i-warm core

INFRARED UNDERFLOOR (UNDER-SCREED APPLICATION) HEATING INSTALLATION MANUAL

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I-WARM CORE INFRARED HEATING MANUAL - SCREED APPLICATION

This manual provides detailed instructions for installing i-warm core, specifically designed for indoor underfloor heating applications. The heating film is suitable for installation imbedded below screed 35-50mm, both liquid & sand/cement screed types, allowing the product to be suitable with tiles, stone and other flooring types. Follow these guidelines to ensure a safe and efficient installation.

SPECIFICATION OF I-WARM CORE HEATING FILM

1. **PRE-WIRED** with IP67+ easy connectors, the i-warm core can be embedded directly beneath screed and connect effortlessly.
2. **PVC ENCAPSULATED** The i-warm core, uses the same technology as i-warm flux, however is encapsulated in PVC material, allowing the product to be used in screed-application.
3. **GRAPHENE INFRARED** This is the primary material of the i-warm core heating film. The proportion of the graphene infrared mixture controls the heating power of the film.

i-warm core

Table no.1

MODEL	FILM WIDTH [cm]	POWER [W/rm]	POWER [W/sqm]	VOLTAGE [V]	CUTTING SPOTS [cm]	FILM THICKNESS [mm]	MAX TEMP. OF HEATING FILM [°C]	MAX LENGTH OF ONE STRIP [m]	MAX POWER OF ONE STRIP [W]
IWC-50CM	58	220	220	230	N/A	0,5	~50	4	440

TABLE OF CONTENTS

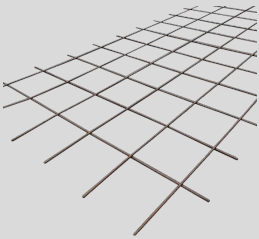
INSTALLATION MATERIALS

TABLE NO. 2

NO.	NAME	SPECIFICATION	PURPOSE
1	**i-warm core infrared heating film**	Width: 58cm Power: 220W - 240 W/sqm Power supply: 230V, 50Hz	Purpose of i-warm core infared heating film for floor heating imbedded beneaht 35-50mm liquid screed or sand/cement screed. When using liquid screed, consider depths of 35-45mm. When using sand/cement screed, consider depths of minimum 50mm.
2	**Steel Wire Mesh**	Steel wire mesh suitable for screed	Steel wire mesh or fibre mesh, to be used before screed pour on top of vapour barrier & heating film. Lightweight mesh is recommended.
3	**Insulating mat - XPS Board**	Must be 300KPA high compression XPS.	Thermal insulation. Protection against cooling and dampness of the floor.
4	**Electric wire double insulated**	Type: Lgy 450/750 V - stranded Diameter: min. 1.5 mm2	Electric wire for performing electrical connections double insulated.
5	**Easy Connector**	2, 3, 4, & 5 easy connectors available. Mian connection cable load - 3300W. IP67+	To be used when connecting heating films together, before running main cable into conduit, into thermostat.
6	**Electrical insulating tape**	Waterproof	Electrical insulating tape, for insulating the IP67 easy connectors.
7	**Self-adhesive tape (Silver)**	Width: 50mm	Gluing the insulating mat, vapor barrier film, heating film with insulation mat or XPS300 board.
8	**Reinforced self-adhesive tape**	Width: 50mm	Gluing XPS insulation board.
9	**Installation box**	Dimension: ~60/60 Type: flush/drywall	Installation of the thermostat and electrical connections.
10	**Electric protective conduit**	PVC	Protection of electric wires and floor temperature sensor against mechanical damage.
11	**Vapor barrier film**	Thickness: min. 0.2 mm	Protection against dampness of the floor and the heating film. Vapor barrier.
12	**Thermostat**	1. Air temperature sensor 2. Floor temperature sensor 3. Power supply 110 / 230V 4. Max load. 16A	Room air temperature control. Control temperature of the heating film - floor.

PICTURES OF INSTALLATION MATERIALS

1



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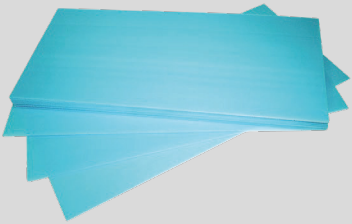

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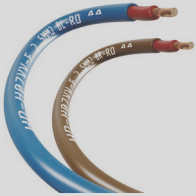

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CAUTION! PLEASE READ THE SAFETY MANUAL THOROUGHLY BEFORE USE

UNPACKING

Upon purchasing the product, please inspect the package contents and verify the technical condition of the i-warm core infrared heating film.

- i-warm core infrared heating film
- protective tube (conduit)
- Adhesive tape

SAFETY

CAUTION! PLEASE READ THE HEATING FILM USER MANUAL BEFORE USE AND RETAIN THIS MANUAL FOR FUTURE REFERENCE.

- Children aged 8 and older may use the heating film under adult supervision and with proper safety instructions. Children under eight should not handle the thermostat. Cleaning and maintenance should only be performed under adult supervision and with the equipment powered off. Individuals with reduced physical or mental capabilities can operate the installation after receiving appropriate safety training.

- If the power cord or heating film is damaged, discontinue use and dispose of the product. Each room where underfloor heating and i-warm core heating film are installed must have a separate electrical circuit with a type B circuit breaker and residual current device. The selection of circuit breakers and residual current devices should be carried out by an electrical designer or licensed professional.

SAFETY

The selection of circuit breakers and residual current devices should be carried out by an electrical designer or a certified electrician.

! CAUTION! DO NOT INSTALL THE i-warm flux HEATING FILM IF IT IS DAMAGED DURING UNPACKING. PLEASE CONTACT THE SELLER FOR ASSISTANCE.

IMPORTANT CONSIDERATIONS DURING INSTALLATION

1. All installation work must be conducted with the power supply switched off.
2. Ensure the installation site is clean. The floor should be flat, free of sharp objects and dents to prevent scratching, bending, or other damage to the heating film.
3. The installation location of the heating film must be dry and protected from direct exposure to water or moisture. Avoid using the heating foil on damp substrates.
4. Do not use underlay materials that could potentially damage the heating film, such as aluminum or steel sheets.
5. Avoid using underlays that absorb moisture, including paper, wood, or cellulose.
6. Do not use metalized primers.
7. The heating film can be installed in bathrooms, via screed application, as long as the area is not submerged in water.
8. Install the heating film only with a temperature regulator (thermostat) equipped with a floor temperature sensor.
9. The heating film should only be supplied from the installation box; direct supply from the socket is not permitted.
10. Take care to avoid damaging the heating film during installation. Do not pierce or drill into heating film

IMPORTANT CONSIDERATIONS DURING INSTALLATION

11. Do not secure the heating foil with nails, screws, bolts, or any other metal objects.
12. Avoid using floor finishes that may deform or crack due to heat transfer.
13. If the power consumption of the heating foil installation exceeds 80% of the maximum load capacity of the temperature regulator (thermostat), consider using a contactor or an additional thermostat.
14. The electric wires supplying the heating film must not be installed over or beneath the heating film.
15. The installation of the heating film in the underfloor system must include a type B overcurrent switch and a residual current device within the electrical circuit.
16. Ensure thorough insulation of the heating film using self-amalgamating tape at the connector points.
17. Avoid placing the heating foil beneath permanent furniture items that directly contact the ground and restrict airflow (such as fridges, washing machines, and chest of drawers). Furniture and appliances with legs, at least 30 mm in height, are permissible as they allow for free heat flow.
18. The heating film requires a dedicated electrical power supply and should not share circuits with other electrical devices.
19. Avoid overlapping or crossing the heating film.
21. Initiate the heating system startup with the heating film as per the manufacturer's recommendations.

IMPORTANT CONSIDERATIONS DURING INSTALLATION

22. When installing the steel wire mesh and screed layer, be sure to avoid damaging heating film. Do not leave any debris (plaster, nails, etc.) on the heating or vapor barrier film, as this could potentially harm the entire heating system.

23. Operate the heating system in accordance with the guidelines provided by the floor covering manufacturer (most manufacturers recommend a maximum operating temperature of 27°C). [10]

24. Only an electrician with valid licenses should perform electrical connections and measurements.

25. Store the heating film in a dry room at room temperature. You can stack a maximum of two full rolls of heating film.

26. During installation, the installer of the heating film should wear shoes with a soft sole to prevent potential damage to the installation. Ensure electrical grounding of structural metal elements, such as frames, grates, furniture, and doormats, within the heating film.

28. Do not install the heating film at temperatures below 5°C.

29. When conducting the installation, adhere to all dimensions and distances outlined in the manual.

30. Keep the instructions, along with the completed warranty card and carefully prepared design, for future reference and for subsequent installation and maintenance tasks.

PREPARATIONS BEFORE INSTALLING I-WARM CORE HEATING FILM

1. Verify that the heating film's power matches the planned installation.
2. Verify the building's electrical installation parameters to ensure that using the heating film simultaneously with other devices will not cause issues. If the electrical power capacity is insufficient, it should be increased to ensure the safe operation of the electrical installation. The heating film operates at an electric voltage of 230V.
3. Inspect the main electrical wires supplying the entire heating film installation. The wires should be sized according to regulations for the electrical load corresponding to the total power of the heating film installation.
4. Check the moisture level of the base where the heating film will be installed; it must not exceed 2%.
5. Assess the condition of the building's thermal insulation to determine the appropriate insulation thickness for the heating film and select the suitable power of the heating film.
6. Draw a sketch of the room on the warranty card, including its dimensions. Plan and illustrate the location of the heating film and the routes for laying the electrical wires that supply the heating film. Plan and mark... the position of the electrical box and electric wires supplying the heating film on the sketch of the heating film installation. Include all dimensions in the sketch for clarity and ease of assembly.
7. Design the layout of the heating film according to the installation guidelines provided for the heating film. The maximum length of the heating film strip depends on its power and is detailed in the product's technical table.
8. Determine the projected power requirement for the installed heating film. If the electrical power required exceeds the current connection capacity, the electrical supply should be upgraded.

P[W] = Pf[W] x Df[sqm]

P - Planned power of the heating film installation.

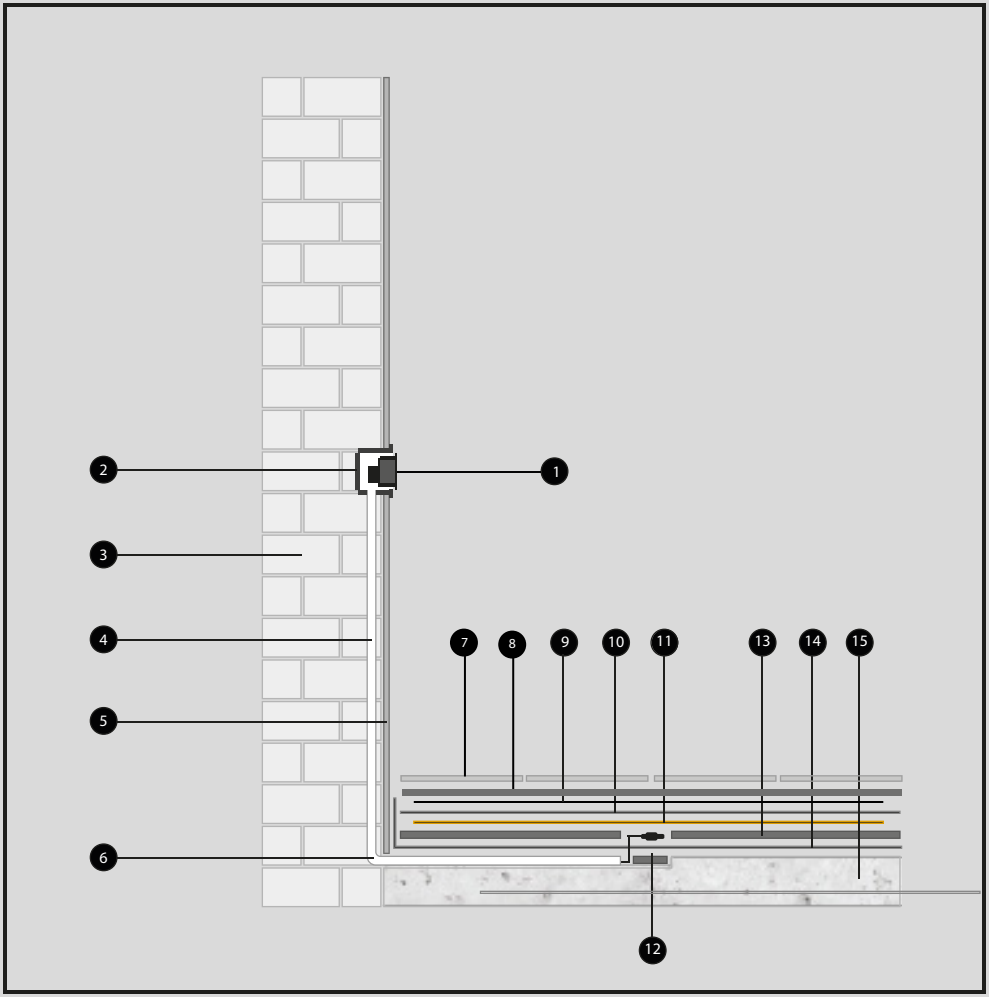
Pf - Power consumption of the heating film per sqm.

Df - The surface area of the heating film to be installed on the floor.

- **! CAUTION! THE SELECTION OF WIRE DIAMETER FOR THE POWER SUPPLY CIRCUIT MUST BE DONE BY A LICENSED DESIGNER OR ELECTRICIAN!**
- **! CAUTION! PLAN THE LOCATION OF THE THERMOSTAT IN AN AREA WITHOUT DIRECT SUNLIGHT EXPOSURE OR DRAFTS.**

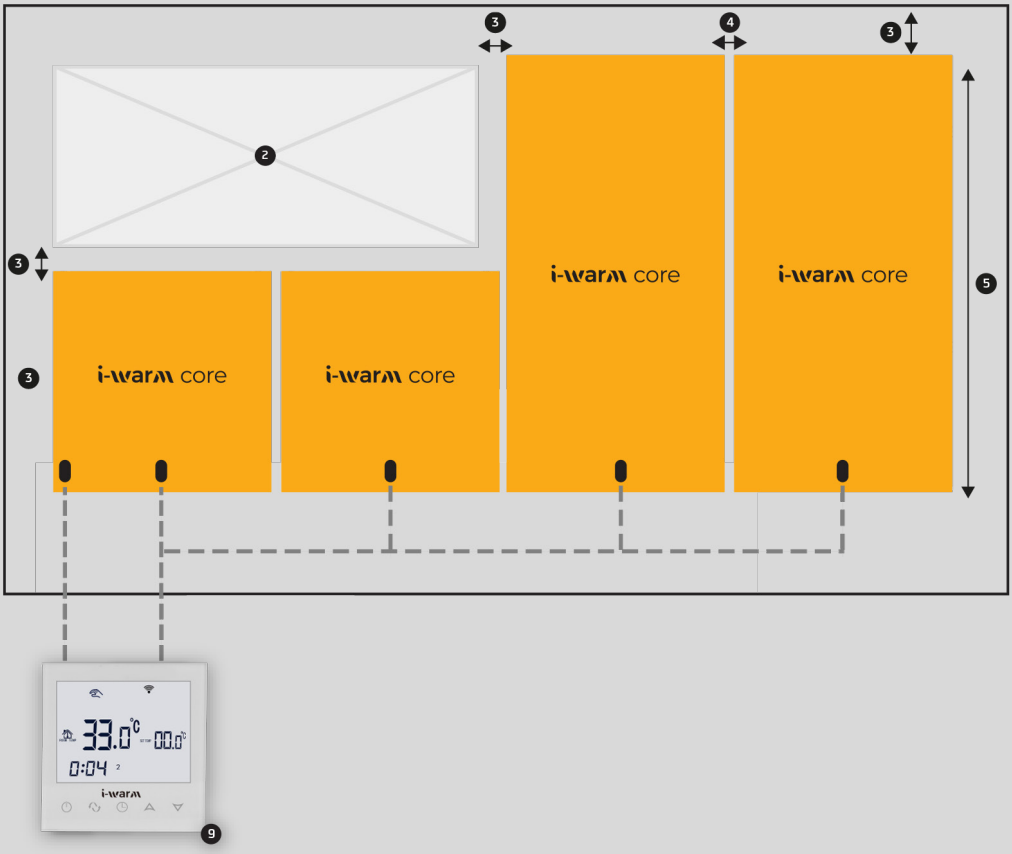
EXAMPLE OF I-WARM CORE INFRARED HEATING INSTALLATION

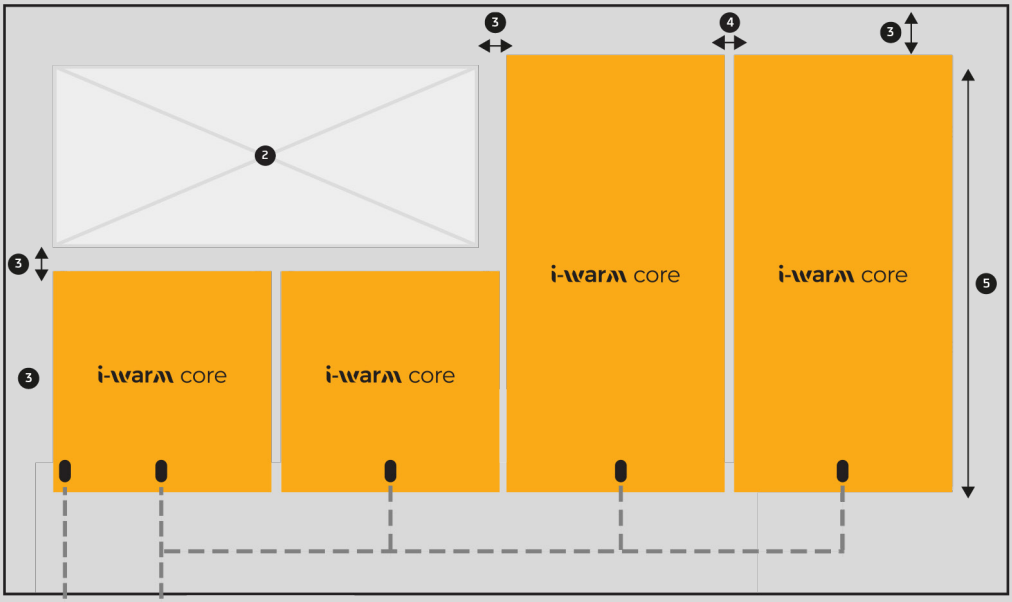
BUILT-IN AIR TEMPERATURE SENSOR AND FLOOR TEMPERATURE SENSOR IN THE THERMOSTAT **PLAN NO. 6**



1. Thermostat
2. Installation box
3. Wall
4. A tube (conduit) with power wires from heating film
5. Plaster
6. Pipe (conduit) for the floor probe sensor
7. Flooring
8. Screed
9. Steel wire mesh
10. Vapour barrier film
11. i-warm core heating film
12. Floor temperature sensor
13. Insulating mat (XPS board)
14. Vapor barrier foil
15. Concrete base

DIAGRAM 1: I-WARM CORE HEATING FILM CONNECTION





i-warm core infrared heating film is designed for permanent installation beneath screed, with a minimum spacing requirement of 5 cm between the heating film. The heating film should also be spaced 0.5 to 1 cm apart from itself. For the maximum allowable length of the heating film stripe, please refer to Table 1, Page 2 of the installation instructions.

Ensure proper connection of the phase wire, neutral wire, temperature sensor, and thermostat according to the manufacturer's specifications.

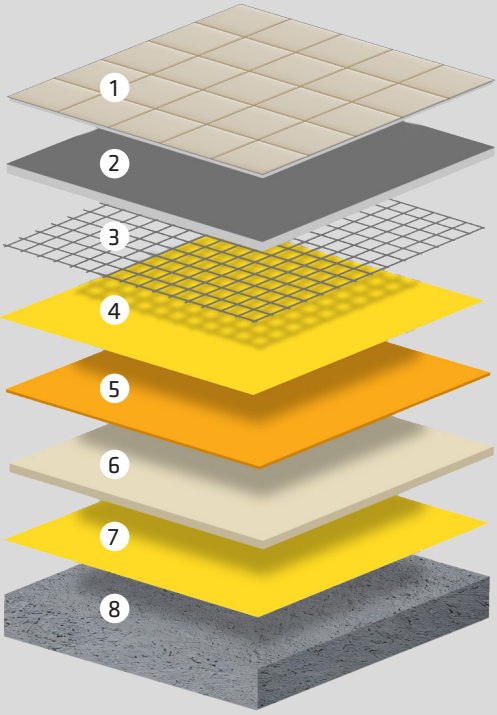
! CAUTION: Do not install the heating film under permanent furniture lacking legs of at least 30 mm in height (such as refrigerators, washing machines, or chest of drawers). PROHIBITED ACTIONS: X

1. Installation of electrical wires supplying the heating film, both above and below it.
2. Cutting the film in unauthorized areas.
3. Overlapping the heating film.
4. Installing the heating film under permanent furniture such as refrigerators, washing machines, or chests of drawers.

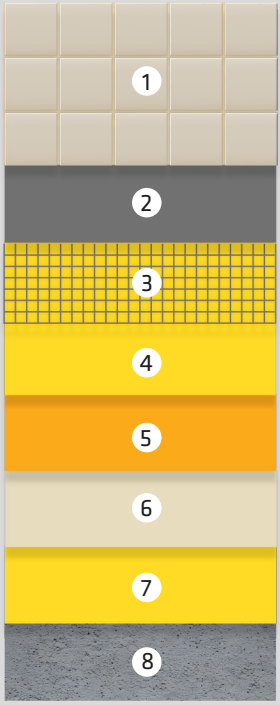
LAYOUT AND CROSS-SECTIONS OF I-WARM CORE INFRARED HEATING • BENEATH SCREED & FIOORING

1. Floor finish - Tiles, stone, LVT - check with flooring manufacturer for guidlines
2. Screed - liquid 35-45mm & or sand/cement min 50mm
3. Steel Wire Mesh or fibre glass wire mesh
4. 0.2 mm vapour barrier film (membrane)
5. i-warm core infrared heating film
6. Thermal insulation board (XPS 300KPA compression)
7. 0.2 mm vapour barrier film (membrane)
8. Concrete base

PLAN NO. 3



PLAN NO. 4

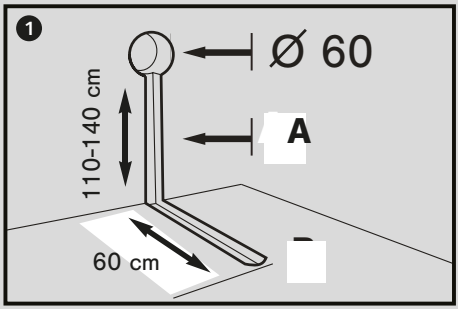


Legend:

PLAN NO. 3 : layers distribution

PLAN NO. 4 : top view

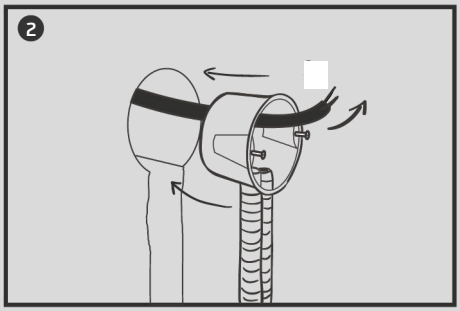
PREPARING THE BOX AND THE PROTECTIVE CONDUIT FOR ELECTRICAL INSTALLATION



At the specified location according to the design, use a drill or hole saw to create a hole for the Ø 60 electrical box. Carve an installation channel in the wall and floor to accommodate two protective conduits: one for the floor temperature sensor and one for the wires supplying the heating film. Connect the electrical lines supplying the heating film at the installation box location. A licensed electrician or designer should select the appropriate power cord cross-section.

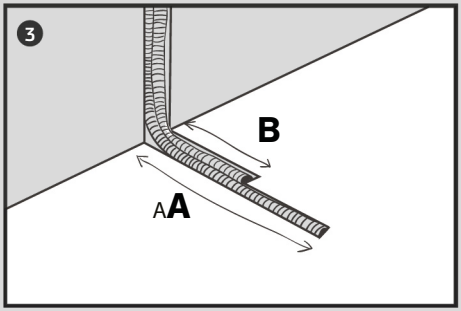
A. Installation channel

- **CAUTION! Install the thermostat box in an accessible location, ensuring it is not exposed to direct sunlight.**



Place the main power supply line and two protective conduits (one for the floor temperature sensor and one for the wires supplying the heating film) into the installation box.

Trim the ends of the conduits to a suitable length to facilitate the installation of the thermostat.

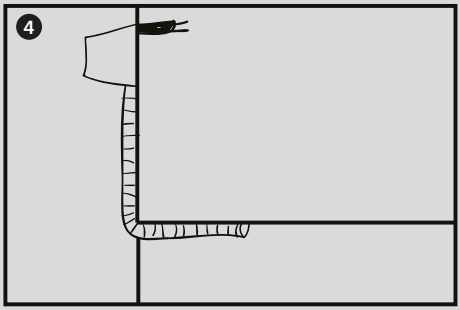


A. The floor temperature sensor conduit should be approximately 50 cm long. The floor temperature sensor must be positioned beneath the heating film.

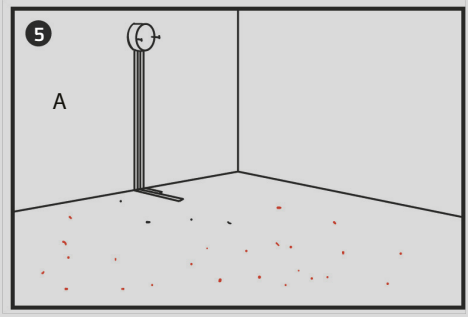
B. Conduit for heating film, approximately 10 cm in length.

- **CAUTION! The protective conduit should be placed in a part of the floor that is not frequently used and not loaded with fixed elements (such as a wardrobe or bed). Ensure the sensor is protected from any mechanical damage (crushing, crumpling, etc.).**
- **CAUTION! The conduits must be installed beneath the heating film and must not protrude above the floor surface. Failure to adhere to these conditions may result in the failure of the entire heating system.**
- **CAUTION! The end of the floor temperature sensor (A) must be positioned beneath the intended heating film stripe (heating area).**

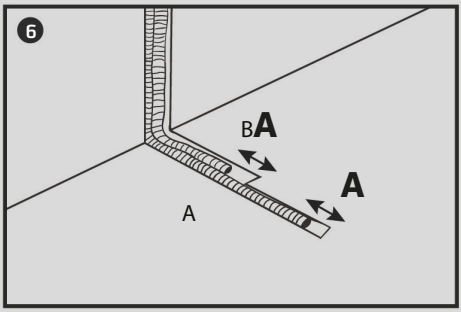
PREPARING THE ENCLOSURE AND PROTECTIVE CONDUITS FOR ELECTRICAL INSTALLATION



Protective conduits should not extend above the level of the screed or the OSB/MFP board structure.



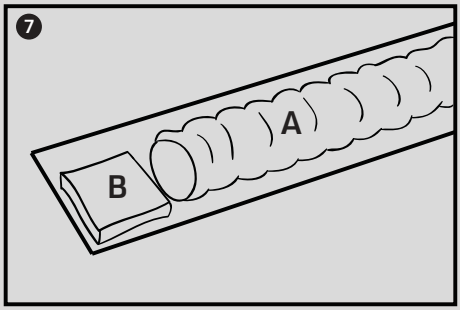
Clean the installation channels thoroughly, removing any debris, dust, stones, or other impurities.



Securely fasten the protective conduit to the floor using adhesive to prevent movement. Leave adequate space at the conduit's end for inserting the floor temperature sensor and the wires supplying the heating film.

A. Spacing of 2 cm.

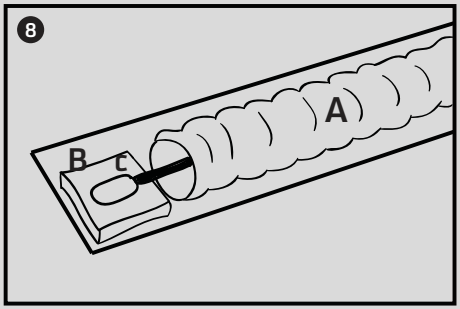
INSTALLATION OF THE FLOOR TEMPERATURE SENSOR



Carefully verify the placement of the protective conduit for the floor sensor. Ensure it does not extend above the floor surface. At the end of the conduit designated for the floor temperature sensor (NTC sensor), place a small square of insulating mat.

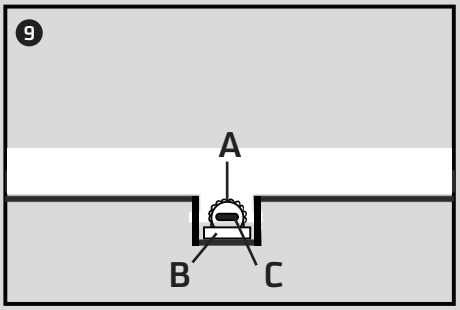
A - conduit safeguarding the floor temperature sensor
B - insulating mat (foam, XPS)

CAUTION! THE PROTECTIVE CONDUIT MUST NOT EXTEND ABOVE THE FLOOR SURFACE.



Insert the temperature sensor into the previously prepared conduit for the temperature sensor (see Fig. 6, page 17, and Diagram 6, page 15). Place a small square of insulation mat at the end of the sensor (NTC sensor). Ensure the floor temperature sensor (NTC sensor) is not placed directly on concrete.

A conduit safeguarding the floor temperature sensor
B insulation mat (for floor sensor to rest on top)
C NTC temperature sensor

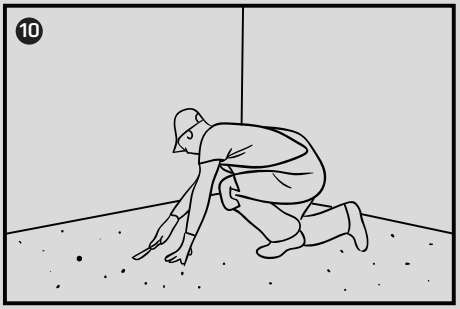


Properly installed protective conduit with the floor temperature sensor.

A Conduit protecting the floor temperature sensor
B Insulation mat (for floor sensor to rest on top)
C NTC temperature sensor

Ensure the thermal probe sensor is marked and easily located via drawings or sketches. This is required when applying XPS 300kpa thermal insulation board, a piece will need to be cut/removed to allow the sensor to be pulled through.

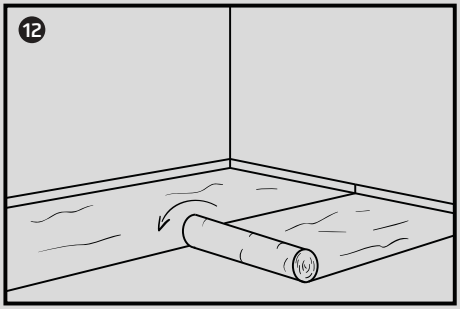
PREPARING THE ROOM FOR INSTALLATION



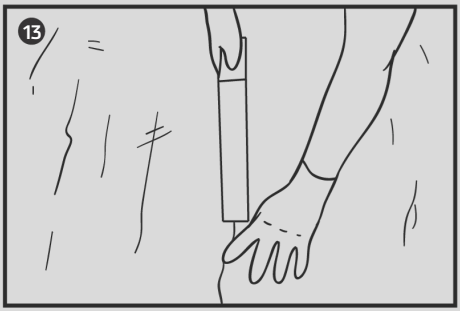
Ensure the floor surface is free of all debris and is smooth and stable. Use a spatula to remove any plaster residues, sharp objects, or unevenness. The floor surface should be clean and level.

PREPARING THE SPACE FOR INSTALLATION

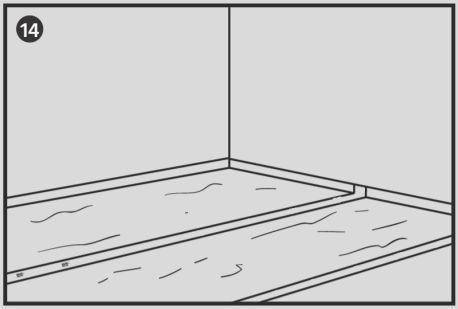
Thoroughly vacuum clean the floor surface with care.



Lay the vapor barrier film on the floor, ensuring it extends approximately 5 cm up the walls. Overlap the vapor barrier film by at least 10 cm. Cover the entire floor surface with the vapor barrier film, including areas where the heating film will not be installed, to maintain moisture protection.

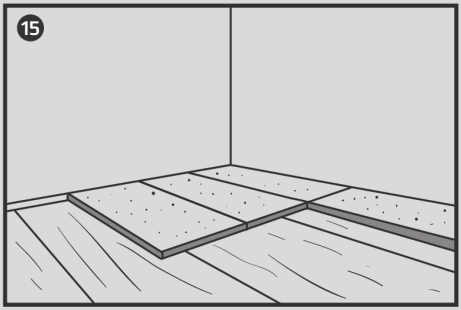


Join the individual sections of the vapor barrier film using overlapping adhesive tape (silver tape provided).

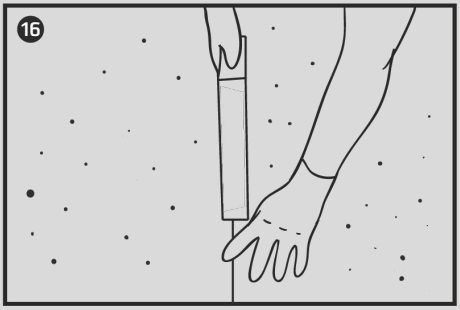


Carefully secure the vapor barrier film at its connections with self-adhesive tape (silver tape provided) along its entire length. Ensure the vapor barrier film is evenly distributed across the entire surface.

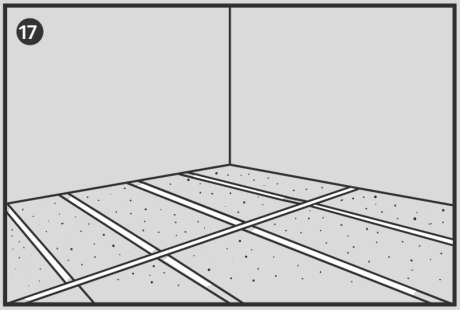
THERMAL INSULATION BOARD



Lay the XPS 300kpa insulation boards directly on the vapour barrier film. Ensure the boards cover the entire floor surface, including areas where no heating film will be installed, to maintain thermal insulation. Cut the insulation boards accurately at the corners.

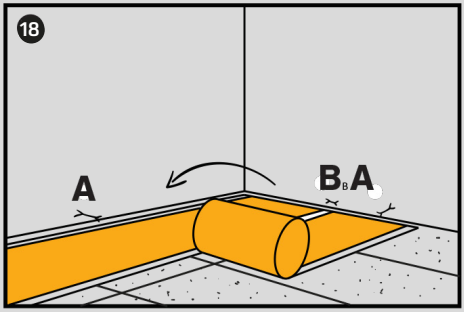


Securely bond the XPS 300kpa insulation boards together using reinforced self-adhesive tape.



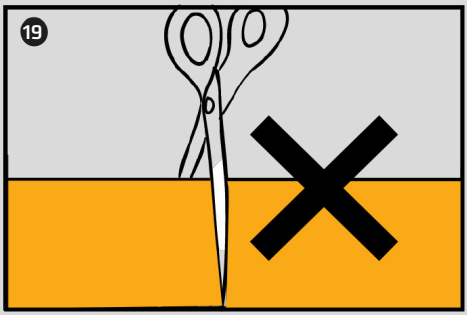
Connect the XPS 300kpa insulation boards at their joints using reinforced self-adhesive tape along the entire length and width. Ensure the XPS 300kpa insulation boards provide a stable base.

LAYING I-WARM CORE HEATING FILM



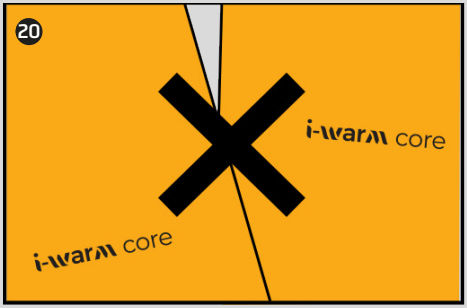
Unroll the i-warm core heating film on the floor and lay in the designated area.

A. Distance from the wall min. 5 cm
B. The distance between the stripes of the i-warm core heating film is 0.5 - 1 cm

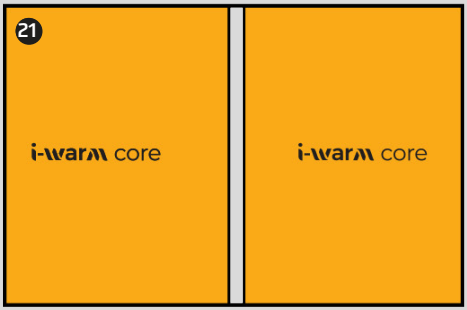


- **CAUTION! Ensure you do not exceed the maximum installation length for a single strip of film (refer to Table 1, Page 2).**
- **CAUTION! i-warm core cannot be cut under any circumstance. Please ensure correct measurements allow the run of the heating film.**
- **CAUTION! DO NOT CUT THE HEATING FILM!**

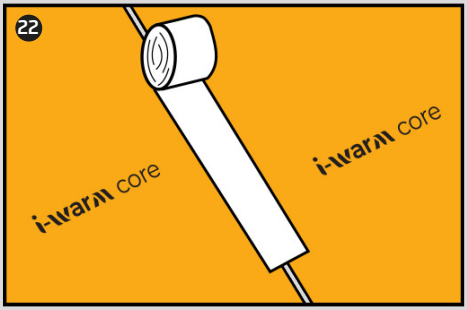
LAYING I-WARM CORE HEATING FILM



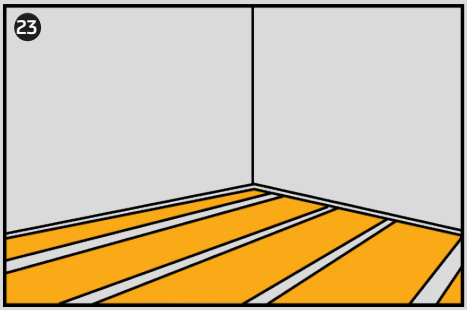
It is prohibited to overlap the heating film. The heating film must not be placed on top of itself.



Correctly layed i-warm core film.

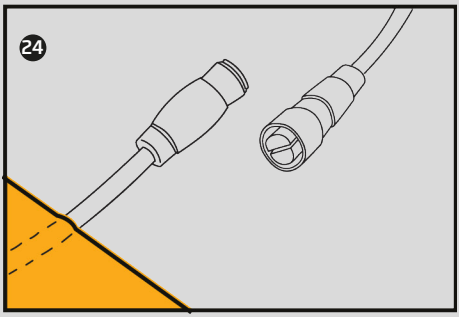


Secure the heating film strips to the insulating mat using adhesive tape.



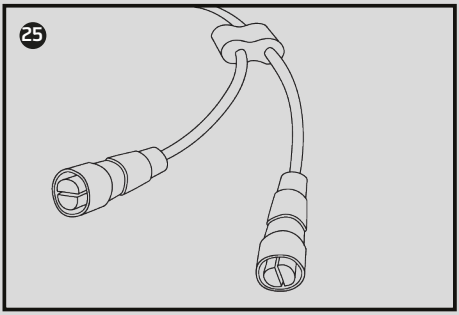
Secure the strips of the heating film to the insulating mat along their entire length to ensure the film remains stable and does not move.

CONNECTING I-WARM CORE VIA EASY CONNECTORS



The i-warm core is pre-wired, with a main cable end on each length, and a female easy connector, allowing connections via the male easy connectors to interlink other i-warm core rolls.

Each length will have a female easy connector connection on the end, this allows connection to other lengths of the i-warm core via the easy connector male connector.



Choose the easy connector required depending on the number of lengths. Easy connectors are available in 2, 3, 4, 5 & 6 connectors, all with a mains cable of 3M. A maximum of 6 core runs can be connected together. If more runs are required, a new easy connector main cable will be required. Please check loading and do not exceed maximum wattage allowed.

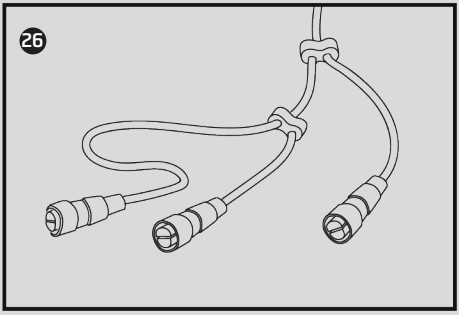
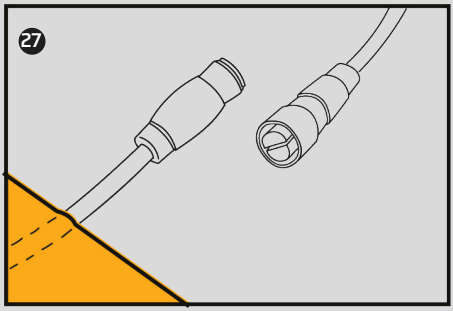
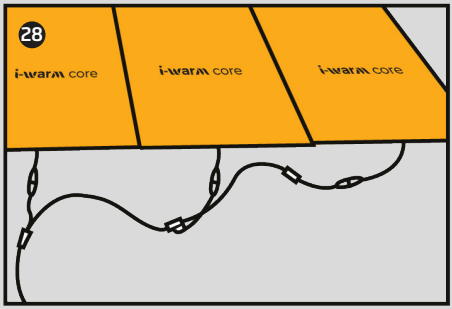


Image shows a 3 easy connector male connector, with 3M main cable. .

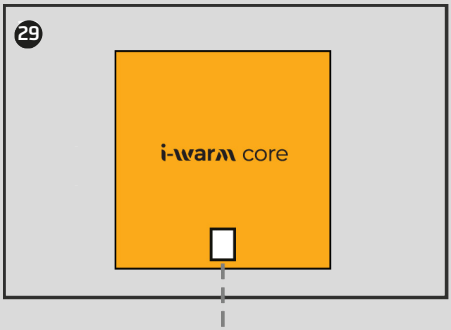
CONNECTING I-WARM CORE EASY CONNECTORS



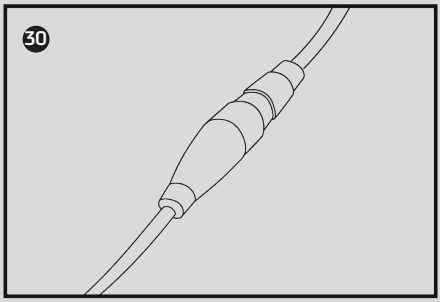
Connect the female easy connector which is pre-wired from the i-warm core, to the required easy connector male connector.



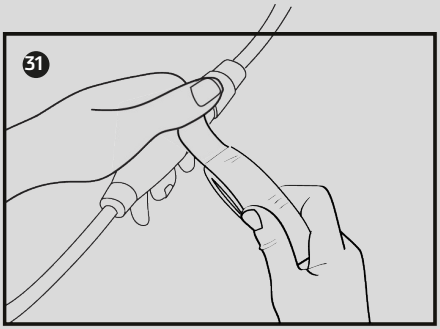
Correctly connected rolls of i-warm core, using a 3 easy connector female main cable.



INSULATING THE EASY CONNECTORS ON I-WARM CORE



Correctly connected easy connector.



Insulated each easy connector connection with electrical amalgamating tape (waterproof).

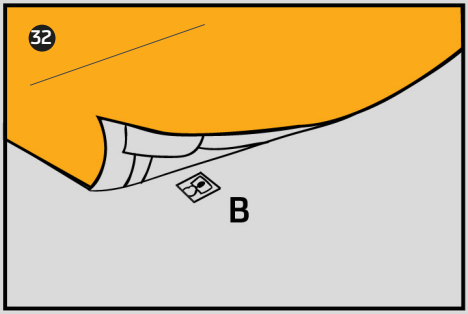
DOUBLE CHECK THE INSULATION OF THE HEATING FILM'S ELECTRICAL CONNECTIONS TO PREVENT INSTALLATION ERRORS

- **! CAUTION! INSULATE THE ELECTRICAL CONNECTION CAREFULLY. ENSURE THE ELECTRICAL INSULATION TAPE COVERS THE EASY CONNECTIONS.**

- **! CAUTION! INSULATE BOTH ALL EASY CONNECTORS ON THE I-WARM CORE.**

- **! CAUTION! ELECTRICAL CONNECTIONS AND INSULATION OF THE HEATING FILM SHOULD ONLY BE UNDERTAKEN BY A CERTIFIED ELECTRICIAN. PERFORM THE ELECTRICAL CONNECTIONS CAREFULLY AND PRECISELY!**

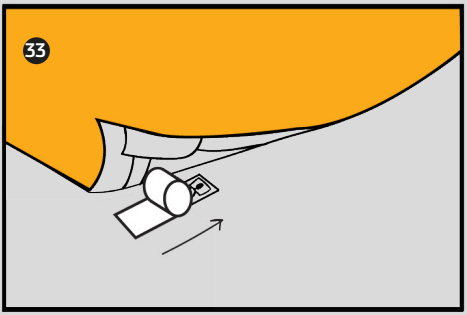
POSITIONING THERMAL FLOOR SENSOR PROBE BENEATH HEATING FILM



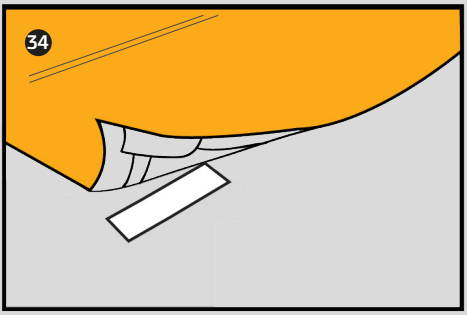
After locating via drawings/sketches the thermal sensor positioning, carefully create a hole in the insulating mat (XPS for the floor temperature sensor (NTC sensor).

Verify if the temperature sensor (NTC sensor) is precisely positioned within the heating field (graphene).

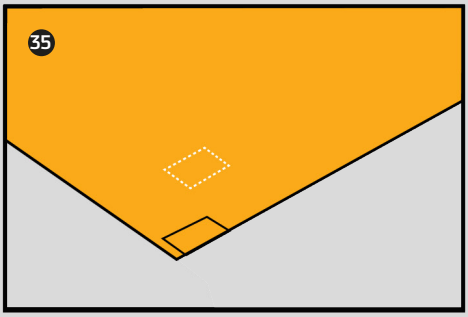
A - heating area (graphene)
B - floor temperature sensor



Seal the opening in the insulating mat at the sensor location with adhesive tape or electrical tape.



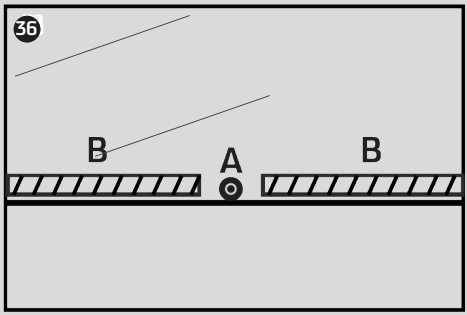
Correctly protected floor temperature sensor (NTC sensor) with tape.



Place the heating film over the tape-protected floor temperature sensor (NTC sensor).

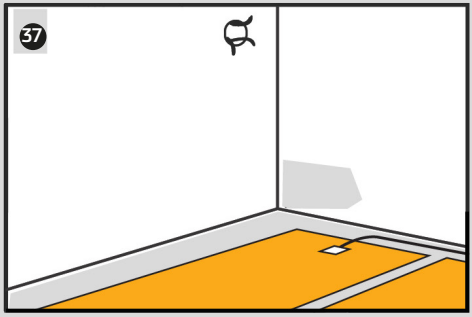
Ensure the floor temperature sensor (NTC sensor) is positioned within the heating zone (graphene).

INSTALLING I-WARM CORE HEATING FILM OVER THERMAL INSULATION BOARD (XPS)

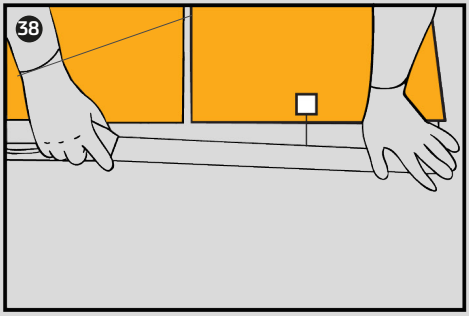


✓ Properly positioned power cord (wire) within the insulating mat.
The power cord is situated beneath the surface of the heating film.
A - power cord (wire)

B - insulating mat

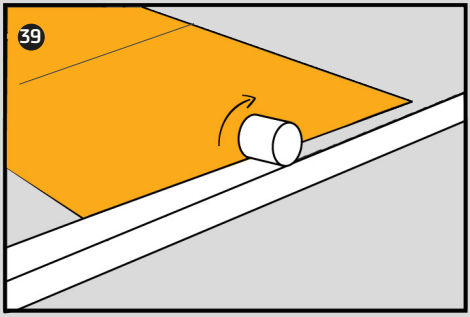


Use scissors to create a hole in the insulating mat at the location designated for the protective conduit intended for the wires supplying the heating film. Insert the wires supplying the heating film into the protective conduit and guide them to the installation box.



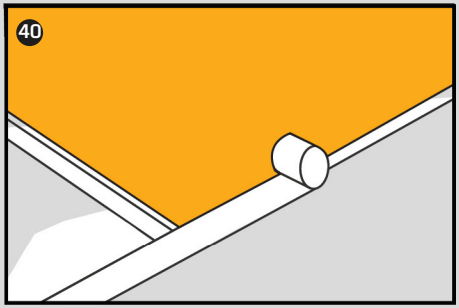
Securely tape the insulated electrical connections and electrical wires that are placed in the cut openings. Ensure all elements within the holes of the insulating mat are firmly taped with adhesive tape.

! CAUTION! WHEN USING XPS300 INSULATING MAT, USE REINFORCED ADHESIVE TAPE.

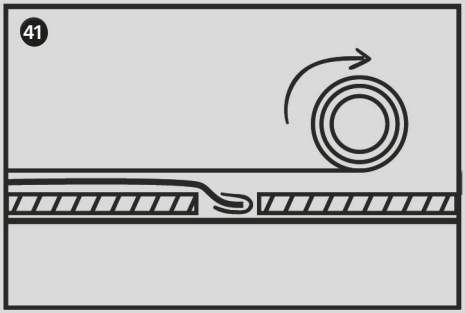


Carefully cover the heating film and the insulated electrical connections with successive sections of adhesive tape. Perform this task with precision and care.

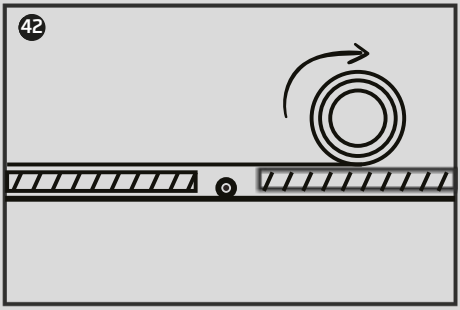
INSTALLATION OF I-WARM CORE HEATING FILM ON THE THERMAL INSULATION BOARD



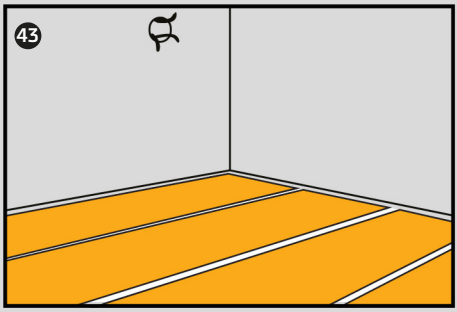
Carefully apply adhesive tape to the opposite end of the heating film stripe, covering the insulated electrical connections.



Adhesive tape properly applied to the heating film with an insulated electrical connector.

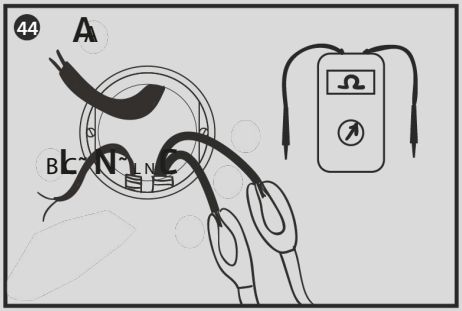


The electric wire (cable) is securely sealed with adhesive tape.



Please carefully verify the correct placement of the heating film as per the manual instructions. Ensure that the surface of the heating film is clean, stable, and flat, without any protrusions.

MEASURMENT AND TESTING OF HEATING INSTALLATION



To verify the continuity of electrical connections and the installed heating capacity, measure the resistance of the installed heating film.

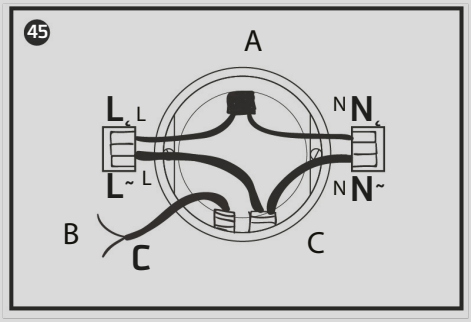
Record the resistance measurement result on the warranty card. Calculate the power of the installed heating film using the formula provided below, and document the result on the warranty card.

$$\text{POWER [W]} = \frac{\text{voltage (V)}_2}{\text{resistance (°)}}$$

Lf - phase electric wire of the heating film
Nf - neutral electric wire of the heating film
A - power cord
B - floor temperature sensor cable

! CAUTION: IF THE INSTALLED POWER OF THE HEATING FILM EXCEEDS 80% OF THE MAXIMUM POWER LOAD SPECIFIED FOR THE TEMPERATURE REGULATOR (THERMOSTAT), USE A CONTACTOR OR A SECOND THERMOSTAT!

! CAUTION: IF THE RESISTANCE MEASUREMENT RESULT AND THE CALCULATED POWER DO NOT MATCH THE NOMINAL POWER OF THE HEATING FILM (+/- 10%), THE HEATING FILM HAS BEEN INCORRECTLY INSTALLED AND IS UNSUITABLE FOR OPERATION. VERIFY THAT ALL HEATING FILMS HAVE THE SAME RATED POWER.



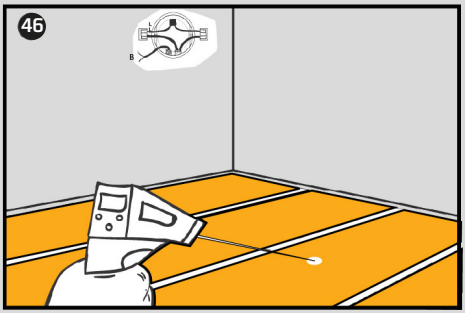
Conduct a test of the heating film installation by connecting it to the power source. Connect the heating film to the power supply as shown in the diagram.

Lz - phase network electric wire
Lf - phase electric wire of the heating film
Nz - neutral electric wire
Nf - neutral electric wire of the heating film
C - floor temperature sensor cable

! CAUTION! THE ELECTRICAL CONNECTIONS OF THE HEATING FILM MUST BE PERFORMED BY AN AUTHORIZED ELECTRICIAN. HANDLE THE ELECTRICAL CONNECTIONS WITH CARE AND PRECISION!

! CAUTION! BEFORE TURNING ON THE HEATING INSTALLATION, THOROUGHLY INSPECT THE CONNECTIONS OF THE ELECTRICAL WIRES AND THE ELECTRICAL CIRCUITS OF THE HEATING FILM.

HEATING INSTALLATION MEASUREMENT AND TEST



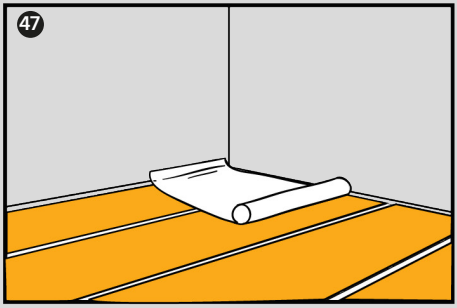
After connecting the heating film to the electrical mains, measure the temperature of the heating film.

Using an electronic device such as a pyrometer or thermal imaging camera, or by physically touching the film with your hand, verify that the heating film uniformly heats up across all installed heating stripes and zones.

Once the heating system test is complete, disconnect the entire heating system from the power supply.

- **! CAUTION! IF THE HEATING FILM DOES NOT HEAT UP, DISCONNECT THE ENTIRE INSTALLATION AND CAREFULLY CHECK ALL ELECTRICAL CONNECTIONS AND PROTECTIONS IN THE ELECTRICAL SWITCH CABINET.**
- **! CAUTION! AT THE LOW RATING POWER OF HEATING FILM SUCH AS 60/80 [W/SQM], THE TEMPERATURE OF THE HEATING FILM RISES SLIGHTLY AND MAY BE UNDETECTABLE TO THE TOUCH.**
- **! CAUTION! AFTER PERFORMING THE HEATING INSTALLATION TEST, DISCONNECT THE ENTIRE HEATING SYSTEM FROM THE ELECTRICAL POWER SUPPLY.**

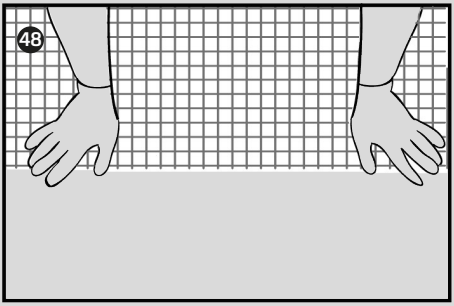
INSTALLING SECOND LAYER OF VAPOUR BARRIER



After verifying the proper functioning of the heating system, proceed to lay the vapor barrier film across the entire room surface, ensuring a minimum overlap of 10 cm.

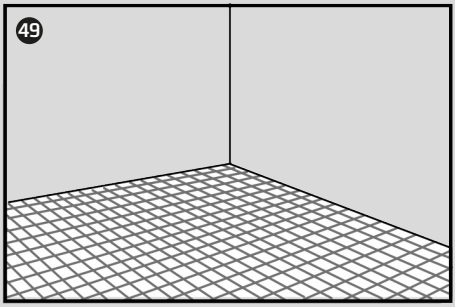
Thoroughly adhere the vapor barrier film at the seams using self-adhesive tape along its entire length. Ensure the vapor barrier film is uniformly spread across the entire surface.

Securely connect each strip of the vapor barrier film with overlapping sections using adhesive tape.



Once the vapor barrier foil has been laid and securely glued in place, proceed with installing steel or fibre glass wire mesh.

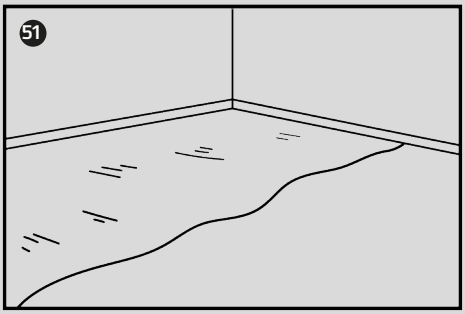
Wire mesh must cover full area of room where screed pour is to take place. Ensure the wire is carefully placed on top of the vapour membrane, taking great care to not pierce any of the materials below.



- **! ATTENTION! WEAR ONLY SOFT AND FLAT FOOTWEAR DURING HEATING FILM INSTALLATION.**
- **! ATTENTION! PLEASE EXERCISE CARE WHEN LAYING THE WIRE MESH TO AVOID DAMAGING THE VAPOR BARRIER FILM AND THE HEATING FILM.**
- **! ATTENTION! FOLLOW THE MANUAL CAREFULLY WHEN PLACING THE WIRE MESH AND MAINTAIN A CLEAN ENVIRONMENT.**
- **! ATTENTION! DURING FLOOR INSTALLATION, ENSURE NO DIRT REMAINS ON THE SURFACE OF THE FILM. THIS CAN CAUSE DAMAGE TO THE HEATING SYSTEM.**
- **! ATTENTION: FAILURE TO FOLLOW THE MANUAL MAY RESULT IN DAMAGE TO THE HEATING SYSTEM.**

Before applying screed pour, please after applying wire mesh, no damages have taken place and the heating film has been tested once again. It is important before applying the screed, that the heating film has cooled down adequately.

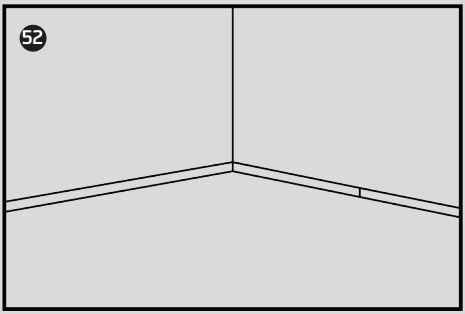
Apply liquid screed 35-45mm to the required area, full coverage. If applying sand/cement screed, please apply minimum 50mm depth.



- **! ATTENTION: DO NOT USE PRESSURE HOSE DIRECTLY ON THE HEATING FILM. POUR GENTLY STARTING FROM ONE END AND WORKING OUT EVENLY.**

- **! CAUTION: AVOID WALKING DIRECTLY ON THE FILM IF POSSIBLE. USE KNEELING BOARDS OR PLANKS.**

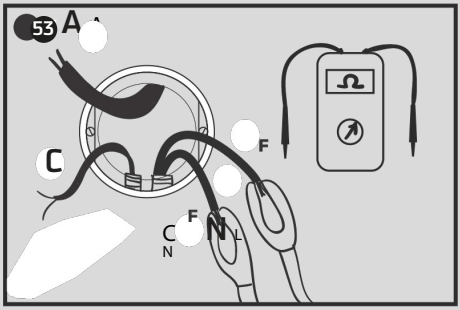
- **! ATTENTION: USE ONLY LOW-SHRINKAGE, SELF LEVELING OR FREE-FLOWING LIQUID SCREEDS. ENSURE SCREED IS SUITABLE FOR UNDERFLOOR HEATING**

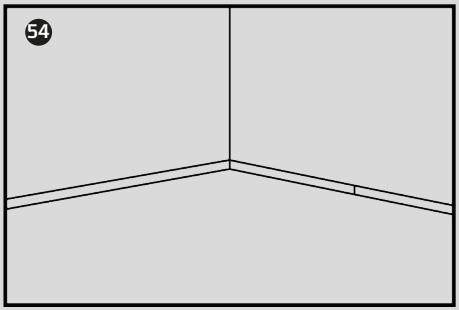


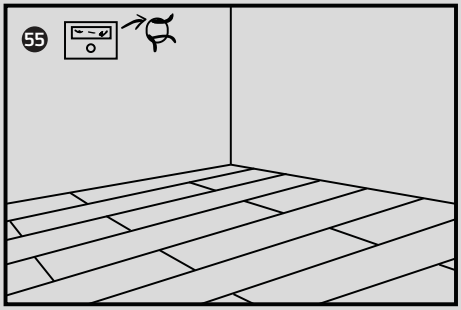
- **! ATTENTION: ALLOW FULL CURING BEFORE TURNING ON HEATING. DEPENDING ON SCREED TYPE, TYPICALLY 7-28 DAYS.**

  INITIATE GENTLE HEAT UP CYCLE TO PREVENT THERMAL SHOCK AND SCREED DAMAGE.

COMPLETING THE INSTALLATION OF THE HEATING FILM







To verify the installation of the heating film and the continuity of electrical connections, measure the resistance of the installed heating film.

Record the measrement of the resistance in the warranty card.

Lf - phase electric wire of the heating film
Nf - neutral electric wire of the heating film
A - power cord **C** - floor temperature sensor cable

! ATTENTION! IF THE RESISTANCE MEASUREMENT IS INCONSISTENT WITH THE PREVIOUS READING, IT INDICATES DAMAGE DURING THE FLOOR INSTALLATION. IN SUCH CASES, USE OF THE HEATING SYSTEM IS STRICTLY PROHIBITED.

! ATTENTION: FOR ACCURATE MEASUREMENTS, THE TOLERANCE OF RESISTANCE MEASUREMENT INSTRUMENTS IS +/- 1%.

After measuring the heating film and confirming the correct operation of the heating system, proceed with installing the thermostat (temperature regulator) according to the original installation manual provided with the thermostat. After correctly installing the thermostat, recheck the heating system for proper operation.

Adjust the floor temperature sensor's temperature limit based on the floor covering manufacturer's recommendations. (The ideal floor temperature is approximately 28°C.)
Warm up the installed floor covering as per the manufacturer's recommendations. After applying screed, it is recommending slowly raising the temperature 5°C per day until full operating temperature is reached.

! ATTENTION! FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN DAMAGE TO THE HEATING SYSTEM, HOUSEHOLD APPLIANCES, ELECTRICAL SHOCK, INJURY, OR DEATH.

SKETCH OF THE HEATING FILM INSTALLATION

Drawing guidelines:

1. The outline of the room with dimensions
2. Strips of heating films (distance from the walls)
3. Power of the heating film strips
4. Thermostat
5. Location of the temperature sensor
6. The route of laying the electric wires

electrician's stamp and signature

WARRANTY CARD

THE MANUFACTURER PROVIDES A 5 YEAR WARRANTY ON HEATING FILM

The warranty does not cover:

1. Mechanical damage to the heating film.
2. Damage to the heating film due to physical impact.
3. Damage caused by fire, flooding, or lightning strikes.
4. Damage resulting from improper installation or misuse of the heating film.
5. Damage to the heating film or malfunction of the heating system caused by using materials that do not comply with the manufacturer's recommendations and assembly instructions.

DATA	
Buyer	
Heating film installer (stamp)	
HEATING FILM INSTALLATION DATA	
Installation date	
Model & power of the heating film	
Type of heating film installation	
Heating power of the installation [W/sqm]	
Number of installed heating film [sqm]	
Measurement of the resistance of the heating film [°] (1)	
Measurement of the resistance of the heating film [°] (2)	

Required attachments:

1. Sketch of heating film installation
2. Protocol of receipt of the heating film installation
3. Measurement report of the electric heating film installation
4. Proof of purchase of the heating film

radiant heat 360

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