



UNDERFLOOR HEATING

ETHERMA NETTED HEATING MATS

ETHERMA DS/D/NST

Installation and usage instructions

- › Read these instructions before commencing installation and initial start-up.
- › Contains important warning notices.

INTRODUCTION

ETHERMA netted heating mats are laid under flooring for floor temperature stabilisation or for full heating, depending on heating requirements. The option of flat laying on substrates makes installation much easier and saves valuable installation time.

By choosing ETHERMA, you have opted for a superb heating solution. Thank you for your confidence in us. You have opted for a competent partner with over 35 years of experience. You will benefit from our continuous innovation, high-quality products and modern design.

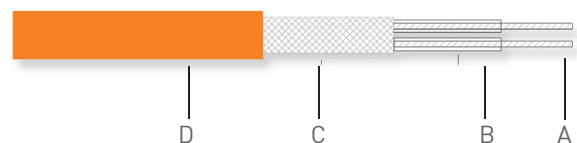
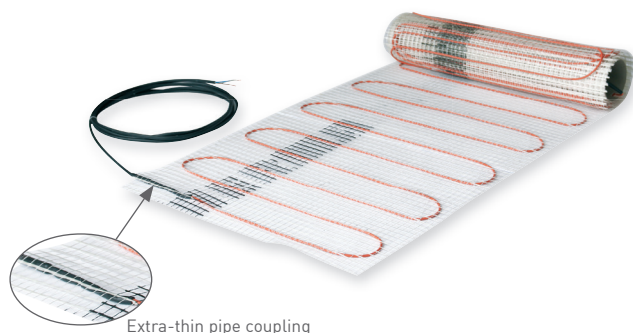
We offer an extensive range of services to support you and can find a product solution suitable for your individual requirements.

These instructions are intended to help you to use your ETHERMA quality product as effectively as possible. They provide important information on safety, installation, use and maintenance of the device. Therefore, please read the information provided in these instructions carefully and keep for reference in the event of questions at a later occasion.

The manufacturer shall not be held liable if these instructions are not complied with. Devices may not be used improperly i.e. for purposes other than the intended use.

The packaging of your high-quality ETHERMA product is made from recyclable materials.

NETTED HEATING MAT COMPOSITION



- A Resistance cables
- B Teflon inner insulation
- C Aluminium protective sheath + protective conductor
- D PVC outer insulation

IMPORTANT INSTALLATION INFORMATION

- > The netted heating mat's lowest laying temperature is 5 °C.
- > The relevant ÖVE & VDE regulations must be observed.
- > Electrical connection must be carried out by a licensed electrician.
- > The relevant applicable national standards must be observed with regard to laying netted heating mats in walls or ceilings.
- > The heating element may be laid on a flat, planar surface only.
- > A minimum distance of 100 mm from walls must be adhered to.
- > Minimum distance of 3 cm between heating conductors.
- > The netted heating mat may only be laid in a straight line so that the distance from the heating conductor is not reduced.
- > Heating conductors may not be touched or crossed.
- > Do not fold the heating conductor.
- > Do not run heating conductors over expansion joints.
- > The heating cable may not be shortened.
- > During installation, make sure that the heating element (the heating conductor) is not damaged, e.g. by dropping sharp objects, by stepping on the heating element or by careless speckling.
- > The conductor must be secured by means of a fault current protective device with release current of max. 30 mA.
- > Each mat must be fed to the controller and connected separately. The controller's max. permissible current must be observed in this process.
- > The laying plan, mat charts and warning sign must be kept permanently in the electrical distribution cabinet.
- > Use only branded flexible adhesive suitable for floor heating systems.
- > Limit temperature: 90 °C
- > Minimum permissible bending radius: 15 mm

THE FOLLOWING MAY BE USED AS SURFACE COVERINGS:

	max. thickness, d mm	λ W/mK	$D=d/\lambda$ m^2K/W	$K=1/D$ W/m^2K
Parquet	15	0.14	0.1143	8.75
Cork	10	0.051	0.1176	8.50
Linoleum	4	0.17	0.0235	42.50
Vinyl flooring	6	0.23	0.0260	38.50
Carpet floors	10	0.09	0.1100	9.00
Laminate floors	9	0.16	0.5000	20.00
Tiles incl. adhesive	12	0.95	0.0126	79.00
Paving (granite)	30	0.75	0.0400	25.00
Marble	20	0.81	0.0250	40.00



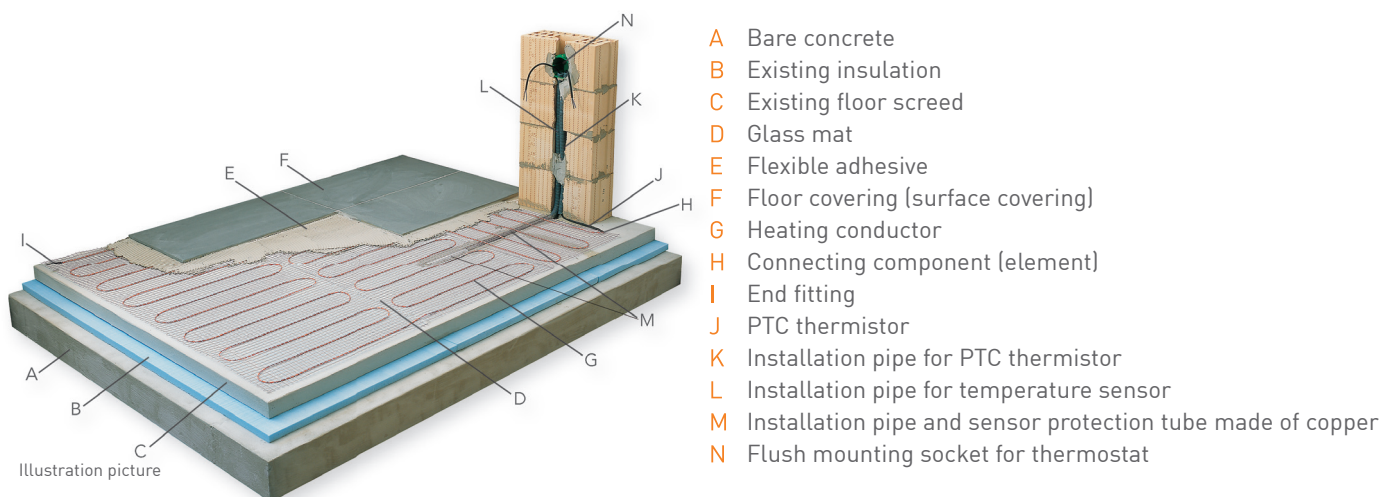
NOTES:

- > Surface thickness of surface coverings must be at least 4 mm for a floor heating system. Consent from the manufacturer must be sought if surface coverings other than those listed above are to be used.
- > When laying against the ground or through unheated areas, heat insulation at least 20 mm thick is mandatory under the underfloor.
- > Do not fold the heating conductor.

The following maximum outputs may be used:

< 200 W/m ²	Installation on floor screed, areas with increased heating requirements
< 160 W/m ²	Installation on floor screed and wooden floors
< 130 W/m ²	Installation on floor screed and wooden floors, areas with increased heating requirements

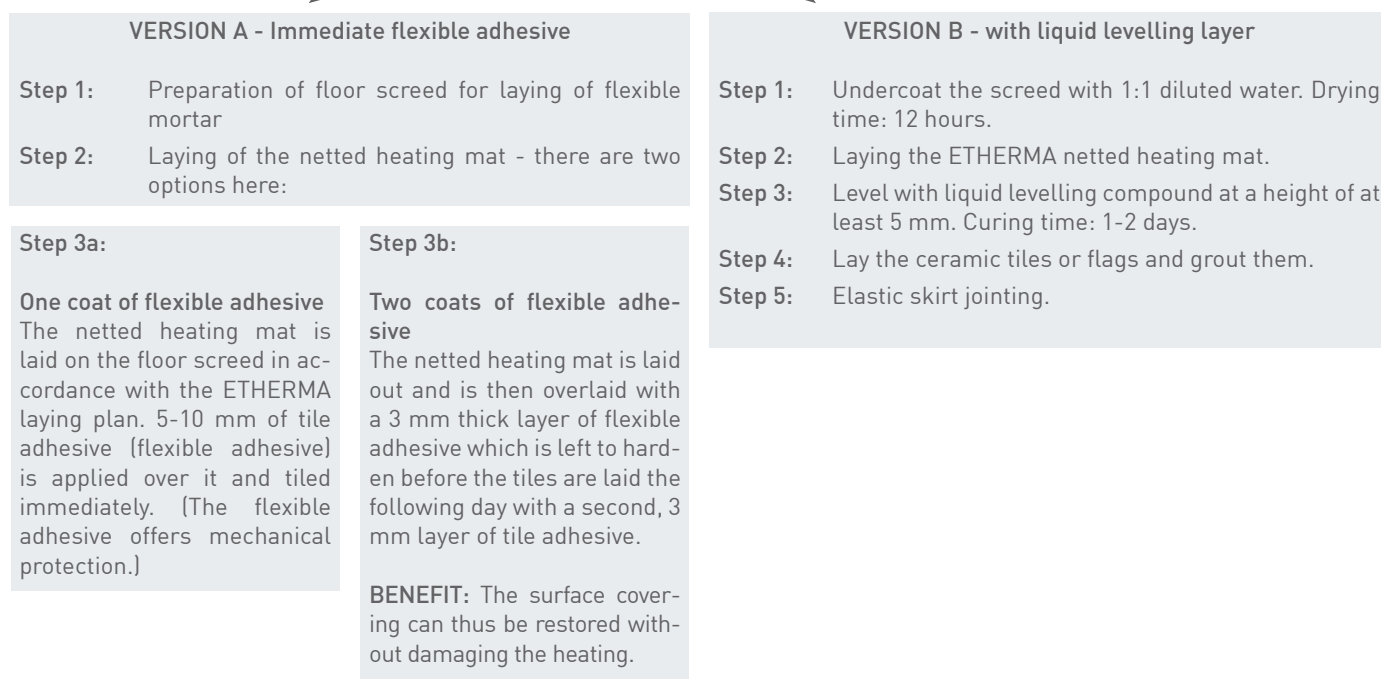
EXAMPLE OF AN INSTALLATION



STRUCTURAL INSTALLATION VARIANTS

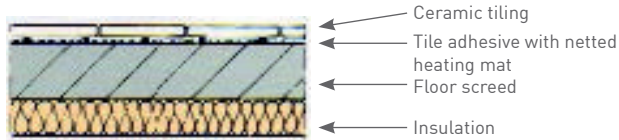
Installation under ceramic tiling

- › The netted heating mat must be installed in a downward position with the heating conductor so that the conductor is protected by the netting during speckling and adhesive is spread more easily with the toothed trowel.
- › **IMPORTANT** : The heating conductor must be surrounded fully by adhesive or the levelling layer.
- › A rigid foam support element panel should be used as insulation if necessary (for garages or unheated cellars). These panels consist of extruded polystyrene foam with a cement layer on both sides - available in the building materials trade. The panels must be stuck to the floor screed with flexible adhesive.
- › Lay netted heating mat and tiles according to version A or version B.



In both versions, the adhesive or levelling layer should be processed in a consistency that results in the heating conductor being surrounded completely.

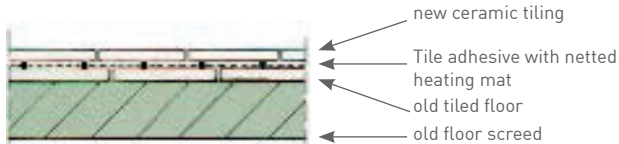
On new or existing cement screed



Layout:

- › As per version A or version B

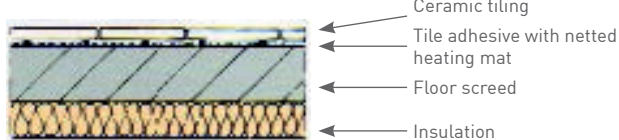
On old ceramic tiles or Terazzo natural stone slabs



Layout:

- › Existing tiles must be free of wax and grease. Degrease with e.g. 10% sodium carbonate; scrub off with warm water.
- › Undercoat, 5 hours minimum drying time; 24 hours maximum
- › Lay the ETHERMA netted heating mat.
- › Continue to **version A/step 3a or 3b** or **version B/step 3**.

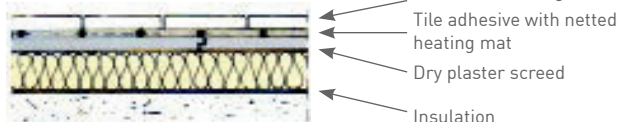
On anhydrite floor screed



Layout:

- › Anhydrite screed must be dry, max. moisture 1%. Sand surface (grit grade 16).
- › Undercoat with 1:1 diluted water.
- › Lay the ETHERMA netted heating mat.
- › Continue to **version A/step 3a or 3b** or **version B/step 3**.

On plaster underfloor



Layout:

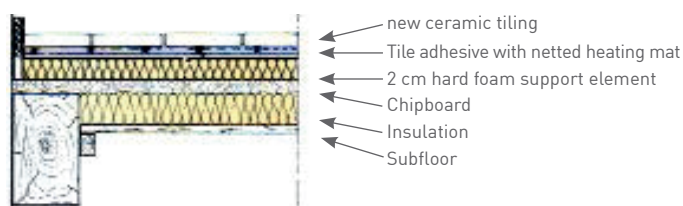
- › Undercoat, undiluted.
- › Lay the ETHERMA netted heating mat.
- › Continue to **version A/step 3a or 3b** or **version B/step 3**.

On timber floor boards and chipboard

UNDERFLOOR PREPARATION: For wooden floors, a hard foam support plate must be installed as a substrate, or chipboard must conform to quality grade V100G - at least 25 mm thick. Seams must be designed with a tongue and groove and must be structurally glued. The plates must be screwed tightly to the substrate.

The fresh undercoat must be sprinkled with furnace-dried quartz sand (grain size 0.7-1.2 mm).

It must be ensured that the heating element is installed with a distance of at least 30 mm from conductive materials such as water pipes, for example.



Layout:

- › 2 cm-thick hard foam support element plates are screwed to the existing floor with drywall screws. Seal joints.
- › Pretreatment for laying tiles with flexible adhesive (also see underfloor preparation)
- › Laying the ETHERMA netted heating mat.
- › Continue as per **version A** or **version B**

IMPORTANT: The floor must be vibration-free.

Installation under carpet floors, glued parquet or PVC floor covering.

- > With these surface coverings, a smooth and level surface must be achieved - this is best suited to liquid levelling compound.
- > The netted heating mat must be installed in a **DOWNWARD** position with the heating conductor so that the conductor is protected by the netting during speckling and adhesive is spread more easily with the toothed trowel.
- > The heating conductor must be surrounded fully by adhesive or the levelling layer.
- > **ATTENTION** : For parquet, wooden floors and laminate, the surface temperature must be limited to 28 °C.

On new or existing cement screed

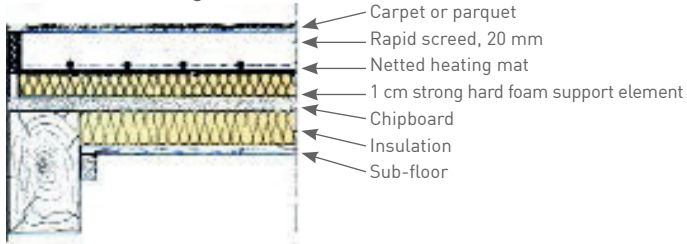


Layout:

A liquid levelling layer must be used on floor screed, old ceramic floors, anhydrite screed and plaster underfloor.

- > Pre-treat underfloor accordingly.
- > Lay the netted heating mat; use flexible adhesive selectively in order to fix the netting on the floor and prevent it from being raised.
- > Apply liquid levelling compound; 10 mm thick.

On new or existing cement screed



Layout:

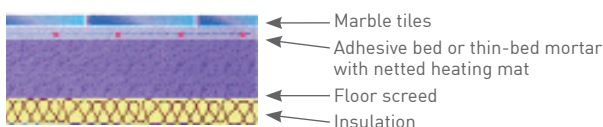
A 10 mm hard foam support element plate must be used on wooden floorboards and chipboard. Netted heating mats may not be laid on wood.

- > 10 mm-thick hard foam support element plates are screwed to the existing floor with drywall screws. Seal joints.
- > Undercoat, undiluted (see also underfloor preparation)
- > Lay the ETHERMA netted heating mat; use staples to fasten the netting to the plates and prevent it from being raised.
- > Level with liquid levelling compound, 20 mm thick (rapid screed)

Additional installation options

The netted heating mat must be installed in a downward position with the heating conductor; this ensures that the conductor is protected by the netting during speckling and adhesive is spread more easily with the toothed trowel. The heating conductor must be surrounded fully by adhesive or the levelling layer.

Under marble tiles in mortar bed



Layout:

In adhesive bed with marble tiles/thin-bed tiling. The netted heating mat is laid on the screed; the thin layer masonry mortar is laid with marble tiles as normal.

INSTALLATION

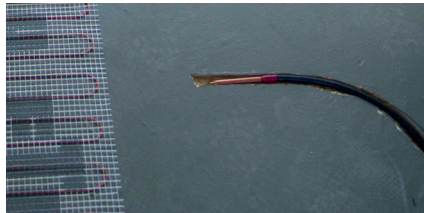
1. Connecting cable

Must be protected from mechanical impact using a protective pipe or protective hose.



2. Positioning the sensor

Caulk in the sensor cable and connect the protective sensor hose. Ensure that the sensor cannot subsequently be covered with furniture. It is best to place it in front of a door.



3. Laying

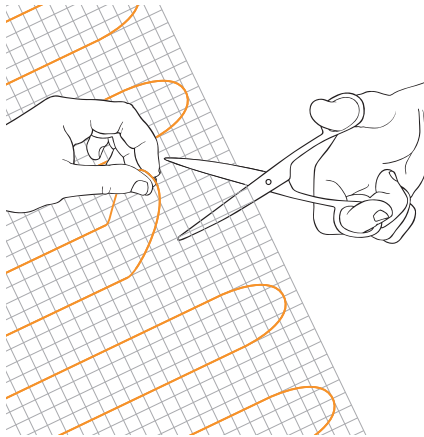
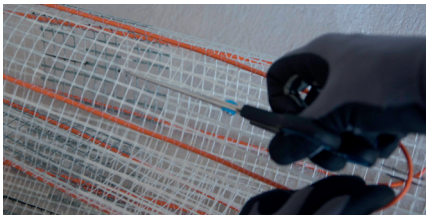
Beginning at the connection box, the mat is unrolled in accordance with the laying plan and is pressed down. The netted heating mat must be installed in a downward position with the heating conductor so that the conductor is protected by the netting during speckling.



4. Cutting

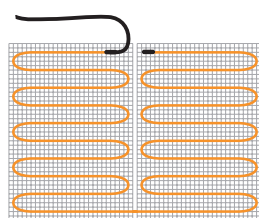
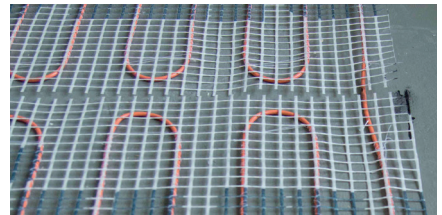
The netted heating mat is adapted to the floor plan by cutting the glass netting.

ATTENTION! Do not sever the heating conductor.

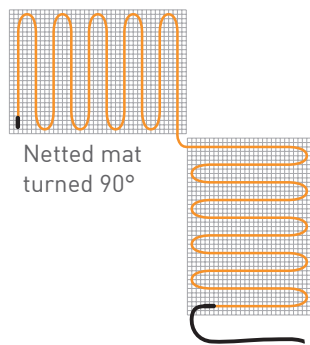


5. Netted heating mat laying options

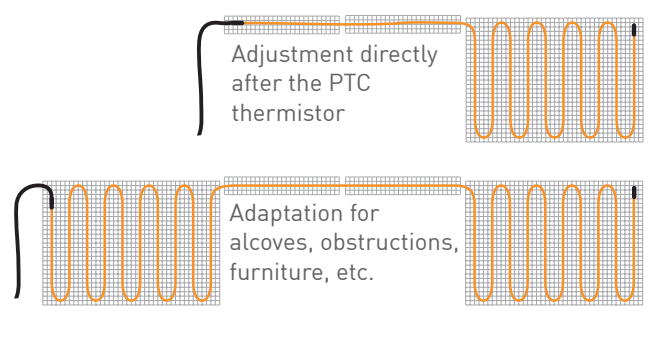
The netted heating mat can be turned if the flooring layout so requires. The netting (not the heating conductor!) is cut at the appropriate point in order to do this.



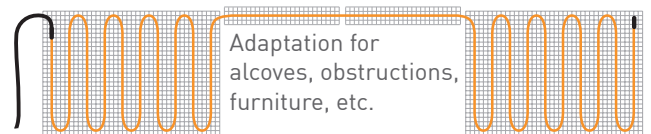
Net turned 180°



Netted mat turned 90°



Adjustment directly after the PTC thermistor



Adaptation for alcoves, obstructions, furniture, etc.

Adjustment instructions

- › Use a knife or a scissors to turn or adjust the glass netting; when doing so, ensure that the heating conductor is not damaged or severed.
- › When making modifications, ensure - even if just one heating conductor is fed further - that it remains on the glass netting in order to ensure level laying. **The netted heating mat may not be shortened.** (prevention of hotspots with superior cable)
- › When making adjustments directly after the PTC thermistor, ensure that the heating conductor cannot be withdrawn for use as an extension to the PTC thermistor in the protective installation hose. **Never use the heating conductor as an extension of the PTC thermistor.**

9. Lay flooring

After the protective coating has hardened, the new flooring is laid with flexible adhesive.



10. Inspecting the netted heating mat after completion of flooring

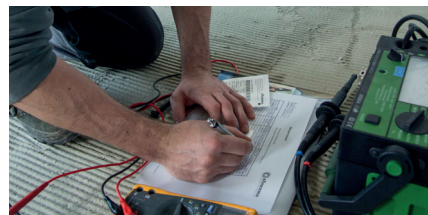
After laying and completion of the flooring, the netted heating mat must be inspected for throughput, resistance and insulation value.



11. Electrical connection

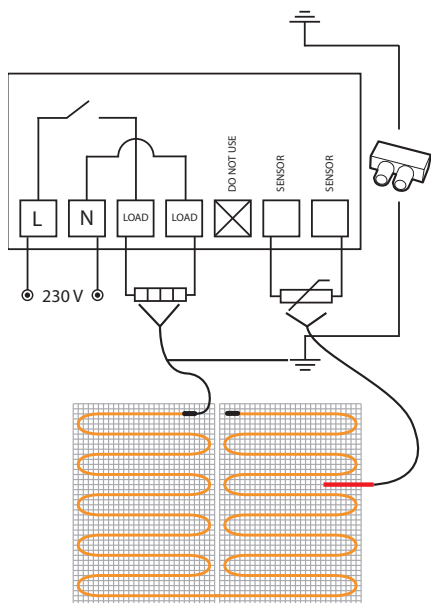
Netted heating mats are intended for fixed connection in a flush-mounted connection box.

Requirement from VDE 0100, part 520: The netted heating mat's connecting cable (cold lead) must be fed into a conduit pipe. All mats are connected in parallel, whereby total power consumption must be considered depending on which control device is used (10 A or 16 A switching current).

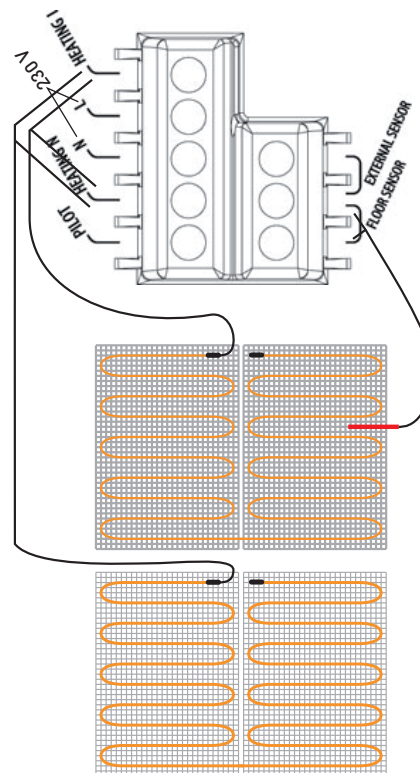
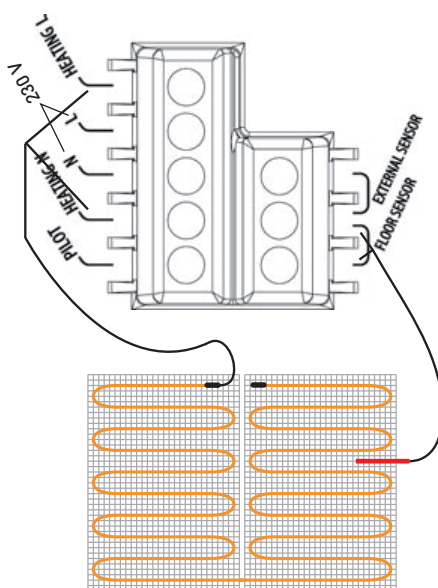


Wiring diagram for ET-71 / ET-72

Total power consumption under control device's maximum switching current



Wiring plan for eTOUCH mini



A ground fault circuit interrupter (30 mA) must be provided as a protective measure. Wiring and connection may be carried out by a licensed electrical company only. DIN VDE 0100, Part 753 must be observed.

12. Connection of electronic controller

A terminal box, 150 cm in height, is provided for electronic controllers (floor temperature controllers, combined controllers). The sensor is fed into the conduit pipe; this must be caulked into the screed (or other underfloor).

An aluminium or copper protective hose is attached to the end of the conduit pipe; the sensor measuring element must be positioned in this protective hose.

Requirement from EN 60335-1; 7.12.2:

A switching device with a contact opening width of at least 3 mm is required as a separating device. e.g. switch, fuse, ground fault circuit interrupter.

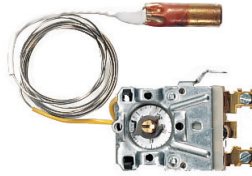
There must be an all-pole isolating circuit (for 230 V mats only).

ETHERMA MTS installation kit:
2.5 m installation sleeve SS-12
1 x copper sensor protection tube
FSH-12



12.1. Control via room thermostat

If the floor heating system is controlled via a room thermostat, a capillary tube controller or floor temperature limiter for service distribution-board mounting must be provided as a maximum temperature limiter (own supply line for sensor). A 100/100 socket or larger is required for the capillary tube controller.



ETHERMA capillary tube controller



eTOUCH mini -
Switch mounting thermostat with touch-pad

13. Floor temperature adjustment

Recommended controller default temperature setting:

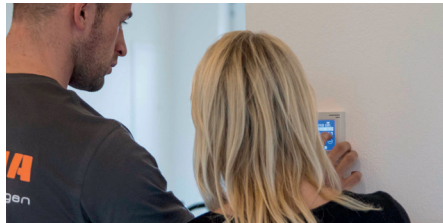
- > 36 °C in bathrooms and saunas
- > 30 °C in living rooms
- > 28 °C for parquet, wooden or laminated floors



eTOUCH wellness controller for wall and
special applications up to 60 °C.

START-UP

The heating can be put into operation and the user can be instructed after the tile adhesive or levelling compound has cured - after 24 hours at the earliest (see manufacturer's instructions).



DOCUMENTS FOR RETENTION

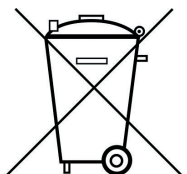
The following documentation must be given to the user after instruction, and kept permanently in the electrical distribution cabinet:

- > Mat chart(s)/power rating plate(s)
- > Laying plan
- > Completed inspection record
- > Controller operating manual
- > Warning sign



GENERAL WARRANTY CONDITIONS

Dear customer,
Please observe our general terms and conditions. Country-specific legal entitlements apply to warranty claims; please assert such rights directly through your distributor.



RESERVATION: We reserve the right to make technical changes. Modifications, errors and misprints shall not constitute grounds for damages.

WARNING: Electrical and electronic appliances often contain precious materials. But they can also contain harmful substances that were necessary for their function and safety. They can harm the environment if disposed or mishandled. Please help to protect our environment! Therefore do not dispose of this device in the residual waste. Dispose of this unit in accordance with local regulations. Dispose of the packaging materials, replacement parts or equipment parts properly.

THE WORLD OF ETHERMA°

INGENIOUS HEATING

ETHERMA UNDERFLOOR HEATING



NEVER EXPERIENCE COLD FEET AGAIN

Tiles, parquet and laminate dissipate heat. The result is cold feet. The best solution: A floor heating system from ETHERMA.

ETHERMA INFRARED HEATING



BEAUTIFUL, HEALTHY WARMTH

Infrared radiant heat is the ideal way to heat. ETHERMA uses this technique for a soothing and efficient warmth in living rooms and on the terrace.

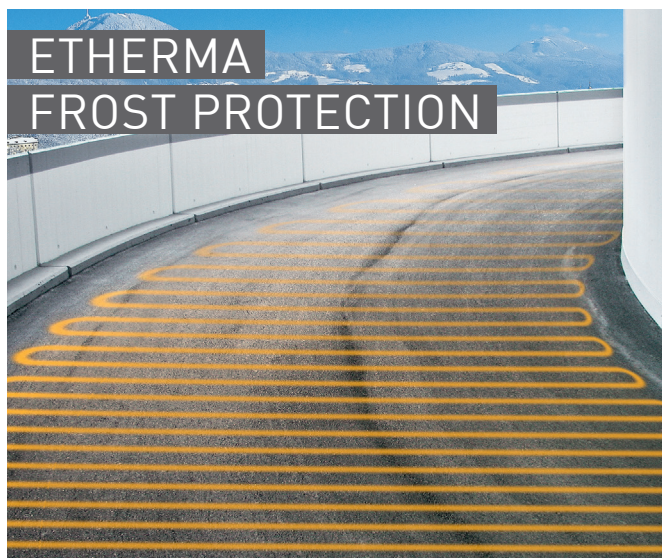
ETHERMA DIRECT HEATING



QUICK, SIMPLE WARMTH

Electric heating devices for living spaces. They heat quickly, directly and can be precisely adjusted to the desired temperature.

ETHERMA FROST PROTECTION



SAFE THROUGH THE WINTER

Frost protection systems hold garage entrances, stairs and walkways free of ice and snow and prevent high roof loads and the freezing of pipes.