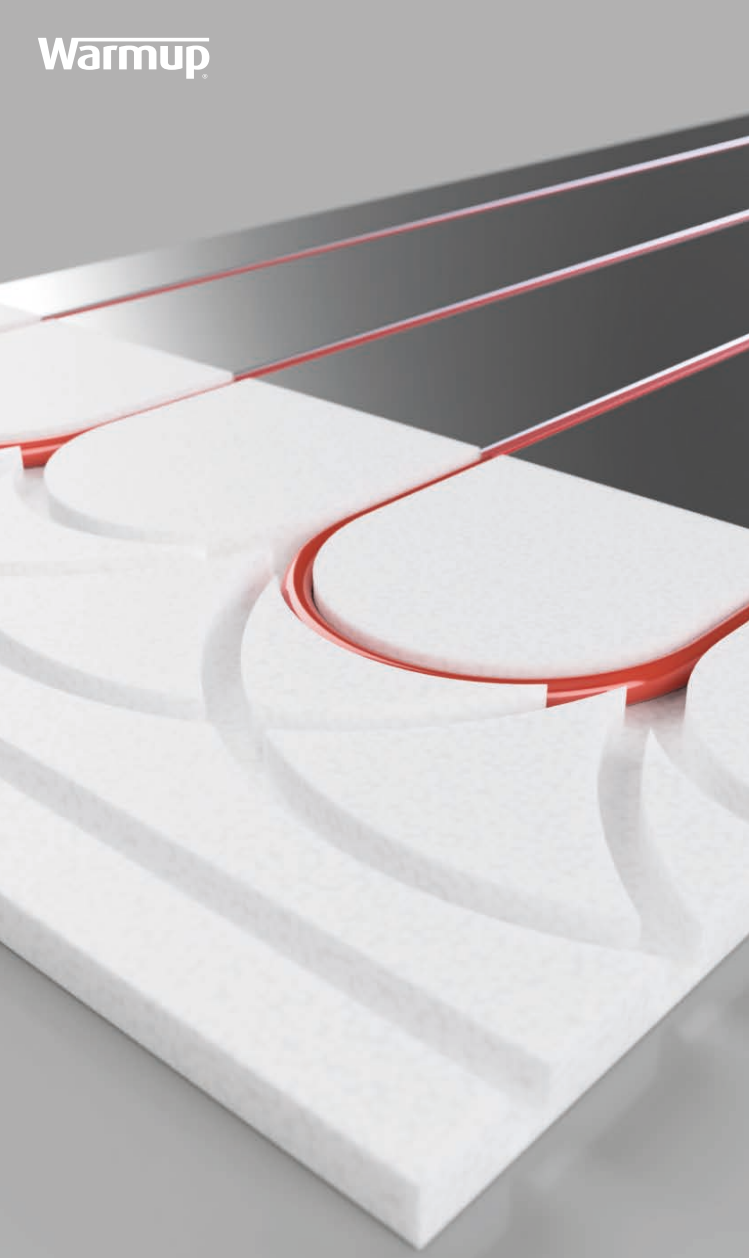
Warmup



Warmup Total-16
Low Profile System

Installation manual

LIFETIME Warmup

SAFETY Net™ Installation-Guarantee

Warmup®

The world's **best-selling** floor heating brand™

Over 2.5 million installations in more than 72 countries

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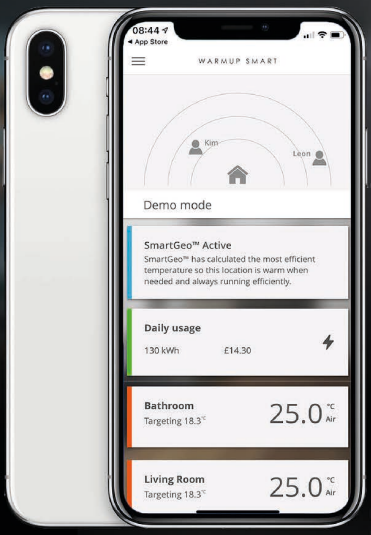

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Table of Contents

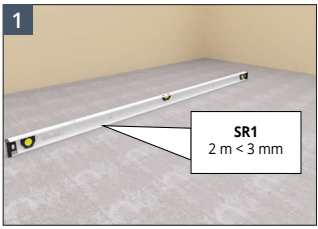
Your Warmup® underfloor heating system has been designed so that installation is quick and straight forward, but it is important that the instructions in this manual are followed to ensure that your underfloor heating system performs correctly. Please ensure that you have the components and design drawings necessary for this system before you begin installation. Warmup plc, the manufacturer of the Warmup® Total-16 System, 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.

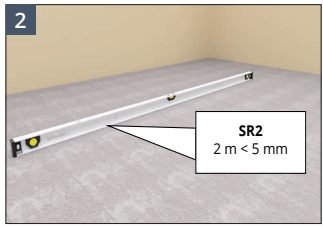
You may also find a copy of this manual, wiring instructions and other helpful information on our website www.warmup.co.uk

Quick install guide

Please also read the full instructions that follow this page.

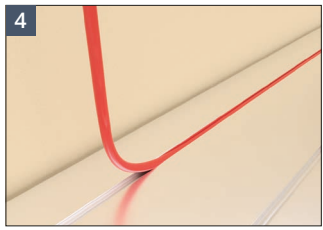


- When creating a floating floor construction, i.e. for timber floor finishes, ensure the subfloor is clean, dry and prepared to an SR1 standard. See subfloor considerations page for more information.



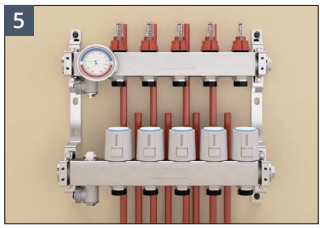
- When creating a bonded floor construction, i.e. for tiles or installations using levelling compound over the Total-16, prepare the subfloor to an SR2 standard and apply adhesive. See subfloor considerations page for more information.

- Lay the service boards first, then the end return boards followed by the straight boards.



- Lay the pipe by pressing it into the grooves of the Total-16 boards. Ensure the pipe is securely fixed into the grooves.

5



- Measure and cut the pipe so that it reaches both the flow and return ports on the manifold. Connect using euroconus connectors. Refer to the manifold manual for its mounting instructions.

6

- Use Warmup pipe bend supports to hold the flow and return pipe at a 90° angle as it exits the floor towards the manifold.

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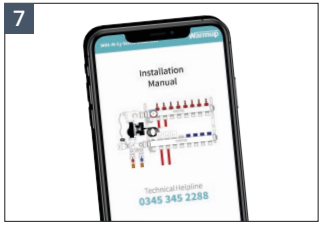
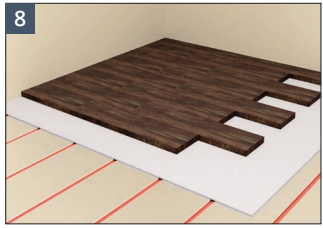


- Refer to the manifold manual for detailed information on mounting, calibration and pressure testing.

8



- Lay your chosen floor covering over the Total-16 system.
  NOTE: If tiling directly or self levelling over the Total-16 boards you MUST prime the boards first using Warmup Primer. (WHS-X-PRIMER)

Components available from Warmup

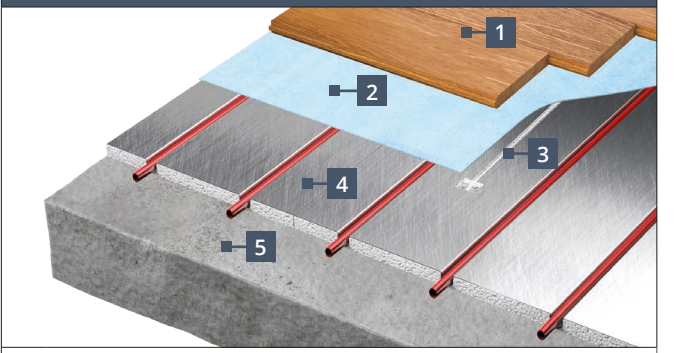
Product Code	Description
UK-WUK-HY-PERT-12	Warmup PE-RT pipe 12 mm
WHS-TOTAL16-BOARD	Total-16 straight boards with integral diffusion plate
WHS-TOTAL16-RETURN	Total-16 return board
WHS-TOTAL16-FEED	Total-16 multi-feed board
WHS-X-GLUE	Warmup glue
WHS-X-PRIMER	Warmup primer
WHS-X-SEAL25	Warmup seal adhesive
WHS-X-BIND	Warmup binder
WHS-X-SELFLEVEL	Warmup levelling compound
Additional components that may be required as part of your Warmup heating installation:	
Manifold, mixing unit, actuators, valves and euroconus connectors	
Wiring centre	
Warmup thermostats	
Pipe bend supports	
Warmup Dual Overlay (WDO) or Dual Overlay Concrete (WDOC)	
Perimeter strip	
Damp proof membrane (not supplied by Warmup)	
Cellfoam (not supplied by Warmup)	

Important installation information

- Perform a site inspection. You will need to confirm that all measurements and other requirements on site match your building plans.
- Ensure that all subfloors are the correct depth needed to incorporate the underfloor heating.
- Check for anything that might interfere with pipe installation such as concrete walls where they were not expected or changes to the floor layout.
- Before installing the floor finish, its suitability for use with underfloor heating and its maximum operating temperature should be checked against required operating conditions.
- Inspect the site for possible hazards that could damage the Warmup pipe, such as nails, staples, 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.
- Do not pull of 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. To repair a kink, straighten the pipe and simply heat the area with a hot air gun until the kink disappears.

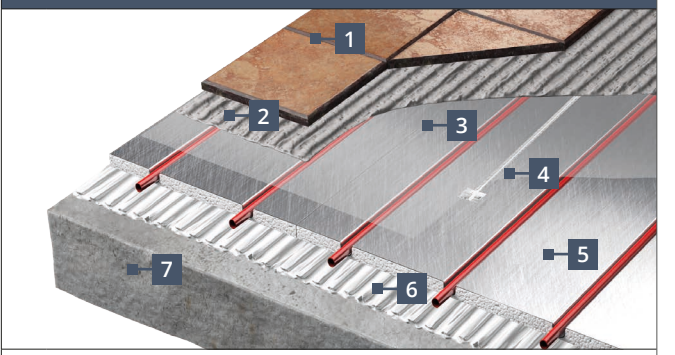
Step 1 – Selecting the installation method

Timber Floating Floors



1	Timber flooring
2	UFH compatible underlay
3	Floor sensor *The aluminium plates should be trimmed to allow 50 mm spacing between the sensor and the diffuser plates*
4	Total-16
5	Subfloor with a Surface Regularity of SR1

Tiled Floors

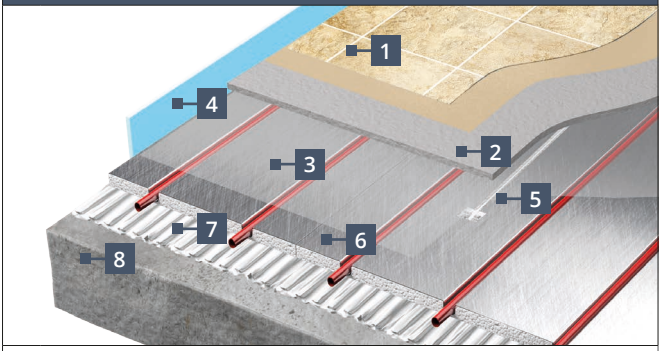


1	Tile Floor Finish
2	Flexible tile adhesive *Tile adhesive used must be compatible with compressible panels such as Total-16*
3	Warmup primer
4	Floor sensor *The aluminium plates should be trimmed to allow 50 mm spacing between the sensor and the diffuser plates*
5	Total-16
6	Warmup adhesive & binder*
7	Subfloor with a Surface Regularity of SR2**

* In dry areas Warmup glue can be used
** Subfloor must be SR1 where Warmup glue is used

Step 1 – Selecting the installation method

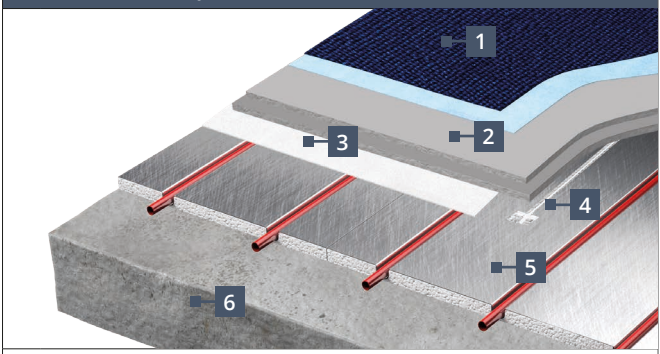
All floor finishes - Bonded



1	Floor Finish
2	Minimum 12mm levelling compound *Levelling compound used must be compatible with compressible panels such as Total-16. This method can be used to create a floor surface suitable for most floor finishes and when forming a drainage slope within a wetroom. The levelling compound, when used, must be applied as a single layer.*
3	Warmup primer
4	Perimeter strip
5	Floor sensor *The aluminium plates should be trimmed to allow 50 mm spacing between the sensor and the diffuser plates*
6	Total-16
7	Warmup adhesive & binder*
8	Subfloor with a Surface Regularity of SR2**

* In dry areas use Warmup glue can be used
** Subfloor must be SR1 where Warmup glue is used

All floor finishes - Dry



1	Floor Finish
2	Floating floor deck *Such as Warmup WDOC*
3	1 mm Cellfoam
4	Floor sensor *The aluminium plates should be trimmed to allow 50 mm spacing between the sensor and the diffuser plates*
5	Total-16
6	Subfloor with a Surface Regularity of SR1

Step 2 - Subfloor considerations for floor coverings

Total-16 may only be laid over structurally sound load bearing subfloors that are sufficient to support the additional load of the system, meet the requirements of the floor finish and the floors intended use.

Ensure the subfloor is dry and smooth, free of oil, grease and dust. If necessary an appropriate smoothing or levelling compound should be applied.

Where ceramic tiles are to be used over suspended floors ensure that the subfloor meets the Tile Associations minimum specifications.

For bonded floor installations, where tiling or levelling directly over Total-16, subfloors should be prepared to at least an SR2 standard, the boards must be adhered to the sub-floor and their top surface must be primed using Warmup Primer.

For floating floor installations, subfloors must be prepared to an SR1 standard.

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 of the chosen floor covering and its impact on the system heat output.

Total-16 should not be installed over floors with rising damp.

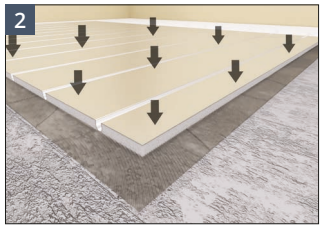
Step 3 - Adhering Total-16 to the subfloor

Total-16 can only be glued to porous or absorbent surfaces such as concrete and chipboard. Warmup glue can be used to reduce the overall floor height in dry areas.

Using Warmup glue

- Ensure the subfloor is dry, clean and free from dust or other substances that will prevent bonding.

  The glue should be spread out, with a 1 mm V-notched trowel.



- Press the boards down firmly into the glue to create the necessary adhesion.

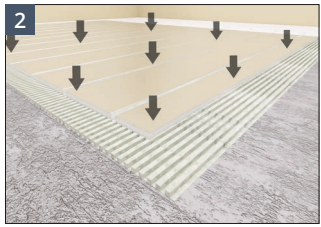
  RECOMMENDED: Place walking boards or similar over the Total-16 until the glue has set.

  Avoid unnecessary treading on the boards until the glue has properly set.

Using Warmup adhesive & binder

- Ensure the subfloor is dry, clean and free from dust or other substances that will prevent bonding.

  Prepare the adhesive following its instructions, then using an 8 mm square notched trowel, comb out the adhesive.



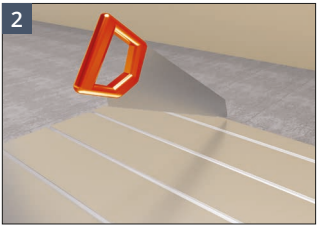
- Press the boards down firmly into the adhesive to create the necessary adhesion.

  RECOMMENDED: Place walking boards or similar over the Total-16 until the adhesive has set.

  Avoid unnecessary treading on the boards until the adhesive has properly set. (Drying time for the adhesive is approximately 32-48 hours)

Step 4 - Laying the Total-16 boards

- If you are planning to use a levelling compound over Total-16 install Warmup perimeter strip around the perimeter of the room and any permanent structures to allow for differential movement between finished floor and walls.



- The boards boards can be shortened using a standard saw or other suitable cutter.

  To prevent damage to the pipe, remove sharp edges and burrs from the aluminium channel.

- Lay the multi-feed boards first, which are used for flow and return pipe runs. They may also be used where the pipes do not fit rooms dimensions.

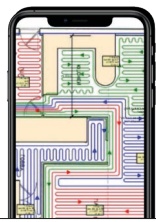
  Next lay the Total-16 return boards so that pipe bends match the intended pipe layout.

  Finally lay the straight Total-16 boards. Make sure the pipe sots are aligned with the return boards.

Step 5 - Lay the pipe

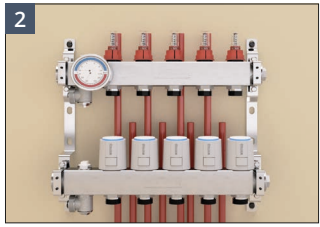
If the project has been designed by Warmup, then follow the designed layout. All circuit lengths should be recorded as accurately as possible to ensure correct commissioning of the system.

1



- 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 and to minimize instances where the pipe passes through expansion joints.

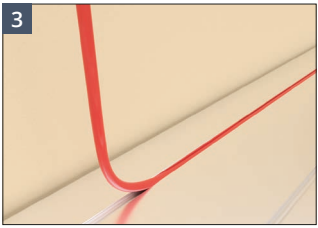
2



- Begin installing the pipe from the manifold location. Leave excess pipe at the manifold location which can be cut later after the pipe has been laid.

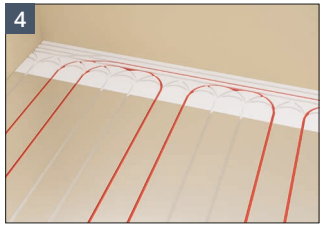
Feed pipes normally go through doorways but to minimise congestion, pipes can be fed through walls. Ensure holes drilled in the wall are below floor level and the pipe is protected with a conduit.

3



- Ensure the board pipe slots are clear of debris and sharp burrs. Feed the pipe into the pipe slots.

4



- Meander up and down the floor using both the large and small radius turns to create the first half of a double meander pattern.

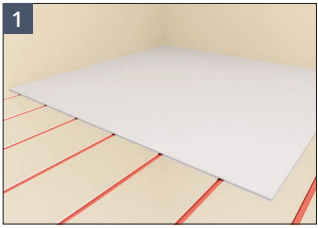
5

- Once you reach the mid point of your circuit, double back and infill the remaining channels. The resulting double meander pattern will ensure a more even floor temperature.

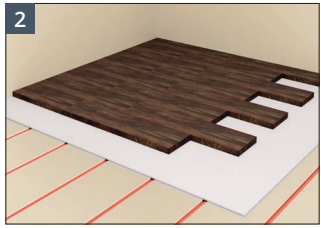
6

- 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 with approximately half the support within the floor.

Step 6A – Laying a floating timber floor

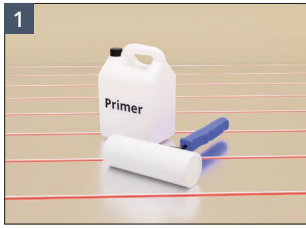


- Cover the Total-16 boards with underfloor heating compatible underlay.

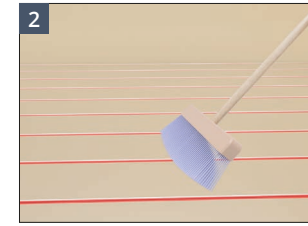


- Lay the wood floor at a 90° angle to the pipe runs, following the floor manufacturers instructions and national guidelines when laying the floor.

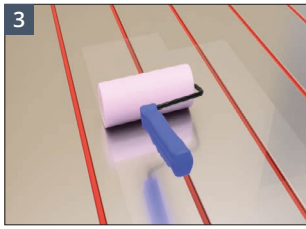
Step 6B - Laying a tile floor covering



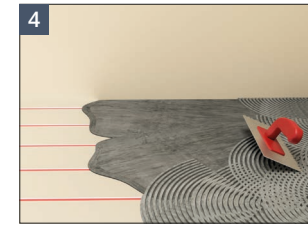
- The top of the Total-16 boards MUST be primed using Warmup primer. The primer has excellent qualities for use over expanded polystyrene and aluminium.



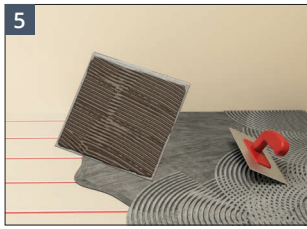
- Ensure the boards are dry, clean and free from dust. There must be no grease or oil on the boards and any present must be cleaned off.



- Apply the primer ensuring that the entire panel surface is covered, including within the pipe channels. Allow the primer to dry properly before you begin tiling.



- You can begin tiling when the primer has dried completely. Cover the installation with a full bed of flexible tile adhesive using a notched trowel ensuring there are no air gaps.



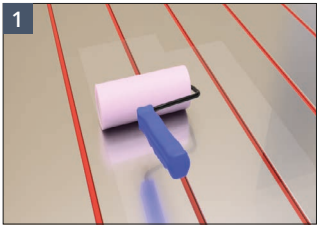
- After laying the first tile remove and ensure the tile is getting a full coverage of adhesive from your application.

  Ensure the width of the grout line is in line with the manufacturers instructions for the size and type of tile being used. Tiles must not be removed once the adhesive has set, doing so could damage the pipes.

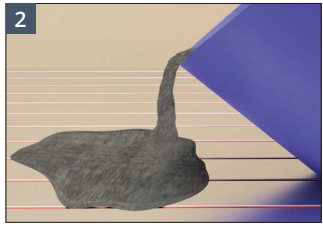
- Grout the floor as soon as possible as per the tile adhesive manufacturer's instructions. DO NOT switch the system on until the tile adhesive and grout has fully dried. DO NOT use the heater to accelerate the curing process of the adhesive or levelling compound.

The smallest tile size allowable over Total-16 is 100 mm x 100 mm, a levelling compound must first be applied when using smaller tiles, see 6C. Any tile adhesive used must be compatible for compressible panels such as Total-16.

Step 6C - All floor finishes - Bonded

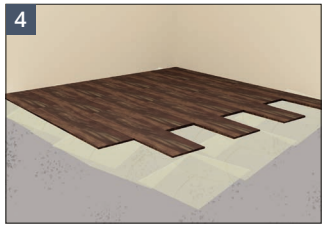


- Apply Warmup primer ensuring that the entire Total-16 panel surface is covered including within the pipe channels. Allow the primer to dry properly.



- Next apply a minimum 12 mm layer of Warmup self-levelling compound over the primed Total-16 boards.

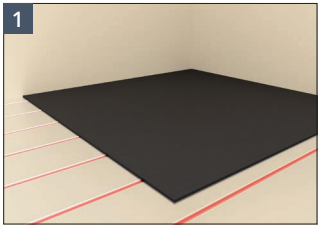
- The 30 mm tall perimeter strip should finish just proud of the levelling compound and can be trimmed back flush with a utility knife if required.



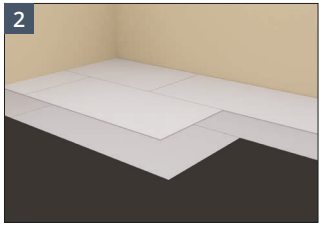
- Lay the floor covering adhering to the flooring manufacturers instructions.

  If gluing the carpet or vinyl floor ensure the adhesive is suitable for use with underfloor heating.

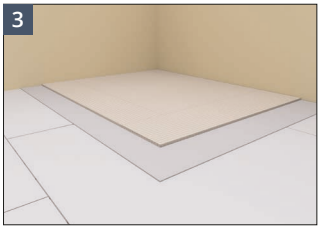
Step 6D - All floor finishes - Dry



- Cover the Total-16 boards with cellfoam.



- Lay a floating floor deck, such as Warmup WDOC over the cellfoam. Refer to the floor deck manufacturers manual for correct installation.



- Finally lay the floor covering adhering to the flooring manufacturers instructions.

  If gluing the carpet or vinyl floor ensure the adhesive is suitable for use with underfloor heating.

ISSUE 1 - Squeaking noise when walking over the floor		
SYMPTOM	**PROBLEM**	**SOLUTION**
Squeaking noise when walking over the floor	Subfloor not structurally sound or level causing the Total-16 boards to flex and rub	The issue with the subfloor has to be resolved
ISSUE 2 - Tapping noise when walking over the floor		
SYMPTOM	**PROBLEM**	**SOLUTION**
Tapping noise when walking over the floor	Cellfoam or underlay was not laid before floating your floor finish causing the floor deck to "tap" against the aluminium plates	Lift your floor covering and lay cellfoam or underlay between the Total-16 boards and your floor
ISSUE 3 - Total-16 boards are breaking up		
SYMPTOM	**PROBLEM**	**SOLUTION**
Total-16 boards are breaking up	Subfloor not level	Ensure the subfloor is smooth, flat and level to SR1 or SR2 standards as required
	Excessive tension in the pipe	Glue the Total-16 boards to the sub floor
ISSUE 4 - Cracked tiles or leveller		
SYMPTOM	**PROBLEM**	**SOLUTION**
Cracked tiles or leveller	Timber Subfloor - There is excessive movement in the subfloor causing the floor to flex leading to cracked tiles	The issue with the subfloor has to be resolved otherwise the tiles will continue to crack
	The subfloor was not sufficiently level prior to the system being installed and there are air gaps between the Total-16 panels and the sub floor.	The issue with the subfloor has to be resolved otherwise the tiles will continue to crack

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 requiredin 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 warrantied 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 pipe 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 subtitle 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.

SAFETY Net™
Installation-Guarantee

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.

Total-16 boards

Total-16 straight board (WHS-TOTAL16-BOARD)				
DIMENSIONS	THICKNESS	COMPRESSIVE STRENGTH @10% (kPa)	THERMAL CONDUCTIVITY @ 10°C	R-VALUE (m^2 K/W)
1200 x 600 mm	16 mm	400 kPA	0.034	0.47
Total-16 return board (WHS-TOTAL16-RETURN)				
600 x 300 mm	16 mm	400 kPA	0.034	0.47
Total-16 multi-feed board (WHS-TOTAL16-FEED)				
600 x 300 mm	16 mm	400 kPA	0.034	0.47

Warmup plc

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