommended that a certified and licensed electrician roughs in the power supply wiring.

Please check and adhere to all local codes as they may require all or part of the installation to be performed by a licensed electrician.

Expected Performance

With electric radiant floor heating, performance is never guaranteed. Warmset is designed to deliver the performance listed in the above specifications section. The attainable flooring temperature is dependent on the type of floor, and the overall thermal drain of the floor.

Thorough Insulation is recommended for optimal performance.

Warning

Under no circumstance should the heating ribbon integrated in the mesh be damaged, pierced or held in place through the use of staples; the functionality of the floor heating system will be compromised. Only the mesh can be stapled.

Specifications

Voltage	220-240 VAC 50 Hz	
Power	65 W/sqm 120 W/sqm	85 W/sqm
Max circuit load	15 A	
Mat length	1 – 40 m	
Mat width	0.5 m	

Fiber Glass Mesh

A.
Glass fiber mesh

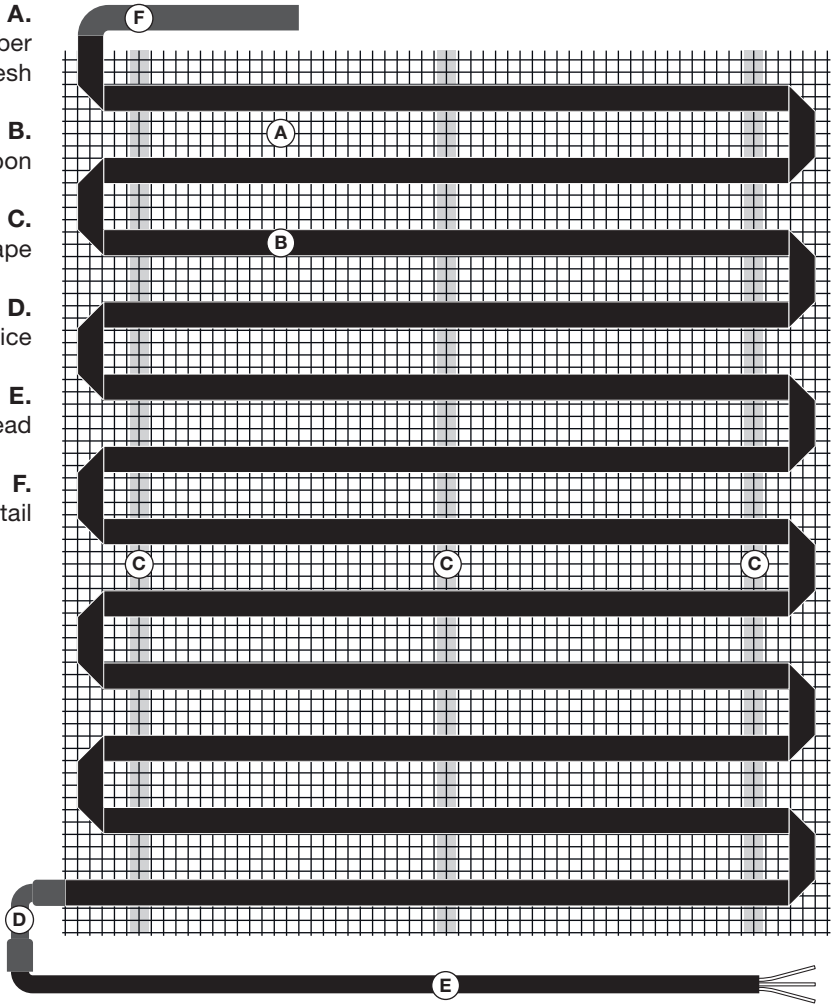
B.
Heating ribbon

C.
Tape

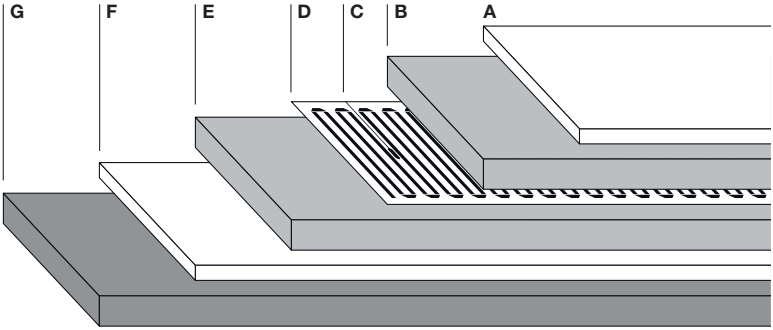
D.
Factory splice

E.
Power lead

F.
Factory tail

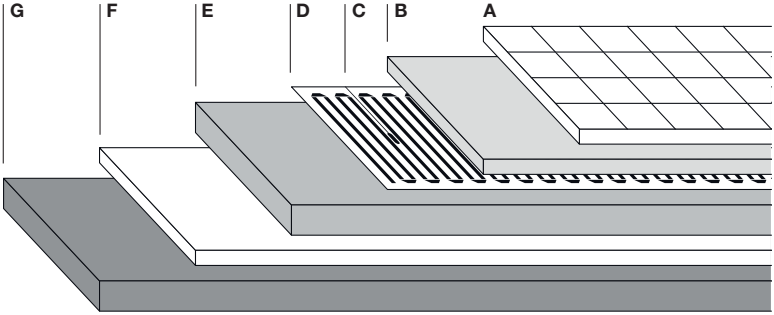


Storage heating



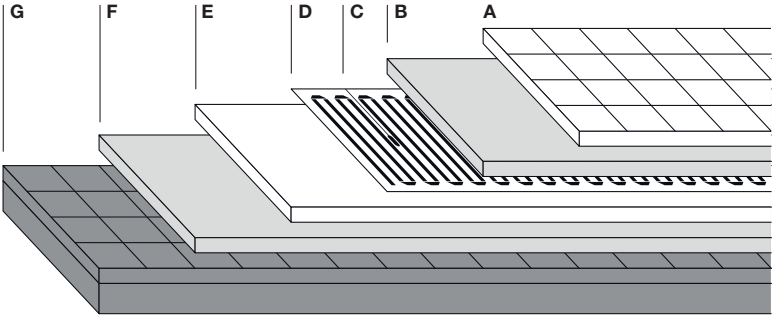
A. Coverings
B. Screed
C. Temperature sensor
D. Warmset
E. Screed
F. Insulation
G. Base

Direct heating under coverings (generic coverings)



A. Ceramic floor tiling
B. Flooring Glue
C. Temperature sensor
D. Warmset
E. Concrete Base slab
F. Insulation
G. Base

Direct heating under coverings in refurbishing (generic coverings)



A. Coverings
B. Flooring Glue
C. Temperature sensor
D. Warmset
E. Insulation
F. Flooring Glue
G. Original Floor

Polypropylene Mesh

A. Polypropylene mesh

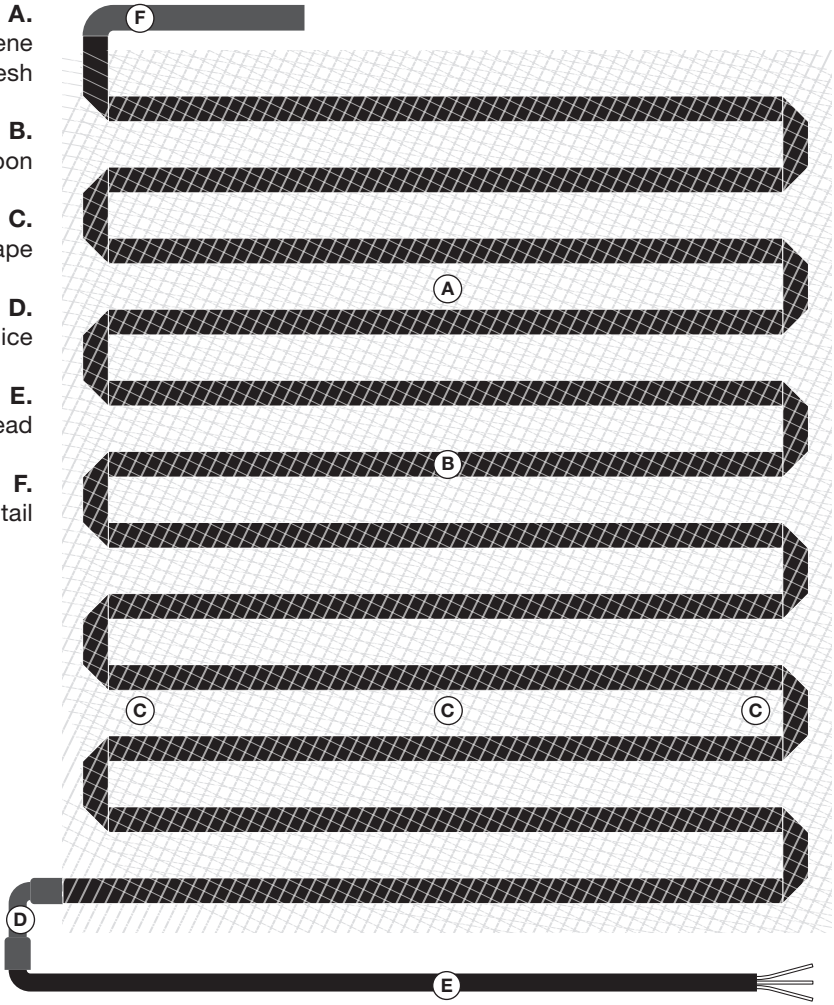
B. Heating ribbon

C. Tape

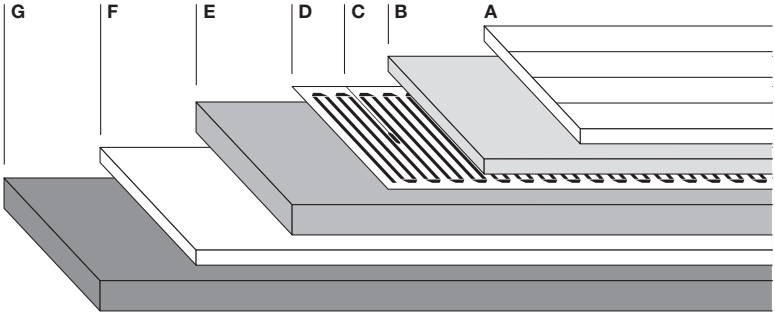
D. Factory splice

E. Power lead

F. Factory tail

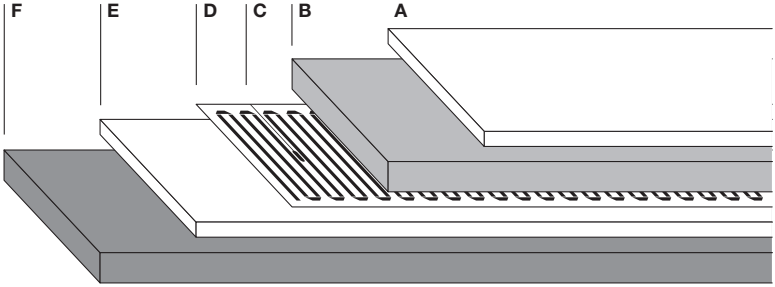


Direct heating under coverings (floating coverings)



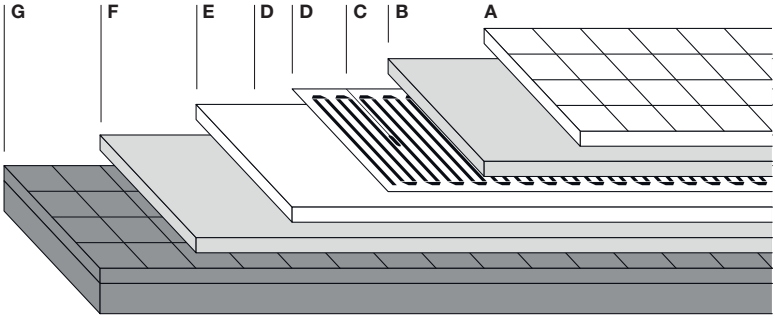
A. Floating floor (laminate, ceramic floating floor, moquette)
B. Foam underlayment
C. Temperature sensor
D. Warmset
E. Concrete base slab
F. Insulation
G. Base

Storage heating - Concrete base slab



A. Coverings
B. Concrete base slab
C. Temperature sensor
D. Warmset
E. Insulation
F. Base

Direct heating under coverings in refurbishing (floating coverings)



A. Coverings
B. Foam underlaymen
C. Warmset
D. Temperature sensor
E. Insulation
F. Flooring Glue
G. Original floor

Attention!

Never

- **Never** install Warmset Mat under built-ins such as cabinets or vanities or where air does not flow freely.
- **Never** connect the Warmset Mat to the thermostat before the installation is completed.
- **Never** use sharp tools or power tools to clean grout lines. Cleaning grout lines with sharp tools or power tools may damage the heating ribbon and **will void the Warmset warranty.**
- **Never** cut the heating ribbon. If the heating ribbon is cut, it can cause electric shock, dangerous over¬heating, or fire. If necessary, the cold leads may be cut shorter, but never remove them completely from the heating ribbon.
- **Never** use metal penetrative fasteners such as nails, staples or screws to secure the heating ribbon to the sub-floor. Only the mesh can be stapled and not the heating ribbon can be stapled.
- **Never** try to create a larger heating mat by splicing one heating mat to another. Multiple mat cold leads **must** be connected in **parallel.**
- **Never** install Warmset Mats in walls or ceilings.
- **Never** remove any labeling from Warmset Mats. Make sure all appropriate labels are visible for inspection.
- **Never** try to make connections or repairs on Warmset membranes. Any kind of repair or alteration should be avoided in favor of a replacement product, new and intact; any repair can be performed only by a licensed electrician. The supply cord cannot be replaced. If the cord is damaged
- **Never** remove any label from the products Warmset. Make sure that the labels are always visible for controls and inspections.
- **Never** overlap sections of the heating element, or position a membrane over the other.
- **Never** let the children play with the appliance.

Attention!

Always

Always install a GFCI circuit breaker with each Mat (or group of Mats connected together). <

Always use caution when working with tools when working around Warmset Mat. Be careful not to nick or cut the heating ribbon. <

Always adhere to all power limitations of the breaker, thermostat, and chosen Warmset Mat. Be sure the Voltage and Current are both appropriate for the system. <

Always install Warmset system on a adeguately rated circuit. <

Always Make sure all electrical work is done by qualified persons in accordance with local electrical and building codes. <

Always use copper wiring to complete the connections in the Warmset system. <

Always seek help or clarity if problems arise. If in doubt about any installation procedures, or if the product appears to be damaged, please contact Warmset before starting the installation process. <

Always install the Warmset elements on a dedicated circuit 20 A. <

Always install the heating unit away from other heat sources such as lighting fixtures and chimneys. <

01 Before Beginning

> In many applications, Warmset Mat can be used to completely heat a space. When installing Warmset Mat systems, the local environ-ment and desired results should be considered.
Consider how much heat will need to be produced to counteract the heat loss of the space, and try to insulate as effectively as possible.

1.1 Make a sketch of the room including all appropriate measurements. These measurements should be made from wall to wall. Measurements should include the location and size of major obstacles and installations such as cabinets, bathtubs, toilets, etc. Determine the total area to be covered by the warming mat by subtracting the area covered by these built-ins from the total area of the room. When planning your installation, consider the following:

> Heat will not radiate well beyond roughly 3-4 cm on either side of the heating tape. To avoid cold-spots, consistant coverage is important

> Heating ribbon must not be installed within 5 cm of a built-in such as counter or vanity

> Be sure not to install heating tape underneath cabinets or furniture with no floor clearance. Excessive heat build-up can cause damage

> Do not cross the structure joints directly..

> Do not place the heating ribbon within 10 cm of other wiring or piping

> When placing heating ribbon, be sure it will not be covered by trim

> The membrane heater must be completely embedded in the floor.

> All Warmset Mat mats have a width of 50 cm

> It is advisable to provide, under the heating element, a layer of insulating material with performance exceeding 1.5m^2K/W

A gap of 10 to 15 cm around the edges of the floor should be maintained. This gap is accounted for by calculating 90% of the total measured square footage. To find this value, simply multiply the total square footage found in part 1.1 by 0.9. Use this result to determine the required Warmset Mat heating mats for the project. When selecting heating mats remember: **1.2**

Do not exceed 12 amps though a single circuit relay. **<**

Avoid Loading circuit breakers to more than 80%. This means a maximum of 12 A on a 15 A breaker. **<**

If the calculated size is not available, do not use a larger mat, use the next size smaller. Remember that the heating ribbon must never be cut shorter to fit. **<**

Make sure an appropriate subfloor material has been installed in accordance with the floor covering, construction requirements, and all local building codes and regulations. Warmset Mat systems can be installed over a variety of subfloors. Make sure that your chosen subfloor is compatible with cement adhesives. Common subfloor materials are plywood, existing tiles, cement, various insulations, and concrete slabs **1.3**

When you decide to install more elements in parallel, pay attention to the total load current. The final circuit, including the switch, and all wiring must be able to withstand at least 125% of the rated current. **1.4**

01 Before Beginning

1.5 A thermostat is not included with any Warmset Mat system. An appropri-ate thermostat must be purchased separately. In order to be compatible with Warmset Mat system, the chosen thermostat must have the follow-ing specifications:

Designed for electric infloor heating

Able to accept the rated voltage

Have an output relay of 15 A

Include a floor sensorla limitazione della temperatura.

Sono opportunamente omologati.

Warmset Mat can be controlled by a number of different thermostats.

Warmset is an electrical device. Therefore it is mandatory to take all the precautions that are required in the case of electrical installations. Always consider the possibility of electric shock, fire and / or damages to the people. Therefore read carefully and follow the precautions listed below.

All the installations must be performed by qualified personnel in accordance with local regulations and building codes. Read all the installation instructions and warnings before beginning installation. Otherwise problems might occur, such as electric shock, fire, damages to property, personal injuries and / or death.

Installation Preparations 02

Before beginning to install Warmset Mat, make sure to thoroughly inspect the products and carefully plan the site. The ambient air temperature must be above 5 ˚C or 41 ˚F when the Warmset Mat Heating System is installed.
Check that all plumbing or other electrical work that will be inaccessible after installation has been completed.

<

Materials — **Items needed**

Thermostat and floor probe sold separately (see part 1.5)	<
Appropriate available circuit breakers	<
An adeguately large electrical box	<
Junction box with cover (if required)	<
Electrical Conduit (if required)	<
Adeguate gauge wiring	<
Check with local building codes for any further safety requirements	

Tools

Digital multi-meter and ohmmeter	<
A knife or scissors	<
Wire strippers	<
Non-conductive builders tape	<
All necessary small hand tools (drills, screwdrivers, measuring tape, marker, shears to cut mesh substrate, etc...)	<

The installer must be familiar with electrical wiring techniques, safety, and any relevant local building codes. A licensed electrician is recommended. If applicable, the installer should also be familiar with the appropriate floor covering techniques.

Unpack and inspect all components of the planned Warmset Mat system. Be sure to check thoroughly for any visible damage. Verify that everything is the correct type and size as ordered.
Do not attempt to install a damaged or incorrect component.

2.1

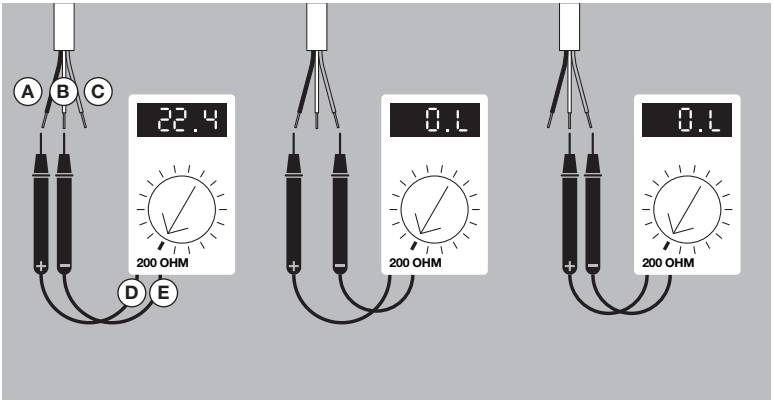
Record all product information about the system in the system information table found on page 38-39. Alert the homeowner to this information. Instruct them to keep it in a safe place.
Do not remove any labels or tags from the product. Your building inspector will need to be able to see these tags.

2.2

02 Installation Preparations

2.3 The resistance properties of each mat must now be checked. It is essential that this step is done thoroughly, when required, throughout the installation.

A.
Brown Lead
B.
Blue Lead
C.
Ground Lead
(green & yellow)
D.
Black Wire:
to COM
E.
Red Wire:
to OHM



Use a high-quality digital ohmmeter or multimeter to make the required measurements. Measure the resistance between the brown and blue power leads. Check that the measurement is within the range listed on the table at the end of the manual. <

Record these values in the system information table found on page 38-39 of this manual. If resistances are measured slightly below the rated value, it might be due to low air temperature or meter calibration. Contact Warmset if in doubt. <

The system should also be checked for short circuits. Measure the brown lead to ground (green and yellow), and blue lead to ground. Both of these measurements should read no continuity. Some meters display this as ‘infinite’ ohms, or ‘open-line’. <

These steps are performed three times in the installation process. It is very important that they are performed accurately each time. If there is any inconsistency in the reading, make note of the values and contact the manufacturer. This could indicate possible damage, or other problems. <

03 Electrical Rough-in

3.1 Warmset Mat heating mats must be connected to a circuit breaker to protect against circuit overload. A ground fault circuit interrupter is suggested. If there is not a GFCI built in to the chosen thermostat, one should be installed.

The required rating of the circuit breaker can be determined by the amp draw of the given heating mats. Simply add the amp requirements from each mat in the system.

If the total amps required for the circuit exceeds 15 amps, a second breaker must be used. The current draw must never exceed 15 amps per breaker. It is recommended to install Warmset Mat systems on new, dedicated breakers; however it is possible to tap into an existing breaker if there is adequate capacity available.

Remember to leave excess current avail-able for high-draw appliances. Typical hair dryers pull 1200 watts of load, and some can draw more.

3.2 Choose a location and instal an electrical box for the thermostat. Use an extra deep electrical box. For installations with several mats, use an adeguate box.
This electrical box should be located in a well ventilated area, and placed so that the leads from the mats or junction box, can easily reach it. It must also be able to connect back to the chosen circuit breaker.

3.3 Following code, run a line from the electrical box to the circuit breaker using 2.5 mm^2 type electrical wiring. Leave at least 15 centimeters of extra cable in the box. Check that the position of the sheath is suitable for easy connection to return to the thermostat. The conductors from the sheath may be extended if necessary but if possible should be kept in the length of the factory.

3.4

If the electrical box is located too far from where the leads from the mats will be, or if multiple mats are being used, a junction box must be installed. Use a stanard junction box and cover. Once the box is in place, run a line from the junction box to the electrical box using 2,5 mm² electrical wiring.

Caution

Do not perform any electrical work unless you are qualified to do so. Be sure all work is done with the power turned OFF. Follow all local building and electrical codes.

04 Mat Installation

4.1 Before Warmset products can be installed, the floor must be completely swept of all debris.
Objects on the floor such as nails or other construction material can interfere with the installation and operation of Warmset Mat systems.
Clean the subfloor as thoroughly as you can.

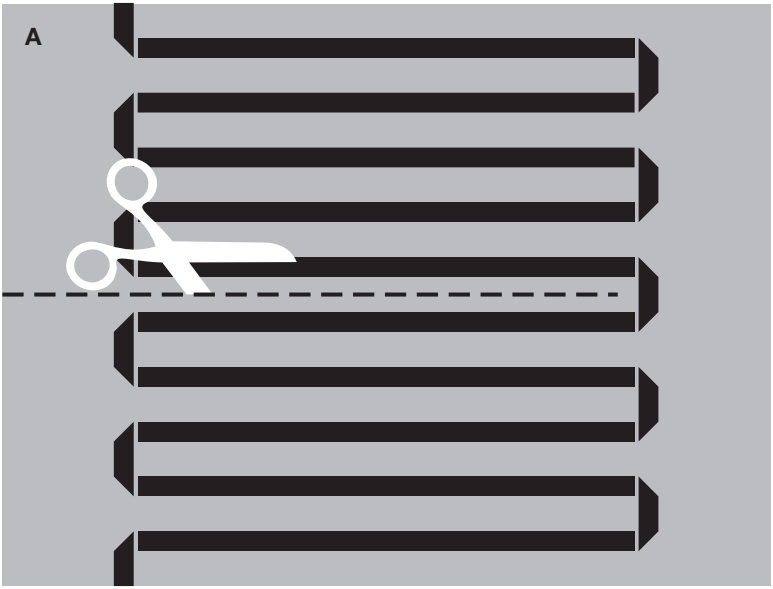
4.2 All Warmset Mat mats have a width of roughly 50 cm. Depending on the layout and shape of your room, creative placement of the heating mats may be required.
To facilitate working around obstacles, or unusual room shapes, the heating element may be removed from the mesh. When the heating ribbon needs to be removed from the mesh (carrier) to facilitate working around obstacles or unusual shaped rooms, the measured center-to-center spacing between runs must be maintained throughout the installation. However, in order to maintain even heat dissipation, avoid removing excessive amounts of mesh.
Depending on your installtion, large gaps between the mesh can exist. If you are laying large quantities of heating mats outside of the mesh, pay close attention to your spacing. **Remember that gaps larger than 5 cm can create cold spots.**
Verify that the wiring will reach the required electrical box or junction box. Never run wiring back over mats to reach these boxes.

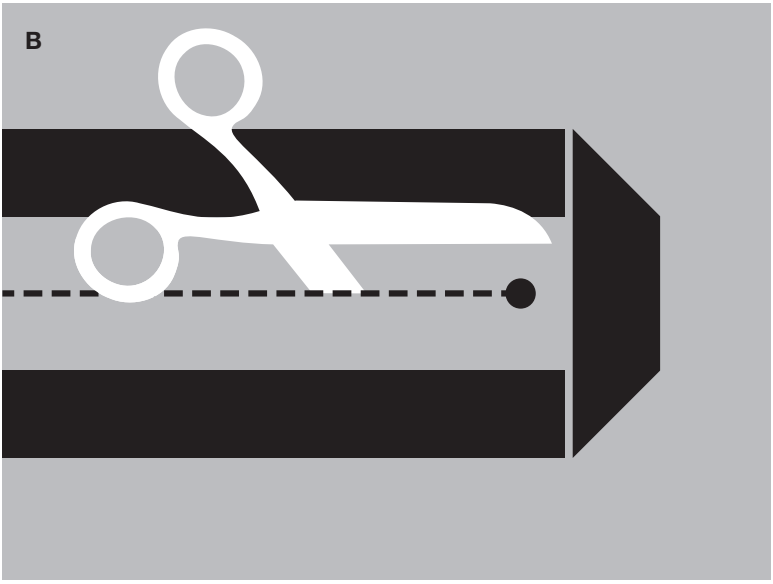
4.3 Warmset Mat heating mats can be cut for any straight or right angle.
This process is shown in the next page
When cutting and placing mats, remember to try and space them appropriately. It is important to insure there is no overlap between installed mats. Overlapped mats can cause dangerous overheating.

Note: It is very important to be careful when cutting the mesh.
If the heating element is damaged, it can no longer be used.
Do not try and repair damaged heating elements.

Mat Installation

04





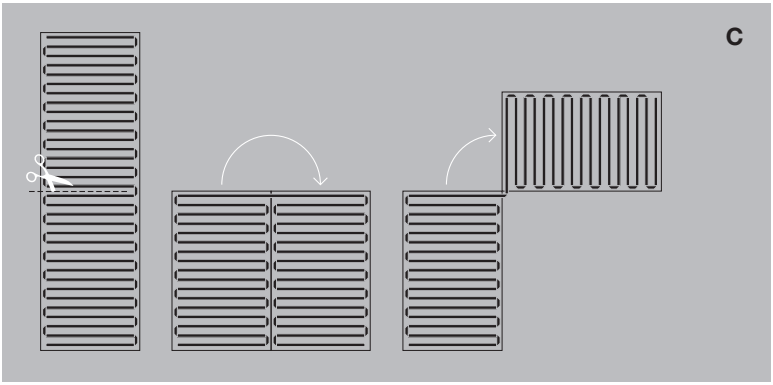
A.
Cut the mesh on the dotted line

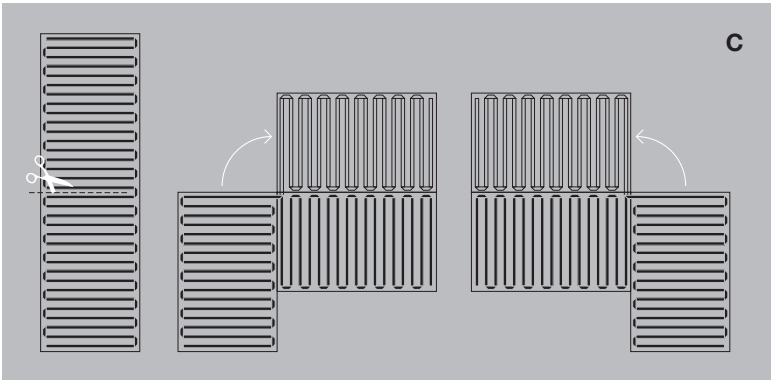
B.
Be careful to not damage the heating element

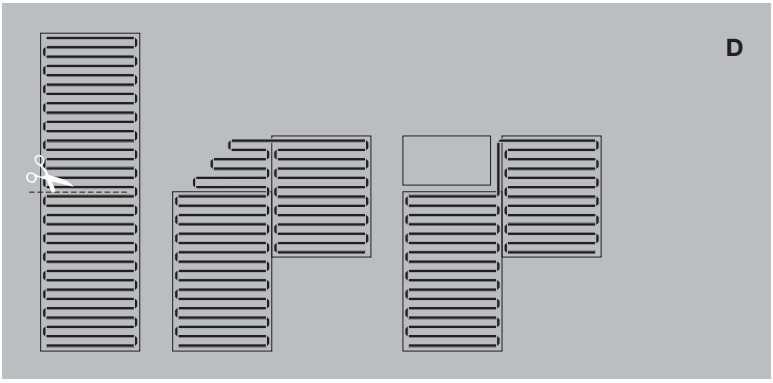
04 Mat Installation

C.
Once the mesh has been cut, the element can be unfolded to the desired angle.

D.
The mats can be cut for several angles, allowing the system to work around almost any obstacles.







Mat installation

Apply and gently tighten the Warmset membrane so that it covers all the space required. It is important to plan the layout checking carefully the positioning of the entire system. Check that there are no dangerous folds or ripples. Install the fiber glass version, preferably with the mesh on the top of the heating tape

4.4

Once the system has been fitted in place; it must be secured to the sub-floor. Warmset Mats should be secured to the floor using non-conductive, general purpose, double-sided building tape. If need be, stabilize your installation with staples or hot glue. At no time should you ever staple the heating ribbon itself. This will jeopardize the functionality of your system. Only the mesh should be stapled or glued.

4.5

As the mats are being secured, it is important to ensure they are being laid as flat as possible. This will help make a smooth surface for spreading mortar.

<

Do not completely cover the heating ribbon with tape.

<

Once the system has been positioned and secured, check the resistors as explained in section 2.3, and record the results in the table at the end of the manual. The labels inside the box will be attached in the manual installation by specifying the correct location in the room and this booklet must be kept in a safe place outside the frame dedicated for heating.

4.6

04 Mat Installation

4.7 Connect the wires of heating elements to the thermostat or to the junction box. Remember that, if necessary, the connections (Fig. B) may be extended. For any additional splice in the system, remember to use 2.5 mm2 cables or other cables as per national regulations. The power cables can be installed with or without corrugated conduit (recommended for better protection) according to national rules. If a conduit is required by law, install one of minimum 1.5 cm2, from the base of the floor up to the electrical box. To install more than one power supply (multiple elements), use a conduit of minimum 2 cm2.

Drill a hole of about 1.5-2 cm on the base, directly under the electric thermostat or, if used, in the junction box. Route the power cable from the membrane passing from this hole up to the junction box or the thermostat housing.

4.8 If you have installed multiple elements, they must be connected in parallel; it is recommended that each connection cable is labeled for easy identification. Then pass these cables through the hole to the junction box or to the thermostat housing.

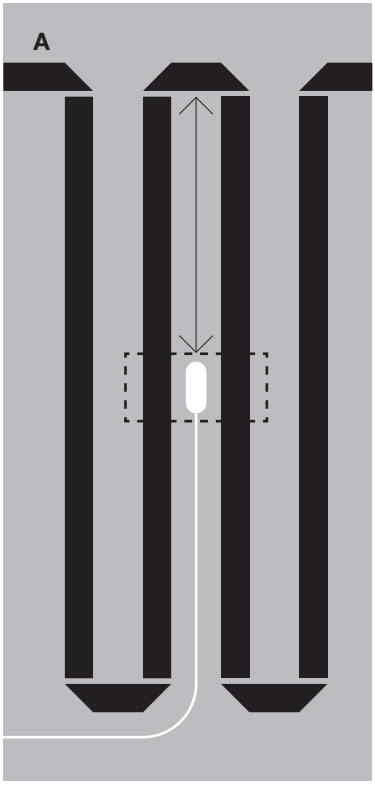
The temperature sensor can be installed with or without corrugated conduit (recommended for better protection) according to national rules. The cable must run as far as possible from the power cables, and preferably in a protective sleeve. Then create a new entry at the bottom of the thermostat housing. The sensor should be placed under the floor, in a protected recess midway between two adjacent heating segments. The probe must be fixed between two aluminum strips with a length such that the two segments are able to bear the whole of the heating tape as shown in Fig A

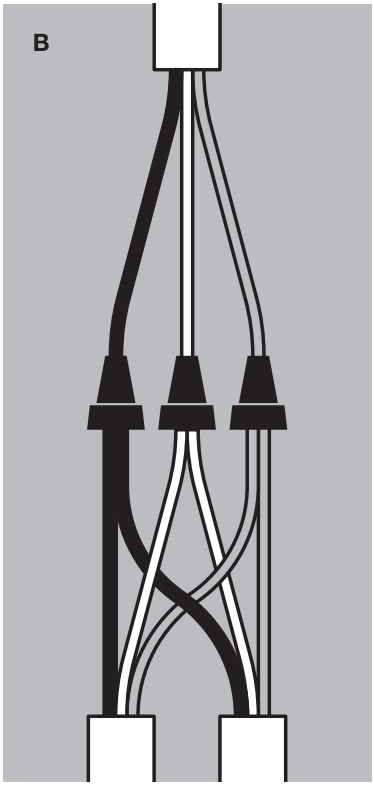
Attenzione

NEVER cut the ribbon heating element to fit the available space. This action is extremely dangerous and could cause malfunction..

Mat Installation

04





A.
The thermostat floor sensor can be installed exactly between two heating elements and more than 10 cm from the plies

B.
Parallel connection

05 Thermostat Installation

Note **Stop and read all manuals included with thermostat.**
The heating unit must be installed through a differential device with rated operating current not exceeding 30 mA and a multi-pole mains isolator in overvoltage category III in the plant, to be installed in accordance with the local standards.

5.1 Connect your thermostat to the electrical box installed in part 3.2.

> Connect the lines coming from the mats or junction box to the load ter-minals on the thermostat, and the line coming from the circuit breaker to the power terminals.

> Connect the ground cables from the mats or junction box directly to the ground line from the circuit breaker. (Green & yellow cable)

5.2 Always use a thermostat with floor temperature limiter: firm OJ mod. OCS4-10, 10-MCS4, OSC4/OSD4, MSC4/MSD4, OSA4-10, MSA4-10.
Connect the sensor provided with the thermostat. The floor sensor must be installed at about 30 cm from a wall. It is important that the floor sensor is positioned exactly halfway between two segments and 10 cm from the heating curves (Fig. A. p. 27).

> To set the floor temperature limitation, refer directly to the user manual of the thermostat.
The settings for adjusting the temperature of the probe will be included in a range of max-min 26 ° 24 ° C. The thermostat is set to be used in "Room / Floor limit mode".

Attenzione

Make sure there is no power applied to the system before it is fully ready for final testing.
All installation work must be done with the power turned off.

Thermostat Installation 05

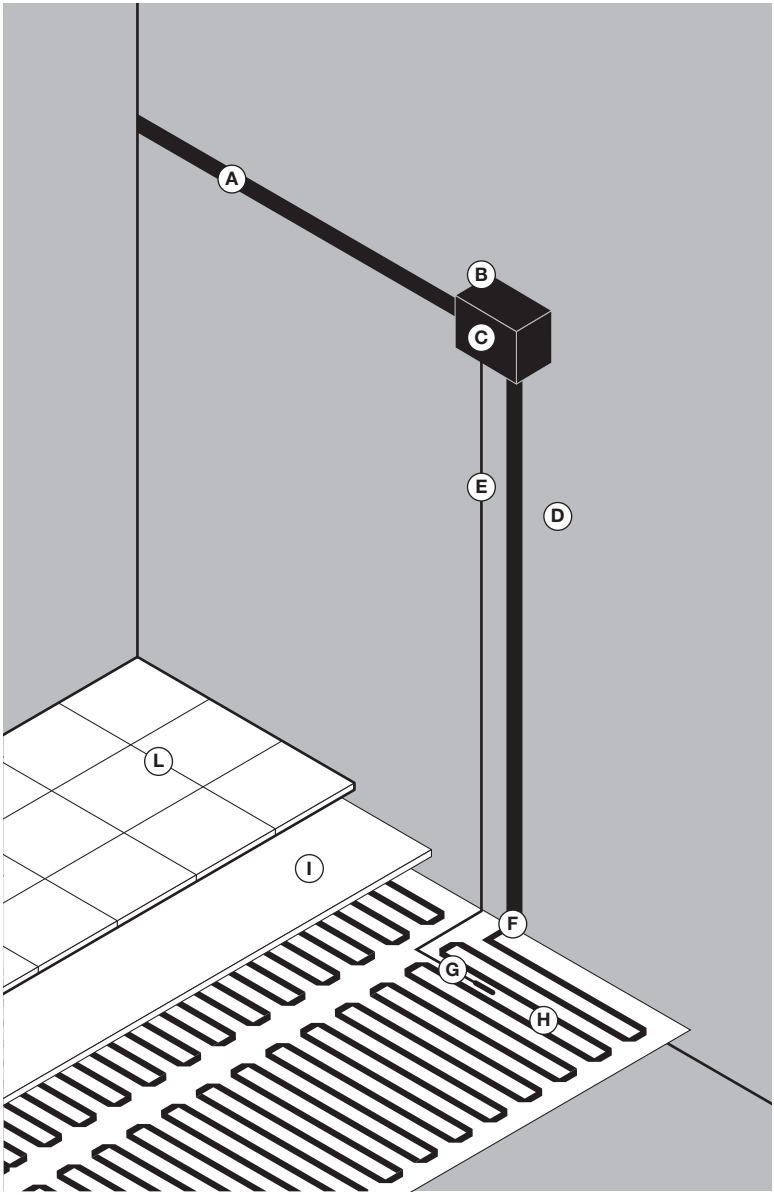
Position the sensor cable such that it does not come in contact with the floor heating wires. The sensor must be centered between two floor heating ribbons for best temperature control. <

Do not staple the sensor head (the plastic end) to the floor. Doing so might damage the sensor. Any damage might not be noticeable during testing but can become apparent several days later. <

At this point, it is recommended to take clear and thorough photos of the entire system. These can be very valuable for later remodeling work. Attach these photos to this manual, and leave them with the homeowner after installation. **5.3**

05 Thermostat Installation

A.
Power Supply
B.
Work Box for Thermostat
C.
Floor Warming Thermostat
D.
Electrical Conduit
E.
Sensor Wire
F.
Mat Power Lead
G.
Sensor Installed in Floor (equal distance between two heating wires and > 30 cm from the wall)
H.
Floor Warming Mat
I.
Thin-set, thick-set, thin-slab or self-leveling mortar bed.
L.
Tile, Stone or Laminate Floor Covering



Floor Coverings 06

It is recommended the floor covering is installed by a professional, appropriate for the chosen covering. Allow as little time as possible between the laying of the heating element and the covering of the same, avoiding to operate with any metal object, and stepping on it the minimum possible and with extreme caution.

Make a final inspection of the installed Warmset Mat system. Check that all wiring is solid and connected. Confirm that all documentation is complete, including the recommended photos. **6.1**

Ensure there are no nails, staples, or other penetrative fasteners used to install the floor covering above Warmset Mats. Such fasteners can easily damage Warmset Mats products and cause dangerous overheating, electric shock, or fire... **6.2**
Regardless of the chosen covering, it is important when selecting furniture in the heated area, to make sure there is at least 5 cm of air clearance. Long-term damage to the flooring or furniture can be caused by heat trapped under furniture.

Warmset Mats are compatible with most high-grade polymer modified mortars and can also be embedded in high-grade polymer modified self-leveling underlayment. Please refer to the manufacturer’s recommenda-tions in regards to the use of their product with floor heating systems. The installation of class 65 W/m2 is compatible with any type of flooring and management. Installing the classes 85W/m2 and 120 W/m2 in wooden floors or screeds, it is mandatory the use of the floor temperature probe, according to instructions. **6.3**

Before starting, read the manufacturer's instructions, with particular attention to the warnings in case of use of electric radiant heating.

Use a coverage with maximum resistance less than 1,5 m^2k/W. **<**

Choose (for the floor) materials compatible with the temperatures to be reached, requiring counsel to the manufacturer for materials not mentioned in these instructions; the thickness of the floor must be more than 5 mm. **<**

06 Floor Coverings

6.4 Install the chosen floor covering. Refer to and follow all documentation provided with the chosen product.

> While laying down the membranes avoid to have air pockets remain in the stratigraphy, optimizing the compactness and the filling of the screed and the contact between the various layers in the dry-laying; the installation has to be made on a surface as flat and smooth as possible.

> Avoid uneven laying on the floor, especially in presence of steps.

6.5 Use, when suggested by the manufacturer, a suitable adhesive in the way indicated.

6.6 Once the flooring is installed, before turning on the system, take a final resistance reading of the mats using the method outlined in part 2.3. The required leads should still be accessible from the thermostat. Remember to make sure the power is still switched off.

Floor Coverings 06

Before starting read the tile flooring manufacturer's installation instruction, review any specific instructions they may have with regard to the use of their product with electric radiant heating.	**Tile Installation**
Apply one coat of Self-Leveling Cement primer.	Step 1
Install radiant heat system as per manufacturer's instructions.	Step 2
Pour Self-Leveling Cement over Warmset System	Step 3
Allow the Self Leveling Cement to dry overnight.	Step 4
You are now ready to layout and install your tile following recommended guidelines and as per TCA	Step 5

Before starting read the laminate or engineered flooring manufacturer's installation instruction, review any specific instructions they may have with regard to the use of their product with electric radiant heating.	**Floating Laminate or Engineered Wood Floors**
Apply one coat of Self-Leveling Cement primer.	Step 1
Install radiant heat system as per manufacturer's instructions.	Step 2
Pour Self-Leveling Cement over Warmset System	Step 3
Ensure the thinset or self leveling compound is smooth and level as an uneven finish may result in a poor floor fit.	Step 4
Allow the Self Leveling Cement to dry overnight.	Step 5
Install a vapour barrier (if necessary) and any under padding as per manufacturer's instructions.	Step 6
Install the laminate or engineered wood flooring as per the manufacturer's instruction. Allow the floor time to acclimatize to the room's temperature and humidity levels before using the floor heating (1-3 days).	Step 7

06 Floor Coverings

Glue Down Laminate or Engineered Wood Floors

Before starting read the laminate or engineered flooring manufacturer's installation instruction, and the adhesive manufacturer's installation instructions. Review any specific instructions either may have with regard to the use of their product with electric radiant heating.

Step 1	Apply one coat of Self-Leveling Cement primer.
Step 2	Install radiant heat system as per manufacturer's instructions.
Step 3	Pour Self-Leveling Cement over Warmset System
Step 4	Ensure the thinset or self leveling compound is smooth and level as an uneven finish may result in a poor floor fit.
Step 5	Allow the Self Leveling Cement to dry overnight.
Step 6	Install a vapour barrier (if necessary) and any under padding as per manufacturer's instructions.
Step 7	Install the adhesive and laminate or engineered wood flooring as per the manufacturer's instruction. Allow the floor time to acclimatize to the room's temperature and humidity levels before using the floor heating (1-3 days).

Note

Before starting the installation, read carefully the instructions of the floor and floor adhesive manufacturers. Ensure that the particular product is compatible with radiant floor heating. Make sure that the surface of the self-levelling screed is smooth, since any irregularity may affect the finishing of the floor. Install the heating system following accurately the manufacturer's instructions.

System Start-Up 07

Do not turn your system on immediately. The system can be operated only after the mortar or self-levelling underlayment has completely cured. This waiting period is essential to ensure that the mortar or self-levelling underlayment is properly set. Refer to your manufacturer's instructions to verify the curing time for the product you are using (generally 28 days). <

After flooring is installed, and if required, given time to cure, turn the system on briefly to test its operation. Remember that some mortars can take up to 4 weeks to fully cure. Do not turn on the system for more than a few minutes before the mortar has finished curing. <

When setting a temperature, be sure to check the thermal limits of your chosen covering. Wood and laminate floorings often have a recommended maximum of 29°C (84°F) . Do not exceed this value. <

Activate the system. Depending on the floor coverings and temperature of the room, it can take some time to warm. Carefully pull the heating leads from the wall, and check them using a clamp-style ammeter. Confirm that the system is drawing current. <

Make sure the system is turned off after a maximum of 10 minutes. Do not re-activate the system until the required time has passed for the floor mortar to completely cure. Once this curing is finished, the system is complete! <

Limited Warranty

The Warmset bears a 15 year limited warranty. Please refer to the Warmset Warranty Statement inserted in this document for complete details. Return the completed System Information table on page 38-39 (with the results of the three cable verifications resistance and insulation) in order to preserve the Limited Warranty of your system.

Troubleshooting

Problem	Potential cause	Solution
The floor does not warm when the system is turned on	The cable has been damaged	Check resistances of the mat in question. Compare them to the resistances recorded earlier, and with the resistances stated on the label.
	The electrical connections were mismatched	Check all wiring around the parallel connections, breaker, and any other connections points. Confirm the correct voltage is being supplied to the system.
	The GFCI has been tripped	Check for a trip indicator light on the GFCI control. Check all wiring and for loose connections. Some electric devices including electric motors can create interference for GFCIs, creating false-trips. If the Warmset Mat system shares a circuit breaker with any other devices, move the system to its own breaker. If the breaker trips again after these steps, replace the GFCI.
	Thick floor covering	If a thick stone or concrete floor covering is installed, the system might take an extended period of time to heat up the surface. Ensure enough time has passed with the system active.

Note **If you experience any problems with the installation of your Warmset system, please refer to this section. If the system was not originally installed by a licensed electrician, consultation with one is recommended. If problems persist, please contact Warmset. All troubleshooting work should be done with the power turned off.**

Troubleshooting

Potential cause	Solution	Problem
Thermostat programmed incorrectly	Check the manual from your thermostat. Carefully follow all programming instructions.	**Controls behaving unexpectedly**
Floor sensor faulty, or installed incorrectly	Probable issue if the thermostat is displaying “HI” or a high and even value, such as 50°C (or 100°F). Double-check floor sensor wiring	
Defective thermostat	Contact the manufacturer of your thermostat	
System not correctly powered	Check the power being sent to all components of the system. Make sure all values are as expected	
Control was bypassed in installation	Check all system wiring. Check that the thermostat was not left out of the system, and that it is in the correct place between the breaker and the system.	**Floor heats continuously**
Defective thermostat	Contact the manufacturer of your thermostat	

System information

	Mat 1	Mat 2	Mat 3	Mat 4
Mat model number				
Mat serial number				
Rated mat voltage				
Rated mat resistance				

If the installed system contains more than 4 mats, the follow data and measurements should be recorded for the additional mats. This page can be photocopied, or additional information tables can be sketched. Please attach any additional pages to this package before giving it to the homeowner. The labels on the product should be attached in the label logbook and stored in a safe place or near the electrical box.

Keep this installation log

System information

Mat 1	Mat 2	Mat 3	Mat 4	
Before beginning installation / Resistance measurements				
				Brown to blue
				Brown to ground
				Blue to ground
Once the mat is in place / Resistance measurements				
				Brown to blue
				Brown to ground
				Blue to ground
Once concrete has been poured / Resistance measurements				
				Brown to blue
				Brown to ground
				Blue to ground

Fiber Glass Mesh

Class power	Surface (M^2)	Model	Current (A)	Power (W)	Lenght (M)	Resistance (Ω)	Resistance Range (Ω)
65 W/M²	6	WHG-6-65-390	1,7	390	12	135,6	128,9÷142,4
	8	WHG-8-65-520	2,3	520	16	101,7	96,6÷106,8
	10	WHG-10-65-650	2,8	650	20	81,4	77,3÷85,5
	12	WHG-12-65-780	3,4	780	24	67,8	64,4÷71,2
	14	WHG-14-65-910	4,0	910	28	58,1	55,2÷61
	20	WHG-20-65-1300	5.65	1300	40	40.7	36.6÷44.8
85 W/M²	6	WHG-6-85-510	2,2	510	12	103,7	98,5÷108,9
	8	WHG-8-85-680	3,0	680	16	77,8	73,9÷81,7
	10	WHG-10-85-850	3,7	850	20	62,2	59,1÷65,3
	12	WHG-12-85-1020	4,4	1020	24	51,9	49,3÷54,5
	14	WHG-14-85-1190	5,2	1190	28	44,5	42,2÷46,7
	20	WHG-20-85-1700	7.4	1700	40	31.1	28÷34.2

Fiber Glass Mesh

Surface (M^2)	Model	Current (A)	Power (W)	Lenght (M)	Resistance (Ω)	Resistance Range (Ω)
1	WHG-1-120-120	0,5	120	2	440,8	418,8÷462,9
6	WHG-6-120-720	3,1	720	12	73,5	69,8÷77,1
8	WHG-8-120-960	4,2	960	16	55,1	52,3÷57,9
10	WHG-10-120-1200	5,2	1200	20	44,1	41,9÷46,3
12	WHG-12-120-1440	6,3	1440	24	36,7	34,9÷38,6
14	WHG-14-120-1680	7,3	1680	28	31,5	29,9÷33,1

Class power
120 W/M^2

Polypropylene Mesh

Class power	Surface (M^2)	Model	Current (A)	Power (W)	Lenght (M)	Resistance (Ω)	Resistance Range (Ω)
65 W/M²	6	WHP-6-65-390	1,7	390	12	135,6	128,9÷142,4
	8	WHP-8-65-520	2,3	520	16	101,7	96,6÷106,8
	10	WHP-10-65-650	2,8	650	20	81,4	77,3÷85,5
	12	WHP-12-65-780	3,4	780	24	67,8	64,4÷71,2
	14	WHP-14-65-910	4,0	910	28	58,1	55,2÷61
	20	WHP-20-65-1300	5.65	1300	40	40.7	36.6÷44.8
85 W/M²	6	WHP-6-85-510	2,2	510	12	103,7	98,5÷108,9
	8	WHP-8-85-680	3,0	680	16	77,8	73,9÷81,7
	10	WHP-10-85-850	3,7	850	20	62,2	59,1÷65,3
	12	WHP-12-85-1020	4,4	1020	24	51,9	49,3÷54,5
	14	WHP-14-85-1190	5,2	1190	28	44,5	42,2÷46,7
	20	WHP-20-85-1700	7.4	1700	40	31.1	28÷34.2

Polypropylene Mesh

Surface (M^2)	Model	Current (A)	Power (W)	Lenght (M)	Resistance (Ω)	Resistance Range (Ω)
1	WHP-1-120-120	0,5	120	2	440,8	418,8÷462,9
6	WHP-6-120-720	3,1	720	12	73,5	69,8÷77,1
8	WHP-8-120-960	4,2	960	16	55,1	52,3÷57,9
10	WHP-10-120-1200	5,2	1200	20	44,1	41,9÷46,3
12	WHP-12-120-1440	6,3	1440	24	36,7	34,9÷38,6
14	WHP-14-120-1680	7,3	1680	28	31,5	29,9÷33,1

Class power
120 W/M^2