

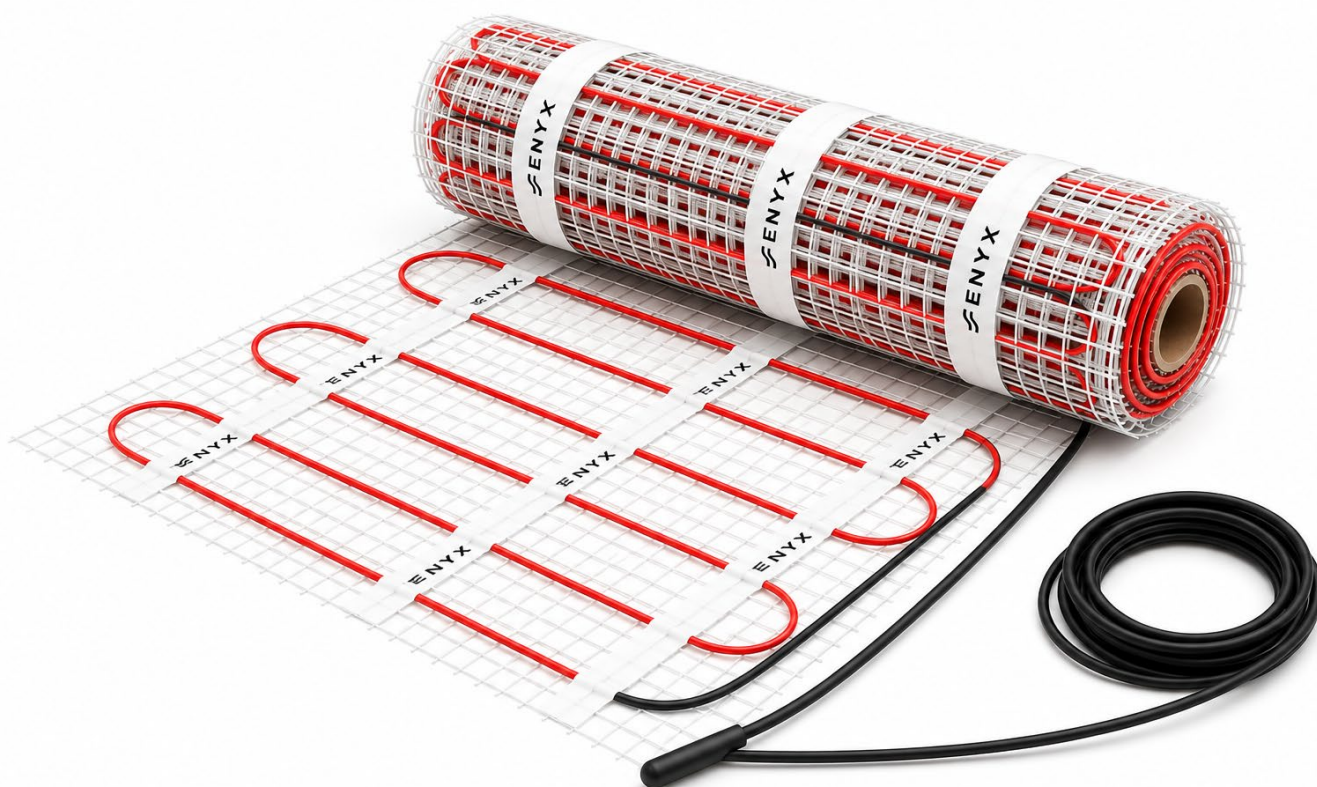


ENYX

HEAT MAT STANDARD 150

ELECTRIC UNDERFLOOR HEATING

INSTALLATION & COMMISSIONING MANUAL



Read the complete manual carefully before installation.

Installation, measurements and documentation must be completed before the floor is covered and the system is put into operation. The 15-year warranty applies to the heating mat, provided that the installation is performed correctly, measurements are recorded, and ENYX warranty conditions are followed.

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KEY SAFETY WARNINGS

The system must be properly checked before installation

WARNING: Risk of electric shock and fire

If the heating mat system is damaged or not installed correctly, fire or electric shock may occur, which can cause serious bodily injury or property damage.

Carefully follow all warnings and instructions provided in this manual.

- An ENYX thermostat / controller designed for electric underfloor heating systems must be used.
 - This equipment may only be installed by qualified electricians who understand the proper sizing, installation, construction and operation of electric underfloor heating systems, as well as the risks associated with such systems.
 - Installation must be carried out in accordance with applicable national and local electrical regulations. If you are not familiar with these requirements, contact a qualified electrician.
 - The heating mat system is intended exclusively for installation beneath the final floor covering and for underfloor heating purposes. Make sure that the floor is not pierced with nails, screws or similar elements, either during the initial installation or during any later floor repairs, as this may damage the heating cable.
 - If the heating mat system is damaged, it must be replaced. Do not attempt to connect, extend, repair or service any part of the heating system.
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1. Using this manual

This manual describes the electric underfloor heating system with a heating mat — including room planning, selecting the appropriate product and proper system installation. Before installation, it is important to carefully read this manual, as well as the accompanying manual for the **ENYX HEAT CONTROL S1 Wi-Fi** controller, available at: www.enyxair.com

For additional information regarding the electric underfloor heating system, contact an authorized ENYX partner, installer, service technician or technical support.

2. Safety guidelines

The safety and reliability of every electric underfloor heating system depend on proper planning, installation and testing. Incorrect installation or careless handling of the product may damage the heating cable, system components and property, and may create a risk of fire or electric shock.

The guidelines and instructions provided in this manual are important for safe and reliable installation. Follow them carefully in order to reduce risks and ensure reliable system operation.

Pay special attention to:

- instructions marked with the word **Important**
- safety warnings marked with the word **WARNING**

3. Mandatory resistance measurement

Resistance is measured between the two conductors — white and black. The measured resistance value must be compared with the specified value listed in the table on page 9 for the corresponding product model. The measured value should be within the permitted tolerance range of **-5% to +10%**. If the measured value is outside this range, stop the installation and contact an authorized service provider or technical support.

It is also necessary to measure the resistance between the white conductor, the black conductor and the protective / grounding conductor. In both cases, the reading must show infinite resistance. If a different reading is obtained, stop the installation and contact an authorized service provider or technical support.

Instructions for measuring resistance are provided in the **Commissioning** section.

Important: resistance must be measured four times during installation

Throughout the installation process, actual resistance values must be measured, checked and recorded. Measurements are performed at the following stages:

- after removing the product from the packaging
- after laying the heating mat
- after applying flexible cement adhesive or self-leveling compound
- after installing the final floor covering / ceramic tiles

All measured values must be entered in the warranty certificate / measurement record.

4. Limited 15-year warranty

For a period of fifteen (15) years from the date of purchase, the warranty covers the heating cable in the event of defects in materials, construction or workmanship, in accordance with the conditions stated in the warranty certificate.

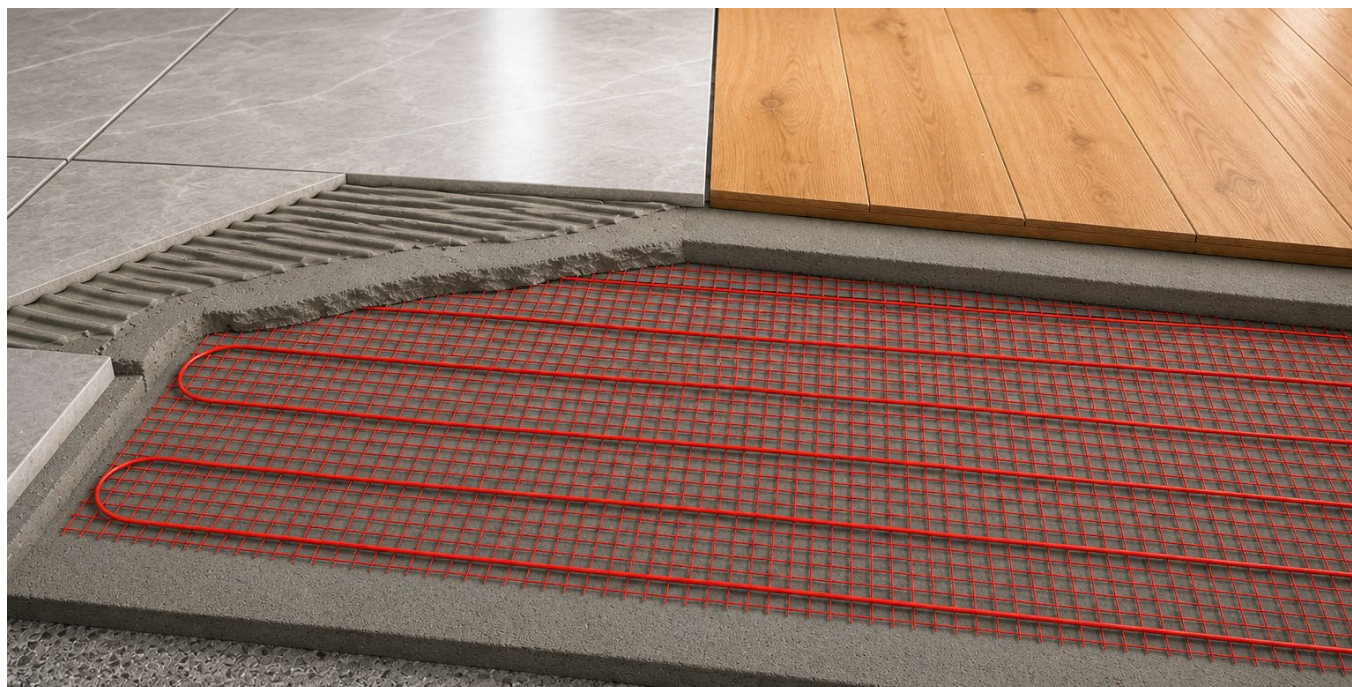
The extended warranty is valid only if the warranty certificate has been properly completed, if the required measurement values have been recorded, and if the installation has been carried out in accordance with this manual.

Incomplete documentation, missing measurements or installation not performed in accordance with the manual may affect the right to make a warranty claim.

INTENDED USE AND APPLICATION CONDITIONS

Is the system suitable for the space?

ENYX HEAT MAT STANDARD 150 is an electric heating mat intended for comfort underfloor heating in indoor spaces. Before selecting the mat and starting installation work, it is necessary to confirm that the space, substrate, final floor covering and installation plan are compatible with electric underfloor heating.



The system is intended for:

- residential spaces: bathrooms, kitchens, hallways, living areas and other indoor rooms;
- apartment facilities and spaces where comfort, fast floor heating and regulation are important;
- commercial spaces and small to medium-sized indoor zones with a compatible final floor covering.

Floor coverings:

- especially suitable for ceramic tiles and stone floor finishes;
- parquet, laminate, vinyl and similar coverings only if the floor covering manufacturer allows electric underfloor heating;
- the mat must be fully embedded in flexible adhesive, mortar, self-leveling compound or similar material.

Do not use for:

- outdoor installation;
- walls and ceilings;
- unstable, damp or damaged substrates;
- surfaces that will later be drilled or anchored;
- areas under fixed furniture without ventilation;
- floor coverings that are not approved for electric underfloor heating.

Conditions before installation:

- the substrate is stable, level, clean and dry;
- cracks, damage and uneven areas have been repaired before laying;
- the actual heated area has been defined, excluding fixed elements;
- the position of the controller, sensor and cold lead has been planned;
- resistance measurements have been planned before the floor is covered and must be entered in the record.

TECHNICAL DATA

Technical system specifications

ENYX HEAT MAT STANDARD 150 is an electric heating mat with a twin-core heating cable, intended for indoor floor installation.

The system operates on a standard 230 V power supply and has a nominal output of **150 W/m²**.

Parameter	Value
Rated voltage	230 V
Nominal output	150 W/m ²
Cold lead	2 conductors + protective braid
Cold lead length	2.5 m
Cable construction	Twin-core heating cable
Heating cable spacing	80 mm
Heating cable diameter	3.6 mm
Conductor insulation	Fluoropolymer
Outer insulation	PVC
Minimum installation temperature	5°C
Maximum ambient temperature	30°C
Application	Indoor floor installation

Twin-core heating cable

With a twin-core system, it is not necessary to return the other end of the cable to the controller. One cold lead, 2.5 m in length, is routed to the controller, which simplifies the planning and laying of the heating mat.



Warning

The cable must not be cut, shortened, extended, repaired, crossed or laid too close to itself. Do not change the factory-defined spacing between cables. Always check the power supply — it must be 230 V.

TEMPERATURE CONTROL

Controller for electric underfloor heating

For proper, safe and comfortable operation of the electric heating mat, appropriate temperature control must be used. ENYX recommends **HEAT CONTROL S1 Wi-Fi** as the system solution for controlling electric underfloor heating.

The advanced **ENYX HEAT CONTROL S1** controller is factory-equipped with a floor sensor, Wi-Fi control for remote management of underfloor heating, weekly programming functionality, and is available in black and white versions. The detailed controller manual is available at: www.enyxair.com



Controller position

The controller must be planned before laying the mat. It must be accessible for use, inspection and system connection.

Floor sensor

The sensor is installed in the floor, between two heating cable lines. A protective conduit is recommended to allow possible replacement.

Electrical connection

The connection must be carried out by a qualified electrician, according to the wiring diagram in the controller manual and applicable electrical regulations.



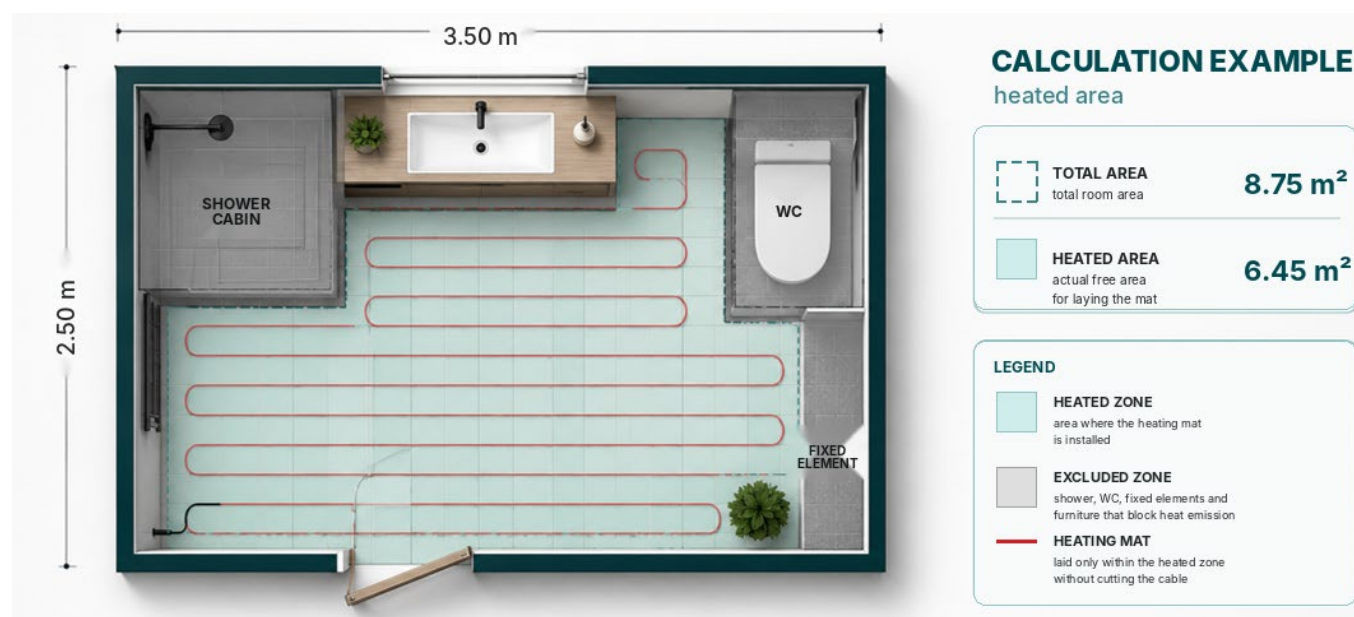
Important

Do not use the system without appropriate temperature control and a properly installed floor sensor.

PLANNING THE HEATED AREA

The mat is selected according to the actual free floor area

Before selecting the heating mat, it is necessary to calculate the actual heated area of the room. The calculation should not be based on the total floor area, but only on the free floor zone where the mat can be properly installed, without fixed elements that block heat emission.



Measure only the heated area

Do not include areas under built-in wardrobes, kitchen units, fixed furniture and similar elements.

Plan before laying

Determine the mat layout, controller position, cold lead route and floor sensor position.

Check the power supply

Ensure that a 230 V power supply is available at the controller installation point.

Select the nearest smaller mat

If the heated area does not exactly match a size listed in the table, select the nearest smaller heating mat.



Important

An incorrectly selected mat may lead to excess cable, improper laying, changes to the factory spacing, mechanical damage or loss of warranty rights.

SELECTING THE APPROPRIATE HEATING MAT

The model is selected according to the calculated heated area

Once the actual heated area has been determined, select the heating mat with the appropriate surface area. If the calculated area does not exactly match one of the dimensions listed in the table, select the nearest smaller mat area.

ENYX HEAT MAT STANDARD 150

Mat area	Mat dimensions	Output	Current	Rated resistance
1.0 m ²	0.5 × 2 m	150 W	0.7 A	352.7 Ω
1.5 m ²	0.5 × 3 m	225 W	1.0 A	235.1 Ω
2.0 m ²	0.5 × 4 m	300 W	1.3 A	176.3 Ω
2.5 m ²	0.5 × 5 m	375 W	1.6 A	141.1 Ω
3.0 m ²	0.5 × 6 m	450 W	2.0 A	117.6 Ω
3.5 m ²	0.5 × 7 m	525 W	2.3 A	100.8 Ω
4.0 m ²	0.5 × 8 m	600 W	2.6 A	88.2 Ω
4.5 m ²	0.5 × 9 m	675 W	2.9 A	78.4 Ω
5.0 m ²	0.5 × 10 m	750 W	3.3 A	70.5 Ω
6.0 m ²	0.5 × 12 m	900 W	3.9 A	58.8 Ω
7.0 m ²	0.5 × 14 m	1050 W	4.6 A	50.4 Ω
8.0 m ²	0.5 × 16 m	1200 W	5.2 A	44.1 Ω
9.0 m ²	0.5 × 18 m	1350 W	5.9 A	39.2 Ω
10.0 m ²	0.5 × 20 m	1500 W	6.5 A	35.3 Ω
12.0 m ²	0.5 × 24 m	1800 W	7.8 A	29.4 Ω

Selection example

If the calculated heated area is 6.70 m², select the 6.0 m² mat.



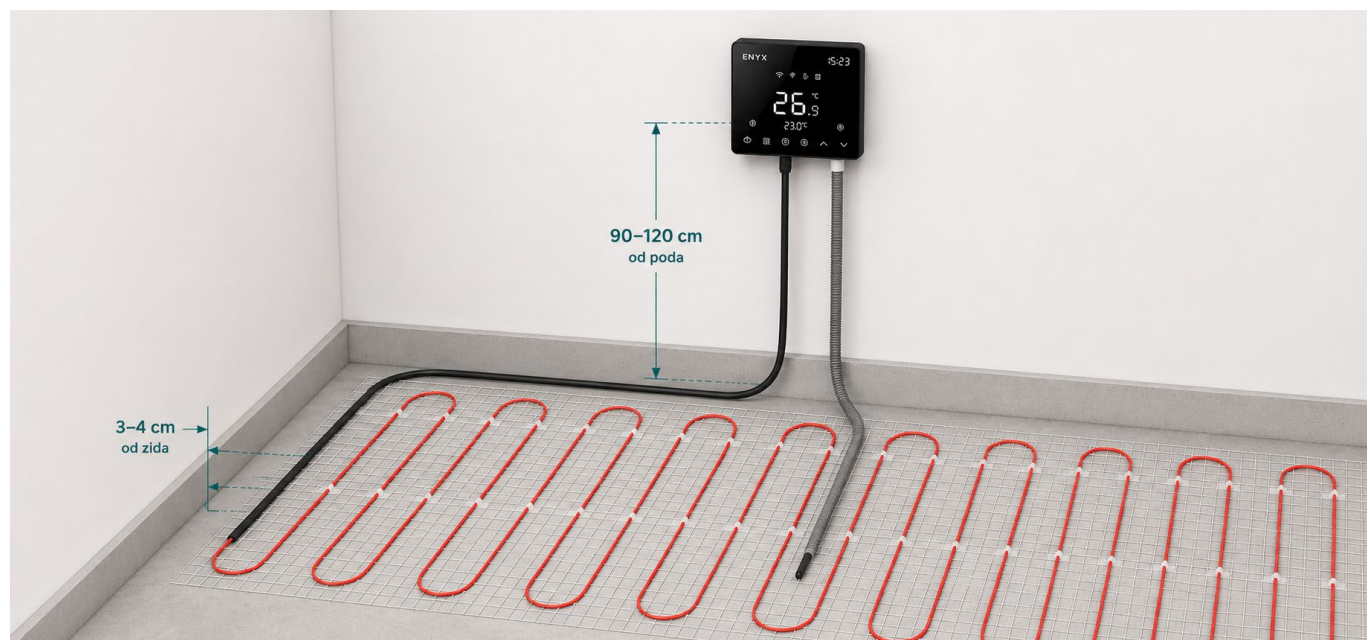
Important

The rated resistance listed in the table is used for control measurements before and during installation. The measured values must be within the permitted tolerance and entered in the Measurement record.

PLANNING BEFORE LAYING

Controller, cold lead and floor sensor

Before laying the heating mat, it is necessary to define the controller position, the cold lead route and the floor sensor position. These positions must be known before unrolling the mat on the floor.



Heating mat cold lead

- the 2.5 m cold lead is factory-connected to the heating cable;
- it is routed to the controller or connection box;
- it must not be shortened, extended or modified.

Controller floor sensor

- the sensor is a separate component of the temperature control system;
- it is connected to the controller and installed in a protective / flexible conduit;
- it must be positioned between two heating cable lines and must not touch the cable.

Controller and distance from the wall

- the controller is installed in an accessible wall position, recommended 90–120 cm from the floor;
- the heating mat should be laid approximately 3–4 cm away from the wall.



Warning

Do not lay the mat before defining the connection and measurement points. An undefined position may lead to incorrect laying, inability to connect the system or later floor damage.

Tools, materials and work preparation

Before starting installation, prepare the tools, measuring instruments, construction materials and work surface. The heating mat must not be unrolled until the substrate conditions, controller position, cold lead route and floor sensor position have been confirmed.

1. Tools for preparation and laying

- scissors and utility knife;
- measuring tape and marker / pencil;
- screwdrivers and pliers;
- notched trowel;
- tools for cleaning the substrate.

2. Measuring instruments

- digital multimeter;
- appropriate insulation testing instrument, according to the procedure of a qualified electrician;
- measurement record form.

3. Construction materials

- flexible adhesive or leveling compound, depending on the floor system;
- protective / flexible conduit for the floor sensor;
- final floor covering;
- materials for substrate preparation and repair, if required.

4. Work area preparation

- the substrate must be clean, vacuumed, dry, level and stable;
- remove sharp objects and material residues;
- check that there is no fixed furniture in the heated zone;
- the laying plan must be transferred to the floor before unrolling the mat.



Important

Do not start laying without prepared measuring instruments. Resistance measurements and system checks must be carried out at the defined installation stages and recorded in the report.

14 steps for proper installation

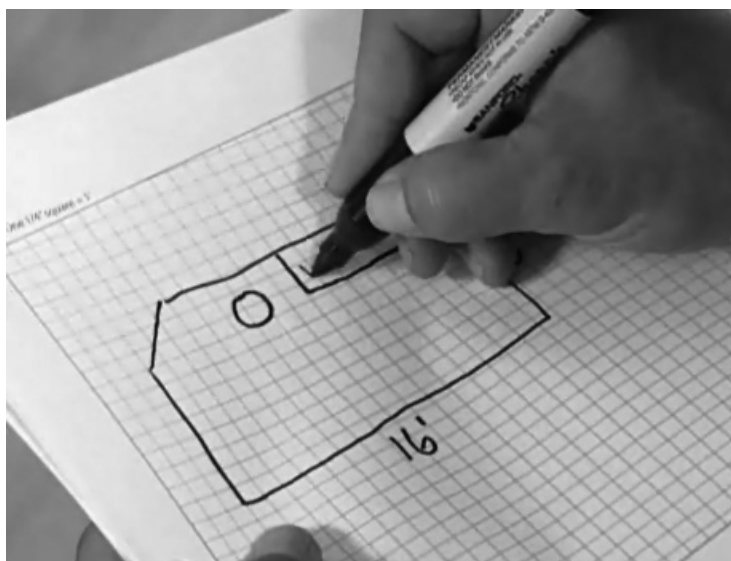
Step 1: Plan the layout

Prepare a sketch or floor plan of the room. Mark all fixed elements that will remain permanently in place, such as the toilet, bathtub, appliances, kitchen units, cabinets and similar elements.

On the sketch, mark all dimensions required to determine the available heated area, as well as the position of the thermostat / controller.

Important

The installation must be documented with photographs, especially the positions of joints, the connection section and the floor sensor.

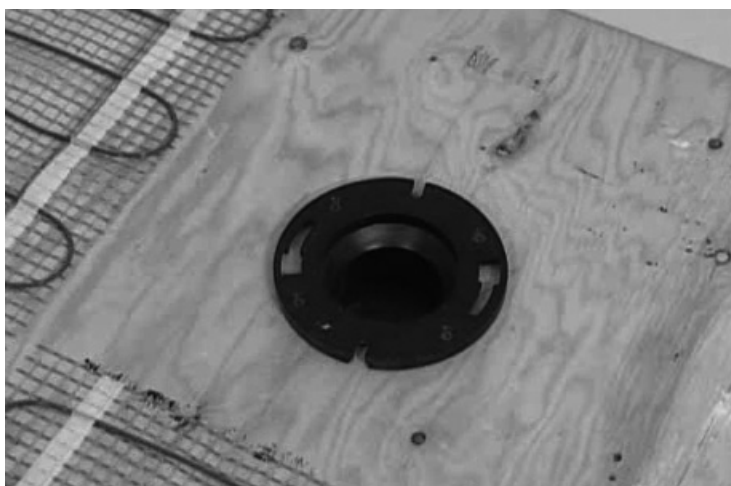


Step 2: Transfer the layout to the floor

Draw the installation layout on the room floor, including the outline of all fixed elements that have not yet been installed.

Unroll the initial section of the heating mat. The cable start must be positioned so that the connection end can be routed to the thermostat or connection box. The heating mat cold lead is factory-connected to the heating cable and is routed to the thermostat or connection box.

The starting point of the heating mat must be planned so that the 2.5 m cold lead can reach the thermostat or connection box without tension.



Important

Mark the position of the joint between the power supply cold lead and the heating cable. This joint must be completely covered with flexible cement adhesive or self-leveling compound.

If a thermostat with a floor temperature sensor is used, mark the sensor position between two heating cables, approximately 25 cm from the wall, within the heated area and as close as possible to the thermostat position.

Step 3: Install the floor sensor

If a thermostat with a floor sensor is used, install the sensor at this stage. It is recommended to place the sensor in a protective conduit to allow easier replacement if needed.

The conduit should run from the thermostat position toward the heated floor area, at least 25 cm from the wall. The sensor must be positioned between two heating cable lines and must not touch the cable.



Important

Seal the end of the conduit to prevent adhesive or leveling compound from entering. Secure the conduit or sensor to the substrate before applying adhesive or compound.

Step 4: Prepare the substrate

Clean and vacuum the substrate thoroughly. Remove dust, sharp objects, construction residue and any material that could damage the heating cable.

The substrate must be dry, level, stable and suitable for installation. Repair cracks and uneven areas before laying the heating mat.



Step 5: Measure the resistance — first measurement

Using a digital ohmmeter, measure the heating mat resistance and compare it with the values listed in the table.

Enter the measured value in the Measurement Record. Also check the resistance between each conductor and the protective / grounding conductor — the reading must show infinite resistance.

Important

If the measured value is outside the permitted tolerance, stop the installation and contact an authorized service provider or technical support.

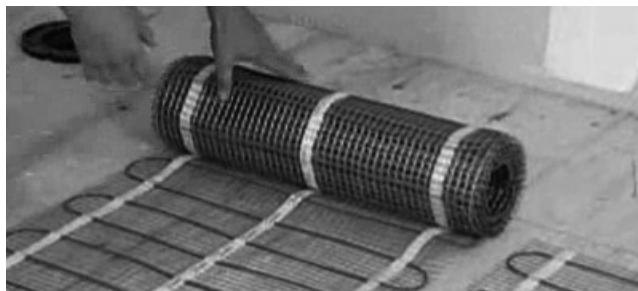
Step 6: Start laying the heating mat

The underside of the heating mat has an adhesive layer that helps keep the mat in place during installation.

Start by positioning the heating mat so that the connection joint and temperature sensor are in the planned positions, and the power supply cable is routed to the thermostat or connection box.

Unroll the heating mat evenly across the floor area, making sure not to enter zones previously marked as non-heated areas.

The adhesive layer allows the mat to be repositioned several times if needed before it loses adhesion. When you reach a wall or a point where the direction needs to be changed, cut only the mesh, turn the heating mat and continue laying it in the desired direction.



NEVER CUT OR SHORTEN THE HEATING CABLE!

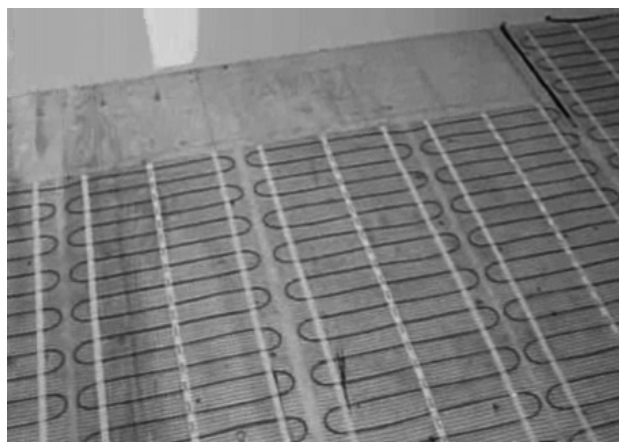
The heating mat must remain in full contact with the substrate at all times. Avoid walking on the heating mat. If walking is unavoidable, use shoes with soft soles.

When reaching obstacles such as a toilet, cabinets, units or other fixed elements, carefully release part of the heating cable from the mesh and route it around the obstacle.

In some cases, parts of the mesh may be completely removed. The heating cable must never be cut.

Secure loose cable sections to the substrate using hot glue or thin adhesive tape.

It is recommended to photograph the installed heating mat before installing the final floor covering.



Step 7: Measure the resistance — second measurement

Repeat the procedure described in Step 5.

Step 8: Install the final floor covering

Before continuing, check that the floor sensor conduit has been installed correctly, in accordance with Step 3.

For ceramic tiles, continue installation by fully covering the heating cables with a layer of flexible cement adhesive, in accordance with the instructions of the tile and adhesive manufacturer.

Make sure that the flexible adhesive fully covers the entire height of the heating cable during tile installation.

For wooden, engineered or laminate floor coverings, consult the floor covering manufacturer before installation.

For wooden floors, at least 5 cm of self-leveling compound over the heating cable is recommended. Before switching the system on, make sure that all moisture from the self-leveling compound has fully evaporated, in accordance with the drying time specified by the manufacturer. Always check the technical instructions of the material used.

Important

The system must not be switched on until the flexible cement adhesive or self-leveling compound has fully dried. A minimum waiting period of two weeks before first activation is recommended.

Step 9: Measure the resistance — third measurement

Repeat the procedure described in Step 5.

Step 10: Install the ceramic tiles

For ceramic tile installation, apply a layer of acrylic- or latex-modified flexible cement adhesive using the notched side of the trowel.

Install the tiles and grout in accordance with professional practice and the manufacturer's instructions for ceramic tiles and related materials.

Step 11: Connect the power supply and thermostat

The electrical power supply and thermostat must be connected by a qualified electrician.

The electrician should connect the floor sensor to the thermostat, perform the final resistance measurement and enter the values in the warranty certificate / measurement record, in accordance with Step 13.

The corresponding fuse / circuit breaker in the distribution board must be properly labeled, so it is clear which circuit supplies the electric heating cables.

Step 12: Measure the resistance — fourth measurement

Repeat the procedure described in Step 5.

Step 13: Record the data and apply labels

After installation, complete the warranty certificate / measurement record and keep a copy of the documentation.

Incomplete documentation, missing measurement values or failure to comply with the prescribed installation conditions may affect the right to make a warranty claim.

The warranty is valid in accordance with the conditions stated in the warranty certificate.

Keep a copy of the warranty certificate / measurement record for your records.

Step 14: Enjoy the comfort of ENYX underfloor heating

The electric underfloor heating system is now ready for use.

Increase the floor temperature gradually and adjust it until a comfortable level is reached, depending on the room type, final floor covering and user preferences.

COMMISSIONING

Recording measurements is required for warranty validity

Important: To exercise the right to the extended limited 15-year warranty, the required measurements must be performed, the results must be entered in the warranty certificate / measurement record, and a copy of the documentation must be kept.

During the installation process, the following tests must be performed four times:

- insulation resistance test
- heating cable resistance test
- floor sensor resistance test

1. Insulation resistance test

This test checks whether the insulation sheath of the heating mat is damaged. A low resistance value indicates cable damage. In that case, the system must not be installed or put into operation, and the damaged product must be replaced.

1. Connect the protective / grounding conductor to the black test lead of the multimeter, and both power conductors to the red test lead of the multimeter.
 2. Check that the multimeter displays “Open” or “OL”. If the reading shows a different value, stop the installation and contact an authorized service provider or technical support.
 3. Enter the measured values in the warranty certificate / measurement record.
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2. Heating cable resistance test

This test measures the resistance of the heating mat and checks the integrity of the electrical circuit.

1. Set the multimeter to the 200 Ω or 2000 Ω measuring range.
 2. Connect the multimeter test leads to the black and white conductors of the cold lead.
 3. Compare the measured resistance value with the specified value listed in the table on page 9. The measured value should be within the permitted tolerance range of -5% to +10%. If the reading is outside this range, stop the installation and contact an authorized service provider or technical support.
 4. Enter the measured values in the warranty certificate / measurement record.
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3. Floor sensor resistance test

This test measures the resistance of the floor sensor and checks that it is operating correctly.

1. Set the multimeter to the 200 k Ω measuring range.
2. Connect the multimeter test leads to the red and green sensor conductors.
3. Check that the multimeter reads a value between 9 k Ω and 25 k Ω . If the reading is outside this range, stop the installation and contact an authorized service provider or technical support.
4. Enter the measured values in the warranty certificate / measurement record.

Troubleshooting

If the system does not operate as expected, first check the power supply, controller, settings, sensor and measurement results. Do not open the floor or attempt to repair the heating cable without professional inspection.

The floor does not heat

- check that power is available and that the fuse is switched on
- check that the controller is switched on and correctly configured
- check the operating mode, set temperature and controller schedule
- check the connection of the heating mat, sensor and power supply according to the controller manual
- a qualified electrician should check the resistance of the heating mat and sensor
- check whether protection / residual-current protection or controller protection has been activated
- check whether too many heating mats or other consumers are connected to the same circuit
- for higher total load, a separate circuit may be required, according to the calculation of a qualified electrician

The floor is constantly warm / not warm enough

- check the time, program and operating schedule
- check whether manual mode is active or whether the set temperature is too high
- check the position and reading of the floor sensor
- check whether the final floor covering is suitable for electric underfloor heating
- check that the mat has been correctly sized according to the free heated area



Important

Do not cut, extend, repair or locally modify the heating cable. Any suspected damage must be checked by a qualified professional.

WARRANTY

Warranty summary and conditions

ENYX HEAT MAT STANDARD 150 has a limited warranty for the heating mat / heating cable, provided that the system has been properly installed, tested and that measurement records have been duly completed.

What the warranty covers

- 15-year limited warranty for the heating mat / heating cable
- the warranty applies to factory defects in materials or workmanship
- valid only for products installed and used in accordance with the ENYX manual
- the controller / thermostat is a separate product with a separate warranty
- this warranty does not limit the customer's rights under applicable regulations

What the warranty does not cover

- removal of ceramic tiles, floor coverings or construction work
- indirect damage, loss of income or costs not directly approved
- damage caused by unqualified installation or incorrect electrical connection
- mechanical damage, drilling of the floor or damage after installation
- cutting, shortening, extending, crossing or repairing the heating cable
- switching the system on before the substrate has fully dried
- installation without the required measurements and records



Important

Properly completed measurement records, photo documentation and proof of purchase are required for technical and warranty verification of the system.

FINAL INSTALLATION RECORD

Measurement record and installation data

This page must be completed by the installer and kept together with the proof of purchase, photo documentation and warranty documentation.

Data	Value
Building / room:	
Address / location:	
Investor / user:	
Installation date:	
Model:	ENYX HEAT MAT STANDARD 150
Mat area:	
Nominal output:	
Nominal resistance:	
Serial number / designation:	
Installer:	
Circuit / fuse designation:	

Measurement stage	Mat resistance Ω	Insulation test	Sensor resistance	Date	Signature
1. Before laying					
2. After laying					
3. After covering					
4. After final floor covering installation					



Warning

Without a properly completed record, it is not possible to reliably confirm that the system was not damaged during installation. Proper measurement records, photo documentation and proof of purchase are required for technical and warranty verification of the system.