

# Softmat

## Important Guidelines

Please read this instruction leaflet thoroughly before commencing installation:

### DO:

- Space the heaters evenly across the floor to produce a uniform heat output.
- Ensure that all the heating wire is fitted beneath the floor covering.
- Ensure your floor base has no sharp debris or objects such as nail heads protruding before starting the installation.
- Install the Under-laminate System beneath floating laminate floors and engineered board.
- Ensure there is a gap of at least 2cm between each run of heating mat
- Use a multi-meter to test each heater before, during and after covering with the final floor covering.
- Connect multiple heaters in parallel and ensure that both earth leads for each heater are connected to the earth ring.
- Plan where to place your heaters before commencing installation.
- Consider additionally insulating your sub-floor before installing the underfloor heating system.
- Use a thermostat to control your system and limit the floor temperature.
- Ensure that all electrical works conform to Part 'P' of the Building Regulations and current IEE Wiring Regulations.
- Consult with your builder or electrician to ensure your BTU requirements can be met by the system if using the heating system as your primary heat source.
- Use 6mm depron insulation boards that are an integral part of the installation.
- Ensure the system is protected by a suitable dedicated RCD (30mA)

### DO NOT:

- Do not cut, shorten, strain or cross the heating cables
- Do not bend the joint between the element wire and the black cold tail.
- Do not turn on the system to maximum power once the floor covering is down, you should increase the temperature of the system slowly over a course of weeks.
- Do not lay the system so that any cables are closer than 5cm to each other.
- Do not place heaters closer than 5cm away from conductive items such as walls, metal pipework or drains.
- Do not install the system beneath floor coverings with a thickness greater than 15mm.
- Do not install the system directly beneath wooden floor coverings that have to be glued, screwed in place or mechanically fixed into position in any way.
- Do not walk unnecessarily on the heating system during installation.

- Do not place thermal blocks onto your finished floor covering above your heaters when they are in use. Such items include large bean bags, thick rugs or floor flush furniture.
- Do not install the system if the ambient temperature is below 5°C as the cables can become less flexible.
- Do not install the heaters in walls or ceilings.
- Do not install the heaters where internal walls or partitions will be added later.
- Do not install the floor temperature sensor close to other heat sources such as hot water pipes.
- Do not lay the final floor covering on top of the heaters without first testing it with a multi-meter

230V	Heated Area (m <sup>2</sup> )	Mat Dims (m)	Watts (140W/m <sup>2</sup> )	Amps	Ohms
Cat#					
SM1	1.0	0.5x2.0	140	0.61	377.9
SM1.5	1.5	0.5x3.0	210	0.91	251.9
SM2	2.0	0.5x4.0	280	1.22	188.9
SM2.5	2.5	0.5x5.0	350	1.52	151.1
SM3	3.0	0.5x6.0	420	1.83	126.0
SM4	4.0	0.5x8.0	560	2.43	94.5
SM5	5.0	0.5x10.0	700	3.04	75.6
SM6	6.0	0.5x12.0	840	3.65	63.0
SM7	7.0	0.5x14.0	980	4.26	54.0
SM8	8.0	0.5x16.0	1120	4.87	47.2
SM9	9.0	0.5x18.0	1260	5.48	42.0
SM10	10.0	0.5x20.0	1400	6.09	37.8

Cable Construction	Twin Conductor
Rated Voltage	230V
Output	140W/m <sup>2</sup>
Cable Spacing	50mm
Cable Diameter	1.0mm
Conductor Insulation	Fluoropolymer
Cold Lead	2-wire plus ground braid; 4m length

## Floor Preparation

Preparation of the sub floor is an extremely important requirement. It is essential that the floor is solid, level and dust free. In the case of wooden floors the existing floorboards must be securely fixed. There should be no sharp debris or objects protruding from your base. Concrete floors should be completely dry and all traces of old floor coverings and adhesive should be removed to ensure that the surface is smooth, clean and level. The use of insulated tile backer boards can improve performance and efficiency of the heating system. The insulated backer board should be secured with flexible adhesive and reinforcement tape should be used across the joins. (This is extra to the 6mm Depron insulation that is part of the heating system). We recommend that the entire floor base is the same construction to ensure the system performs evenly and it is important that the sub-floor is insulated to current building regulations. (e.g. part concrete/part timber floor construction will give an unequal heat output).

## Testing the Heating Mat

It is important that you test each mat with a multi-meter before unpacking to ensure that you have received your product in full working order.

When connecting the Live to Neutral wires the readings should be approximately similar to that on the ratings label on the mat. The cable resistance reading should be -5% to +10% of the value stated on the label. When connecting Live to Earth and Neutral to Earth the reading should be infinity (insulation test). These tests should be performed periodically during the installation and prior to flooring installation.

## Installation of the Under-laminate Heating System

To ensure a completely even floor surface you should cover the entire floor base with 6mm Depron soft insulation board, even where no heating is going to be laid. The 6mm boards should be laid out in a tessellating pattern similar to the way house bricks are placed in walls (see fig. 1). The boards can easily be cut with scissors or a Stanley knife and, once they are laid out on the floor. You should tape the joints between the boards with duct tape or similar. (Tape not supplied). The boards should not be secured to the floor base itself. You should now roll out your under laminate heating mats (see fig. 2), cable side down. The mats should not be bent or twisted and they should lie flat on the floor. As you roll out your first heating mat onto the floor continue until you reach an obstruction such as a wall. You should now lift up the end of the heating mat and, being careful to avoid cutting the cable, you should cut through the aluminium foil from one side of the mat to the other (see fig. 3). You should ensure that you do this between the correct cable run to allow the mat to turn the way you desire. The mat can then hinge back on itself at the point where the heating cable now joins the two sections of the heating mat and you can start rolling out your mat in the opposite direction (see fig. 4).

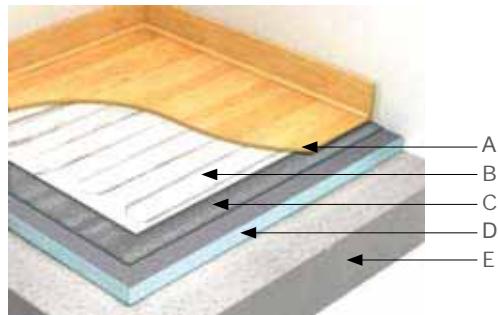
Once you have successfully placed all of your heating mats and cold tails onto the floor you should cut out the insulation beneath the manufactured connections (where the heating cable meets the black cold tail) and the cold tail leads with a sharp knife so that they do not stand proud of the insulation. You can use double-sided tape to hold the heating mats and loose cable in position if you wish. Using a thermostat with a wired floor sensor you should now lay the sensor between two runs of

the heating cable in one of the mats. To obtain the most accurate temperature reading you should position the floor sensor at least 30cm from the edge of the room in an area where no items will be placed on top of the flooring.

Cut a channel in the insulation where you wish to lay the floor sensor and line this with aluminium foil before placing the floor sensor on top. You should then use a section of aluminium tape to hold the floor sensor in position and this will ensure that the sensor picks up an accurate temperature reading from the floor (see fig. 5).

Finally, you should tape down the edges of all of the heating mats and also cover all of the connection wires and the floor sensor wire with tape to protect them during the installation of the flooring. Use the foil tape provided to ensure earth continuity between runs of heating mat and this will further assist the heat transfer of the system.

Now the system is fully installed, carry out your electrical checks on each heating mat to ensure that they are in full working order. If the heating system is suitably protected with a dedicated RCD at this point then a competent person can turn on the heating system for 10 minutes to ensure that it is heating up as expected.



A. Wood Laminate Floor  
B. Softmat  
C. Underlay  
D. Insulation Board  
E. Subfloor (Concrete or Timber)

## Laying your Floor

Your floor covering can now be laid. Please take care when working above the system by wearing soft soled shoes and by using cardboard or carpet to protect the system when you need to stand or kneel on it. Should any of the heating mats/wires be damaged during the installation of the flooring then stop the installation immediately and contact our helpline for assistance.

If you are not laying your floor covering straight away the system should be covered by a layer of cardboard or carpet and you should avoid walking over the system where possible. Your electrical checks should then be carried out again before installing your final floor covering. The Under-laminate Heating system is particularly suitable for use beneath floating laminate floors and wooden floors where its low build height, fully earthed wire and ease of installation without any wet trade make it a simple to

fit solution. It's not suitable for use beneath floor coverings that need gluing or bonding in position or need to be screwed or nailed into position.

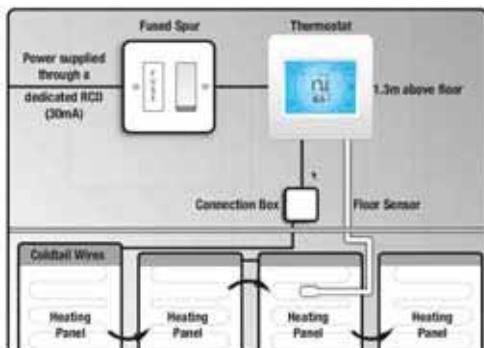
When installing this system beneath a floating laminate or wooden floor you should confirm with the flooring manufacturer/installer that their flooring is suitable for use directly above an electric underfloor heating system. We recommend the flooring is laid directly onto our heating system, however if you are installing some form of acoustic insulation or a membrane on top of the heating system before laying your flooring you should ensure that this insulation/membrane allows heat through efficiently.

## Electrical Connections

All work must comply with current IEE wiring regulations and installations must comply with Part P of the Building Regulations. Consult your Local Authority Building Control department regarding their requirements for certification or check with an electrician qualified to issue Part P certification regarding your individual installation.

The heating mat/s have to be wired into a thermostat with floor temperature limitation. Please see the separate instructions enclosed with the thermostat.

Run the cold tail connections and floor sensor cable in separate plastic conduit or trunking from your heated floor to the thermostat position. A maximum of two heating mats can be wired into a single thermostat. A connection box will be required if installing 3 or more heating mats. Ensure that multiple mats are wired in parallel, not in series.



*Typical Wiring Diagram of an Under-laminate Heating System All electrical works must be carried out by a qualified electrician.*

The mains power supply must be protected by a suitable dedicated RCD (30mA and up to 4.8kW).

The thermostat should be connected to the power supply via a suitably rated fused spur or circuit breaker.

Check the current rating of the thermostat. Typically it will be rated at 16A and if the total loading from a combination of heating mats exceeds this value then the system will require further thermostats or need to be connected via a suitable rated switch contractor (consult with the electrician).

The thermostat should be positioned on an inside wall within the room to be heated approximately 1.3m above the floor level. On bathroom installations regulations require that the thermostat must not be sited within the bathroom and should be fitted on the outside of the internal wall as near to the under floor heating as possible.

## Further Considerations

To ensure that your system works to its full capacity for the lifetime of the flooring, please ensure that thermal blocking is avoided above the heating system.

Thermal blocking occurs when the heat produced by the system warms the floor surface but is then trapped and has no way of escaping from the surface of the floor. This can cause the system to overheat in the thermally blocked area and, in extreme cases, affect the integrity of the floor covering and heating system. The heating mats are fully earthed and IPX7 rated, which means systems can be installed in bathrooms and other 'wet areas'.

When you first turn on your underfloor heating system after installing your floor covering you should take care to increase the floor temperature slowly over a number of weeks. If your floor manufacturer has instructions on the process they recommend these should be followed. In the absence of any manufacturer's instructions we would suggest limiting the floor temperature to below 25°C and gradually increasing this to the maximum setting of 32°C over the course of two weeks. This process should ensure that the floor does not rapidly heat to too high a temperature which could lead to movement within the floor.

If you have particular concerns that your floor may suffer from thermal blocking once the heating is installed, you should consider using conventional heating mats covered with self levelling compound as this compound is very efficient at dissipating the heat that can build up under a thermal block.