

Heat Mat

Underfloor Heating

FREE
of charge

Attended site visits are available. Please contact your electrical wholesaler for details.



The Professionals' Choice



All Heat Mat systems can be powered by 100% renewable energy sources

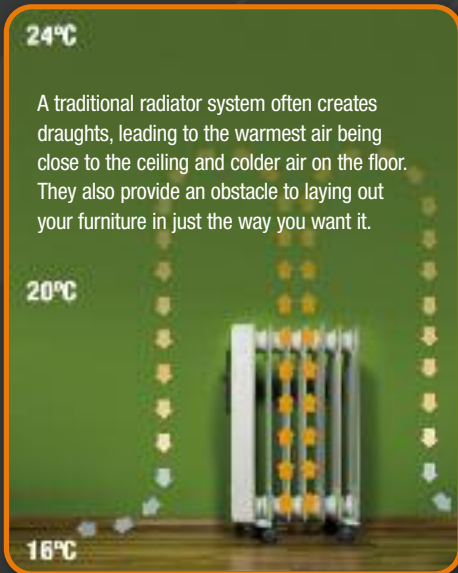


Made in Denmark and the UK



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Our Range

At Heat Mat we can provide you with electric underfloor heating to fit beneath virtually any floor covering. Supplying simple floor warming solutions with low build height in a small bathroom to complete heating systems for new-build blocks of flats where the floor covering has not been finalised. We also offer solutions for ice and snow melting and mirror de-misting in addition to bespoke heating products that can be manufactured to order.

Award Winning Independently Approved Systems



Our award winning range of heating mats are uniquely BEAB and Semko system approved and our 3mm heating cables and thermostats are also BEAB component approved. We manufacture all of the above products in BEAB approved factories in Denmark to ensure their high quality.

Customer Support for the Installer

Our heating mats and cables are offered in a wide variety of sizes to ensure the best fit every time. Our Technical Support Team offer a free specification and planning service through your Heat Mat stockist and are on hand to offer installation and technical advice when required. Heat Mat also offer **FREE OF CHARGE** site visits on the UK mainland when they are necessary, provided by your area's dedicated Heat Mat Account Manager. Finally, once you have installed the system, it is maintenance free, however if the end user has any queries on thermostat programming or system usage simply refer them to us and we will deal with their queries on your behalf. Our thermostats even show our telephone helpline number, to help ensure your customers always call us first.

Lifetime Warranty and Consumer Information



All new ranges of heating mats and 3mm cables are eligible for Heat Mat's Extended **Lifetime Warranty**, free of charge. The products simply need to be registered online at www.heatmat.co.uk, or alternatively contact us for further details. General information about our underfloor heating systems is also found on our website alongside guides for system usage that you can refer your customer to if they require additional clarification. Our systems can provide efficient, environmentally friendly heating, further adding to their consumer appeal.

Easy to Fit Solutions from an Experienced Company

Backed by our 15 years experience in the UK underfloor heating market, and the knowledge we have acquired from heating more than 650,000m² of floors in the UK alone, we have developed systems that are simple and fast to fit and are suited to each individual scenario. Whether it is in-screed cable for a sports hall, or high-output heating mats for a conservatory, we have a system that will be straight forward to install and cost effective to purchase.

17th Edition Friendly

Our heating mats and cables are designed to be 17th Edition compliant and the instructions supplied with them include as much information as possible, simplifying the installers task of compliance with Section 753 and the information it requires to be left with the end user.



The Professionals' Choice

Heat Mat have become the professional installers first choice for electric underfloor heating in the UK. We look to support Electrical Wholesalers and professional installers wherever possible, and we have a suite of specialist services on offer as and when they are required. These include fault location and repair of damaged heating systems, thermal imaging and professional opinion reports to help rectify any issues with installed systems, and bespoke solutions for those unusual heating requests.

Preparing Your Floor

For our heating mats and our 3mm cable system please see below.

- 1.** The floor base itself should be secure and strengthened for tiling or your final floor covering if required. If tiling onto floor boards or another unsecured surface, consult your tiler for information on the best way to secure the floor. This would normally involve laying plyboard or 10mm Heat Mat Thermal Insulation Board onto your floor boards and securing them appropriately.
- 2.** Sweep your floor thoroughly to ensure that it is free from any debris or sharp items which could damage your heating system. If the floor is poorly insulated, you desire a faster reaction time, or you wish to conserve energy, consider using Heat Mat Thermal Insulation Board. See page 19.
- 3.** Once your floor surface is clean, prime the floor with a primer compatible with the tile adhesive or levelling compound you are going to use. Once the primer has dried you are ready to start laying your Heat Mat system.

It is important that before laying your Heat Mat heating system your floor is correctly prepared.

For our 7mm system please see page 10, and for our Underlamine System please see page 12.



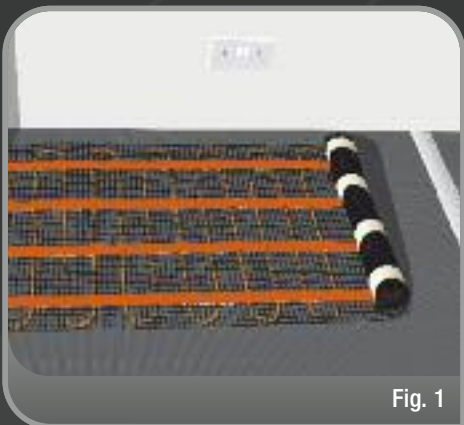


Fig. 1



Fig. 2

Heat Mat® Floor Heating Mats

The perfect fast-to-install solution for use beneath a tiled floor

Our heating mats are simple and trouble free to install. They are particularly suited to large areas where their installation will be quicker than a loose 3mm cable system. They are supplied in outputs of 160W or 200W per square metre and come in a large range of sizes allowing you to select the perfect system whatever your room dimensions. In normal circumstances they do not add any build height to your tiled floor as they are so thin they are contained within the tile adhesive layer.

The half a metre wide fibreglass mesh has our ultra-thin 3mm heating cable pre-spaced and fixed beneath it to help to protect the cable during installation. The heating cable is twin-conductor and 100% aluminium earth shielded so that, unlike many other suppliers' products, it emits negligible EMF radiation.

Unlike heating ribbons and carbon panels, up to 100% coverage of the free floor area can be achieved as the mat can be cut and turned and the cable can be stripped off to fill in any awkward areas. Our heating mats and cables are fully earth shielded to ensure compliance with the 17th Edition IEE wiring Regulations, carbon films are unearthed and therefore require an additional earthing grid to be installed above them to make them safer and compliant with the Regulations.

200W/m² mats offer a rapid warm up time and are suitable for use beneath tile and stone coverings where they can provide primary heating in the vast majority of rooms, including conservatories. When the 200W/m² heating mats are laid onto a wooden base a 2-3mm skim of tile adhesive should be used to cover the base first.

160W/m² mats are suitable to provide floor warming beneath the same floor coverings and in addition can be used beneath carpet, bonded wooden floors and vinyl when used with Thermoplan levelling compound. In well insulated rooms they can provide primary heating.

Both systems are suitable for use with Thermal Insulation Boards which will enable them to run more efficiently, benefiting you and the environment. Please see our website for fitting instructions.

Heating mats can be used in conjunction with i-primer which can increase the systems efficiency by up to 20%. See page 20 for details.



Both of these high quality systems are fully BEAB system approved, Semko approved, CE marked and guaranteed by a lifetime warranty. Please see our website or contact us for further details.

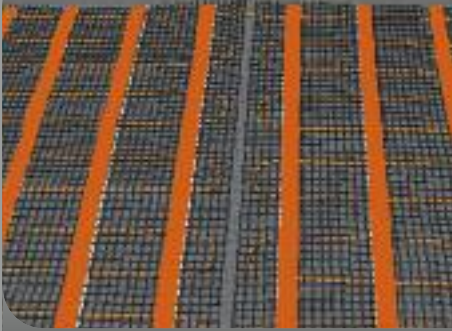
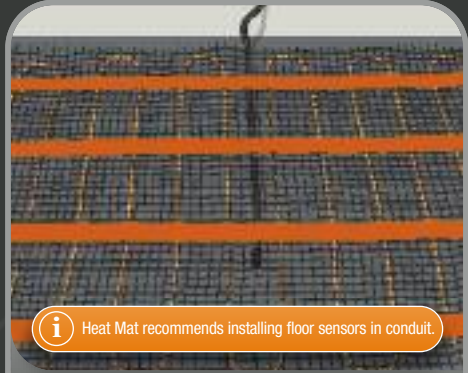


Fig. 3



i Heat Mat recommends installing floor sensors in conduit.

Fig. 4

How to Install

- a** Test each mat with a multi-meter before unpacking.
- b** Roll out your heating mat onto your floor. (fig. 1)
- c** Cut the heating mat, but not the cable, when you reach an obstruction. (fig. 2)
- d** Rotate the heating mat and continue to fit until your floor is covered or you start to fit your second heating mat. (fig. 3)
- e** Place the floor sensor under one mat between two heating cables and ideally in a close ended conduit (Heat Mat part number HCA-111-COND). (fig. 4)
- f** Remove the backing from the adhesive tapes. (fig. 5)
- g** Take care to ensure both sections of each mat with orange warnings are laid flat on your floor beneath your final floor covering. (fig. 6)
- h** After testing each mat with a multi-meter, cover your heating mats with flexible tile adhesive or levelling compound ensuring the cables are fully encapsulated, then lay your final floor covering.

For more detailed fitting instructions please see our website www.heatmat.co.uk

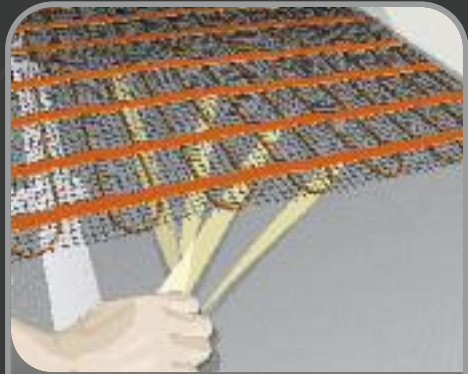


Fig. 5



Fig. 6

160 W/m² Technical Specification

Product Code	Size in m ²	Length in Metres	Width in Metres	Wattage	Resistance
PKM-160-0110	1.1 m ²	2.2 m	0.5 m	179 W	315 Ω
PKM-160-0150	1.5 m ²	3.0 m	0.5 m	245 W	240 Ω
PKM-160-0200	2.0 m ²	4.0 m	0.5 m	327 W	166 Ω
PKM-160-0230	2.3 m ²	4.6 m	0.5 m	380 W	155 Ω
PKM-160-0280	2.8 m ²	5.6 m	0.5 m	457 W	132 Ω
PKM-160-0310	3.1 m ²	6.2 m	0.5 m	509 W	116 Ω
PKM-160-0370	3.7 m ²	7.4 m	0.5 m	601 W	97 Ω
PKM-160-0440	4.4 m ²	8.8 m	0.5 m	720 W	82 Ω
PKM-160-0520	5.2 m ²	10.4 m	0.5 m	854 W	68 Ω
PKM-160-0620	6.2 m ²	12.4 m	0.5 m	1040 W	58 Ω
PKM-160-0680	6.8 m ²	13.6 m	0.5 m	1113 W	52 Ω
PKM-160-0770	7.7 m ²	15.4 m	0.5 m	1275 W	43 Ω
PKM-160-0870	8.7 m ²	17.4 m	0.5 m	1439 W	40 Ω
PKM-160-1040	10.4 m ²	20.8 m	0.5 m	1700 W	34 Ω

200 W/m² Technical Specification

Product Code	Size in m ²	Length in Metres	Width in Metres	Wattage	Resistance
PKM-200-0060	0.6 m ²	1.2 m	0.5 m	130 W	442 Ω
PKM-200-0100	1.0 m ²	2.0 m	0.5 m	208 W	277 Ω
PKM-200-0160	1.6 m ²	3.2 m	0.5 m	310 W	186 Ω
PKM-200-0200	2.0 m ²	4.0 m	0.5 m	405 W	142 Ω
PKM-200-0260	2.6 m ²	5.2 m	0.5 m	512 W	113 Ω
PKM-200-0280	2.8 m ²	5.6 m	0.5 m	576 W	100 Ω
PKM-200-0350	3.5 m ²	7.0 m	0.5 m	719 W	80 Ω
PKM-200-0420	4.2 m ²	8.4 m	0.5 m	854 W	67 Ω
PKM-200-0540	5.4 m ²	10.8 m	0.5 m	1083 W	53 Ω
PKM-200-0600	6.0 m ²	12.0 m	0.5 m	1196 W	48 Ω
PKM-200-0670	6.7 m ²	13.4 m	0.5 m	1353 W	43 Ω
PKM-200-0750	7.5 m ²	15.0 m	0.5 m	1504 W	38 Ω
PKM-200-0890	8.9 m ²	17.8 m	0.5 m	1769 W	33 Ω
PKM-200-0990	9.9 m ²	19.8 m	0.5 m	1973 W	29 Ω

Technical Data:

General Construction: Dual conductor wire with earth
Voltage: 240 Vac – 50Hz
Maximum Load: 20 W/m
Maximum Cable Temperature: 90 °C
Approvals: CE marked, BEAB system approved and Semko approved
Wire Thickness: 2.7mm to 3.2mm depending on Ohm Value
Cable Flexibility: Minimum allowable cable radius is 18mm
Power Range: 130W-1973W
Approved in accordance with: EN 60335-1:1998, EN60335-2-17:1999, IEC 60730
IP Rating: IPX7 as required by the 17th Edition IEE Wiring Regulations

Construction:

Thermal Conductor: 2 x resistance wire insulated with Teflon (FEP 7Y) tested to 200°C
Outer Insulation: PVC (Y) tested to 90°C
Reinforcement Materials: Fibreglass wire
Reinforcement Mesh: Fibreglass mesh
Fixing Materials: Supplied with rows of double-sided tape
Earth Protection: 100% aluminium earth shield and drain wire



Heat Mat® 3mm Cable

Ideal for use beneath tiles in small or very complicated areas



Fig. 5

Our 3mm loose heating cable is a product which allows you the flexibility to provide underfloor heating to any room regardless of shape and size, at a wattage of your choice. In normal circumstances, 3mm cable will not add any build height to your floor as it is contained within the tile adhesive layer, allowing the floor covering to be laid immediately after the cable is installed.

The 3mm cable is the same as that used in our heating mats and is twin-conductor and 100% aluminium earth shielded so that, unlike many other suppliers' products, it emits negligible EMF radiation. The cable is protected from stretching by a fibreglass wire and is affixed to the floor with the double-sided tape which we provide.

The 3mm cable is suitable for installation directly beneath tile and stone coverings at any wattage and can be used beneath carpet, bonded wooden floors and vinyl when restricted to no more than 160W/m², and covered with Thermoplan levelling compound. We would recommend a minimum of 150W/m² to provide sole source heating and in poorly insulated areas a higher wattage will be required. Please see page 19 for details of our thermal insulation boards.

The 3mm cable allows you to increase the output of your heating system in areas where this is desired. By altering the distance between cable runs you could install the cable at 150W/m² over the main floor area and 200W/m² in front of a draughty doorway if required.

The 3mm cable system is suitable for use with thermal insulation board which will enable the heating to run more efficiently benefiting both you and the environment.

Heat Mat can also supply *i-primer* that can reduce heat loss by up to 20%. See page 20 for details. This is an acrylic PVA based primer and is compatible with

most flexible tile adhesives. Please consult with your adhesive manufacturer to confirm suitability. This product is advantageous where there is insufficient build height to install our Thermal Insulation Boards. Please contact our Technical Support Team for further details.

This system is BEAB approved, Semko approved and CE marked, and guaranteed by a lifetime warranty. Please see our website or contact us for further details.

How to Install

- a** Test each cable with a multi-meter before unpacking.
- b** Lay out strips of double-sided tape onto your floor.
- c** Strip the backing from the tape.
- d** Mark beside the tape your chosen cable to cable distance.
- e** Lay out the cable at your chosen spacing and use the tape to secure it to the floor.
- f** Once the entire floor is covered you can use masking tape over the cable to secure (**fig. 5**), however, please be aware our system does not require the entire cable to be covered with masking tape.
- g** Place the floor sensor between two heating cables and ideally in a close ended conduit (Heat Mat part number HCA-111-COND).
- h** Take care to ensure both sections with orange warnings are laid flat on your floor beneath your final floor covering.
- i** **After testing each cable with a multi-meter,** cover the heating cables with flexible tile adhesive or levelling compound, ensuring they are fully covered, and then lay your final floor covering.

For more detailed fitting instructions please see our website www.heatmat.co.uk

3mm Heating Cable 14 W/m Technical Specification

Product Code	Length in Metres	Resistance	Wattage	200 W/m ² (c-c 7cm)	150 W/m ² (c-c 9.25cm)	Coverage m ²
PKC-3.0-0130	9.2 m	442 Ω	130 W	0.6 m ²	0.9 m ²	0.8 - 1.1
PKC-3.0-0212	15.0 m	272 Ω	212 W	1.0 m ²	1.4 m ²	1.2 - 1.7
PKC-3.0-0316	23.0 m	182 Ω	316 W	1.6 m ²	2.1 m ²	1.8 - 2.4
PKC-3.0-0407	30.0 m	142 Ω	407 W	2.0 m ²	2.7 m ²	2.5 - 3.0
PKC-3.0-0518	37.0 m	111 Ω	518 W	2.6 m ²	3.4 m ²	3.1 - 3.6
PKC-3.0-0577	41.0 m	100 Ω	577 W	2.9 m ²	3.8 m ²	3.7 - 4.2
PKC-3.0-0719	51.0 m	80 Ω	719 W	3.6 m ²	4.8 m ²	4.3 - 5.2
PKC-3.0-0855	61.0 m	67 Ω	855 W	4.2 m ²	5.7 m ²	5.3 - 6.3
PKC-3.0-1086	78.0 m	53 Ω	1086 W	5.4 m ²	7.2 m ²	6.4 - 7.5
PKC-3.0-1207	86.0 m	48 Ω	1207 W	6.0 m ²	8.0 m ²	7.6 - 8.5
PKC-3.0-1350	97.0 m	43 Ω	1350 W	6.8 m ²	9.0 m ²	8.6 - 9.5
PKC-3.0-1507	108.0 m	38 Ω	1507 W	7.6 m ²	10.0 m ²	9.6 - 10.8
PKC-3.0-1772	128.0 m	33 Ω	1772 W	8.9 m ²	11.8 m ²	10.9 - 12.5
PKC-3.0-1983	141.0 m	29 Ω	1983 W	9.9 m ²	13.2 m ²	12.6 - 13.9
PKC-3.0-2250	160.0 m	26 Ω	2250 W	11.2 m ²	15.0 m ²	14.0 - 15.5
PKC-3.0-2406	171.0 m	24 Ω	2406 W	12.0 m ²	16.0 m ²	15.6 - 16.8

Technical Data:

General Construction: Dual conductor wire with earth

Voltage: 230 Vac – 50Hz

Maximum Load: 15 W/m

Maximum Cable Temperature: 90°C

Approvals: CE marked, BEAB and Semko approved

Wire Thickness: 2.7mm to 3.2mm depending on Ohm Value

Cable Flexibility: Minimum allowable cable radius is 18mm

Power Range: 130W to 2406W

Approved in accordance with: EN 60335-1:1998,
EN60335-2-17:1999,

IP Rating: IPX7 as required by the 17th Edition IEE Wiring Regulations

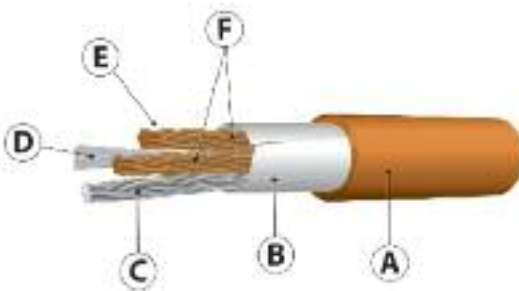
Construction:

Thermal Conductor: 2 x resistance wire insulated with Teflon (FEP 7Y) tested to 200°C

Outer Insulation: PVC (Y) tested to 90°C

Reinforcement Materials: Fibreglass wire

Fixing Materials: Supplied with double-sided tape



- A. Robust PVC (Y) outer insulation.
- B. 100% aluminium earth shield for safety.
- C. High load earth drain wire.
- D. Fibreglass reinforcement cable for tensile strength.
- E. Teflon insulation rated to 200°C.
- F. Litz style twin spiral wound resistance wires.

Heat Mat[®] 7mm in-screed cable system

A cost effective solution under any floor covering with a screed

Our 7mm heating cable is designed as an economic to purchase and install heating solution for new build applications. It can be used beneath virtually any floor covering and is normally installed within a screed bed which then acts as a 'storage radiator'. Installed in this way the system can provide sole source heating in most circumstances.

The 7mm cable is twin-conductor and 100% aluminium earth shielded so that, unlike many other suppliers' products, it emits negligible EMF radiation. The cable is protected from stretching by a fibreglass wire and has a heavy-duty outer insulation to prevent damage during the building process.

The system should always be laid onto a suitable insulation layer and we recommend Celotex Double-R or thermal insulation board. Metal fixing bands can be supplied to allow you to attach the cable to the insulation layer and the bands have pre-spaced fixing points allowing the desired wattage output to be easily attained by varying the cable to cable distance. As an alternative, the cable can be secured to reinforcement mesh rather than using fixing bands.

When used beneath tiles or stone we would recommend an output of 160W/m²-200W/m² and for use under any other type of covering, such as laminate or vinyl, an output of 160W/m² is desirable. If this system is laid beneath a 50-70mm screed at an output of 160W/m², any floor covering can then be installed on top. This is particularly useful when the final floor covering has not been specified.

With the appropriate thermostat the 7mm heating cable can be used outside to provide frost and snow protection allowing compliance with any related health and safety regulations. In these circumstances an output of 270W/m² is desirable.

Where possible, the floor sensor should be installed in a channel on top of the screed base to allow it to control the temperature more accurately.

This system is fully VDE approved and CE marked and is guaranteed by a 15 year manufacturer's warranty.

How to Install

These fitting instructions are for beneath a screed floor. For other instructions see our website. The base normally has a layer of insulation, (such as Celotex Double-R or thermal insulation board) laid onto it with a moisture barrier secured on top where required.

- a** Test each cable with a multi-meter before unpacking.
- b** Place the double-sided tape onto the layer of insulation (moisture barrier if used) in runs 1m apart and strip off the backing.
- c** Lay the fixing strip onto the tape to secure it.
- d** The cable should be laid over the fixing strip in runs at your chosen spacing.
- e** The cable should be locked into place using the clasps on the fixing strip.
- f** Once the entire floor is covered the runs of cable should be fairly taut and the cable should be evenly spaced on the floor.
- g** Place your floor sensor between two heating cables, preferably close to the top of the screed. Ideally, we would recommend placing the sensor in a closed conduit (Heat Mat part number HCA-111-COND).
- h** Take care to ensure both sections with orange warnings are laid flat on your floor beneath the screed area.
- i** **After testing each cable with a multi-meter,** cover the heating cables with your screed which must be at least 50mm thick. Once the screed has dried you can lay your final floor covering.

7mm Heating Cable 20 W/m Technical Specification

Product Code	Length in Metres	Wattage	Resistance	270 W/m ² c-c 7.5 cm	200 W/m ² c-c 10.0 cm	160 W/m ² c-c 12.5 cm
PKC-7.0-0210	10.5 m	210 W	246 Ω	0.8 m ²	1.1 m ²	1.3 m ²
PKC-7.0-0417	21.0 m	417 W	124 Ω	1.6 m ²	2.1 m ²	2.6 m ²
PKC-7.0-0504	26.0 m	504 W	105 Ω	1.7 m ²	2.5 m ²	3.2 m ²
PKC-7.0-0627	32.0 m	627 W	81 Ω	2.4 m ²	3.3 m ²	4.0 m ²
PKC-7.0-0837	42.0 m	837 W	61 Ω	3.2 m ²	4.2 m ²	5.3 m ²
PKC-7.0-1022	50.0 m	1022 W	53 Ω	3.5 m ²	5.0 m ²	6.3 m ²
PKC-7.0-1246	62.0 m	1246 W	44 Ω	4.7 m ²	6.2 m ²	7.8 m ²
PKC-7.0-1381	69.0 m	1381 W	40 Ω	5.2 m ²	6.9 m ²	9.2 m ²
PKC-7.0-1774	89.0 m	1774 W	31 Ω	6.7 m ²	8.9 m ²	11.1 m ²
PKC-7.0-2144	105.0 m	2144 W	26 Ω	7.9 m ²	10.5 m ²	13.1 m ²
PKC-7.0-2458	123.0 m	2458 W	21 Ω	9.2 m ²	12.3 m ²	15.4 m ²
PKC-7.0-3067	150.0 m	3067 W	17 Ω	11.3 m ²	15.0 m ²	18.8 m ²

Accessories

Product Code	Description
PRA-111-0001	12m Fixing Band
PRA-111-0002	25m Fixing Band
HCA-111-0008	25m Double-sided Tape

Technical Data:

General Construction: Dual conductor wire with earth

Voltage: 230 Vac – 50Hz

Maximum Load: 21 W/m

Maximum Cable Temperature: 90°C

Approvals: VDE approved and CE marked.

Wire Thickness: 6.8mm to 7.2mm depending on Ohm Value

Cable Flexibility: Minimum allowable cable radius is 50mm

Power Range: 210W to 3067W

UV Resistance: Confirmed UV resistant by VDE test institute

Approved in accordance with: EN 60335-1:1998,
EN60335-2-17:1999, IEC 60730

IP Rating: IPX7 as required by the 17th Edition IEE Wiring Regulations

Construction:

Thermal Conductor: 2 x resistance 7 stranded wires insulated with 0.8mm silicon rubber (2G)

Additional Internal Insulation: Polyester sheath

Insulation Shield: Aluminium foil shield

Outer Insulation: PVC (105) UV resistant, tested to 90°C

Reinforcement Materials: Fibreglass Wire

Fixing Materials: Heat Fix metal bands can be used



For more detailed fitting instructions please see our website www.heatmat.co.uk or contact us for advice.





Fig. 1



Fig. 2



Fig. 3

Heat Mat® Underlamine System

A fast to fit solution for use beneath floating laminate and engineered board floors benefiting from a fully earthed conductor and a minimal increase in build height

Heat Mat's unique Underlamine System is a simple to fit solution if your choice of floor covering is floating laminate or engineered board flooring. It provides a heat output of 140W/m^2 and, when used with our 6mm Decora insulation, it provides a heating system with a build height of only 7mm. The system is supplied in various mat sizes between 1m^2 and 10m^2 allowing a tailor-made specification for any room size.

The 140W/m^2 system is installed directly onto a high performance layer of insulation and, in well insulated rooms, this enables it to provide a full heating system in most circumstances. The system is not recommended for use beneath floors thicker than 18mm.

Unlike alternatives such as carbon films or heating ribbons the heating mats can be cut and turned to allow a more even coverage of your floor and, in most circumstances, 95% floor coverage is achievable. The system does not require covering with any self-levelling compound or tile adhesive and your flooring can be laid directly on top of the heating mats themselves.

The heating cable is fully earthed for safety, the aluminium layer above it is purely for heat dissipation. This allows the underlamine system to be safely used in virtually any type of room including bathrooms and, unlike carbon films and similar systems, you do not have the extra cost of installing earthing grids above your heating system to ensure it is safely earthed.

The system is entirely manufactured in the UK ensuring a consistently high quality product and a minimum of travel miles between manufacture and installation. The Underlamine System should be controlled by our innovative BEAB approved thermostats, one for each room, to ensure it is controlled in the most energy efficient way. Please note you must always control the system with a floor sensor.

As with any underfloor heating system beneath wooden floors, care should be taken not to place any heating beneath areas where there will be a thermal block on top of the floor covering. Furniture without air gaps beneath them or large beanbags prevent the heat escaping from the floor and can cause the system to overheat in extreme circumstances.

This system is supplied with our unique Heat Mat Lifetime Warranty. Please see our website or contact us for further details.



Fig. 4



Fig. 5



Fig. 6

How to Install

- a** First sweep your sub-floor.
- b** Place Decora insulation layer onto your floor and tape the joins. (fig. 1)
- c** Design a layout for your heating mats on your floor.
- d** Roll out your first heating mat. (fig. 2)
- e** Cut the heating mat, but not the cable, when you reach an obstruction. (fig. 3)
- f** Rotate the heating mat and continue to fit in this way until you have to return the second lead to the thermostat. (fig. 4)
- g** Lay additional heating mats as required.
- h** Cut channels in the insulation beneath the electrical connections, the mats black power cables and the floor sensor. (fig. 5)
- i** Tape over all exposed heating cables and the edges of the mats with aluminium tape where required. (fig. 6)
- j** Lay your floating laminate or engineered board floor directly onto your heating mats

For more detailed fitting instructions please see our website www.heatmat.co.uk

140 W/m² Underlamine System Technical Specification

Product Code	Size in m ²	Length (m)	Width (m)	Wattage	Ohms
ULS-140-0100	1.0 m ²	2.0 m	0.5 m	140 W	378
ULS-140-0150	1.5 m ²	3.0 m	0.5 m	210 W	252
ULS-140-0200	2.0 m ²	4.0 m	0.5 m	280 W	189
ULS-140-0300	3.0 m ²	6.0 m	0.5 m	420 W	123
ULS-140-0450	4.5 m ²	9.0 m	0.5 m	630 W	84
ULS-140-0550	5.5 m ²	11.0 m	0.5 m	770 W	70
ULS-140-0700	7.0 m ²	14.0 m	0.5 m	980 W	54
ULS-140-0850	8.5 m ²	17.0 m	0.5 m	1190 W	44.5
ULS-140-1000	10.0 m ²	20.0 m	0.5 m	1400 W	37.6

Technical Data:

General Construction: Ultra-low wattage per linear metre heating cable sandwiched between polyester and aluminium layers

Voltage: 230 Vac – 50Hz

Maximum Load: 7W/m

Wire Thickness: 2.2mm +/- 0.1mm

Cable Flexibility: Minimum bend radius 25mm

Power Range: 140W to 1400W

CE Marked in accordance with: EN 60335-2-96:2002

Construction:

Thermal Conductor: Spiral/stranded resistance wire

Outer Insulation: 2 layer plastic insulation 100% waterproof rated to 90°C

Earth Shield: Longitudinal 'tinned soft copper' strands equivalent to 0.5mm² CSA with minimum 90% cover

Heat Dissipation Materials: Full coverage aluminium foil

IP Rating: IPX7

UK Factory Testing: Dielectric withstand test – 10 seconds at 4kV



Decora Insulation and Aluminium Tape

Product Code	Product Description	Thickness	M ² per pack
DEC-006-0006	Decora Insulation	6 mm	6.0 m ²
ULS-TAP-ALUM	Aluminium Tape	50 mm x 45 m	12.5 m ²

BEAB Approved Thermostats

Please see www.heatmat.co.uk for further details of our thermostats including both downloadable and interactive instructions.



16A 4th Generation Programmable Thermostat – NGT10

- The future of programmable thermostats
- Simple to set up and operate
- Energy usage information in pounds and pence
- Ultra large dot matrix display
- Pure white backlight
- 16A – 3600W
- Minimal 20mm build depth



Silver and graphite options



16A Manual Thermostat – TPS30

- Easy to use with temperature settings
 - 3m floor sensor extendable to 100m
 - IP21 rated • 16A – 3600W
 - Also available with infra-red floor sensor instead of a wired floor sensor.
- Also available in silver.



OJ ELECTRONICS

taking comfort further

OJ Electronics – the manufacturer of Heat Mat Thermostats is one of the world's leading manufacturers of controls for electric underfloor heating. OJ's products are recognised worldwide for their innovative design and high quality. All the thermostats listed on this page benefit from a 3 year warranty.



Thermostats

Product Code	Description
NGT-567-0010	4th Generation Programmable Thermostat 3600W 16amp
NGT-SIL-0010	Silver 4th Generation Programmable Thermostat 3600W 16amp
NGT-GRA-0010	Graphite 4th Generation Programmable Thermostat 3600W 16amp
TPS-345-0030	Manual On/Off Thermostat 3600W 16amp
TPS-COL-0030	Silver Manual On/Off Thermostat 3600W 16amp

All of the above thermostats are fully BEAB approved confirming their high quality and longevity, and all benefit from a full 3 year warranty. (Excludes the TPS thermostat with infra-red sensor). Heat Mat can also supply OJ's external frost and snow protection thermostats as required.



With more than 40 different finishes to choose from we can't fit them all in the brochure! See www.heatmat.co.uk for the full range

Exclusive to Heat Mat

These innovative thermostats offer a unique range of features

Simple to program in plain English

Learns the heat characteristics of your room

Displays your energy usage in £'s and pence

Monitors both air and floor temperature

 3 year peace of mind warranty

Choice of GENUINE metal and glass frames

Brushed aluminium, chrome and brass frames available

Black or White glass options

8 brightly coloured plastic frames also available



For full details please see our website www.heatmat.co.uk

All of our systems are designed to work automatically so that they can heat up before problems occur.



Snow and ice melting systems

Heat Mat snow and ice melting systems offer a variety of solutions for everyday problems of snow and ice build-up, ensuring businesses and private properties remain safe and trouble free even in the coldest of weather.

From simple frost protection for an outside water tap through to fully automated snow clearing for driveways and roofs, Heat Mat has a solution suitable for your requirements. Each solution is specified to provide safety and flexibility whilst ensuring that the installation and running costs are minimised.

Heat Mat's range of snow and ice melting systems provide protection for exterior ground surfaces and roofing, guttering and exposed piping including:

- Car parks and driveways
- Walkways and pavements
- Loading ramps
- Bridges
- Roofs
- Gutters
- Exposed water pipes





PipeGuard

Designed to protect hot and cold water supplies/pipework that may be subject to freezing conditions. PipeGuard can be used in most domestic applications (houses, flats, mobile homes) plus commercially (farms and sports halls).

Our system includes an integrated thermostat and is simple to install and operates at 240V. Cables available in sizes from 1.4m to 45m

Self-Limiting Cable

Suitable for frost protection and temperature maintenance of pipes and ducting. Available in 4 wattages from 12-28W and can be cut to length as required.

Gutter Heating

Heat Mat's gutter protection systems use either 7mm cable or self limiting cable to ensure gutters remain free of ice and snow build up. Items available for this specialist application are advanced thermostats and moisture sensors, gutter spacing clip and suspension chains.



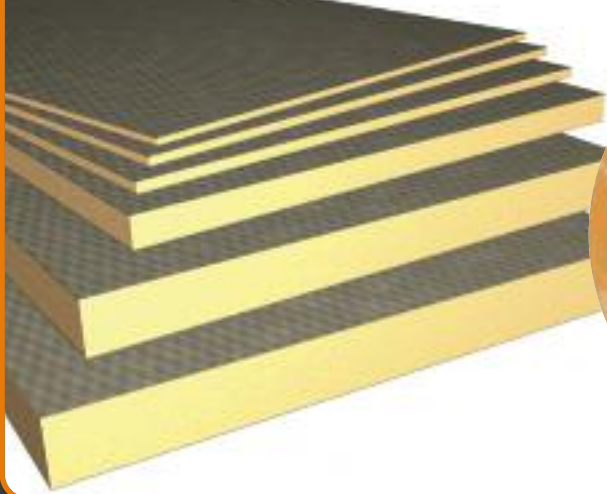
External 36Amp thermostat



Combined moisture and temperature sensor



Gutter moisture sensor



**Helping
you reduce
your Carbon
Footprint!**

Heat Mat Thermal Insulation Board

Thermal Insulation Board Technical Specification					
Product Code	m ² coverage per pack	Thickness mm	Length mm	Width mm	Boards per box
TTB-006-0006	5.76 m ²	6 mm	1200 mm	600 mm	8
TTB-010-0004	4.32 m ²	10 mm	1200 mm	600 mm	6
TTB-020-0004	3.60 m ²	20 mm	1200 mm	600 mm	5
TTB-111-0020	20m of TTB reinforcement tape suitable for 12m ² of boards				
TTB-111-0090	90m of TTB reinforcement tape suitable for 54m ² of boards				

Packs of Thermal Insulation Board are flat packed and easy to transport

Heat Mat recommends...

Heat Mat's UK manufactured insulation boards are a great way to help heating systems operate efficiently by preventing downward heat loss, and they can pay for themselves in energy savings in as little as three years. When installed onto 10mm insulation boards a Heat Mat system can normally warm the floor in as little as 20 minutes.

When choosing the thickness of boards most suitable for your installation you should consider a number of factors. Firstly, the build height that you have available to you may limit you to, for example, a maximum board thickness of 6mm. Additionally, if you are using the boards to secure a wooden base you should always use 10mm thick boards.

If, however, you have the available build height we would recommend using our 20mm insulation boards as these provide a very good trade off between cost and insulation efficiency providing a U Value (W/m²k) of 1.35. Our 10mm boards have a U Value of 2.70 and our 6mm boards a U Value of 4.50.

Please call 01444 247020 or visit www.heatmat.co.uk for more information.





Mirror Heat

- Mirrors are steam free after bathing or showering and demisted for shaving or applying make-up
- Easy to install – adheres to the back of your mirror
- Can be wired into the light switch so you are in control

For larger mirrors 160W/m² mats and loose 3mm cable can be used for demisting if they are encased in a tile adhesive and used with a thermostat.

Please contact us for available sizes or visit our website www.heatmat.co.uk for further details.

Thermoplan Self-Levelling Compound

A fibre-reinforced self-levelling floor compound specifically designed for use with electric underfloor heating. The compound can be used to cover heating mats and loose cable systems allowing virtually any floor covering to be laid on top. Details of the coverage levels for levelling compound can be found on the back cover of this brochure and this product can be laid up to a maximum thickness of 50mm.

i-primer Thermal Primer

i-primer is a thermal primer which significantly reduces downward heat loss when it is used beneath an underfloor heating system. On poorly insulated floors i-primer can increase the energy efficiency of the system by up to 20%, benefiting your pocket and the environment by reducing your carbon footprint. i-primer is sold in 0.5 litre and 1.0 litre bottles and 1 litre will cover approximately 7.5 square metres. For further details of application quantities please see the back cover. i-primer is not suitable for use with Mira levelling compounds.

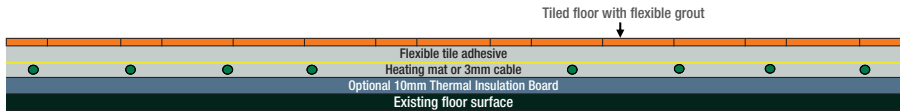
Repair Kits and more...

In the unlikely event that an underfloor heating element is damaged during installation we offer a simple to use repair kit to resolve the situation. Please contact our Technical Team for assistance in these circumstances. Additional items such as double-sided tape, glue guns, frost protection and replacement floor sensors are available from your supplier.



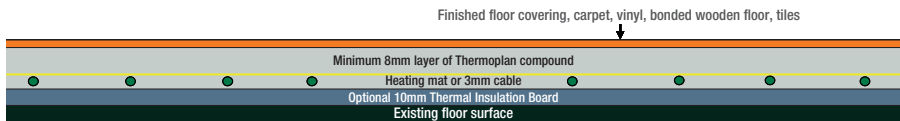
Floor Constructions

Figure 1 - Heating mats and 3mm cable beneath tiled floors



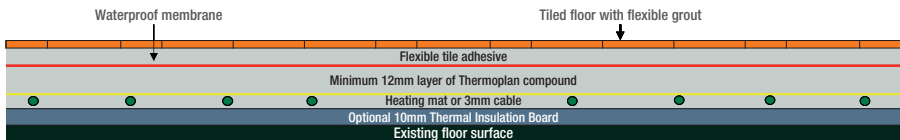
3mm cable, 160W/m² and 200W/m² heating mats can be used in this construction

Figure 2 - Heating mats and 3mm cable beneath any floor covering



The maximum output recommended for this construction is 160W/m² unless it is beneath tiles

Figure 3 - Heating mats and 3mm cable in a “wet room” situation, such as a walk in shower

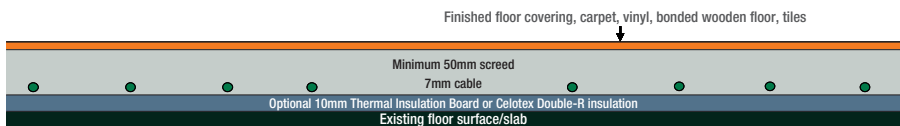


3mm cable, 160W/m² and 200W/m² heating mats can be used in this construction

Figure 4 - Underlamine System beneath floating laminate or engineered board floors



Figure 5 - 7mm cable beneath screed



A maximum of 160W/m² is recommended in this construction unless it is beneath tiles

Frequently Asked Questions

How long will it take for the heating system to warm up?

The warm up time of a heating system will be dictated by the insulation used beneath it and the output of the system. In general, the better insulated the sub-floor, the faster the system will warm up. Systems insulated with thermal insulation boards offer a very speedy warm up time, and un-insulated concrete offers the slowest warm up time. Using a 200W system beneath ceramic/stone tiles provides a faster warm up time than 150W or 160W systems. We recommend using thermal insulation boards wherever practical when installing our systems onto concrete floors.

How much will it cost to run?

The cost of running your system is based around many different factors so it is hard to generalise. When our systems are used in well insulated internal rooms we would expect them to cost up to £6.48/€14.68 to run per square meter per annum, and in conservatories up to £9.44/€14.68 per annum. This should be more efficient than any other electric form of heating and will often be cheaper than a radiator system.

These costs are based on a unit price of electricity of 8p in the UK and 18.2 € cents in Ireland. Both examples assume rooms insulated up to the current building regulations, that the systems are laid directly onto suitable insulation and controlled by our NGT thermostat set to 20 degrees. The first example assumes a 200W/sqm system heating the room for 135 days per annum, ten hours a day and supplying power 30% of the time. The conservatory example assumes a 200W/sqm system heating the room for 210 days a year, eight hours a day and supplying power 35% of the time.

The only things which significantly affect the cost of running one system compared to another are the insulation used beneath the system, the output of the system and the use of an intelligent thermostat. In general, the better the insulation used beneath it, and the higher output of the system, the cheaper it will be to run as long as it is used with an intelligent thermostat like Heat Mat's NGT thermostat/timer.

What does a BEAB system approval mean?

Unlike CE marking, which is a non-independent self-certificate, BEAB system approvals are completely independent. A system approval, such as Heat Mat have on their heating mats, means that BEAB have independently verified and tested the heating mats with Heat Mat's thermostats and they have confirmed that the system is safe and suitable for use as underfloor heating and

that it complies with all necessary legislation. At the time of writing, Heat Mat are the only manufacturer with this approval, and all of our heating mats, cables and thermostats are manufactured in BEAB approved factories.

Which is more expensive to run, 160W or 200W heating mats?

If the system is used with the thermostats adaptive function switched on then the 200W system will be slightly cheaper to use than the 160W system. This is due to the warm up time of the 200W system being slightly faster.

Does each room require its own thermostat?

We would recommend that each room has its own heating system controlled by its own thermostat. This will allow for simpler and more accurate temperature control of each room and will avoid heating rooms which do not require it.

Can the heating cable be shortened?

The heating cable cannot be shortened because each heating element has an adaptive resistance suitable for only one length of cable. If you shorten the cable it will not operate correctly.

I am uncertain of my final floor covering, what system should I install?

If you install 160W heating mats beneath a levelling compound, or 7mm cable at 160W/m² beneath a screed virtually any floor covering can be laid on top.

Can I tile straight onto heating mats and 3mm cables?

You can tile straight onto heating mats and 3mm cables as long as you use a flexible tile adhesive and ensure that all of the heating cables are thoroughly covered. If installing a system in this way the tiler should take particular care not to damage the heating cable when cleaning out grout lines.

How do I install more than 16 Amps of underfloor heating?

If your chosen system exceeds 16 Amps, you should consult your electrician who will be able to advise you on using a contactor to control the system.

How long before I can switch my heating on?

If you have installed your heating system beneath tile adhesive, levelling compound or a screed you must allow this to dry out before turning on your system for the first time. If the system is turned onto early it will force the moisture out of the covering which may lead it to crack. The heating system must never be used to "dry" out the levelling compound/screed or tile adhesive used.

Underfloor Heating and Sustainable Living



Electric underfloor heating can provide a very energy efficient and environmentally friendly form of heating when installed and used in the correct way. There are a number of actions you can take to ensure that your heating system runs in as energy efficient manner as possible and some of our suggestions are listed below:

Installation considerations

When deciding on which system you are going to install the following actions will ensure it can run as efficiently as possible:

Placing our 20mm insulation boards directly beneath your heating system will significantly decrease the warm up time and prevents downward heat loss, benefiting your pocket and the environment. 10mm and 6mm boards can also be supplied if you are restricted for build height.

Use a separate programmable thermostat in each room so that each area stops heating when it reaches the desired temperature.

If installing a system beneath tiles use a 200W/sqm system instead of a 160W/sqm system. This will ensure the warm up time of the system is minimised allowing the system to run more efficiently.

Carbon neutral power supply

Although all Heat Mat underfloor heating systems can be powered by micro-generation devices, these usually cost in the region of £3,000/€4,000 per installed kilowatt and many properties are not suitable for installing photovoltaic cells or a wind turbine.

A good alternative is to purchase your electricity from one of the many companies offering, for a small premium, to supply you with power from 100% renewable sources.

Thermostat settings

By reducing the target temperature on your thermostat by just one degree you can make a significant difference to the amount of power used. Additionally, ensure that your thermostat only heats the floor when you require it. If the system is in a room you only use at the weekend ensure that it is set to only heat on Saturday and Sunday.

The thermostat has an intelligent adaptive function that utilises 'fuzzy logic' to learn when to switch your system on. If you enable this function, and tell the thermostat when you require your room to be heated by, it will take into account how long it takes to heat your floor and adapt it's start and end time suitably throughout the year.

Living with your system

If you find that your heating system warms the room beyond your desired level, rather than opening a window or door simply call us on 01444 247020 and we will help you program your thermostat just the way you want it.

Recycle your packaging

All Heat Mat packaging can normally be recycled locally and the majority of this is simply cardboard and paper.

Mira Thermoplan and i-Primer Usage

Mira Thermoplan coverage

M ² to be covered	25kg bags required	Litres of Mira Primer required
1	1	1 litre bottle
2	2	1 litre bottle
3	3	1 litre bottle
4	3	1 litre bottle
5	4	1 litre bottle
6	5	1 litre bottle
7	6	1 litre bottle
8	6	2 litre bottles
9	7	2 litre bottles
10	8	2 litre bottles
11	9	2 litre bottles
12	10	2 litre bottles
13	10	2 litre bottles
14	11	2 litre bottles
15	12	2 litre bottles
16	13	3 litre bottles
17	13	3 litre bottles
18	14	3 litre bottles
19	15	3 litre bottles
20	16	3 litre bottles
25	20	4 litre bottles
30	23	4 litre bottles
35	27	5 litre bottles
40	31	6 litre bottles
45	35	7.5 litre bottle
50	40	7.5 litre bottle

In normal circumstances we recommend 12mm of Thermoplan coverage above our undertile cables and this makes a small allowance for uneven floors. The above specification assumes 1.6kg of Thermoplan is required for each mm of height per m², and that 1 litre of primer covers 7.5m². It is vital that the sub-floor is free of oil, dirt and dust before it is covered with Mira primer. If the floor is particularly un-even or slopes significantly then an average depth of Thermoplan above 12mm is likely to be required.

The above information is for guidance only and individual installations may require a different specification. To confirm your requirements please speak to Heat Mat's Technical Team on 01444 247020.

i-Primer coverage

M ² to be covered	Litres of i-Primer required
1	0.5 litres
2	0.5 litres
3	0.5 litres
4	1 litre
5	1 litre
6	1 litre
7	1 litre
8	1.5 litres
9	1.5 litres
10	1.5 litres
11	1.5 litres
12	2 litres
13	2 litres
14	2 litres
15	2 litres
16	2.5 litres
17	2.5 litres
18	2.5 litres
19	3 litres
20	3 litres
25	3.5 litres
30	4 litres
35	4.5 litres
40	5 litres
45	6 litres
50	7 litres

1 Litre of i-primer is recommended to cover 7.5m², regardless of the number of coats that this provides. If 1 litre is applied evenly over this surface area then the insulative value will be the same regardless of if there is one coat or five.

i-primer should not be used with Mira levelling compounds as only Mira primers are suitable. You should speak to the manufacturer of your tile adhesive if you are uncertain of its compatibility with i-primer.

Product codes

Code	Description
MIR-THE-0025	25kg Bag of Mira Thermoplan
MIR-PRI-0001	1 litre bottle of Mira Primer
MIR-PRI-0007	7.5 litre bottle of Mira Primer
ACC-PRI-0001	0.5 litre bottle of i-primer
ACC-PRI-0002	1.0 litre bottle of i-primer

Heat Mat
Underfloor Heating

The Professionals' Choice
Telephone: 01444 247020
Website: www.heatmat.co.uk

