thermo Sphere

HEATING | FLOOR | WOOD | CARPET | VINYL FOIL

Excellence in heating solutions.

thermo Sphere

Thank you for your purchase...

This document will provide a step-by-step guide to a perfect installation as well as details on the warranty and how to get Technical Support should you need it.

To ensure a safe, hassle-free installation to be proud of please take the time to read this guide in full before you start. We've taken the time to highlight any potential pitfalls and common errors so you can avoid them and get the job done!

This product is covered by a Lifetime warranty, subject to terms and conditions. Be sure to keep the receipt as proof of purchase, this will be required to validate your Lifetime warranty.

Please complete the Customer Handover section on page 14 in full so that the customer has all the information they need to complete the online warranty form and register their ThermoSphere Lifetime Warranty.

If you have any questions about your ThermoSphere Underfloor Heating or any of our other products call our Technical Support team on the freephone number below.

Warranty terms & conditions

The ThermoSphere Lifetime Warranty guarantees ThermoSphere Underfloor Heating Mats 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:

ThermoSphere Underfloor Heating Mats are guaranteed for the Lifetime of the floor covering under which it is originally fitted subject to the following conditions. Please pay attention to the exclusions listed at the end of this guarantee.

ThermoSphere Lifetime Guarantee applies:

1. Only if the product is registered, and the registration information is received and documented by ThermoSphere, within 60 Days after purchase. You can register your product by completing the form online at www.thermosphere.com. 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 and be in legible condition so as to aid in identifying the system; and

2. Only if the ThermoSphere Underfloor Heating Mat has been properly earthed and protected by a Residual Current Device (RCD) at all times.

This guarantee does not cover any thermostats as these are covered by a separate 3 year warranty from the date of purchase, except as provided below.

All Thermogroup Ltd warranties become void if the floor covering under which the ThermoSphere Underfloor Heating Mat is originally fitted is damaged, lifted, replaced, repaired or covered with additional layers of flooring, after a 25 year period from purchase. You do not get this 25 year period with any other manufacturer guarantee. The ThermoSphere Lifetime Warranty does not cover accidental damage, including but not limited to damage caused by lifting, replacing, repairing the original covering laid after installation.

The guarantee period starts on the date of purchase but the registration is only confirmed only when a letter or email of confirmation is sent by Thermogroup Ltd.

Should it be required, ThermoSphere will arrange for the UFH mat or loose wire element to be repaired or (at the discretion of TGLTD) have parts replaced free of charge. The cost of repair will only cover the cost of replacement TGLTD parts and/or repair to damaged TGLTD parts and products. Any damage to floor coverings or floors, costs of re-laying or repairing floors or floor coverings are not covered by The ThermoSphere Lifetime guarantee.

Please Note: Full Terms and Conditions are available on request.

Email hello@thermosphere.com to request your copy or give us a call.

Find us on social media and share your installation photos!

Contents

IMPORTANT SAFETY REGULATIONS

ALL WIRING MUST CONFORM TO IEE 17TH EDITION PART P REGULATIONS

ThermoSphere underfloor heating solutions are CE approved, certified and manufactured to the highest standards using state of the art Fluoropolymer coated cables. All our cables and mats are designed to be 17th Edition Part P compliant and the instructions we supply with them include as much information as possible to ensure that all installations comply with them. Please call our freephone customer care line if in any doubt on 0800 019 5899.

Do

- Check with the manufacturer of your flooring, that their products are compatible with electric floor heating systems
- Operate the heating mat with a ThermoSphere floor sensor thermostat to ensure the floor does not exceed the maximum recommended temperature (usually 27°C)
- Ensure all earth leads are connected correctly
- Connect multiple cold wire leads from thermofoil heating mats in parallel, inside an accessible electrical junction box
- Zone each heated room with its own thermostat controller. This allows each room to be controlled individually saving you energy by only heating the zone when required. Each ThermoSphere thermostat has a maximum capacity of 16 Amps
- Ensure that no sharp edges (e.g. metal-edged laminate locking systems) come in contact with the foil heating
- Install insulation / underlay below the heating mats to prevent damage when the weight of the floor furniture etc is added. Make sure unavoidable wooden floor movements will not harm the foil mats
- Ensure that a heat loss calculation has been carried out and heating requirements have been met if you are using the Foil heating system as a primary source of heating
- Ensure that the heaters are protected by a suitably rated RCD
- Ensure that the customer handover form (p11) is completed and given to the customer with any plans and test results in accordance with 17th Edition wiring regulations
- Make sure to include a layer of cushioning overlay on top of the heating foil to provide a protective cushioning layer on top of the heating foil

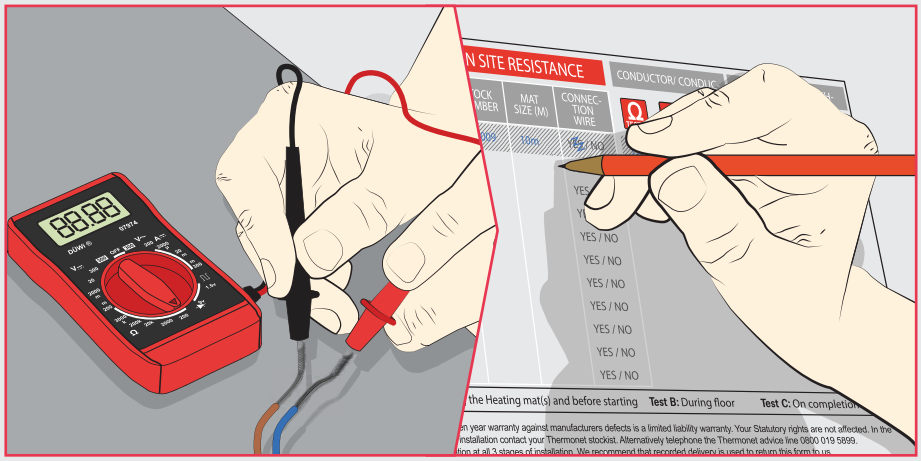
Do not

- Use the foil heating mats with glued locking systems laminates that have an underpad or cushion material pre-attached to the underside
- Install the foil heater up steps
- Install over floors that have traces of moisture, are uneven or over carpets or parquet floor
- Leave insulating materials such as bean bags; linen or towels on the floor surface
- Overlap heating mats, fold or wrinkle the foil heating mats
- Place heavy/sharp tools (or any other potentially damaging object) on top of the heating mats
- Walk unnecessarily on the foil heating mats
- Install mats when the room temperature is below -50C
- Install foil heating mats anywhere outside buildings
- Install foil mats under walls or partitions, or in areas under heavy cabinets, closets, or fixtures (toilets, sinks, tubs, etc.)
- Install foil mats within approximately 50mm of any heat conductive building part, such as cold water pipes
- Install foil mats within 20mm of one another, 50mm of any wall or 100mm of a fireplace or hot water pipe
- Install foil heating mats under wooden floor, if the floor is thicker than 18mm
- Place items on the floor surface which will stop the air flow or not allow heat to rise into the room
- Install the heating foil without an ThermoSphere cushioning overlay and cushioning underlay

Preparation: Performing a resistance test

Three test symbols

Be sure to check the electrical resistance reading on the cable three times; before, during and after the installation process. These test symbols throughout this guide are a reminder:



Perform Test A now and record the results on p11

Resistance test

Test Live and Neutral, conducting the test in this way ensures total accuracy.

Record results

Write each resistance value on the customer handover form (P11) to ensure your customer can complete the warranty form online.

Foil layout options

The section below highlights some common formations to tackle irregular areas too small for a Foil mat. If you cannot see a solution to your installation here please call our customer help line (0800 019 5899 or 01622 689 440).

Simple turns

When you reach the end of a run, a simple turn can be achieved by cutting across the foil (not the cable!) with scissors or a sharp blade. Turn the mat 180° and roll it out parallel to the first run.

① Cut the silver foil, never cut the cable!

② Turn through 180°

③ Continue rolling out the heating mat

Irregular areas

The foil will not always fit the spaces around irregular shapes like a bath, toilet or sink pedestal.

In this case you should cut the foil into strips containing the cable and arrange to cover the area. Use a minimum cable spacing of 50mm and fix in place using aluminium tape.

DO NOT LET HEATING CABLES TOUCH OR CROSS OVER!

Do not place directly under permanent fixtures or furniture such as under pedestals or vanity units.

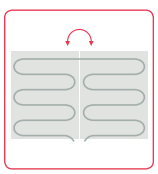
Cut-and-return installation explained

Every room is different and you will usually need to modify your foil in some way to fully cover your heated area. The diagrams will help you to manipulate your foil safely and avoid causing any damage during installation.

Cutting the mesh

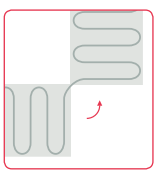
Use scissors to carefully cut the grey foil

Turn 180°



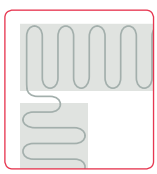
Turn the foil through 180° parallel to the first run

Turn 90°



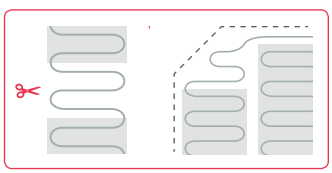
Turn the foil through 90° for a more simple turn

Alternative 90°



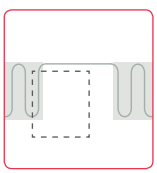
Release cable from the foil for an alternative 90° turn

Staggered 180°



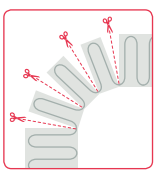
Remove the cable from the foil and tape in place for awkward areas such as angled walls

Avoid an obstacle



Remove the foil to avoid permanent fixtures

Curved fan turn



Cut foil into sections to make a curved fan turn

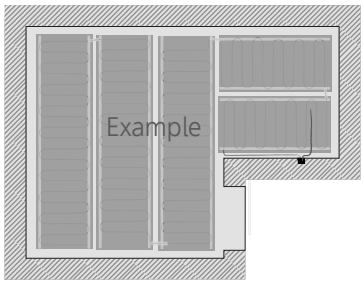
Preparation checklist

- ☐ Test circuit resistance & record results - Test A
- ☐ Turn mat using simple guide

Important safety precautions

- Do not cut or shorten the heating cable or let cables touch or cross over each other
- Ensure the underfloor heating circuit is protected by a suitably rated RCD

Planning: Sketch your layout



Include in your plan:

- Foil layout
- Thermostat location
- Floor temperature sensor

Planning: Layout

Use the grid above to plan your installation. This will help you to produce the safest, quickest and cleanest result with as little wastage as possible.

Measure your room, if you don't already know the dimensions, and make a note of the available floor space excluding any obstacles or fixtures you might have such as sanitary ware, furniture or drainage. Use the grid to plan your installation layout making sure to include thermostat and sensor positions.

Correct spacing is essential for an efficient system. Ensure the foil is spaced evenly with at least 50mm gap around the perimeter of the installation.

If your floor finish manufacturer requires, you will need to allow for an edge insulation foam strip. Ask manufacturer if unsure.

Load calculations: Use the calculation below to work out the overall current draw for your foil system. If this value is over 16A you will need to have a contactor/snubber installed by a Part P qualified electrician. Call our technical help line if you have any questions (0800 019 5899).

Example calculation:

Total Mat Wattage ÷ 230V = Amps (A)

Every foil installation needs:

WCVF-CUSHU Cushioning underlay
WCVF-CUSHO Cushioning overlay

Planning checklist

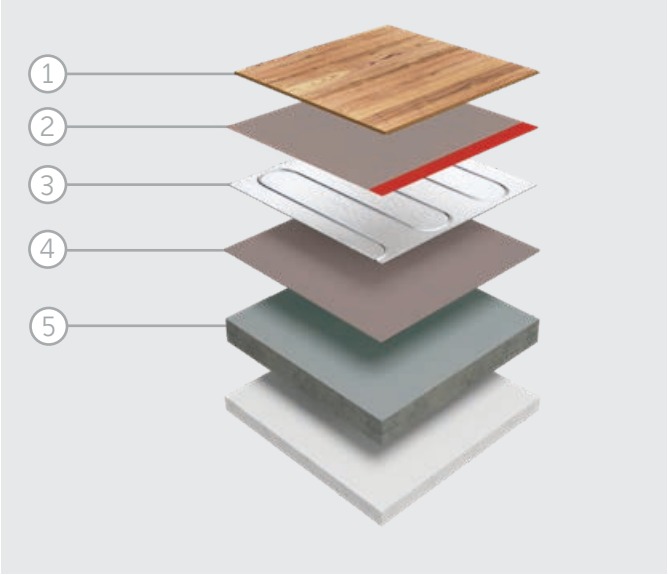
- ☐ Calculate available floor space
- ☐ Sketch plan including all required products
- ☐ Contactor/ snubber in place if required

Important safety precautions

- Floor sensor must be positioned in a conduit equally spaced between 2 runs of heating cable
- Do not position sensor & conduit near water pipes or any other temperature influence
- The electrical supply must always be protected by an RCD. Ensure this is catered for before installation

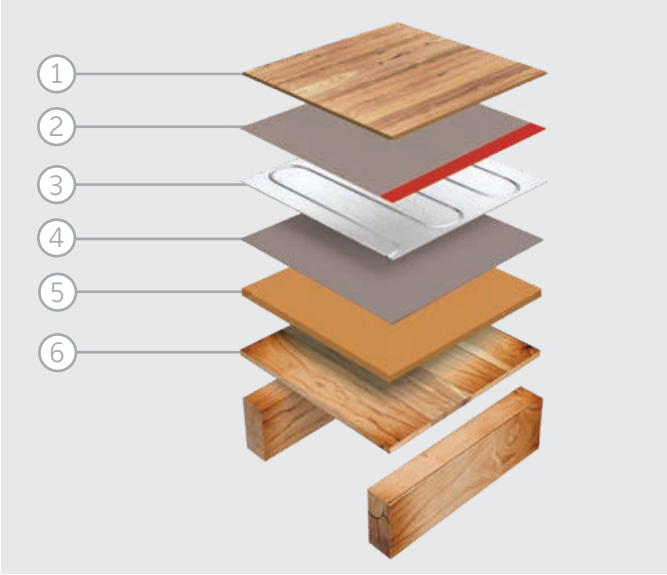
Planning: Floor build up examples

Concrete or timber substrates



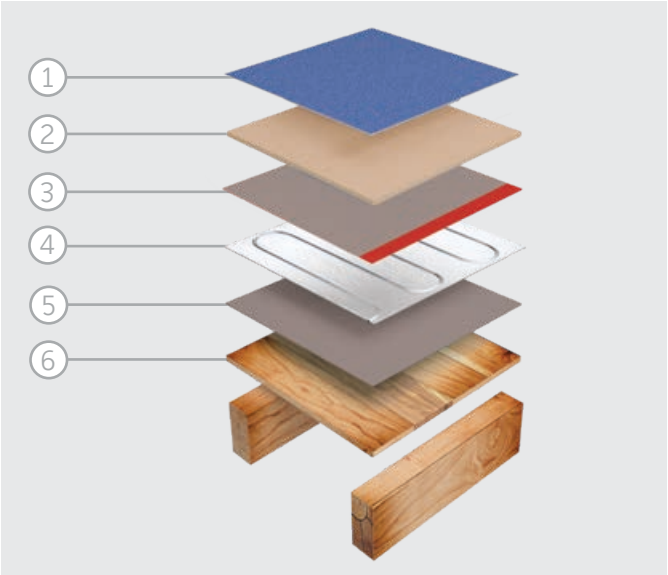
1. Laminate
2. Cushioning overlay
3. Foil
4. Cushioning underlay
5. Timber/Concrete

Acoustic considerations



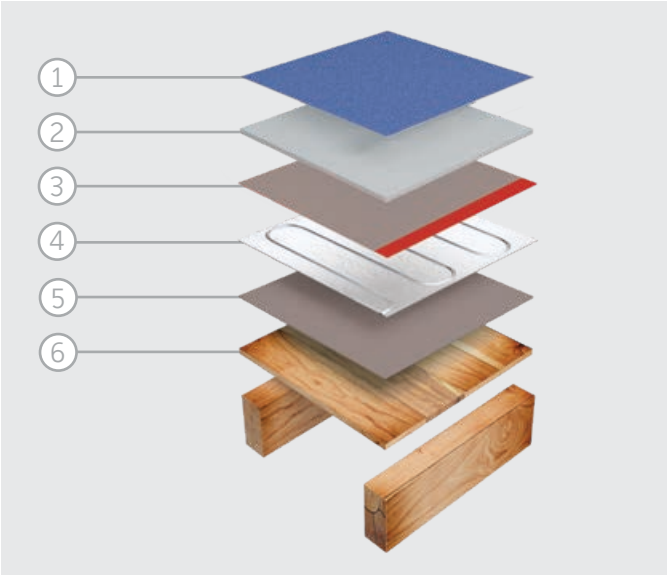
1. Laminate
2. Cushioning overlay
3. Foil
4. Cushioning underlay
5. Acoustic insulation board
6. Timber/Concrete

With HDF overlay board



1. Vinyl flooring
2. HDF overlay board
3. Cushioning overlay
4. Foil
5. Cushioning underlay
6. Timber/Concrete

With Concrete overlay board



1. Vinyl flooring
2. Cement overlay board
3. Cushioning overlay
4. Foil
5. Cushioning underlay
6. Timber/Concrete

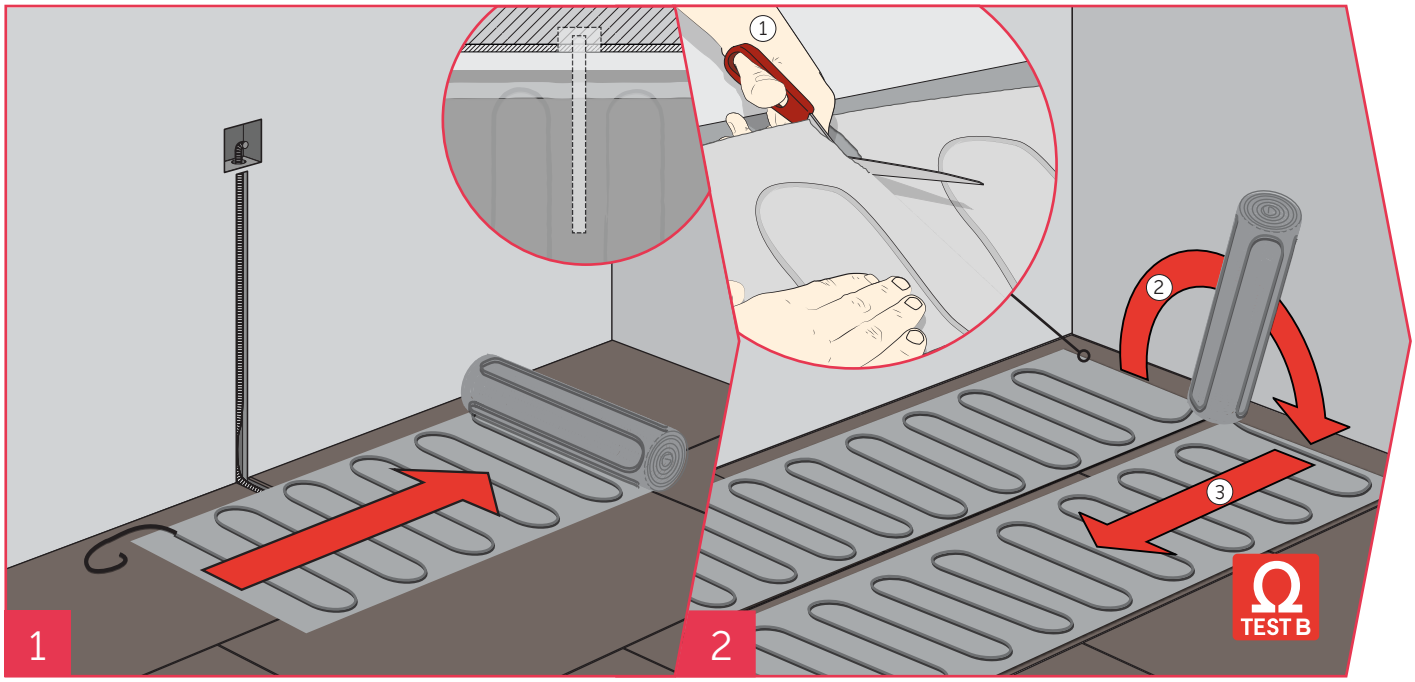
Checklist

- ☐ Make sure cushioning overlay is installed above the foil, and cushioning underlay is installed below the foil.
  This is compulsory for cushioning purposes
- ☐ Ensure desired floor finish is compatible with underfloor heating

Important safety precautions

- Please read manufacturers specifications of flooring products used in conjunction with foil heating
- Additional thermal insulation may be required for applications on timber and concrete substrates. Please get in touch if you require any additional information

Installation: Lay the foil



Step 1: Roll out the mat

Make sure your substrate and insulation is clean and dust free before installing your foil heating mat.

A layer of 5mm cushioning underlay should be installed in a staggered brick-work pattern. This provides insualtion as well as a cushioning layer under the heating foil. This can be fixed in place using a strong adhesive tape.

Place the foil in the starting position, and roll it out ensuring the conduit position lines up in between two runs of heating cable.

Feed the cold tail up and into the channel in the wall, through the cavity or pre installed conduit.

If you have not already done so now is a good time to chase a shallow channel out of the insulation or substrate to recess the cold tail into the floor. This will make fitting your floor finish easier.

Step 2: Simply cut and turn the mat

When you reach the end of a run, a simple turn can be achieved by cutting across the foil with scissors or a sharp blade, never cut the heating cable. Turn the mat 180° and roll it out parallel to the first run.

① Cut the foil, never cut the cable!

② Turn through 180°

③ Continue rolling out the mat cable side down

For more information on mat turns see page 5.

✓ PRO TIP

Allow a gap of between 50 - 100mm from the wall to the edge of the foil.

TEST B Perform Test B now and record the results on p11

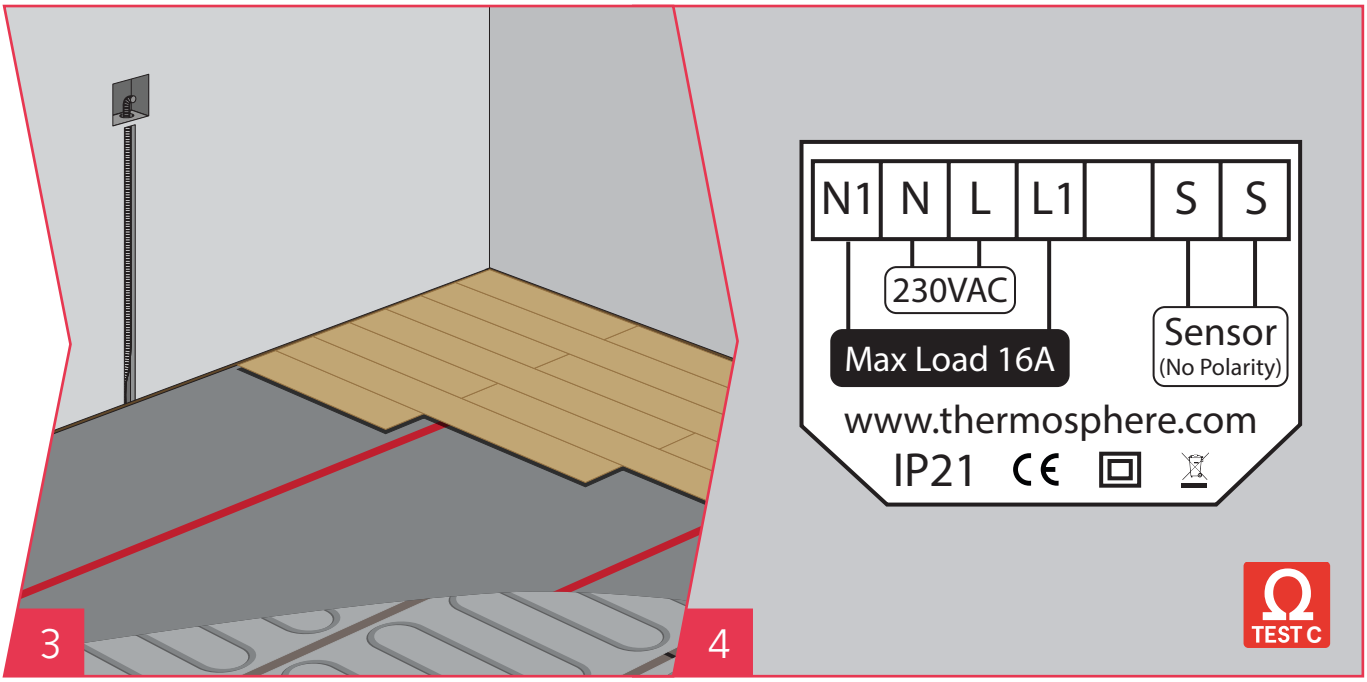
Step 1 & 2 checklist

- ☐ Leave gap of 50-100mm between heating foil, walls & fixtures
- ☐ Feed cold tail & floor sensor up the wall to back box or accessible marshalling point

Important safety precautions

- ⚠ Do not cut or shorten the heating cable. make sure heating cables do not touch or cross over.
- ⚠ Do not install sensor probe at this point with overlay boards it must be installed in the overlay board layer.

Installation: Lay flooring and connect thermostat



Step 3: Lay laminate flooring

Now lay cushioning overlay over the foil. The overlay should be installed with the grey side facing up and the red side facing down, in contact with the foil.

Now install the final floor covering in line with the manufacturer guidelines. Please take care not to damage the foil heating mat in any way.

If you are not instantly laying your floor finish onto the foil please cover with a protective material in the meantime.

Floating and laminate floors usually require an strip of expansion foam around the edge of the room. Check your floor finish manufacturer guidelines for more information.

Step 4: Thermostat connection

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.

TEST C Perform Test C now and record the results on p11

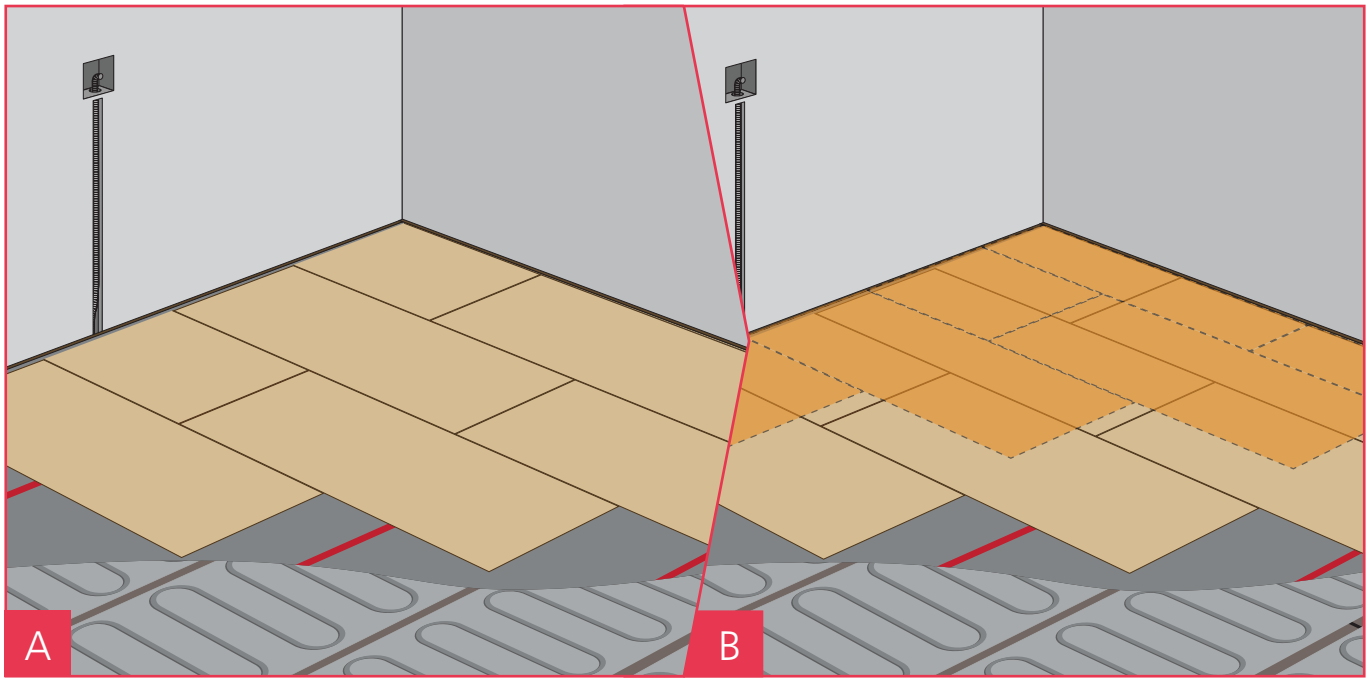
Step 3 & 4 checklist:

- ☐ Install a layer of cushioning overlay between the foil and the floor finish
- ☐ Wire thermostat to an RCD and connect all wiring in accordance with relevant wiring diagram and regulations
- ☐ Install thermostat securely to back box and earth

Important safety precautions

- ⚠ Isolate electrics before doing any electrical work
- ⚠ Do not lay laminate directly onto the foil. Use a layer of cushioning overlay to protect heating

Installation: Carpet or vinyl flooring



Step A: Carpet and vinyl floors

You will need to install a layer of cushioning overlay to provide cushioning between the foil and the overlay boards.

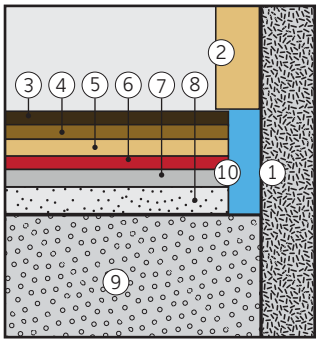
The HDF overlay board system consists of two self-adhesive boards, (baseboard and top board) which bond together. It is a floating HDF sub-floor and is not fixed to the floor below. Each layer is laid with staggered joints and arranged so that the top boards overlap the joints in the baseboards.

Baseboards are thinner and have a protective plastic film to keep the self-adhesive coating clean. This is laid facing upwards and the film is left in place until cutting and fitting is completed.

The top boards are thicker and have no plastic film over the adhesive coating. They are carefully positioned, adhesive side down, so that they overlap all the baseboard joints in a brick work pattern. It is important to check that any trimming of the top board is accurate and that the adhesive coating is free from dust or fragments before removing the protective film from the baseboards. The adhesive will allow minor adjustments to be made for accurate positioning until pressure is applied.

Example build up and perimeter expansion gap

① Wall
② Skirting board
③ Floor finish
④ HDF overlay top board
⑤ HDF overlay base board
⑥ Cushioning overlay
⑦ ThermoSphere foil
⑧ Cushioning underlay
⑨ Substrate
⑩ 8-10mm expansion gap/foam



Step B: Floor finish

Tapping down with a rubber mallet will ensure close contact of the adhesive coatings and produce a strong, permanent bond. Take care to position boards accurately as it is very difficult to separate them once bonded. The heating system must be switched off before installing the overlay. If the floor finish is to be glued to the overlay board, the system must not be switched back on until the glue has set completely - consult your floor finish manufacturer for guidelines on drying times and maximum temperatures. When first switching on, temperatures should be increased gradually.

Special attention should be made to the location of the floor sensor. Floor temperature sensors should be installed in a protective conduit, in a representative area of the floor, in between 2 runs of heating cable. Do not install near any other temperature influences.

Floor finish

You are now ready to apply your floor adhesive (if necessary) and floor finish. Please ensure you wait at least 24 hours before applying any adhesives to overlay boards.

Step A & B checklist:

- ☐ Cushioning overlay laid between heat mat and floor finish application - grey side up
- ☐ Perimeter insulation foam installed in perimeter expansion gap
- ☐ Lay HDF overlay boards with staggered joints

Important safety precautions

- Pay special attention to the HDF overlay board installation instructions before attempting installation
- Allow 8-10mm expansion gap around floor perimeter
- Do not lay carpet or vinyl directly onto the foil use cushioning overlay in between

Finalise: Customer handover and warranty information

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)			
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.

thermo Sphere

Technical data

Foil heating

Stock Code	Size (m)	Area (m²)	Output (W)	Resistance (Ω)
WCVF-140-0100	2 x 0.5	1.0	140	337.9
WCVF-140-0150	3 x 0.5	1.5	210	251.9
WCVF-140-0200	4 x 0.5	2.0	280	188.9
WCVF-140-0250	5 x 0.5	2.5	350	151.1
WCVF-140-0300	6 x 0.5	3.0	420	126.0
WCVF-140-0400	8 x 0.5	4.0	560	94.5
WCVF-140-0500	10 x 0.5	5.0	700	75.6
WCVF-140-0600	12 x 0.5	6.0	840	63.0
WCVF-140-0700	14 x 0.5	7.0	980	53.9
WCVF-140-0800	16 x 0.5	8.0	1120	47.2
WCVF-140-0900	18 x 0.5	9.0	1260	41.9
WCVF-140-1000	20 x 0.5	10.0	1400	37.8
WCVF-140-1200	24 x 0.5	12.0	1680	31.5

Compulsory accessories for every installation

Stock Code	Description	Size	Unit
WCVF-CUSHU	Heating Foil Cushioning Underlay	1200 x 500 x 5mm	(6m²) pk 10
WCVF-CUSHO	Heating Foil Cushioning Overlay	15m x 1m	Roll

ThermoSphere
Bridge House
Pattenden Lane
Marden
TN12 9QJ

0800 019 5899
hello@thermosphere.com
www.thermosphere.com