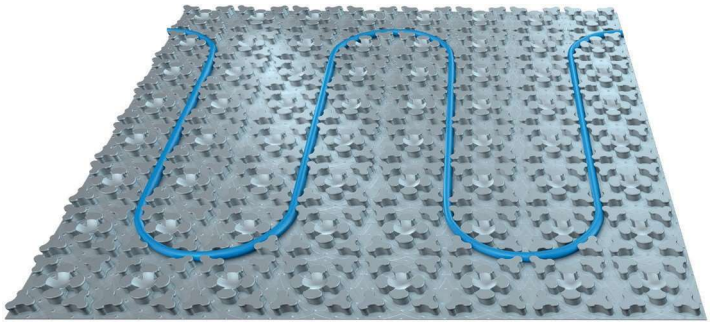
IndorTec® THERM-E

The 3-in-1 electric surface heating system for heating, decoupling and sealing.

For coverings made of ceramic, natural and artificial stone in interior areas.

For all other floor coverings, please refer to the technical data sheet "IndorTec® THERM-E - For resilient and textile floor coverings as well as wood/laminate".



Product properties and field o f application

IndorTec® THERM-E

- Electric panel heating for heating/tempering floor coverings
- Can be used as bonded waterproofing in wet rooms (with general building authority test certificate MPA NRW P-22-MPANRW-11393-19)
- With general building authority test certificate in conjunction with the IndorTec® FLEXDRAIN shower channel system
- Stress relieving
- Vapor pressure compensating

Indoor use

- Ideal for large format coverings
- On unheated and heated substrates
- On cracked screeds
- On wooden substrates and dry screeds
- On cavity floors
- On mixed substrates
- On mastic asphalt screeds
- On young, still too wet cement screeds
- On young, still too moist calcium sulfate screeds

Meets requirements/classifications of relevant standardization and bulletins:

- ZDB Code of Practice "Decoupling in interior areas" from the Fachverband Fliesen und Naturstein Application areas:
  - EK-W: Residential and residential-like use
  - EK-G: light traffic - public buildings, office, lounges, hotels, stores, etc.
  - EK-M: Driving on - car dealerships, workshops, areas with increased individual loads, etc.
  - EK-H: Wood substrates in the living space
  - AIV: Composite waterproofing
  - S: Sound improvement
- ZDB leaflet "Large formats for interior use" from the Fachverband Fliesen und Naturstein (Tile and Natural Stone Association)
- euro FEN Leaflet No. 8 "Decoupling systems indoors".
- DIN 18534-5 "Waterproofing of interiors - Part 5: Waterproofing with sheet waterproofing materials bonded to tiles (AIV-B)" (2017)
- "Determination of impact sound reduction of 8 dB" based on DIN EN ISO 10140-1: 2016-12
- ZDB Code of Practice "Bonded Waterproofing
  - Bonded waterproofing membranes (AIV-B)

GUTJAHR Systemtechnik GmbH
DIN EN 13501-1
P-22-MPANRW-11393-19
MPA NRW.

Sicher besser. GUTJAHR

Technical data sheet with installation

Ceramic and natural stone

Substrates

Substrates must be level, pressure-resistant, load-bearing, vibration-free and deflection-free. Adhesion-reducing components on the surface must be removed. Any existing unevenness in the substrate or necessary leveling/leveling due to covering formats can also be carried out after installation of IndorTec® THERM-E with suitable leveling compounds adjusted to the decoupling.
Moisture-sensitive substrates must be protected with suitable measures (primers) against moisture from the adhesive mortar system. Increased residual moisture in the substrate can have an influence on adjacent components.

Permitted substrates

- Cement screeds
- Calcium sulfate screeds
- Concrete substrates
- Wooden substructures and dry screeds
- Mastic asphalt screeds
- load-bearing mixed substrates of different materials, but also with cracks, if they are secured against vertical displacement
- Heated and unheated substrates
- Substrates in wet areas; here IndorTec® THERM-E Used, among other things, as a compound

sealant Further information under Application Matrix.

Heated substrates

When using IndorTec® THERM-E, the heating of the substructures can be omitted if the max. permissible CM% residual moisture is observed.

General n o t e s

Filling

As a rule, the covering is laid directly on IndorTec® THERM-E with adhesive mortar. Deviations from standard formats require prior leveling/flatness filling.

a) Small format pavement slabs, minimum formats see application matrix.
b) Large-format tiles require more even substrates than required by DIN 18202 "Tolerances in building construction". See information in ZDB Code of Practice "Large Formats" from the Fachverband Fliesen und Naturstein (Tile and Natural Stone Association).

The required leveling/flatness fillings are made with low-shrinkage and low-stress floor fillers on IndorTec® THERM-E. Suitable products and system recommendations can be found in the build-up recommendations at www.gutjahr.com.

Coverings

Suitable coverings
Suitable coverings are those recommended by the covering manufacturer for the respective area of application. Guidance is provided by the ZDB bulletins "Installation of tiles on decoupling systems" and "Large formats" valid for Germany for interior use. As well as "Mechanically highly loadable ceramic coverings", it regulates the suitability already from the lowest stress group 1, "Residential construction". For all other coverings, natural and cast stone, artificial stone slabs, etc., the ZDB Code of Practice can be used analogously.
Impact loads with hard objects should be avoided with low-fracture strength coverings. The quality of the pavement bedding has a direct influence on the mechanical load capacity.
Minimum format sizes, see application matrix.

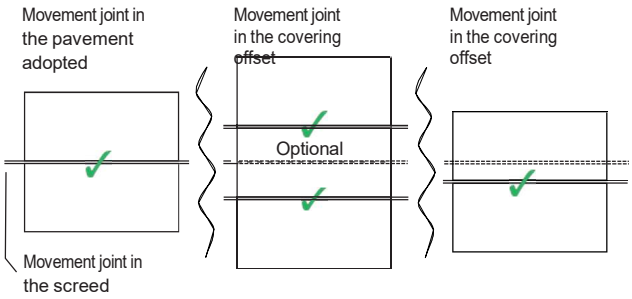
Unsuitable coverings
Surfacing materials that tend to deform when exposed to moisture are unsuitable.

Joints

Building separation joints/connection joints/movement joints

- Building separation joints must always be congruent and of the specified width in IndorTec® THERM-E and the top layer.
- Connection joints to rising structural components/covering penetrations must not be force-fitted. The professional connection is made by using AquaDrain® RD edge insulation strips with self-adhesive foot.
- Field boundary joints in the tile covering must be arranged in accordance with the recognized rules of technology in the upper covering and in the IndorTec® THERM-E:
  - In door areas, passages and geometric surface offsets
  - Sunlit surfaces, e.g. areas in front of floor-to-ceiling window fronts, are to be evaluated in the same way as floor heating surfaces.
  - For surfaces to be created with several THERM-E electrical heating circuits and more than one thermostat control at the same time: Here, the covering surfaces must be separated with movement joints corresponding to the heating circuits.
- Movement joints from the substrate must first be transferred to IndorTec® THERM-E and the top layer in the specified width. The following parameters describe the permissible revision of the movement joints in the screed.
  The lateral displacement of the field boundary joint in the top layer is thus possible by up to an entire tile width.

Permissible arrangement of the movement joint in the pavement



  - Screeds must be unheated
  - Cementitious screeds (CT) must have a minimum age of 5 years
  - Calcium sulfate screeds (CA), without age restriction, max. permissible residual moisture < 1.5 CM %.
- Movement joints must be secured against height offsets by suitable measures in accordance with the expected load, e.g. with movement joint dowels.
- The movement joints are formed with soft joint fillers. Movement joint profiles may be required for areas subject to higher loads. These must be suitable for the intended use without restrictions.

Heating cable, floor sensor cable and thermostat Excerpts from relevant regulations

The heating cable consists of a cold and hot conductor section. The transition is sleeveless and marked by a "transition label". The warm conductor area must not be shortened, this destroys the function. In the PTC resistor section, the cable can be (4 m long) can be shortened to ≥ 1 m. An extension on the PTC resistor side is possible in unrestricted length.

The max. size of field areas is 27.00 m² according to the l a r g e s t possible heating cable length. The temperature is controlled by 1 thermostat each.

Field areas can be combined into one unit, taking into account the preliminary electrical planning. The temperature is controlled by 1 thermostat/unit each.

Pavement areas with several field surfaces are to be separated from each other by forming movement joints.

For the IndorTec® THERM-E thermostats, there are separate installation and operating/programming instructions; these are enclosed with the packaging or are available as a download from the product pages on the Internet.

Heating and ground sensor cables meet the requirements of IPX7 "Protection against temporary immersion" in water.

The IndorTec® THERM-E covering support mat must always be laid over the entire room surface. The heating cables are arranged on the actual free areas. The resulting difference in quantity between the heating cable and the floor covering mat must be taken into account when processing the order.

Processing information

1. The additional processing guidelines of the VDE, on the last page, must be observed.
2. Substrates must be prepared in accordance with the adhesive manufacturer's guidelines, e.g. primed.
3. The heating cables and floor sensors must be checked and recorded for damage and total resistance in ohms (Ω) before and after they are installed and after the covering has been laid, in accordance with the acceptance protocol.
4. To create functionally safe edge joints of sufficient width, AquaDrain® RD edge insulation strips with self-adhesive base must be applied to rising structural elements. Existing structural separation and movement joints, as named in the Joints paragraph, are to be executed as follows: Cut IndorTec® THERM-E in the joint area, separate mats of specified width and cover these joint areas w i t h AquaDrain® UB Universal self-adhesive tape. Field boundary joints for subdividing large pavement areas are formed in the course of laying the pavement on IndorTec® THERM-E.
5. Apply adhesive mortar matched to the substrate with a 6 mm notched trowel, embed the IndorTec® THERM-E in the still fresh adhesive mortar layer and press it down evenly. For optimum bond adhesion, use adhesive mortars with flow bed properties. Fast-setting adhesive mortars shorten the waiting time until the next work step.
6. Cable laying/routing
   a) After a successful resistance check (see "Heating cables, floor sensors and thermostat"), insert the heating cables and floor sensors into the base mat and press them in place.
   b) Floor sensors are to be inserted snake-shaped in the middle between 2 warm conductors, due to the snake-shaped laying the floor sensor cable clicks in.

The connection to the thermostat, etc. must be carried out by a qualified electrician. To avoid damage to the system, construction traffic must be excluded until the covering is completed.

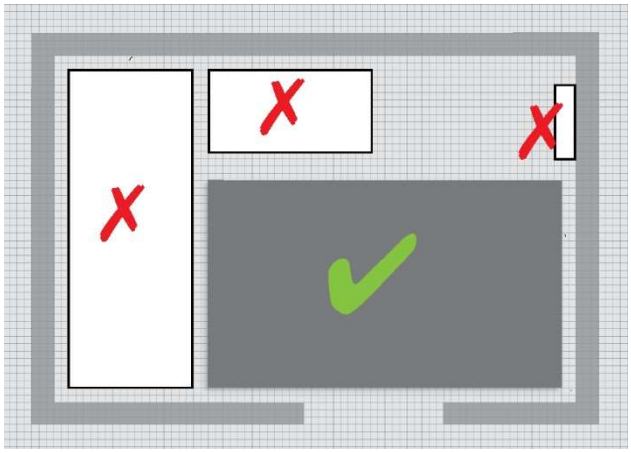
7. Covering installation on IndorTec® THERM-E
   a) directly with adhesive mortar:
   - The mat is filled flush with the surface using low-shrinkage, flexible adhesive mortars. On top of this the adhesive mortar "Fresh-in-Fresh" applied and the covering tiles professionally embedded.
   - The adhesive thickness between the top edge of IndorTec® THERM-E and the underside of the tile must not exceed 5 mm. Adhesive bed thicknesses of up to 10 mm are possible with shrinkage-compensated medium-bed adhesive mortars. Appropriate notched trowels must be used.
   - The covering is grouted after the covering surface is ready to be walked on. Due to the lack of absorbency of plastic films, the adhesive must be expected to take 3-4 times longer to cure than absorbent substrates.

   b) on previous leveling/flatness filler, see chapter "Filling out":
   - the leveling/flatness filler is applied with suitable products of the system recommendations. The minimum layer thickness over IndorTec® THERM-E is 3 mm.
   - the laying of the covering on leveling/flatness filler is carried out professionally, taking into account the requirements of the type of covering and format size.
8. At pavement ends with adjacencies to deeper lying pavement surfaces, finishing rails must be applied flush with the load-bearing substrate in a force-locking manner. The covering surface to be created including IndorTec® THERM-E must be worked with a soft movement joint.

Notice:
IndorTec® THERM-E support mat, heating cable and floor sensor, especially in the area of transport and walkways, must be protected against damage with suitable materials until the covering installation is completed.

Preparation and l a y i n g

It is recommended to prepare a floor plan before processing the material. From it you can see the location of heated and unheated surfaces, system components "floor sensor" and "Cold conductor to warm conductor transition of the heating cable" as well as a subdivision into heating circuits. Requirements for any thermal insulation that may be necessary must be observed. Electric heating cables must not be installed under permanently installed sanitary equipment such as shower trays and bathtubs. Likewise, objects such as furniture that stand on their entire surface must not be placed directly on heating surfaces. Under-ventilation, e.g. by placing with feet, must be ensured. Failure to do s o m a y result in loss of warranty due to damage to the heating cable.
If the temperature control of heating circuits is carried out with more than one thermostat, the coverings must be separated in field areas corresponding to the heating circuits with movement joints. The IndorTec® THERM-E covering support mat must always be laid over the entire room surface. The heating cables are arranged on the actual free areas. The resulting difference in quantity between the heating cable and the floor covering mat must be taken into account when processing the order.

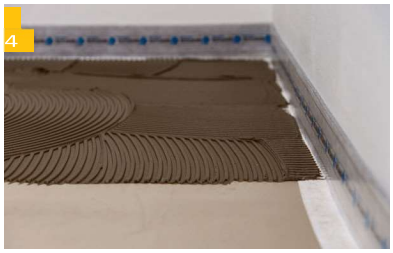


Laying plan (leave out heat-free zones)

Check the substrate for suitability and evenness. If necessary, leveling work must be carried out.

Clean and prime the substrate.

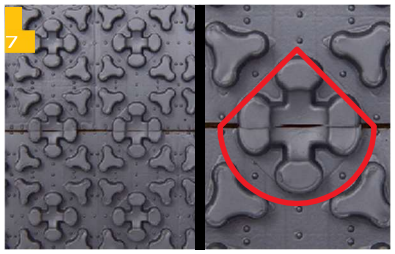
The AquaDrain® RD edge insulation strip must be installed along rising structural elements and pavement penetrations.



Apply adhesive mortar matched to the substrate using a toothed trowel (6 mm).

Embed IndorTec® THERM-E in cut form with the fleece into the still fresh adhesive mortar layer.

Butt join.



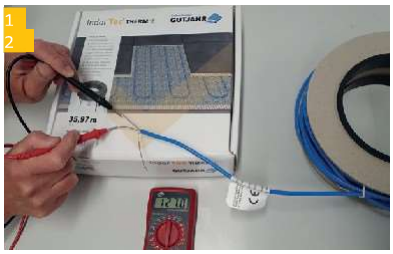
In this case, the cross bones of IndorTec® THERM-E must form a closed unit.

Press or roll IndorTec® THERM-E onto the surface.

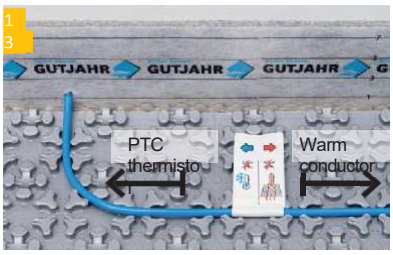
This ensures full-surface embedding in the substrate. Further work is carried out after the bonding of IndorTec® THERM-E has hardened.

For component and existing movement joints (for details see "Joints", page 2), the mats must be cut to the specified width, min.
8 mm and covered with AquaDrain® UB universal tape. Field boundary joints for subdividing large-area paved surfaces are formed on IndorTec® THERM-E. Warm conductors of the heating cables must not be laid across construction joints and movement joints.

No-heating zones must be marked and marked out before the heating cables are laid.
be saved. These must be outlined in the attached installation plan.

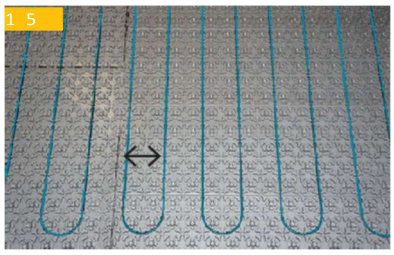


Before installing the heating cable and the floor sensor, check and record the total resistance according to the acceptance protocol.

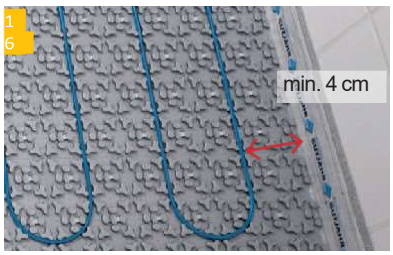


The socketless transition between the PTC thermistor and the hot conductor is precisely marked and must be laid in the IndorTec® THERM-E mat. This transition must be laid in such a way that the hot conductor is always filled over in the IndorTec® THERM-E mat.

The heating cables are gently guided around the cross bones.



The heating cables are always laid at a distance of at least two cross bones (9.85 cm).



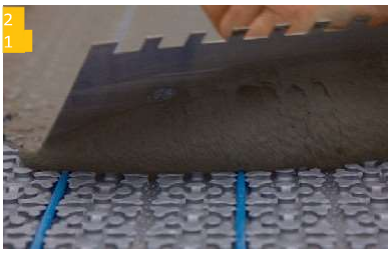
A distance of at least 4 cm between the heating cables and rising components must be maintained. Heating cables must not cross or touch each other.

Insert the floor sensor between two warm conductors of the heating cable.

Cut a notch lengthwise in the mat for the end of the heat conductor. Important: Shortening the heat conductor is not permitted and will damage the system!

Before filling the mat with adhesive mortar, the total resistance of the heating cable and the floor sensor must be checked and recorded according to the acceptance protocol.

After the THERM-E bonding has hardened, a flowable floor filler with a minimum covering of 3 mm can be applied as an alternative ...



... or the covering bonding takes place "Fresh-in-Fresh". For this purpose, IndorTec® THERM-E is filled with adhesive mortar step by step.

Tooth the adhesive mortar directly with suitable toothing.

The covering is fully embedded in the adhesive layer. Particularly in the case of large-format tiles, installation using the combined method is expedient.

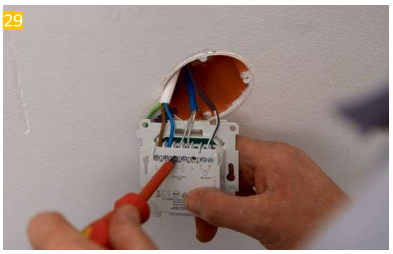
The adhesive thickness between the top edge of IndorTec® THERM-E and the underside of the tile must not exceed 5 mm. With shrinkage-compensated medium-bed adhesive mortars, adhesive bed thicknesses of up to 10 mm are possible.

IndorTec® FN leveling aids can be used to prevent overtoothing at the top of the pavement.

After completion of the covering installation, the total resistance of the heating cable and the floor sensor must again be checked and recorded in accordance with the acceptance protocol.

The covering is grouted after the covering surface is ready to be walked on. Due to the lack of absorbency of plastic mats, the curing time of the adhesive must be expected to be 3 to 4 times longer than for absorbent substrates.

Formation of connection and movement joints with suitable soft joint fillers.



The heating cable, the floor sensor and the thermostat must be connected by a qualified electrician. For the IndorTec® THERM-E thermostats, there are separate installation and operating/programming instructions; these are enclosed with the packaging or are available as a download from the product pages on the Internet.

The panel heating system can be put into operation at the earliest after sufficient hardening of the adhesive and mortar systems.

IndorTec® THERM-E as a composite waterproofing system

Composite waterproofing is created with IndorTec® THERM-E, sealing adhesive, sealing tapes and, if necessary, sealing sleeves. The combination of the above-mentioned system components results in a composite waterproofing for the water impact classes according to DIN 18534: W0-I, W1-I, W2-I and W3-I without chemical stress.

Tested composite waterproofing is created with suitable sealing adhesives, sealing tapes and sleeves from ARDEX.

The sealing adhesive is applied to the joint areas of IndorTec® THERM-E or to the connection areas of adjacent components in accordance with the manufacturer's instructions.

Corresponding system sealing elements (sealing tapes, sealing tape corners, sealing tape sleeves, etc.) are freshly embedded in the sealing adhesive and reworked.

For detailed information on the sealing adhesive system, please contact the manufacturer.

Cable damaged during installation? See here how you can easily repair it!

Application matrix

Properties of substrates, surfacing materials and application areas

Format sizes	• Stress group 1: - for direct covering installation ≥ 5 x 5 cm - with flowable floor levelling compounds on the IndorTec® THERM-E < 5 x 5 cm permissible • Stress group 2: - for direct covering installation ≥ 10 x 10 cm - with flowable floor levelling compounds on the IndorTec® THERM-E < 10 x 10 cm permissible • Stress group 3: - for direct covering installation ≥ 10 x 10 cm - with flowable floor levelling compounds on the IndorTec® THERM-E < 10 x 10 cm taking into account the current system recommendations and build-up recommendations at www.gutjahr.com
Installation on young calcium sulfate (CA) screeds, heated/unheated	≤ 1.5 CM% residual moisture
Installation on young cement screeds (CT), heated/unheated	from walkability
Installation on wooden substructures	Substrates must be free of deflection and vibration
Dry screed elements, heated/unheated	Format and thickness of the covering tiles depend on the specifications of the respective dry screed system
Cavity floors, heated/unheated	Subfloors must be free of deflection and vibration
Old substrates/other substrates	Surface firmly adhering, only possible with special adhesive/primer - consultation with adhesive mortar manufacturer may be necessary.
cracked screeds	are to be secured against height displacement
Mastic asphalt	min. AS-IC 10 (GE 10) with sanded/rough surface
concrete, young concrete from 4 weeks	with surface ready for laying, surface dry, field boundary- or movement joint distance < 6.00 m. Connection joints on upstanding structural components must be dimensioned in accordance with the expected shrinkage rate.

Stress group 1 (according to ZDB bulletin "Mechanically highly loadable ceramic floor coverings" living and working areas or ZDB bulletin "Decouplings" categories: EK-W and EK-H)

Residential construction and floor coverings with comparable mechanical stresses	✓
Hotel bathroom	✓
Rooms of the health service	✓

Stress group 2 (according to ZDB bulletin "Ceramic floor coverings subject to high mechanical loads" Administration, trade and industry passable by vehicles with pneumatic tires without forklift traffic (pressures up to 2 N/mm^2) or according to ZDB bulletin "Decouplings" Category: EK-G)

Canteens	✓
Traffic zones that are walked on, e.g. corridors in office buildings	✓
Motor vehicle exhibition and acceptance (driven)	✓
Salesrooms	✓

Stress group 3 (according to ZDB bulletin "Ceramic floor coverings subject to high mechanical loads", trade and industry, industrial truck traffic with superelastic, solid rubber and Vulkollan tires (pressures up to 6 N/mm²) or according to ZDB bulletin "Decouplings" Category: EK-M)

Retail and wholesale food trade	✓
Nonfood retail and wholesale	✓
Store Passages	✓

Resistance measured values of the THERM-E heating cables

Available heating cable, 230 V				
Item no.	Cable length (in m)	Area (in m²)	Power (in W)	Total resistance (in Ohm Ω)*
810 12 301 TE	12,07	1,40	138	383,95
810 12 302 TE	17,66	2,00	207	256,07
810 12 303 TE	23,77	2,60	275	192,06
810 12 304 TE	29,87	3,30	345	153,53
810 12 305 TE	35,97	3,90	413	128,05
810 12 306 TE	41,56	4,50	482	109,72
810 12 307 TE	47,67	5,10	555	95,34
810 12 308 TE	53,77	5,80	619	85,49
810 12 309 TE	59,87	6,30	690	76,63
810 12 310 TE	71,57	7,50	831	63,70
810 12 311 TE	83,77	8,80	972	54,45
810 12 312 TE	95,47	10,00	1108	47,74
810 12 313 TE	107,67	11,30	1228	43,07
810 12 314 TE	119,37	12,40	1385	38,20
810 12 315 TE	133,80	14,00	1544	34,25
810 12 316 TE	155,70	16,00	1798	29,43
810 12 317 TE	173,50	18,00	1993	26,55
810 12 318 TE	193,70	20,00	2239	23,63
810 12 319 TE	227,00	23,00	2618	20,20
810 12 320 TE	244,50	25,00	2810	18,83
810 12 321 TE	266,30	27,00	3070	17,23

*Deviation from - 5 % to + 10 % possible

Resistance readings of the floor sensors for THERM-E thermostats

Measured values of THERM-E floor sensors NTC 12 kΩ			
Temperature °C	Resistance (k-Ohm kΩ)*	Temperature °C	Resistance (k-Ohm kΩ)*
-20	90,12	22	13,53
-10	55,08	23	13,00
0	34,60	24	12,49
5	27,69	25	12,00
10	22,28	26	11,53
11	21,25	27	11,09
12	20,46	28	10,66
13	19,62	29	10,25
14	18,81	30	9,86
15	18,04	35	8,14
16	17,30	40	6,75
17	16,60	45	5,62
18	15,93	50	4,69
19	15,29	55	3,94
20	14,67	60	3,32
21	14,09	70	2,38

*Deviation from - 5 % to + 10 % possible

Acceptance protocol

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Object: _____ Date of laying: _____

Fabricator: _____ Date of commissioning: _____

Electrician: _____

Control measurement on heating cable and floor sensor by the processor

	before inserting the cables	After inserting the cables	After laying the pavement
Heating cable Total resistance (Ohm Ω)			
Soil sensor Total resistance (k-Ohm Ω)			

Control measurement on heating cable and floor sensor by the electrician

Before commissioning	
Heating cable Insulation resistance (k-Ohm Ω)	
Heating cable Total resistance (Ohm Ω)	
Soil sensor Total resistance (k-Ohm Ω)	

IndorTec® THERM-E heating cable, 230 V

Available heating cable, 230 V

Item no.	Cable length (in m)	Area (in m²)	Power (in W)	Total resistance (in Ohm Ω)*
810 12 301 TE	12,07	1,40	138	383,95
810 12 302 TE	17,66	2,00	207	256,07
810 12 303 TE	23,77	2,60	275	192,06
810 12 304 TE	29,87	3,30	345	153,53
810 12 305 TE	35,97	3,90	413	128,05
810 12 306 TE	41,56	4,50	482	109,72
810 12 307 TE	47,67	5,10	555	95,34
810 12 308 TE	53,77	5,80	619	85,49
810 12 309 TE	59,87	6,30	690	76,63
810 12 310 TE	71,57	7,50	831	63,70
810 12 311 TE	83,77	8,80	972	54,45
810 12 312 TE	95,47	10,00	1108	47,74
810 12 313 TE	107,67	11,30	1228	43,07
810 12 314 TE	119,37	12,40	1385	38,20
810 12 315 TE	133,80	14,00	1544	34,25
810 12 316 TE	155,70	16,00	1798	29,43
810 12 317 TE	173,50	18,00	1993	26,55
810 12 318 TE	193,70	20,00	2239	23,63
810 12 319 TE	227,00	23,00	2618	20,20
810 12 320 TE	244,50	25,00	2810	18,83
810 12 321 TE	266,30	27,00	3070	17,23

*Deviation from - 5% to + 10% possible.

The warranty claim only comes into effect if the acceptance protocol is completed in full and the installation/assembly instructions are taken into account in accordance with the manufacturer's specifications.

Date Signature (F

bricator/Electrical Installer)

Company stamp
(fabricator/electrical installer)

IndorTec® THERM-E

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Laying plan

Room:_____ Date: _____ Processor:_____

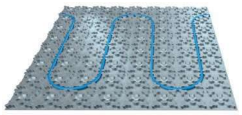
The position of the heated and unheated surfaces as well as the transition cold conductor/hot conductor, the end sleeve of the heating cable and the floor sensor must be precisely documented with measurements.

IMPORTANT:
Please attach the completed installation plan, the completed acceptance protocol and the attached label in the electrical distribution board.

Date	Signature (processor)	Company stamp (processor)

System accessories

IndorTec® THERM-E
support mat



IndorTec® Therm-E HK
heating cable, 230
V

IndorTec® THERM-E TW
Touchscreen Thermostat
with Wifi, 230 V
84/84/40 mm (21.8 mm
depth)

IndorTec® THERM-E TD
Touchscreen Thermostat,
230 V
84/84/40 mm, (21.8 mm depth)

IndorTec® THERM-E TM+
Manual thermostat, 230
V
84/84/40 mm, (21.8 mm depth)

Frame for
TD/TW in anthracite

Floor sensor IndorTec®
THERM-E BF
for thermostat TW and TD

AquaDrain® RD Edge
Insulation Strip with
Self-Adhesive
Base

AquaDrain® UB
Universal belt
60 mm width (2 x 30 mm)

System components

IndorTec® FN
Tile leveling system,
tension hood, 2-
piece

IndorTec® FN Tile Leveling
System Threaded tab for joints
1.5 mm (white),
2 mm (gray), 3 mm (beige)

IndorTec® THERM-E Heating cable

Heating cable VDE-certified: VDE-REG F292

Additional processing guidelines according to V D E

The VDE processing guidelines must be read carefully and taken into account before starting the installation work.

- Do not use the heating cables in areas subject to heavy mechanical loads
- The floor sensor, sleeves and the heating cable heat conductor must be fully embedded in the adhesive mortar or filler.
- The lowest processing temperature of IndorTec THERM-E is 5 °C, the highest permissible surface temperature of the heating cables is 80° C
- The smallest permissible bending radius is 5 times the outer diameter of the heating cable, 5 x 5 mm = 25 mm
- The PTC thermistor of the heating cable, as well as the supply line to the floor sensor, must be routed to the thermostat in separate conduits.
- The heating cable or the junction box must be installed in such a way that the PTC thermistors or PE protective conductors can be routed into the junction boxes without extension
- The heating cables are provided with a metal sheath. These must be connected directly to the protective conductor of the supplying circuit via protective conductors or equipotential bonding conductors
- The circuit to be supplied must be protected with a residual current device (RCD) of maximum 30mA
- The enclosed warning label of the heating cables must be placed in the electrical distribution in a clearly visible position
- If the heating cables have an electrically conductive cover, it must be connected to a ground terminal. In addition, an overload protection fuse must be installed.

Material

IndorTec® THERM-E rolls/sheets consist of a specially shaped, non-rotting plastic film (PP) with a thickness of approx. 6 mm and a factory-laminated interlocking fleece (PP) on the underside.

Temperature resistance

-30 °C to +70 °C (briefly up to +80 °C)

Delivery form

Total thickness approx. 6 mm

panels: 0.77 m², 0.79 x 0.98 m

Rolls: 12.5 m², 12.75 x 0.98 m

Adhesive consumption for filling the mat

approx. 3.0 l/m² with

cable approx. 3.3 l/m²

without cable

for filling flush with the surface

Filler consumption for leveling/ evenness filling on the mat

approx. 3.0 l/m² with

cable approx. 3.3 l/m²

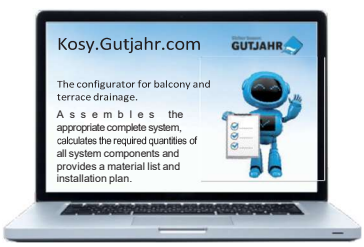
without cable

for filling flush with the surface

Notes on transport and s t o r a g e

Transport and store sheet products only horizontally, roll products only vertically in the original packaging. The products must be stored protected from sunlight and moisture. The original packaging provides only short-term UV protection.

The currently valid versions of the technical data sheets and the current installation instructions can be found at https://www.gutjahr.com/downloads/.



Sicher besser.
GUTJAHR

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