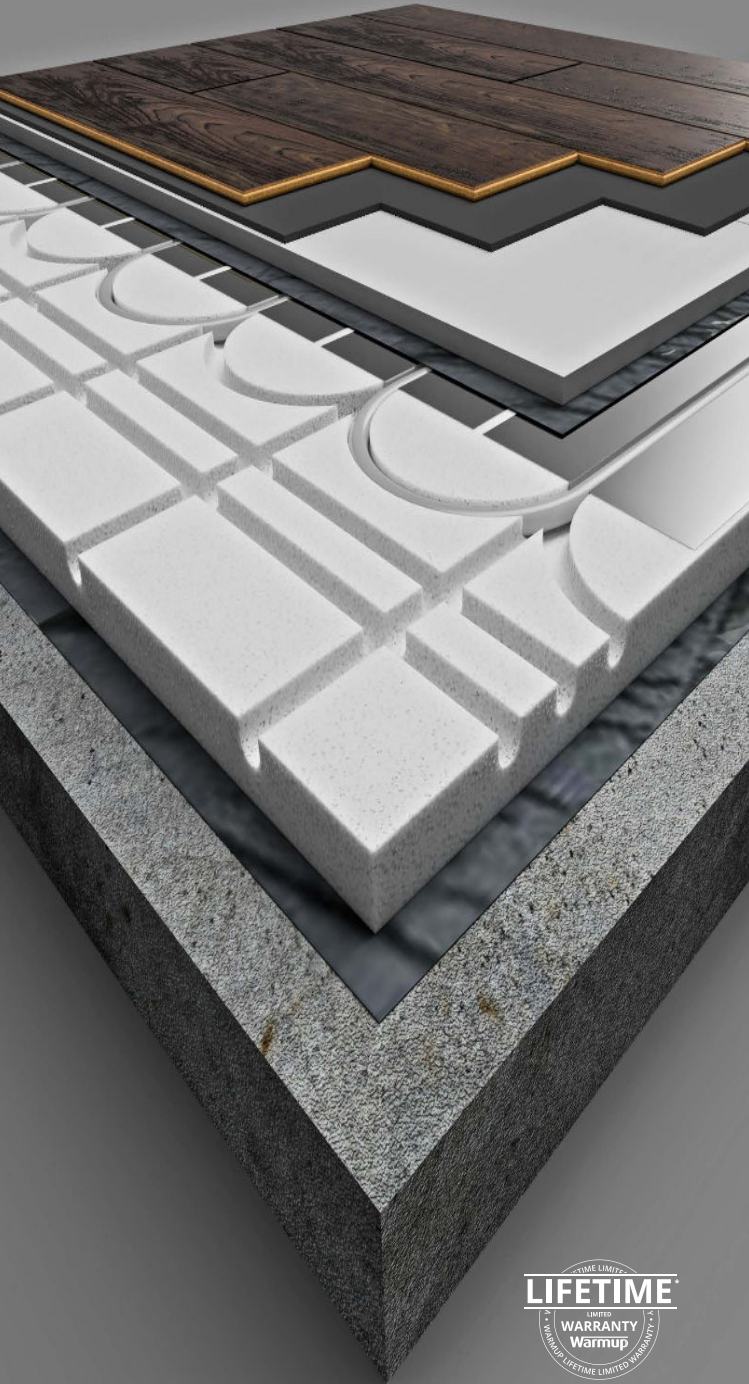


Warmup



Warmup Contura
Installation manual

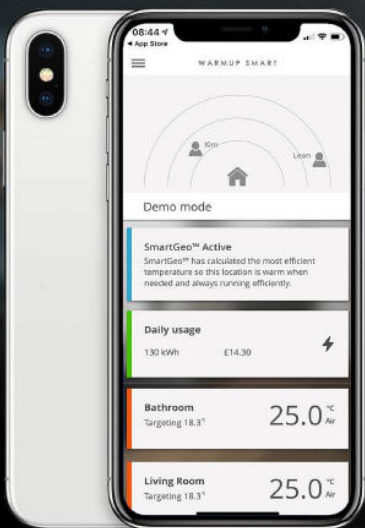


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6iE OB WiFi Thermostat



Table of Contents

Installation summary	4
Safety information	6
Components available from Warmup	7
Typical floor build-up	8
Recommended subfloor - All Floor Finishes	8
Step 1 - Subfloor considerations	9
Step 2 - Subfloor preparation	10
Step 3 - Lay the Contura panels.....	11
Step 4 - Lay the pipe	13
Step 5 - Lay the floating floor deck.....	16
Step 6 - Floor covering	17
Testing information	18
Troubleshooting	19
Technical specifications	20
System performance	22
Warranty	26

Your Warmup® underfloor heating system has been designed so that installation is quick and straight forward, but it is important that the instructions in this manual are followed to ensure that your underfloor heating system performs correctly. Please ensure that you have the components and working drawings necessary for this system before you begin installation.

Warmup plc accepts no liability, expressed or implied, for any loss or consequential damage suffered as a result of installations which in any way contravene the instructions that follow.

It is important that before, during and after installation that all requirements are met and understood. If the instructions are followed, you should have no problems. If you require help at any stage, please contact our helpline.

You may also find a copy of this manual, wiring instructions and other helpful information on our website

www.warmup.co.uk

Installation summary

Please also read the full instructions that follow this section.



- The subfloor must be clean, level, smooth, dry, frost-free, solid, suitably weight-bearing and dimensionally stable.



- If a damp proof membrane has not already been installed within the subfloor construction, lay a damp proof membrane (DPM) over the subfloor to prevent water ingress.



- Lay the Contura insulation panels over the membrane, ensuring all panels are tightly butted together.

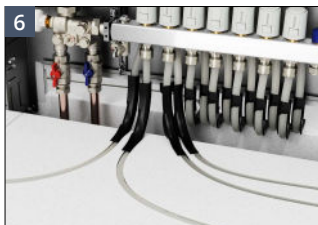


- Install the Warmup diffuser plates into the Contura panels. Diffusers must be installed 5-10mm apart and must not overlap or touch at any stage.

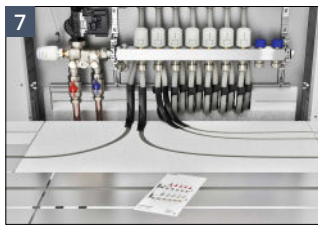


- Install the pipe in line with the project's working drawings. Contura panels allow for serpentine pipe installation only.
- Install the pipe into the panels, ensuring pipe installed against external walls is supplied with the hottest (supply) water. Meander up and down the floor area, pressing the pipe into the panels and feed the pipe back towards the manifold.
- Measure and cut the pipe so that it reaches both the flow and return ports on the manifold.
- Install the floor sensor centrally between the two parallel runs of pipe.

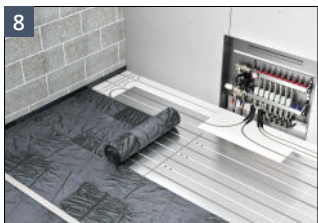
Installation summary



- Contura panels should be installed upside down in service pipe locations. Cut a section in the insulation of suitable depth for the pipe bend supports.
- Install Warmup pipe bend supports to hold the flow and return pipe at a 90° angle as it exits the floor towards the manifold.



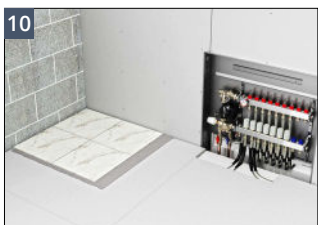
- Refer to the manifold manual for detailed information on mounting, pressure testing and commissioning.



- Lay a vapour control layer over the system to prevent water ingress.



- Lay the floating floor deck over the system referring to its installation manual.



















- Lay your chosen floor covering over the floating floor deck, in accordance with floor manufacturers instructions.



- Install your Warmup thermostat referring to their installation instructions. The system must be connected to and controlled with a thermostat and sensor.

Safety information

-  Perform a site inspection. You will need to confirm that all measurements and other requirements on site match your working drawings. Ensure that all areas are correctly prepared, dry and protected from weather.
-  Inspect the site for possible hazards that could damage the Warmup pipe, such as nails, clips, materials or tools.
-  Use a pipe cutter designed for plastic pipe ensuring that there are no burrs on the pipe ends. It is important to achieve a clean cut.
-  The installation of the system must comply current edition of building regulations.
-  Do not pull pipe from the coil while it is sitting flat. It must be unwound from the coil, rotating the coil as the pipe is pulled from the inside.
-  Do not force the pipe into bends. It is easier to lay the pipe with a large radius and then gently pull the pipe to the required bend. The minimum bending radius is 5 times the diameter of the pipe.
-  Do not kink the pipe. Excessive bending of the pipe can cause it to kink, where this occurs flow may be obstructed or reduced. Kinked pipe must be repaired or replaced.
-  Ensure the subfloor is prepared to an SR1 standard. The subfloor must be clean, level, smooth, dry, frost-free, solid, suitably weight-bearing and dimensionally stable.
-  Insulation layers used should be chosen and installed in line with building regulations and standards. Contura can also be used on pre-insulated subfloors.
-  Contura can be installed on both concrete or suspended timber subfloors. Timber subfloors must be installed as per building regulations and have a structural floor deck to support the Contura system.
-  Install the floor sensor centrally between two parallel runs of pipe and away from other heat sources such as hot water pipes, lighting fixtures, chimneys etc.
-  Before installing the floor finish, its suitability for use with underfloor heating and its maximum operating temperature should be checked against required operating conditions. Ensure the heat output of the floor meets your requirements.
-  Ensure adhesives, grouts, glues and screeds used are compatible with underfloor heating.
-  Underfloor heating performs the most efficiently with conductive, low resistance floor finishes such as stone and tiles. Consideration should be given to the thermal resistance and temperature limits of the chosen floor covering and its impact on the system heat output.
-  It is recommended that all furniture installed over underfloor heating has feet, maintaining a minimum 50 mm ventilated space above the floor to allow heat flow into the room.
-  DO NOT use metal clips to secure the pipe to the subfloor.

Components available from Warmup

Product Code	Description
WHS-CO-P20xx <i>xx = thickness</i> 30/40/50/60/70/80/90/100mm	Warmup Contura panels
CON-ALUDP9	Warmup Contura diffuser plate 1 x 16mm pipe channel 0.5mm x 190mm x 1000mm
WDO-HIDECK18	HiDECK Overlay 18
WDO-HIDECK-ADH	HiDeck PRO Adhesive
WHS-P-PERT-xx <i>xx = length: 25, 50, 60, 70, 80, 90, 100, 110, 120, 300m</i>	PE-RT Pipe- 16mm x 2mm
WHS-P-BEND	Pipe bend supports
WHS-CL-CONDUIT 25mm x 50m	Pipe conduit
WHS-P-DECOILER	Pipe decoiler
WHS-X-POL1200 WHS-X-POL500	Polythene DPM; 1200/500 gauge

Additional components that may be required as part of your Warmup heating installation:

Manifold, mixing unit, actuators, valves and euroconus connectors

Warmup UFH Wiring centre

Warmup thermostats

Electrical trunking/conduit

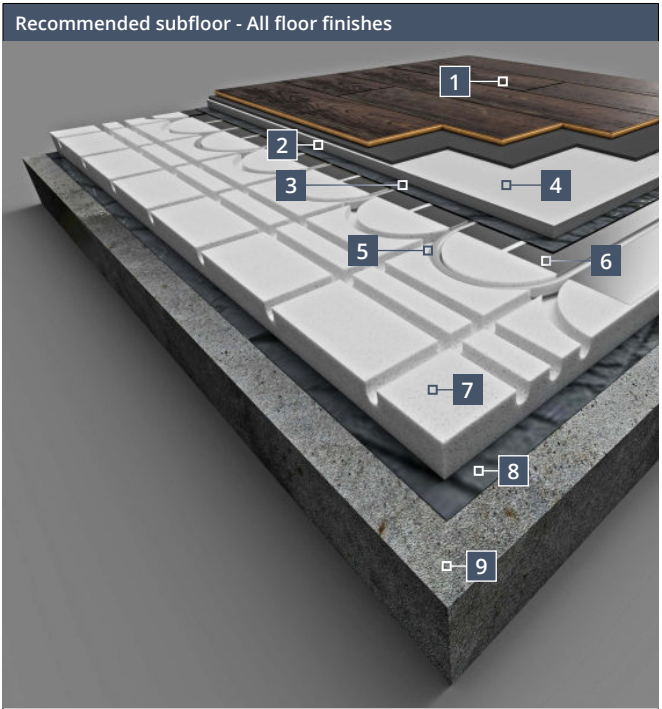
Digital multi-meter required for testing the resistance of the sensor

Electrical tape to secure the sensor

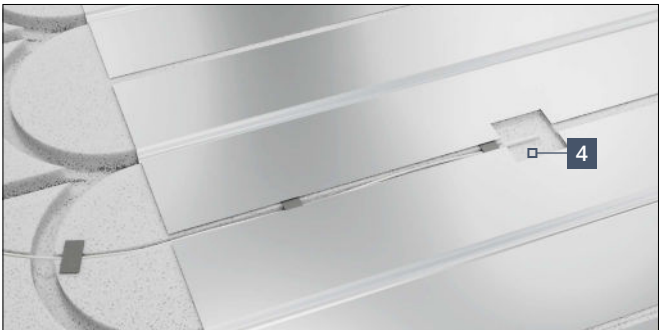
Router with 16mm diameter, full radius router bit

Typical floor build-up

Recommended subfloor - All floor finishes







1	Floor covering
2	HiDeck18 <i>Or other structural floating floor deck</i>
3	Vapour control layer (VCL) <i>To prevent water ingress</i>
4	Floor sensor <i>Position shown below</i>
5	Warmup 16mm PE-RT Pipe
6	Warmup Aluminium Diffuser plates
7	Warmup Contura panel
8	Damp proof membrane (DPM) <i>To prevent water ingress</i>
9	Subfloor



Step 1 - Subfloor considerations

The concrete subfloor must be clean, level, solid, structurally sound and dimensionally stable. Ensure the subfloor is prepared to an SR1 standard (SR1 - the maximum permissible departure over a 2 m straight is 3 mm).

It's important to note that concrete oversite and beam & block subfloors typically need a blinding layer before installing DPM or Contura Insulation panels due to surface regularity requirements as the panels must be fully supported.

-  Any materials on or within the subfloor must be suitable for supporting underfloor heating systems. If using temperature sensitive materials, such as damp proofing or tanking systems, contact the manufacturer for advice.
-  Where tiles are to be used, ensure that the subfloor meets the local tiling standard requirements.
-  Ensure suspended timber subfloors are prepared in accordance with national standards and manufacturer instructions are properly followed to avoid subfloor movement to prevent any damage to the system.
-  Do not commence installation without ensuring that the resulting floor construction will meet the requirements of the floors intended use and its finish.

Step 2 - Subfloor preparation



- The subfloor must be clean, solid, structurally sound and dimensionally stable. Ensure the subfloor is prepared to an SR1 standard (SR1 - the maximum permissible departure over a 2m straight edge is 3mm).
- If necessary a blinding layer should be applied.



- If a damp proof membrane has not already been installed within the subfloor construction, lay a damp proof membrane over the subfloor to prevent water ingress.



Contura may also be installed on top of suspended timber subfloors. Ensure timber subfloors are prepared in accordance with national standards and manufacturer instructions are properly followed to avoid subfloor movement to prevent any damage to the system.

Step 3 - Lay the Contura panels



- Lay the Contura insulation panels over the membrane, ensuring all panels are tightly butted together.
- Begin by placing the curved ends along the wall at one end of the room and then the others before infilling the middle of the floor.



- To feed pipe around corners, simply rout turns in the panels using a 16mm radius router bit as shown, maintaining a minimum bending radius of 100mm.

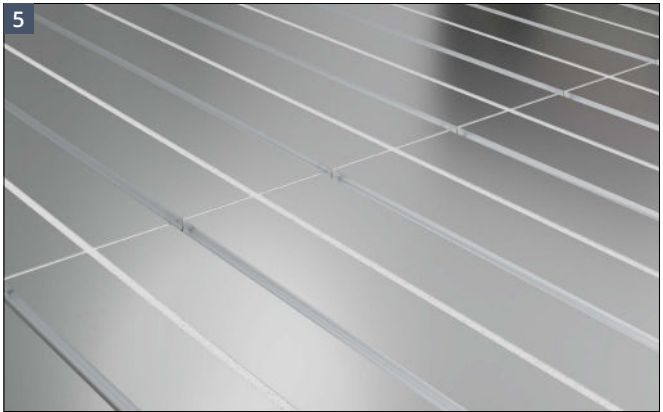


- To feed pipe to service pipe locations in the panels, rout turns in the panels using a 16mm radius router bit as shown.

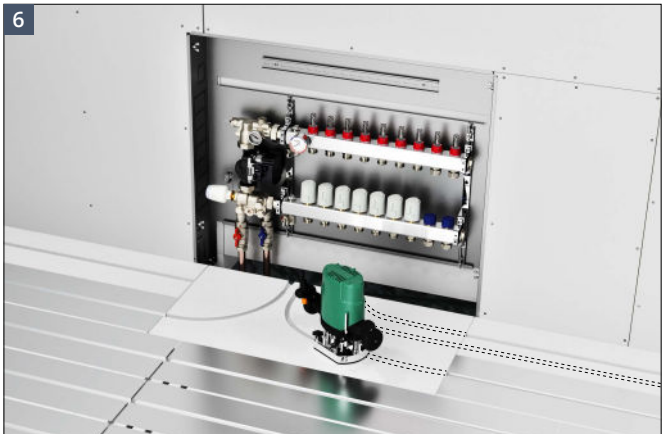


- Install the Warmup diffuser plates into the Contura panels.

Step 3 - Lay the Contura panels



- Diffuser plates must be installed 5-10mm apart. The plates must not overlap or touch at any stage.



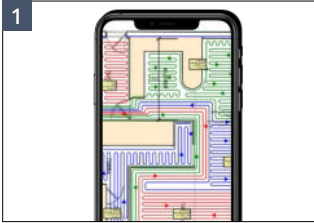
- Service pipe tracks will need to be routed into the Contura panels. Contura panels should be installed upside down in service pipe locations and then service pipe locations marked with a pen, maintaining a minimum bending radius of 100mm and a spacing of 30mm until the manifold.
- The tracks must then be routed out using a 16mm full radius router bit. Once routed, clear the debris from the location.



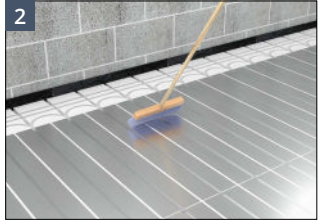
Tracks should be routed at 30mm centres with the last 500mm of pipe tapering down to 25mm centres as it reaches the manifold.

Step 4 - Lay the pipe

If the project has been supplied with a set of working drawings, follow the provided pipe layout. Ensure each circuit details are recorded in the commissioning log provided in the Warmup manifolds installation manual.



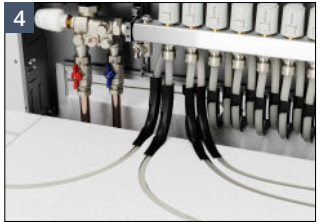
- Plan the circuit layout ensuring that the flow and return pipes can connect from the manifold to their respective heated area without crossing each other.



- Before installing the pipework, sweep or vacuum the panels to clear any debris, paying particular attention to the pipe channels.



- Ensure there is excess flow and return pipe at the manifold location which can be cut later after the pipe has been laid.



- Attach pipe bend supports to hold the pipe at a 90° angle as it enters the floor. Position the support so that the pipe rises straight to the manifold.



Feed pipes normally go through doorways but to minimise congestion, pipes can be fed through walls. Ensure holes drilled in the wall are below floor level and the pipe is protected with conduit.

Step 4 - Lay the pipe



- Install the pipe in line with the projects working drawings. Contura panels allow for serpentine pipe installation only.
- Install the pipe into the panels, ensuring pipe installed against external walls is supplied with the hottest (supply) water. Meander up and down the floor area pressing the pipe into the panels and feed the pipe back towards the manifold.
- Measure and cut the pipe so that it reaches both the flow and return ports on the manifold.

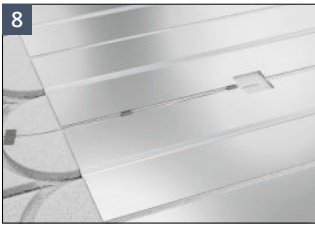


- Refer to the manifold manual for detailed information on mounting, pressure testing and commissioning.

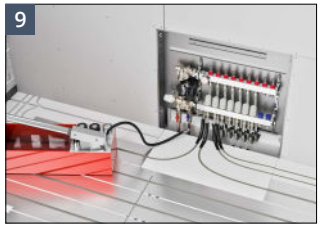
Step 4 - Lay the pipe



- Rout a 5mm groove from the thermostat location to the sensor position and cut a 50mm square section, 5mm deep into the insulation.



- Install the sensor at least 300mm into the heated area it will be controlling. It should be located centrally between two parallel runs of pipe.
- The sensor can be secured to the subfloor with tabs of tape.
- Cut a 50mm square section, into the diffuser plates at the sensor tip location. Insert the diffuser plates into the Contura plates.

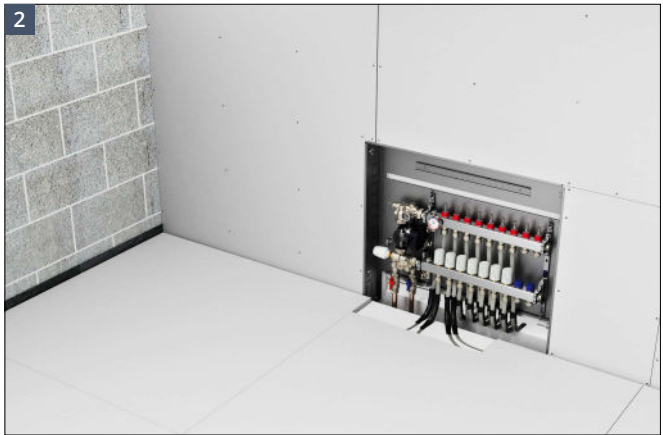


- Before laying the floating floor deck, the pipe should be pressure tested. This will enable any leaks to be detected immediately. Please refer to the manifold manual for guidance.

Step 5 - Lay the floating floor deck



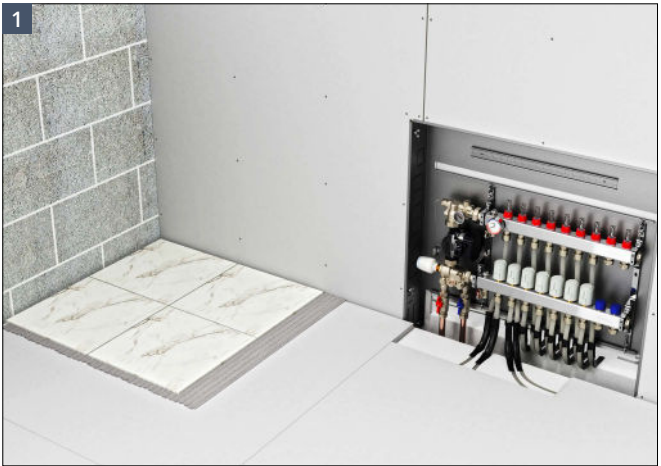
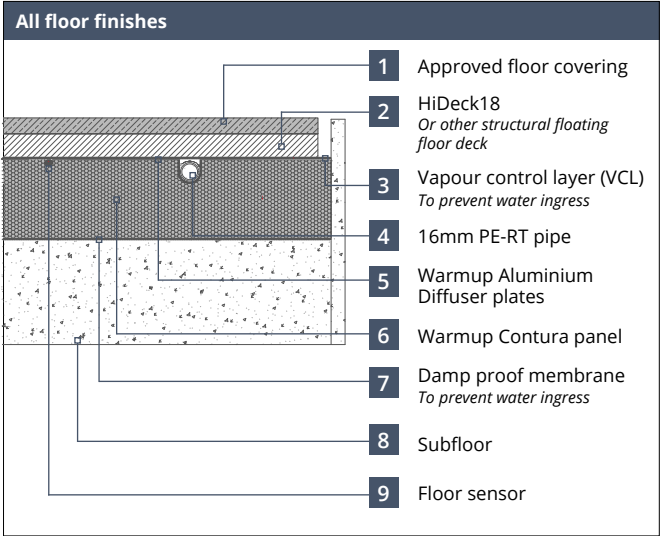
- Lay a vapour control layer over the Contura system first to prevent moisture ingress.



- Install the floating floor deck referring to its installation instructions.

Step 6 - Floor covering

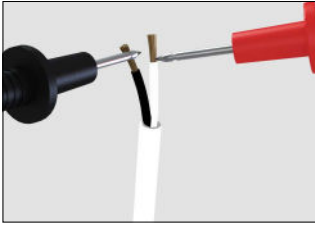
- i** Before installing any floor finish, adhesive or underlay over Contura, the installation requirements of each must be checked to ensure compatibility with underfloor heating.
- i** Underfloor heating performs the most efficiently with conductive, low resistance floor finishes such as stone and tiles.



- Lay the floor covering adhering to the flooring manufacturers instructions.
- Ensure any floor coverings, underlays and adhesives used are suitable for use with underfloor heating at the intended operational temperatures and conditions.

Testing information

Sensor resistance test



- Ensure that the sensor is tested before the floating floor deck has been laid. Warmup thermostats typically use a 10 k Ω sensor. Please to refer to the thermostat manual for further details.
- The expected resistance depending on temperature is listed below.

Sensor resistance by temperature - NTC10K

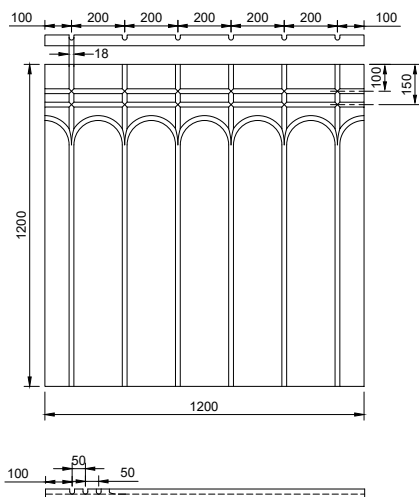
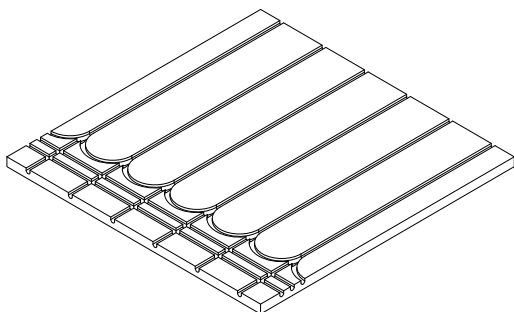
Temperature	Resistance	Temperature	Resistance
0 °C	32.5 k Ω	16 °C	15.0 k Ω
2 °C	29.4 k Ω	18 °C	13.7 k Ω
4 °C	26.6 k Ω	20 °C	12.5 k Ω
6 °C	24.1 k Ω	22 °C	11.4 k Ω
8 °C	21.9 k Ω	24 °C	10.5 k Ω
10 °C	19.9 k Ω	26 °C	9.6 k Ω
12 °C	18.1 k Ω	28 °C	8.8 k Ω
14 °C	16.5 k Ω	30 °C	8.1 k Ω

Troubleshooting

ISSUE 1 - Excessive movement or creaking	
PROBLEM	SOLUTION
The floor deck has not been installed in line with its manufacturers instructions.	Contact floor deck manufacturer for guidance.
Diffuser plates are touching or overlapping	Refit the diffuser plates in line with this manual. Diffuser plates must not touch or overlap at any stage.
Vapour control layer has not been installed over the diffuse plates before the floating floor deck was laid	Vapour control layer must be installed and floor deck re-fitted.
Subfloor has not been prepared to an SR1 standard and the panels are not fully supported.	System must be removed and subfloor prepared to an SR1 standard
ISSUE 2 - Running out of pipe/excess pipe leftover	
PROBLEM	SOLUTION
Incorrect pipe length used for heated area	Refer to your working drawings for correct pipe.
ISSUE 3 - Excessive/insufficient heat output	
PROBLEM	SOLUTION
Incorrect water temperature	Refer to System Performance chart to calculate the required water temperature

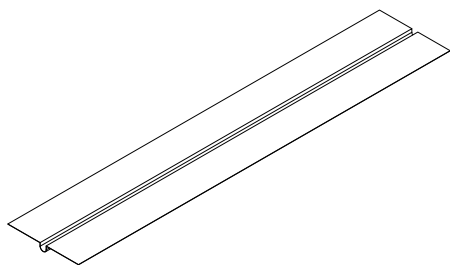
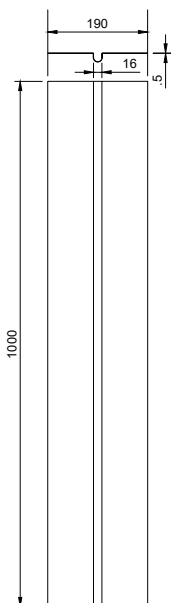
Technical specifications

Warmup Contura panels	
Product code	WHS-CO-P20xx <i>xx = thickness 30/40/50/60/70/80/90/100mm</i>
Dimensions	1200 x 1200mm
Thickness	30 / 40 / 50 / 60 / 70 / 80 / 90 / 100mm
Pipe diameter	18mm
Composition	Routed expanded polystyrene (EPS)
Pipe centres	200mm
Compressive strength @ 10% deformation	CS(10)150
Reaction to Fire	Euroclass F
Thermal Conductivity	0.034 W/mK
Bending Strength	BS 200



Warmup Diffuser plates

Product code	CON-ALUDP9
Dimensions	190 x 1000mm
Thickness	0.5mm
Composition	Aluminium
Pipe channels	1 x 16mm



System Performance

k _H Value - W/m ² K													
Resistance of Floor Covering, tog	0.00	0.25	0.50	0.75	1.00	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00
Pipe Centres	Warmup Contura												
200mm*	3.33	3.03	2.78	2.56	2.38	2.22	2.08	1.96	1.85	1.76	1.67	1.59	1.52

* 200mm pipe centres with a 1.3 tog 18mm chipboard floor deck. If other floor decks are used adjust the total resistance accordingly.

HiDeck18, R = 0.45 tog

22m chipboard, R = 1.6 tog

q = Specific Heat Output, W/m ²	k _H = System Performance Factor, W/m ² K
T _{water} = Mean water Temperature	T _{air} = Room Air Temperature

Using the system k_H value to calculate the system heat output:

$$q = k_H \times (T_{\text{water}} - T_{\text{air}})$$

Example:

The heat output through an 18 mm thick, ≈ 1.25 tog timber floor, over Warmup Contura, fitted with pipe at 200 mm centres, in a 21°C room heated with 40°C water is;

$$q = 2.22 \times (40 - 21) = 2.22 \times 19 = 42.18 \text{ W/m}^2$$

Alternatively, using the system k_H value to calculate the required water temperature, knowing the required heat output:

$$T_{\text{water}} = (q / k_H) + T_{\text{air}}$$

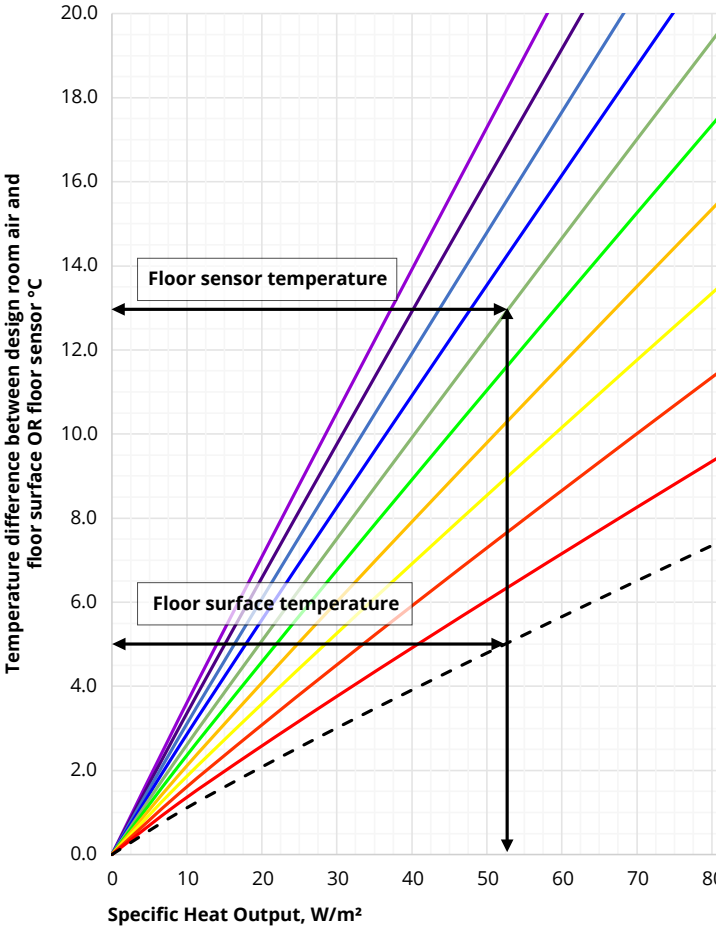
Example:

The water temperature required to produce a heat output of 55 W/m², through a 3 mm thick ≈ 0.25 tog LVT floor finish, over Warmup Contura, fitted with pipe at 200 mm centres, in a 22°C room is;

$$T_{\text{water}} = (55 / 3.03) + 22 = 18.2 + 22 = 40.2^\circ\text{C}$$



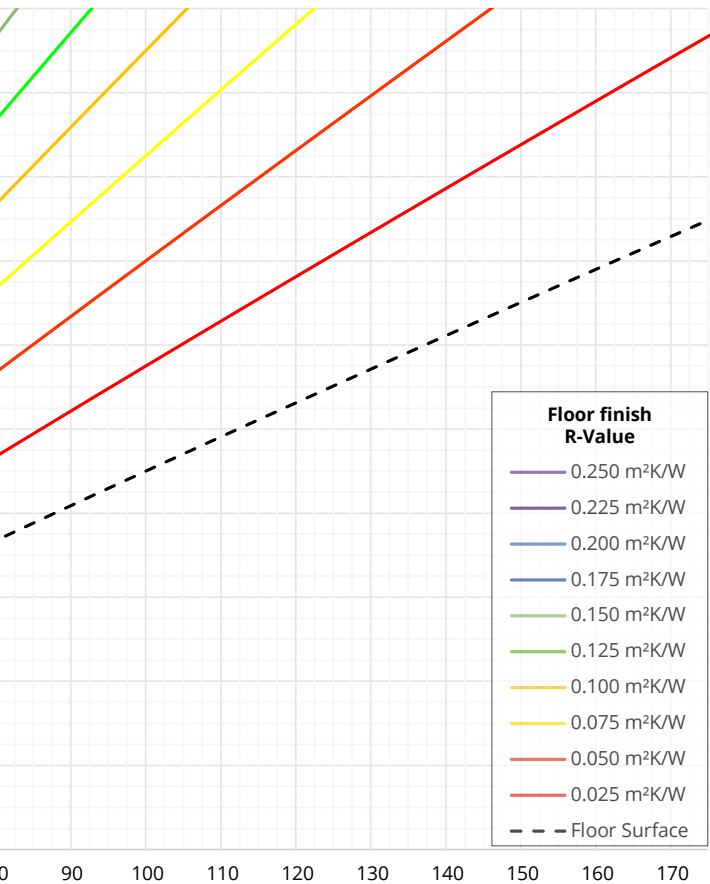
Floor sensor setting for target heat output






The room with the highest water temperature requirement sets the design water temperature for the whole system based on the calculations from the previous section.

Using the graph above it is possible to limit the specific heat output to the required value.

The example above shows a design room air temperature of $20^{\circ}C$ and design heat output of $52.5W/m^2$. Based on a $0.150 m^2K/W$ (1.5 tog) floor finish the floor sensor should be set to $33^{\circ}C$ ($20^{\circ}C$ room air + $13^{\circ}C \Delta T$) to resulting in floor surface temperature of $25^{\circ}C$ ($20^{\circ}C$ room air + $5^{\circ}C \Delta T$).



Specific Heat Output, W/m²

-  The design floor surface temperature difference should not be more than 9 °C in occupied areas, 15 °C in unoccupied areas.
-  Heat output is limited by the floor finish resistance combined with the maximum probe setting of 40 °C.
-  Temperature limits of the floor finish or its adhesive may adversely limit the design heat output.

Warranty

Warmup plc limited warranty – Hydronic floor heating pipe



Registration can be completed online at www.warmup.co.uk.
In the event of a claim, proof of purchase is required in the form of an invoice or receipt.

THIS WARRANTY DOES NOT EXTEND TO OTHER COMPONENTS WHICH ARE COVERED BY SEPARATE WARRANTIES. THIS WARRANTY DOES NOT AFFECT YOUR STATUTORY RIGHTS.

Limited warranty:

Warmup® underfloor heating pipe is warranted by Warmup plc ("Warmup") to be free from defects in manufacturing under normal use and maintenance, and is warranted to remain so subject to the limitations and conditions described below.

This warranty period begins on the date of purchase. The Lifetime warranty only applies if the product is registered with Warmup within 30 days after purchase and registered online at www.warmup.co.uk. Registration is confirmed only when confirmation of receipt is forwarded by Warmup plc

Warranty duration

- The PE-RT underfloor heating pipe is warranted for the **LIFETIME** of the floor under which it is fitted, except as provided below; your attention is drawn to the exclusions listed and the end of this warranty.

Notification of a suspected failure must be received in writing by Warmup within thirty (30) days of the suspected failure. Products believed to be defective must be made available to Warmup for testing and determination of cause.

Upon acceptance of any warranty claim, Warmup shall have ninety (90) business days in which to investigate and determine whether it recognises responsibility for any believed defects in material or workmanship and determines the appropriate course of action to be taken.

It is expressly agreed that the sole remedies under this limited warranty shall be at the discretion of Warmup, plc to either: issue a refund, repair or replace any article which is proven to be defective. Any and all allowances made to customers for transportation, labour, repairs or all other work, are at the exclusive discretion of Warmup and shall be authorised in writing, in advance, by Warmup. Such cost does not extend to any cost other than direct costs of repair or replacement by Warmup and does not extend to costs of relaying or repairing any floor covering or floor.

The lifetime warranty applies to the pipes(s) if they:

1. Are registered with Warmup within 30 days after purchase.
2. Have not operated at a pressure of greater than 8 Bar.
3. Have not operated at a temperature of greater than 60°C.
4. Are filled with treated water suitable for use with PE pipes.
5. Are installed according to all applicable building code requirements.
6. Are selected, designed and installed by a qualified contractor according to installation instructions provided by Warmup which are current as of the applicable installation date.
7. Remain in their original installed location, such that the floor covering or screed over the product is not damaged, lifted, replaced, repaired or covered with subsequent layers of flooring.
8. Do not show evidence of accidental damage, misuse, lack of care, tampering, or repair or modification without the prior written approval of Warmup plc.



SafetyNet™ Installation Guidelines: If you make a mistake and damage the pipe before covering the pipe with screed, levelling compound or floor covering, return the damaged pipe to Warmup within in 30 days along with your original dated sales receipt. WARMUP WILL REPLACE THE COIL OF PIPE (MAXIMUM 1 COIL OF PIPE PER ORDER) WITH ANOTHER COIL OF THE SAME MAKE AND MODEL - FREE.

**Register your Warmup® warranty online at
www.warmup.co.uk**

- (i) Pipes repaired by Warmup carry a 5 year warranty only. Under no circumstances is Warmup responsible for the repair or replacement of any tiles / floor covering which may be removed or damaged in order to affect the repair.
- (ii) The SafetyNet™ Installation Guarantee is null and void once the pipe is covered with a screed, levelling compound, adhesive or floor deck.
- (iii) Damage to the pipe that occurs after covering, such as lifting a damaged tile once adhesive has set, or subfloor movement causing floor damage, is not covered by the SafetyNet™ Guarantee.



Warmup plc

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**Please scan the QR code to provide
feedback on your installation**

Warmup

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