thermo Sphere

HEATING | FLOOR | TILE | STONE
MEMBRANE

Excellence in heating solutions.

thermo Sphere

Thank you for your purchase...

ThermoSphere membrane is an electric underfloor heating system that creates a comfortable, warm room as well as providing a stable, bonded tiled floor that is not vulnerable to delamination, cracks and issues caused by challenging substrates.

ThermoSphere heating and uncoupling membrane is laid over the entire floor surface and the TwistedTwin™ heating cable is installed in the areas where heat and comfort is required.

The floor temperature can be controlled with your choice of ThermoSphere control.

Suitable for these substrates:

- Concrete floors
- Cementitious screeds
- Anhydrite screeds
- Green screeds
- Stable timber sub floors
- Plywood panels

Suitable for these floor finishes:

- Tiled floor finishes
- Self levelling compound (SLC)
- Carpet (with 10mm SLC)
- Laminate (with 10mm SLC)
- Vinyl (with 10mm SLC)

Warranty Terms and Conditions

The ThermoSphere Lifetime Warranty guarantees membrane underfloor heating cables to remain free from defects in workmanship and materials under normal use and maintenance, and is guaranteed to remain in full working order subject to the conditions and limitations below:

Please complete the customer handover section on p20 in full so the customer has all the information they require to complete the online warranty form. This is required to validate the Lifetime warranty.

Proof of purchase must be presented to make a claim, so please ensure that you keep a copy of both your invoice and purchase receipt in a safe place. Such invoice/receipt should clearly state the model that has been purchased.

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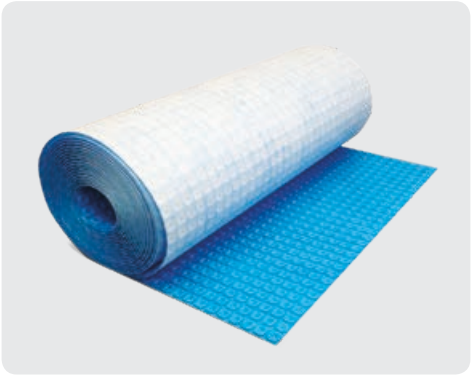


ThermoSphere Membrane

ThermoSphere membrane is a patented polypropylene membrane, with rounded square shaped dimples that form channels specifically designed to hold ThermoSphere heating cables in place. On the underside is an anchoring fleece to ensure the membrane bonds to the substrate.

HDM-001 1M^2
HDM-005 5M^2
HDM-015 15M^2

Thermosphere Heating Cable

ThermoSphere underfloor heating cables are unique in the UK, and feature our TwistedTwin technology for neutralised cable stress and unbeatable quality. Designed for seamless installation into ThermoSphere uncoupling membrane in areas where heating is required.

Available in lengths to cover areas from 1.14m^2 to 19.0m^2 at 130W/m^2 or 195W/m^2 spacing.

For Stock Codes see p24

Thermosphere Waterproofing Solution

ThermoSphere water proofing paste and waterproofing tape can be used together to seal joints between sections of ThermoSphere membrane. It can also be used to create a watertight seal in internal corners and joints between floors and walls.

HDM-WP-01 Waterproofing paste
HDM-WT-01 Waterproofing tape

Product checklist

ThermoSphere Controls

ThermoSphere membrane is compatible with our complete range of Thermostatic controls. Choose from the simple manual, the touchscreen programmable, the dual control or the SmartHome Alexa compatible controls.

Additional floor sensor probes available.

Thermal Insulation Boards

ThermoSphere insulation boards provide an insulated, prepared surface for the installation of electric underfloor heating systems or tiles on floors and walls. Insulation boards should be installed directly below the heating system to reduce running costs.

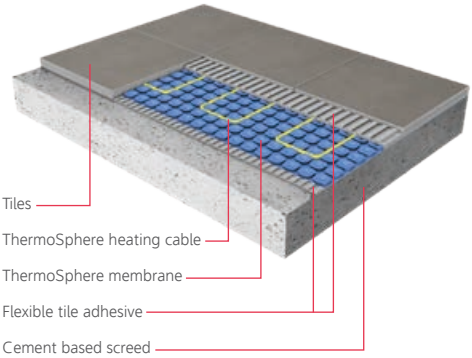
Available uncoated or coated from 10mm to 50mm thickness.

Perimeter Insulation

This 8mm edge insulation strip should be installed around the perimeter of the room to act as a cushion for slight expansion/contraction and also to reduce sound transfer through walls.

PIF-50-050

Compatible substrates



Concrete or cement based screeds

The curing process of concrete screeds can bring about long term form changes in the substrate resulting in tensions between the substrate and floor finish. These tensions can lead to cracking and delamination.

Concrete expands and contracts at a different rate to tiled finishes such as porcelain, natural stone and granite, and these changes in temperature can also case stresses and tensions in the floor fabric.

ThermoSphere membrane uncouples the tension between the substrate and tiled finish which allows you to install tiles as soon as the concrete has reached a suitable level of stability.

Areas of use

- On any sound cement based screed.
- On fresh cement based screeds (cured less than 7 days per centimetre of thickness).
- On cracked cement based screeds.

Limitations

- Minimum tile size 50 x 50mm.
- Do not use if vertical movement cracks are present.

Requirements

- The cement based screed must be structurally sound
- The substrate must be free from grease, oil, dust and any elements that may compromise adhesion.
- ThermoSphere membrane can be installed as soon as screed can be walked on.
- Any levelling must be carried out carried out before installing ThermoSphere membrane to ensure an even thickness between the heating cable and floor finish.

Substrate preparation

- Any levelling of the subfloor must be performed before installing ThermoSphere uncoupling membrane.

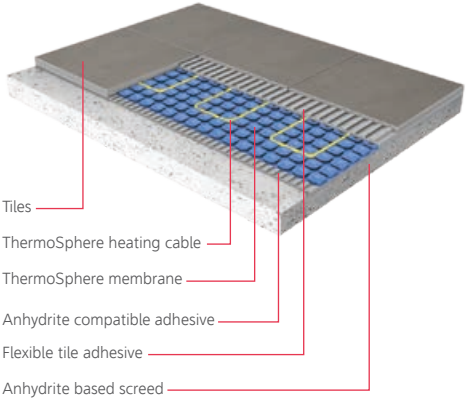
Movement joints

- Perimeter insulation strips and and tile surface expansion joints are necessary according to building norms. No joints should be made in the screed.

Other considerations

- If waterproofing is required, use ThermoSphere waterproofing tape and ThermoSphere waterproofing paste between adjacent sheets, penetrations and all wall to floor joints.
- Make sure you use a suitable adhesive for moisture sensitive materials such as natural stone.

Compatible substrates



Anhydrite (Calcium Sulfate) screeds

Regulations state that anhydrite (calcium sulfate) screeds must have a residual moisture level below 0.5% before tiling can begin. Failure to observe these guidelines can result in delamination and detachment of the tiles.

Anhydrite is very sensitive to humidity, has long curing times and expands/contracts at different rates to tiled floor finishes.

When installing ThermoSphere membrane tiles can be laid as soon as the residual moisture level falls below 2%, saving time and money. ThermoSphere membrane also prevents tensions between the substrate and floor finish, preventing cracks and delamination issues.

Areas of use

- On anhydrite screed underlayment installed over a sound structure.
- Internally in wet and dry areas.
- On anhydrite screeds with residual moisture levels below 2%.

Limitations

- Minimum tile size 50 x 50mm.

Requirements

- If the anhydrite screed is installed over floor heating pipes or cables there must be a minimum of 20mm screed over the tops of the heating system.
- The residual moisture of the anhydrite screed must be below 2% before installing ThermoSphere membrane.
- Any levelling must be carried out carried out before installing ThermoSphere membrane to ensure an even thickness between the heating cable and floor finish.

Substrate preparation

- Follow the manufacturer guidelines

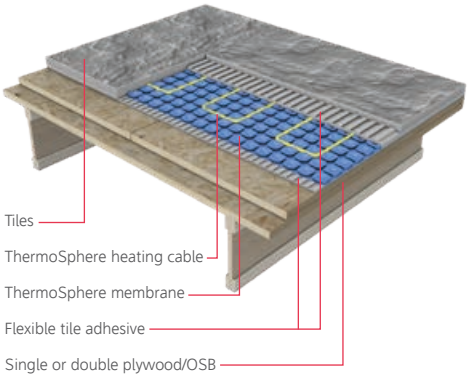
Movement joints

- Perimeter insulation strips and tile surface expansion joints are necessary according to building norms.

Other considerations

- Follow the anhydrite screed manufacturer's instructions regarding priming and surface preparation to ensure the surface is ready to bond to the ThermoSphere membrane.
- If waterproofing is required, use ThermoSphere waterproofing tape and ThermoSphere waterproofing paste between adjacent sheets, penetrations and all wall to floor joints
- Make sure you use a suitable adhesive for moisture sensitive materials such as natural stone.
- Make sure you use a suitable adhesive for adhering to anhydrite screeds. Contact us if you are unsure.

Compatible substrates



Timber and plywood floor structures

Plywood and OSB panels are vulnerable to moisture and large changes in humidity which can cause expansion, contraction, bending and deflection.

As a result the timber structure has a different coefficient of expansion to tiled finishes such as porcelain, natural stone and granite, and these changes can cause stresses and tensions in the floor fabric.

ThermoSphere membrane uncouples the tension between timber substrates and tiled finishes which allows you to install tiles on timber floors without the threat of delamination and cracking.

Areas of use

- On any structurally sound plywood or OSB structure.
- Internally in wet or dry areas.

Limitations

- Minimum tile size 50 x 50mm.
- If the screed is subject to rising moisture the waterproofing instructions should be followed.
- If installing natural stone apply a double layer of OSB or plywood.

Requirements

- The OSB or plywood panels must be fully supported by the floor joists or extra supports (noggins) should be provided.
- All joints between boards should be secured to a floor joist or noggin to provide a stable substrate in accordance with building norms.

Substrate preparation

- Check that the plywood panels are securely fastened to the timber structure below.
- Leave a 3mm expansion gap between the OSB or plywood panels.
- Any levelling of the sub floor must be done prior to installing ThermoSphere membrane.

Movement joints

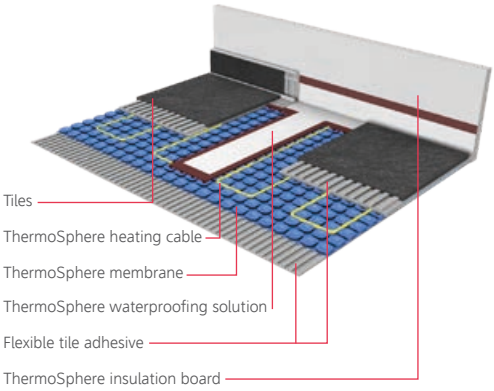
- Perimeter insulation strips and tile surface expansion joints are necessary according to building norms.

Other considerations

- Follow the adhesive manufacturer's priming and preparation guidelines to ensure a secure bond to the timber substrate can be achieved.
- If waterproofing is required, use ThermoSphere waterproofing tape and ThermoSphere waterproofing paste between adjacent sheets, penetrations and all wall to floor joints
- Make sure you use a suitable adhesive for moisture sensitive materials such as natural stone.

We recommend the use of impregnated external grade timbers and sheet materials to limit the effects of water contact. You should also follow the waterproofing instructions in wet areas such as bathrooms and wet rooms.

Compatible substrates



Waterproofing

If a timber, concrete or anhydrite screed is exposed to moisture the tile layer above can become damaged and completely delaminate as a result.

Typical areas that require waterproofing include wet rooms, bath tub surrounds and showers. There are also environments where dishwashers, washing machines and water tanks are installed that could benefit from a waterproof floor if they became damaged and leaked. Waterproofing these areas will help to prevent the delamination of tile coverings in the event of water loss.

Install a layer of ThermoSphere membrane and seal all edges and penetrations with ThermoSphere waterproofing solution to create a totally waterproof subfloor.

Areas of use

- On any structurally sound substrate that requires waterproofing.

Limitations

- Minimum tile size 50 x 50mm.

Other considerations

- In some cases, such as installing shower trays and drains in wet rooms, it may be necessary to use the ThermoSphere waterproofing tape and paste solution to create a wetroom.

Other compatible substrates

Heated screeds

- ThermoSphere membrane can be installed over heated screeds to provide uncoupling technology and waterproofing properties. Please observe the recommendations in the Compatible Substrates section for particular types of heated screed.
- The ThermoSphere membrane can be installed over an underfloor heating system that is connected to the central heating system to provide individual on demand zone heating, and top up heating when the main system is off.
- ThermoSphere membrane can also be used to provide extra heat to cover peak loads. ThermoSphere membrane can be switched on 7 days after the tiles have been applied, starting from 18°C.
- Adhesive manufacturer guidelines for curing times must be adhered to.

Thermosphere over a hardwood floor

- ThermoSphere membrane can be installed over hardwood tongue and groove floors. The floor finish must be sufficiently load bearing and fixed to floor joists with no visible movement.
- We recommend an additional layer of plywood to increase substrate stability. The timber floor boards should be fully acclimatised to the surrounding environment before installing Thermosphere membrane.

Thermosphere over synthetic flooring

Synthetic floor surfaces must be load bearing and appropriately treated to allow for proper bonding of the ThermoSphere membrane anchoring fleece and the adhesive.

The installer must always check the suitability of the adhesive with the adhesive manufacturer before using with the membrane. Follow the adhesive manufacturer guidelines for substrate preparation.

Pre installation preparation

Substrate preparation

Always check that the substrates which ThermoSphere uncoupling membrane is going to be installed on are rigid, load bearing, even, level, clean and compatible with the materials to be used.

Check that all surface components that may weaken the bond have been removed, and any uneven or sloped surfaces have been levelled before installing ThermoSphere membrane.

If your substrate is not compatible with a cement based, flexible tile adhesive it is possible to adhere ThermoSphere membrane to the substrate using acrylic emulsion adhesive. Call us on 0800 019 5899 to order your compatible adhesive.

Check with your adhesive manufacture to make sure the substrate is properly prepared before using adhesive.

To guarantee effective heating of the floor and room above, insulation board such as ThermoSphere insulation board should be included in the installation above ground level substrates and upstairs rooms over unheated rooms.

Pre installation planning

Step 1: Draw your floor area onto squared paper taking care to mark any unheated areas such as a bath, sink, toilet or kitchen island unit.

Step 2: Ensure enough ThermoSphere uncoupling membrane is purchased to cover the whole floor area. ThermoSphere ships in 15m^2 rolls (15 x 1m).

Step 3: Calculate your heated area by subtracting any unheated areas (such as baths or kitchen units) from the total floor area.

Step 4: Choose the correct cable for your heated area from the chart below. During installation take care to install the heating cable 2 dimples (60mm) from any walls and permanent fixtures.

ThermoSphere Heating Cable

Stock Code	Length (m)	Area 130Wm² (m²)	Area 195Wm² (m²)	Output (W)	Resistance (Ω)
HDMC-012-0150	12	1.15	0.8	150	352.7
HDMC-018-0225	18	1.73	1.15	225	235.1
HDMC-025-0300	25	2.31	1.54	300	176.3
HDMC-031-0375	31	2.88	1.92	375	141.1
HDMC-037-0450	37	3.46	2.31	450	117.6
HDMC-050-0600	50	4.62	3.08	600	88.2
HDMC-061-0750	61	5.77	3.85	750	70.5
HDMC-075-0900	75	6.92	4.62	900	58.8
HDMC-100-1200	100	9.23	6.15	1200	44.1
HDMC-125-1500	125	11.54	7.69	1500	35.3
HDMC-150-1800	150	13.85	9.23	1800	29.4
HDMC-200-2400	200	18.46	12.31	2400	22.0

ThermoSphere Membrane

Stock Code	Size M	Area M²
HDM-001	1 x 1m	1
HDM-005	1 x 5m	5
HDM-015	1 x 15m	15

Electric Underfloor Heating Installation Do's & Don'ts

You must ensure that the entire cold tail joint (the join between the heating element and the flexible power supply lead) is fully encapsulated in tile adhesive or levelling compound

Please ensure that the end termination (the join at the end of the heating cable) is also fully encapsulated in tile adhesive or levelling compound

The cold tail joint and end termination must not be placed into a cut out of insulation or sub floor and covered with tape. This can cause an air pocket which can cause the cable to over heat and fail over time

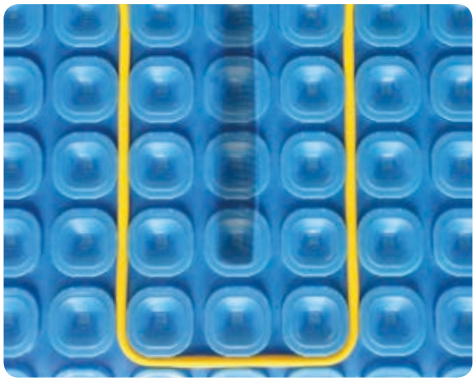
The entire heating element must be encapsulated in tile adhesive or levelling compound. The heating cable must not be held in place with tape

If you are unsure or need any help please call our team on 0800 019 5899

- Do read through the instructions in full before starting the installation.
- Do use flexible adhesives, grouts and levelling compounds.
- Do test the cable before tiling.
- Do be careful not to damage or dislodge the cable during tiling.
- Do make sure the cable spacing is no closer than 50mm.
- Do try to protect the heating cable before and during tiling.
- Do wait at least 7 days after tiling before turning on the system.
- Do read the separate installation and operating instructions for the thermostat.
- Do ensure that the entire heating cable, cold tail joint and end termination is encapsulated in adhesive or levelling compound under the floor.

- Do not cut the heating cable under any circumstances.
- Do not allow the heating cables to touch or cross over each other.
- Do not allow excessive traffic of any kind over the cable before tiling.
- Do not cut tiles over the heating cable.
- Do not place tools, stacks of tiles or anything heavy over the cables.
- Do not place any product over the floor covering that has a tog rating higher than 2.5.
- Do not place bean bags, cushions or fixed furniture over the heated floor covering.
- Do not place heating cables within 100mm of the edge of the room or any other obstacle.
- Do not turn on the heating cable or mat while it is rolled up.
- Do not bend the cold tail connection or end termination at any point.

Floor sensor installation

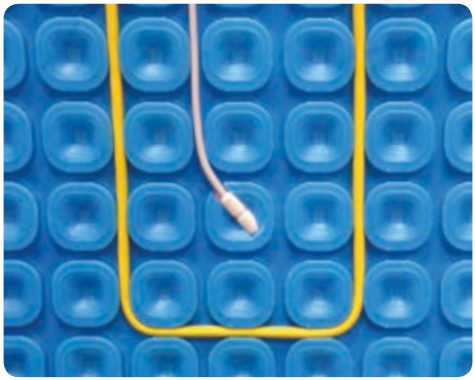


Method 1: Sensor under the membrane

If you have purchased a ThermoSphere control the sensor and conduit will be included in the box.

The floor sensor should be installed inside the supplied conduit, directly in the floor below the ThermoSphere membrane.

The end of the sensor should be positioned in between two runs of heating cable, away from temperature influences such as water pipes and large glazed elevations.



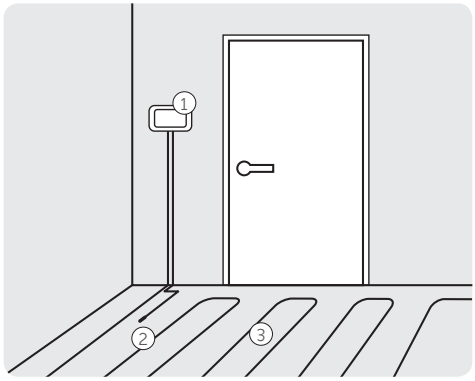
Method 2: Sensor in the membrane

If you have purchased a ThermoSphere control the sensor and conduit will be included in the box.

The thermostat floor sensor should be directly in between the dimples on the ThermoSphere membrane. To fit the end of the sensor, you'll need to cut a groove into one of the dimples to hold the sensor probe in place.

The end of the sensor should be positioned in between two runs of heating cable, away from temperature influences such as water pipes and large glazed elevations.

When installing the sensor in the membrane you should install a spare sensor as it will be embedded in tile adhesive and cannot be changed. Do not connect the spare sensor to your thermostat until needed.



Thermostat and sensor location

When installing ThermoSphere membrane in wet areas such as bathrooms and wetrooms, take care to place the thermostat in accordance with UK regulations for 230V electrical supply.

The thermostat should be placed outside of zones 0, 1 and 2 - at least 60cm from any water sources.

1. Thermostat
2. Floor sensor probe
3. ThermoSphere heating cable

ThermoSphere sensor probes are not polarity sensitive. Either colour wire can be connected to either of the sensor probe ports on the back of your thermostat.

Installing ThermoSphere membrane

1. Spread adhesive on the substrate

Mix a compatible flexible cement based tile adhesive according to the manufacturer instructions and spread over the substrate using a 6mm notched trowel.

2. Apply ThermoSphere membrane

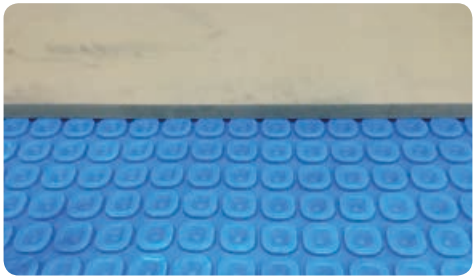
Cut a length of ThermoSphere membrane suitable for your room and lay over the adhesive. Press the membrane down immediately using a trowel or roller with even pressure.

3. Check adhesive coverage

Peel back a small section of the membrane to check that the back side is fully covered in adhesive. In the case of partial coverage, apply more adhesive or adjust the mix.

4. Cut and lay the next sheet of ThermoSphere membrane

Follow steps 1-3 to lay sheets of membrane until the floor is totally covered, without overlapping. Align the dimples to facilitate heating cable installation.



5. Protecting the installed membrane

If heavy foot traffic or mechanical loads are expected, it is recommended that you protect the membrane with boards or planks to prevent damage and ensure bonding.

If your substrate is not compatible with cement based flexible tile adhesive it is possible to adhere ThermoSphere to the substrate using an acrylic based emulsion adhesive. Check manufacturer's guidelines on correct substrate preparation to ensure a strong bond is achieved.

Testing ThermoSphere heating cables

Important testing procedure

ThermoSphere heating cables must be properly tested before installing. To ensure no damage has been done to the cables you must also test them after they've been laid, and again once the floor finish has been applied.

To perform these tests you'll need a Multimeter and Megohmmeter. Test results must be logged on p20 and passed on to the end user to facilitate warranty registration.

Test 1: Heating cable resistance test

Connect a multimeter, set for resistance measurement, to the live and neutral power leads. Record the results on p20. If the measured resistance falls outside a tolerance of +/- 10% it may mean the cable is damaged or the multimeter is not set correctly.

Test 2: Continuity between earth and conductors

The conductor cables are separated from the earth cable by an insulator. Verify there is no contact between the earth and conductors by connecting a multimeter, set to continuity, to the earth and both conductors. Record results on p20.

Test 3: Insulation resistance test

This test will detect very smalls holes in the insulating layer that separates the conductors from the earth. These small holes are not usually detected by the continuity test because they are not necessarily short circuits.

Connect a megohmmeter calibrated to 1000V to one of the conductor cables and the earth. If there is no current leakage, insulation resistance between the power leads and earth must be equal to or greater than 1 G Ω / 1000 M Ω. Record results on p20.

Test 4: Floor temperature sensor testing

Connect a multimeter to the two conductors of the floor temperature sensor probe. Measure it's resistance at room temperature. The resistance of the sensor varies depending on the ambient temperature.

Lower temperature = greater resistance.

Higher temperature = lower resistance.

Record all test results on p20.

Installing the ThermoSphere heating cables

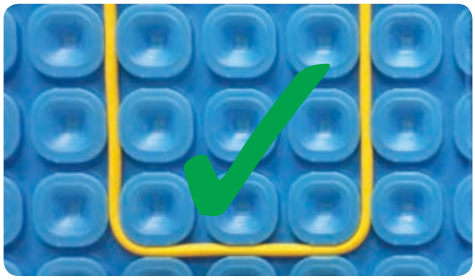
Heating cable warnings

Before installation, the user and / or installer must read, understand and adhere strictly to the instructions below.

If these instructions are not followed, the warranty will be considered invalid and the manufacturer is not liable for any responsibility.

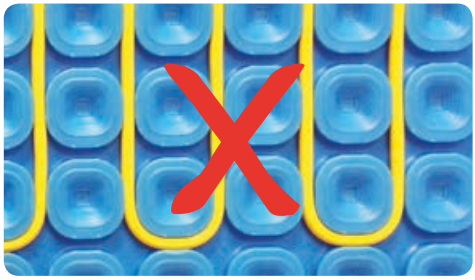
The following instructions must be adhered to in order to avoid personal injury or property damage due to potentially fatal electric shocks.

- The product must be installed by qualified personnel and all electrical connections must be performed by a qualified electrician according to building norms.
- The heating cables must be grounded.
- The heating cables must not be modified on site; if the installer or the user modifies the cable, they will be liable for any damage resulting from its modification and warranty and product certification will not be valid.
- Do not energize the cable when on the spool; this could damage the cable and cause a fire.
- The heating cable and connection to the cold tail must be installed entirely below the flooring finish.
- Use heating cables only for electric underfloor heating.
- Lay the cables with a spacing of 2 or 3 dimples. Lower spacing may cause damage to the flooring.
- Never use a cable for 120V systems.
- Never cut the heating cable; it could change its resistance and could cause a fire.
- Avoid bending the heating cable with a radius of curvature less than 5 times its diameter.
- Do not lay heating cables under walls.
- The minimum application temperature of the cable is 5 °C.



Correct heating cable spacing

Heating cables should be installed in runs spaced between every second (195W/m^2) or third (130W/m^2) stud. The heating cables should never touch or cross.



Incorrect heating cable spacing

Single cable spacing is not advised. It can cause overheating and possibly damage the floor finish and building fabric. The heating cable should also be no closer than 60mm from elements and permanent fixtures such as walls, baths, columns and kitchen units.

1. Installing cold tails and floor temperature sensor
Insert the cold tail and temperature sensor(s) into the conduit from the base of the wall up to the thermostat electrical back box.

2. Lay ThermoSphere cable in the membrane

Press the ThermoSphere cable into the membrane at the required spacing using a float or roller. Take care not to damage the cable.

Waterproofing your installation

1. Spread paste over joints in adjacent membranes

Apply waterproofing paste along the joints between 2 adjacent runs of ThermoSphere using the flat side of a trowel. Take care to fill the cavities and leave a thin layer of paste on top of the dimples.

2. Apply ThermoSphere waterproofing tape

Cut a length of ThermoSphere waterproofing tape and apply strong pressure to push it into the adhesive layer to ensure a good seal. Avoid creating any creases.

3. Waterproofing corners

Apply waterproofing paste to the floor and walls taking care to fill all voids right into the corner of the room. Apply the tape as shown in step 2 and use the notched trowel to finish the wall paste to allow for tiling.

4. Waterproofing floor and wall joints

Apply waterproofing paste to the floor and walls taking care to fill all voids. Apply the tape as shown in step 2 taking care to push it right into the corner. Use the notched trowel to finish the wall paste to allow for tiling.

5. Seal any holes or penetrations

Apply a layer of waterproofing paste over the hole large enough to cover a section of sealing tape. Apply pressure to the section of tape and carefully apply an extra layer of ahesive over the top.

The steps on this page are only necessary if you intend on creating a waterproof floor. WARNING: Take care not to damage the heating cable with the notched trowel when applying waterproofing paste to the membrane.

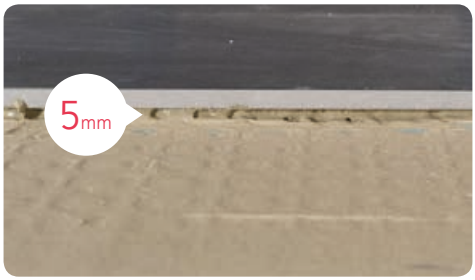
Laying tiles over ThermoSphere membrane

1. Spread adhesive on the substrate

Tiles can be laid immediately after installing the heating cables. Use the flat side of the trowel to fill the cavities of the membrane with class C2 adhesive. Apply another layer of adhesive large enough for one tile with a trowel.

2. Apply adhesive to the back of the tile

Apply adhesive to the back of the tile with the notched trowel and lay them on the layer of adhesive previously applied. Remove some tiles and check the back of the tile is fully covered with adhesive. Apply more if required.



3. Check adhesive thickness

According to building norms, heating cables must be covered with a 5mm layer of adhesive. Check that your adhesive layer complies with these guidelines.

4. Complete the testing procedure

After laying the tiles, repeat all of the tests and record the values on p20, to allow the end user to register their warranty online at www.thermosphere.com.

Other floor finishes

In some cases it may be necessary to install other floor finishes such as laminate, engineered board, vinyl or carpet over the ThermoSphere system. Before doing so you should check that your desired floor finish is suitable for use with electric underfloor heating and ensure the thermostat is set up to limit the temperature to the manufacturer's maximum temperature guidelines.

ThermoSphere membrane and heating cables must be covered with a 10mm layer of flexible self levelling compound before installing floor finishes other than tiles.

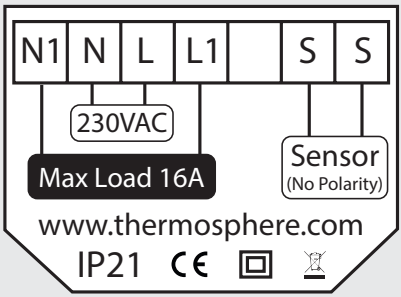
Self levelling compound

ThermoSphere membrane systems can be covered with a flexible self levelling compound before tiling if preferred. Follow the self levelling manufacturer's guidelines.

WARNING: Full coverage on the back of the tile may vary depending on the consistency of the adhesive, the angle of application with the trowel and the back surface of the tile. If full back coverage is not achieved, remove the tile and apply the new adhesive paying attention to the consistency. In the case of large format tiles it is recommended to double spread adhesive.

WARNING: Take care not to damage the heating cable with the notched trowel when applying adhesive to the membrane. Use of a rubber or plastic trowel is recommended.

Thermostat wiring diagram



Connecting your control

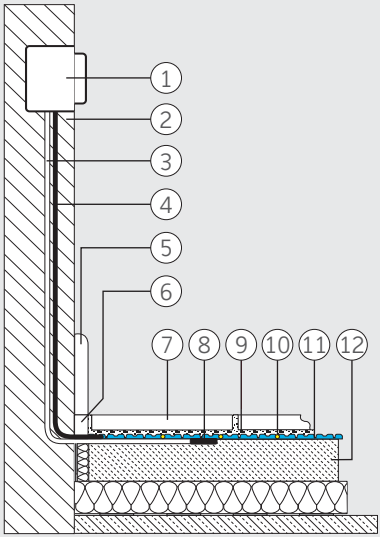
ThermoSphere controls must be installed by a qualified electrician in accordance with all applicable safety regulations. The electrical wiring must conform to the latest revision of the IEE wiring regulations.

We recommend installing the thermostat into flush mounted plastic electrical box.

The diagram shows the connections to the ThermoSphere SmartHome Control only for illustrative purposes. Check your thermostat installation guide for accurate wiring digrams.

Thermostats should be connected to a single phase mains supply via an RCD with a suitably rated fused isolator switch fitted. The fuse rating is dependent on the overall load of the system. Check the thermostat installation guide for maximum switching loads.

Sample floor assembly



Control location and floor build up

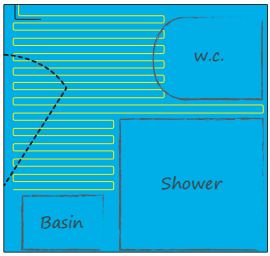
1 Control and back box
2 Existing wall structure
3 Sensor probe and conduit
4 ThermoSphere heating cable cold tail
5 Skirting board
6 Edge insulation strip or perimeter movement joint
7 Tiled floor finish
8 Floor temperature sensor (installed under matting)
9 Flexible tile adhesive
10 ThermoSphere heating cable
11 ThermoSphere uncoupling membrane
12 Prepared substrate

Extending the cold tail and sensor probe

ThermoSphere cold tails can be extended using a twin core and earth electrical flex, suitably sized to take the load of your ThermoSphere heating system.

The sensor probe can be extended, to a maximum of 50m, using a twin core 1mm flex.

Example system layouts



Small en-suite shower room 2 x 2m

4m² uncoupled floor area.
1.7m² heated floor area.
Control positioned outside the room.

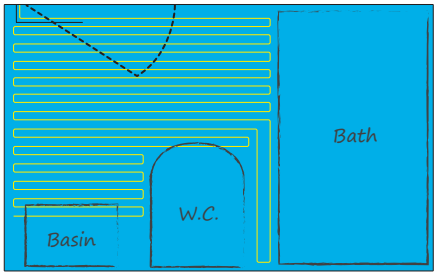
Specifying your membrane system

We recommend that the room area is measured accurately and all unheated areas are taken into account when calculating the size of cable required for the heated area.

Draw your layout on grid paper to work out exactly what you need. The heating cable must be sized accurately as it cannot be cut short or lengthened.

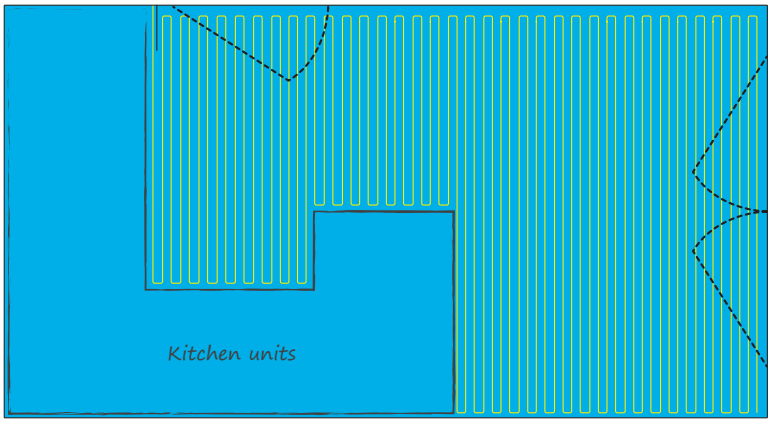
The cold tail is 3m long and can be shortened to 1m or extended up to 50m.

Get a detailed quotation at www.thermosphere.com or call 0800 019 5899 to speak to our team.



Family bathroom 2.5 x 4m

9m² uncoupled floor area.
7.13m² heated floor area.
Control positioned inside the room.



Kitchen diner 3.5 x 6.2m

21.7m² uncoupled floor area.
14.25m² heated floor area.
Control positioned in the room.

Test results and customer handover

Stock No	Manufacturer's Values	Before installation	After cable installation	After tile installation
Resistance measurement of the electric heating cable				
Two conductors and earth braid continuity test				
	Infinity (I) or Overload (OL)			
Insulation resistance test between conductor cables and earth braid				
	Equal to or greater than 1 G Ω			
Floor temperature sensor test				

Qualified Installer
Name:
Email:
Phone:
Address:
Postcode:
Part P No:
Signature:

End User / Home Owner
Name:
Email:
Phone:
Address:
Postcode:
Date:
Signature:

The installer must complete the full test procedure, record all results on the table below and present this document along with a completed system diagram to the end user/home owner to allow them to complete the warranty activation. A warranty will not be granted unless this information has been completed in full and submitted via the online form – www.thermosphere.com.

Use the grid to draw your layout

Important

Electrical regulations

All electrical connections must be made by a qualified electrician and conform to the latest edition of The IEE Wiring Regulations.

Electrical installations must comply with all applicable regulations, particularly for wet locations containing electric cables systems.

Substrate preparation

Any substrate levelling must be completed before you install a ThermoSphere system.

We recommend the installation of a suitable insulation board below ThermoSphere in ground floor installations, over un-insulated substrates or unheated rooms.

ThermoSphere should never be installed over highly flammable construction materials.

Before installing ThermoSphere the substrate must be level, load bearing, and free from any substances that may weaken the bond between the membrane and substrate.

Compatible adhesives

You must use an adhesive suitable for the specific type of substrate in your project. The adhesive must bond strongly to the substrate and set mechanically into the anchoring fleece on the under side of ThermoSphere.

A standard flexible dry set adhesive is suitable for most substrates. It is possible to use an acrylic based emulsion adhesive in cases where the substrate is not compatible with standard dry set tile adhesives.

It is the installer's responsibility to check the compatibility of all materials.

Any adhesive used with ThermoSphere must be suitable for use with electric underfloor heating systems.

Information about the heating cables

When installing ThermoSphere heating cables in any rooms it is important not to install heating cables in areas under permanent fixtures such as toilets, kitchen units, walls and pillars.

- Never kink ThermoSphere heating cables.
- Heating cables must not touch or cross over.
- Heating cables must not cross expansion joints.
- Never cut or shorten the heating cables.
- Never join heating cables in series.
- An suitably rated earth leakage circuit breaker (30mA) must be included in the electrical installation.
- ThermoSphere cables should not be installed at temperatures below 5°C.
- Never kink the cold tail connection sleeves. The smallest permissible bending radius is five times the outside diameter of the heating cable.

Heating cables must be installed at least 30mm away from water pipes, pillars and other conductive construction components.

Heating cables and temperature sensors must be installed away from other heat sources such as lighting equipment and chimney breasts and flues.

Wear suitable footwear with rubber soles when installing ThermoSphere and step on the cables as little as possible. If high traffic is expected use boards to cover and protect the heating cables and uncoupling membrane.

Covering the heating cables

ThermoSphere heating cables and cold tail connection sleeves must be fully embedded in the tile adhesive. Failure to do so will void any warranty and may result in product failure.

Heating cables must be fully enclosed in tile adhesive to prevent air gaps. Regulations state the requirement for a covering thickness of at least 5mm over the heating cables. The heating/cold tail connection must also be fully covered in a suitable tile adhesive.

Thermostats & electrical connections

In addition to these installation instructions, the applicable installation instructions for the chosen thermostat must also be observed. Connection cables must be installed in plastic conduits with a minimum wall thickness of 0.8mm.

The heating cables must to be connected to the mains voltage 230V~ and switched through the thermostat.

If more than one heating circuit is to be installed, all connection cables must be run through the empty conduit into the thermostat or flush socket and connected via the supplied system connection.

Thermostat sensor probes and heating system cold tails should not touch or cross over the heating cables.

Heating circuits can be switched through a single shared system connection even if they differ in size. Several heating cables should be connected in parallel. The maximum load (A) of the thermostat must be taken into account.

Floor finishes and coverings

Once the heating cables have been installed and tested, tiles can be installed in the thin set method, using a thin set adhesive that meets the requirements of the covering.

It is helpful to fill the grooves of the uncoupling membrane in a single step, using the smooth side of a notched trowel (heating cables and sleeves must be fully enclosed by tile adhesive). Then use the notched trowel to apply the thin set adhesive. The tiles are fully embedded in this layer.

Cabinets with full floor contact as well as built-in cabinets may only be set up on unheated areas. No penetrating attachment parts (anchored screws for doorstops etc.) may be set up in areas where heating cables are installed.

Important

Additional layers over the floor covering (e.g. rugs) thicker than 10mm are not permissible as they can cause heat accumulation, which may result in damage to the heating cables and floor finish.

For reasons of thermal efficiency, covering thicknesses over 30mm are not recommended.

Testing the system

Perform an insulation test before covering the heating cables in adhesive to measure the resistance of the heating cables and enter the value in the enclosed test log. Follow the full testing procedure and complete the results table on p20.

Customer handover procedure

Attach a warning label for the heating cables with an installation plan and wiring diagram close to the electrical distribution box or consumer unit.

The following documentation must be issued to the end user/home owner for their records:

- Installation instructions with completed test results
- System plan including temperature sensor heating cable thermostat locations.
- A full description of the floor assembly

Warranty registration

The warranty registration process must be completed by the end user/home owner and is registered to the property. The installer is responsible for completing the test procedure, completing the customer handover form on p20 and handing a copy of all required documentation to the end user/home owner. Failure to do so will prevent the end user form registering their warranty.

The warranty form should be completed online at www.thermosphere.com. ThermoSphere will then verify test data and issue a warranty confirmation by email and post within 5-10 working days.

Find us on social media and share your installation photos!

thermo Sphere

Technical data

ThermoSphere Heating Cable

Stock Code	Length (m)	Area 130Wm² (m²)	Area 195Wm² (m²)	Output (W)	Resistance (Ω)
HDMC-012-0150	12	1.15	0.8	150	352.7
HDMC-018-0225	18	1.73	1.15	225	235.1
HDMC-025-0300	25	2.31	1.54	300	176.3
HDMC-031-0375	31	2.88	1.92	375	141.1
HDMC-037-0450	37	3.46	2.31	450	117.6
HDMC-050-0600	50	4.62	3.08	600	88.2
HDMC-061-0750	61	5.77	3.85	750	70.5
HDMC-075-0900	75	6.92	4.62	900	58.8
HDMC-100-1200	100	9.23	6.15	1200	44.1
HDMC-125-1500	125	11.54	7.69	1500	35.3
HDMC-150-1800	150	13.85	9.23	1800	29.4
HDMC-200-2400	200	18.46	12.31	2400	22.0

ThermoSphere Membrane

Stock Code	Size M	Area M²
HDM-001	1 x 1m	1
HDM-005	1 x 5m	5
HDM-015	1 x 15m	15

ThermoSphere Waterproofing Solution

Stock code	
HDM-WP-01	Waterproofing paste 5kg (300g/Lm)
HDM-WT-01	Waterproofing tape 10m x 120mm

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