FLOOR HEATING

UT-MAT FLOOR HEATING SYSTEM INSTALLATION GUIDE

Contact

Floor Heating Systems Pty Ltd
7 KOALA AVENUE INGLEBURN NSW 2565 AUSTRALIA

Phone (02) 9829 2752
Mobile (+61) 0407 680 068
www.floorheating.com.au

UT-MAT UNDERFLOOR HEATING

Installation Manual

The kit comprises of everything you need to install the system

UT-MAT Specifications

Operating Voltage	230V
Power Output	150 and 200 W/m2
Cable Spacing	80mm
Maximum Ambient Temperature	30°C
Minimum Installation Temperature	5°C

ACCESSORIES WILL BE NEEDED

1. Temperature Thermostat

2. Floor Temperature Sensor

3. Screamer Warning Device

Note: Accessories Sold separately

Warranty

- Cable/Mat : 25 Years

UT-MAT Floor Warming System

It's a proven technology that's safe, reliable and energy efficient.

- Single point connection
- Twin conductor cable
- Emits zero EMF
- Safety approved for wet areas
- Flexible installation
- Durable construction
- FEP insulation and jacket
- 25-years limited warranty against manufacturing defects
- UT-MAT floor warming includes a heating cable woven into an adhesive-backed fiberglass mesh that allows for simple roll-out installation without worrying about heating cable spacing

Size Table

230V Catalog Number	Heated Area m2	Mat Dimensions m*m	Watts (200w/m2)	Rated voltage	Resistance Ω
UT-MAT200- 200	1.0	0.5*2	200	230	264.5
UT-MAT200- 300	1.5	0.5*3	300	230	176.3
UT-MAT200-400	2.0	0.5*4	400	230	132.3
UT-MAT 200-500	2.5	0.5*5	500	230	105.8
UT-MAT 200-600	3.0	0.5*6	600	230	88.2
UT-MAT 200-700	3.5	0.5*7	700	230	75.6
UT-MAT 200-800	4.0	0.5*8	800	230	66.1
UT-MAT 200-900	4.5	0.5*9	900	230	58.8
UT-MAT 200-1000	5.0	0.5*10	1000	230	52.9
UT-MAT 200-1200	6.0	0.5*12	1200	230	44.1
UT-MAT200-1400	7.0	0.5*14	1400	230	37.8
UT-MAT200-1600	8.0	0.5*16	1600	230	33.1
UT-MAT200-1800	9.0	0.5*18	1800	230	29.4
UT-MAT200- 2000	10	0.5*20	2000	230	26.5
UT-MAT200- 2400	12	0.5*24	2400	230	22

			Watts (150w/m2)		
UT-MAT150-1500	10	0.5*20	1500	230	35.3

IMPORTANT SAFEGUARDS & WARNINGS

The safety and reliability of any floor heating system relys on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the heating cable, system components and property, and can create a risk of fire or electric shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the Heating mat system performs reliably. If the heating mat system is damaged or not installed correctly, fire or electric shock could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in this manual.
Pay special attention to the following:

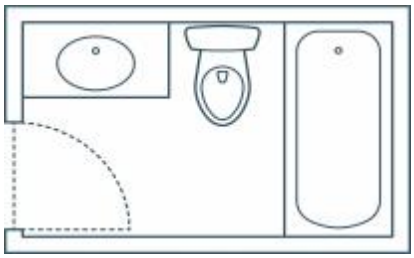
- A thermostat must be installed to control temperature.
- It is important that this equipment is installed only by qualified electricians who are familiar with the correct sizing, installation, construction and operation of floor warming system and the hazards involved. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact an electrician.
- The heating cable system is designed for underfloor heating purposes only. Be sure that the floor is not penetrated by nails, screws, or similar devices that can cause damage on first installation or during subsequent floor repairs in the future.
- If the heating cable system is damaged, it must be replaced.
- Switch off all power circuits before installation or servicing.
- Keep ends of heating devices and kit components dry before and during installation.
- The conductive layer of this heating device must be connected to a suitable grounding/earthling terminal.
- A ground fault protection device must be used with this heating device .
- UT-MAT utilizes the constant wattage series resistance heating cables and not allowed to be shortened in any way.
- The heating portion of the heating device set shall not touch, cross over, or overlap itself; surface of the device cannot cover the combustible material.
- The space heating cable shall not extend beyond the room or area in which it originates.
- The heating cable set is not to be installed in walls.

UT-MAT INSTALATION GUIDE

STEP 1: Plan Layout

Make a sketch layout or a floor plan of the room; include all permanent furnishings such as toilets, bathtubs, appliances, cabinetry, etc. Indicate all dimensions required to determine the available floor area and the position of the thermostat.

NOTE: It is recommended that installation is documented with photos to note the location of connections and the sensor.



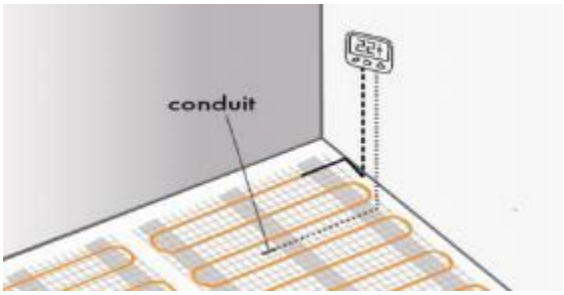
STEP 2: Transfer Layout to Floor

Draw an outline of the layout on the room floor including a foot print of all furnishings that are not yet installed. Unroll the first few distance of the heating mat. The starting point of the cable must be placed within 2.5m of the thermostat.

NOTE: Mark the position of the connection point between the power lead and the heating cable. This connection must be covered by thin set or self-leveling cement. When using a floor temperature sensing thermostat, mark the sensor position in the middle of 2 heating cables, about 30cm away from the wall (within the heated area), as close as possible to the thermostat.

STEP 3: Install the Sensor

If using a floor temperature sensing thermostat, install the sensor in conduit or directly to the subfloor. It is recommended that the sensor be installed in conduit. This will allow the sensor to be easily replaced in the unlikely event of failure.
The sensor conduit needs to be installed between the thermostat wall box and the sensor position.



NOTE: The sensor conduit must be centered in the cable loop (between two heating wires). Use duct tape to close the end of the conduit so that thin set can't penetrate the conduit. Use duct tape to hold the sensor conduit into the groove to prevent it from floating up when the mortar or thin set is poured. If the sensor is installed directly in the mortar bed, use duct tape to secure to sub-floor.

STEP 4: Prepare the Installation

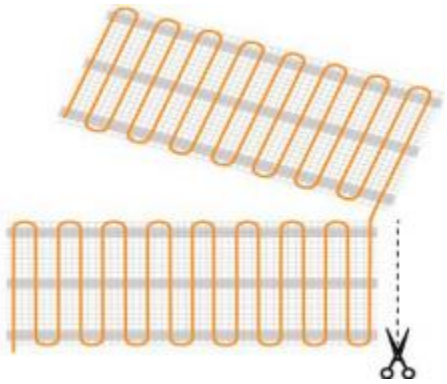
Clean and vacuum the floor thoroughly and remove dust and debris from the floor that may damage the heating cable. Ensure that the subfloor is secure and stable. Carefully fill in all cracks to prevent any potential damage to the new tiles resulting from shifts in the subfloor.

STEP 5: Measure the Heating Cable Resistance

Use a digital ohmmeter to measure the resistance of the heating mat and compare it to the size table for correct resistance values and record the measured resistance on the warranty card. Documenting the resistance at each stage of installation is required for warranty purposes. Also, measure the resistance between both brown, blue and ground wire. These should have no continuity.
Please refer to “Commissioning” for instructions on how to measure the resistance.

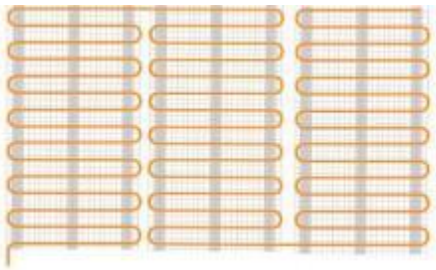
INSTALLATION GUIDE CONT.

STEP 6: Heating Mat



An adhesive has been added to the bottom of the mat which will prevent the mat from moving during installation. Start by placing the mat such that the connection point and the temperature sensor are in their intended positions and bring the power cable to the thermostat or connection box.

Begin unrolling the Heating mat evenly across the floor outside the areas that you marked previously. The adhesive on the mat is made such that the mat may be moved several times before it loses its adhesiveness. When you reach the next wall, cut the mesh, turn the mat, and begin rolling in the desired direction. Ensure that the Heating mat is in full contact with the subfloor at all times. Avoid walking on the heating mat. If this is not possible, use shoes with soft soles.

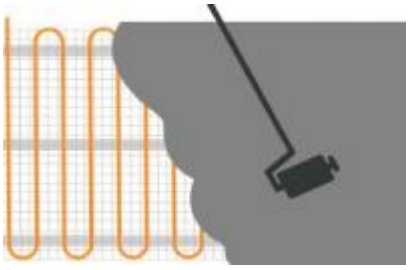


When approaching obstacles (toilets, cabinets, etc.), carefully remove some of the heating cable from the mat and lead the cable around the obstacle. In some cases pieces of the mesh will be cut away entirely.
Remember to never cut the cable. Use hot melt glue or a thin strip of tape to secure the loose cable to the floor. It is highly recommended to take photographs of the installed Heating mat before installing the flooring.

NOTE: NEVER CUT OR SHORTEN THE HEATING CABLE!

STEP 7 : Install the Floor Covering

NOTE: ENSURE THAT THE SENSOR CONDUIT HAS BEEN PROPERLY INSTALLED BEFORE PROCEEDING



In the case of tiles, proceed with the installation of the tiles by covering the heating cables with a layer of thin-set cement as directed by the tile manufacturer. Ensure that the thin-set mortar covers the entire height of the heating cable as the tiles are installed. In the case of a wood, engineered or laminate floor covering, it is recommended that the flooring manufacturer be contacted. For timber subfloors, a minimum of 10-25mm of self-leveling cement over the heating cable is recommended. Ensure that all moisture in the self-leveling cement has been fully eliminated in accordance with the drying times recommended by the manufacturer (consult the manufacturer for exact drying time).

NOTE: The system must not be turned on until the thin-set cement has fully dried. A minimum of two weeks is recommended.

STEP 8: Install the Tile

To install the tile, apply a layer of acrylic or latex modified thin-set using the ridged side of your trowel. Tile and grout the floor using best industry practices and in accordance with instructions provided by the manufacturer of the tile.

STEP 9: Connect the Power Wire to the Thermostat

The connection of the power supply and the thermostat must be completed by an Australian qualified electrician. The electrician should connect the floor sensor to the thermostat, take the final resistance reading and record it on the warranty card.

STEP 10: Record Information and Affix Label

It is important for the homeowner to mail in the certificate immediately after installing the system (both the cable and thermostat). The warranty is subject to the guarantee conditions listed on the warranty certificate. Keep a copy of the warranty card for your reference.

STEP 11: Enjoy the Comfortable Warmth

The Heating mat heating system is now ready to use. Increase the floor temperature gradually and adjust it until it reaches a comfortable level depending on the type of room and your personal preferences.

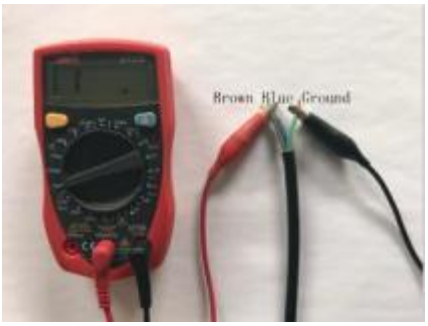
COMMISSIONING

NOTE: For the extended 25-year limited warranty to apply, you must perform these tests, record the results on the warranty card, and retain a copy of the record. You must perform the insulation resistance test, the heating cable resistance test, and the sensor resistance test four times during the installation process.

STEP1: Insulation Resistance Test

This test ensures that the insulating jackets of the mat are not damaged.
A low value indicates the cable has been damaged and must be replaced.

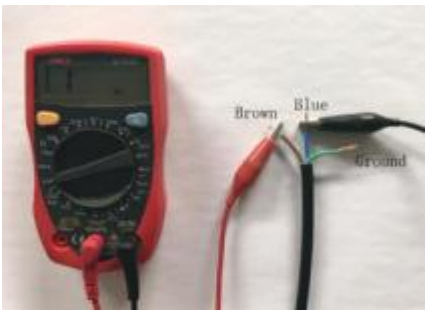
1. Connect the ground wire to the black lead and both power wires to the red lead of the multimeter.
2. Measure the insulation resistance.
3. Record these readings on the warranty card.



STEP2 Heating Cable Resistance Test

This test measures the resistance of the heating mat and is used to determine circuit integrity.

1 .Setm ultimeter tothe200 or 2000 ohm range. Connect the multimeter leads to the brown and blue cold lead wires.
2. The value should be within -5% to +10% of the size table (p1).
3. Record these readings on the warranty card.



STEP3: Sensor Resistance Test

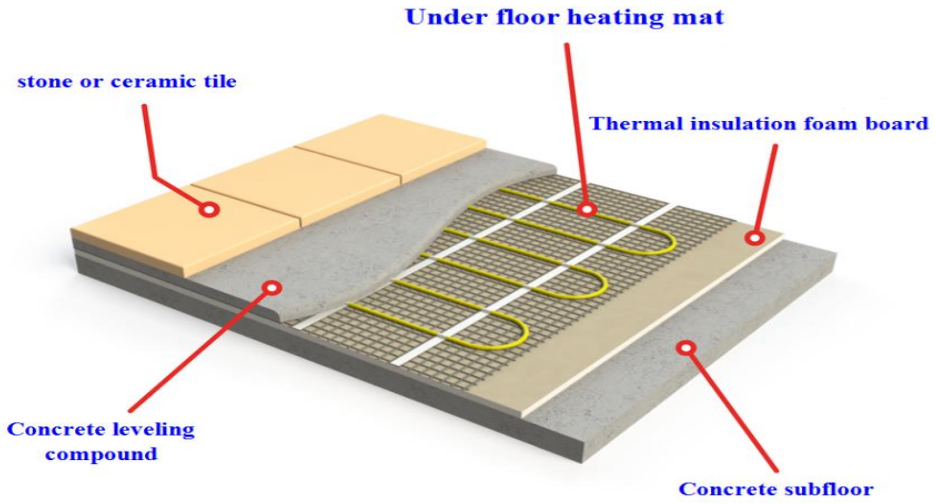
This test measures the resistance of the floor sensor and is used to verify the sensor integrity.

1. Set multimeter to the 200K ohm range.
2. Connect the mutimeter leads to the red and green lead wires.
3. Make sure the meter reads between 9-25K ohms. Record these readings on the warranty card.

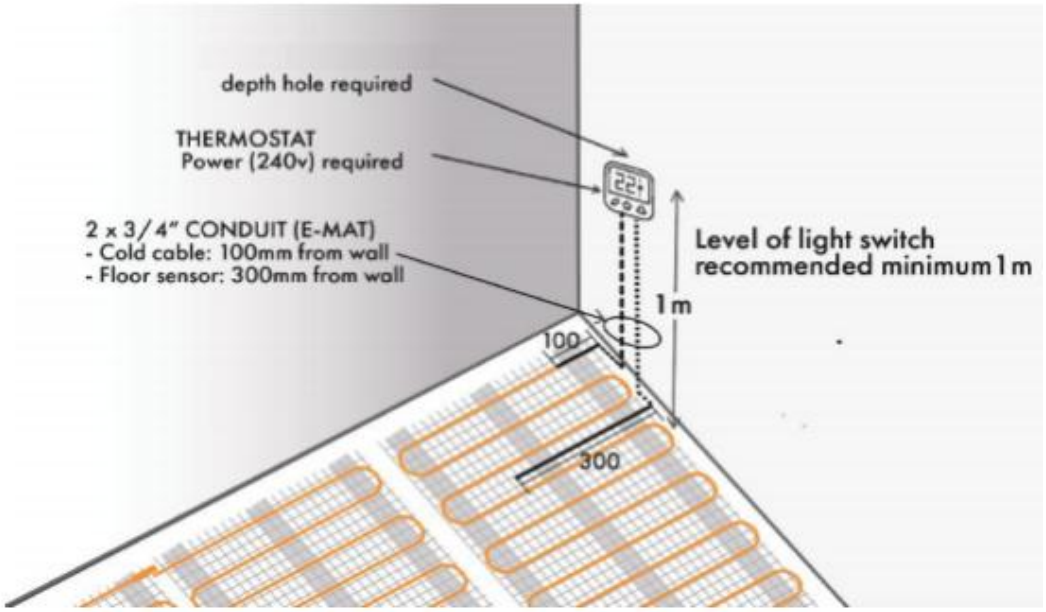
UT-MAT HEATING SYSTEM

System Description

The heating mat system is design for installation into thin adhesive beds, levelling compounds or thin screed beds beneath hard floor covering. Typical installation example are below:



Underfloor Heating Sensor System



Contact

Floor Heating Systems Pty Ltd
7 KOALA AVENUE INGLEBURN NSW 2565 AUSTRALIA

Phone (02) 9829 2752
Mobile (+61) 0407 680 068
www.floorheating.com.au