INSTRUCTIONS MANUAL

CEILHIT

HEATING MAT CEILHIT

Read this manual carefully before installation.
Incorrect installation may damage the heating element and invalidate the warranty.

General Index

For more information:
www.ceilhit.es/en

Register your installation and get a lifetime warranty.

Thank you for choosing CEILHIT heating mat!

1. Introduction

Ceilhit heating mat is the main element in the installation of an electric underfloor heating system, that will provide you with maximum comfort.

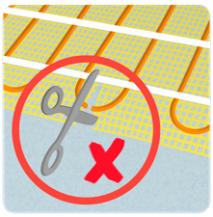
Installing the underfloor heating system is simple, but it is essential to follow all the instructions in this manual. This will ensure trouble-free installation, optimum use of the underfloor heating system and a full product guarantee.

2. Important Warnings

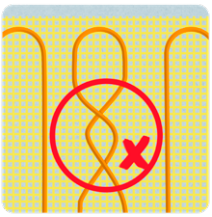
Read the installation manual carefully

Install thermal insulation under the heating mat

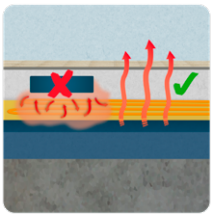
Do not install the heating mat under fixed structures (fixed floor furniture / sanitary fittings)



Never cut the heating cable



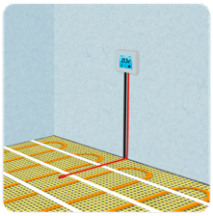
Never cross heating cables



Never leave objects blocking the radiation. Do not cover with insulating material

Completely cover the heating cable without leaving any air bubbles

Carry out the required measurements and record the values obtained



Always install a control system with a floor probe

3. Eco-Design Requirements – Regulation UE 2024/1103

This product is a fixed electric local space heater and, in order to comply with the mandatory ecodesign requirements set out in Commission Regulation (EU) 2024/1103, it must be equipped with a control unit that provides at least the following control functions:

- **TW** (0/f2/0/0/0/0/0/0)
- **TW** (0/0/f3/0/0/0/0/0)
- **TW** (0/0/0/f4/0/0/0/0)
- **TW** (0/0/0/0/0/0/0/f8)

Control unit functions according to code **TW** (0/0/0/0/0/0/0/f8)

This product requires a control unit to meet the mandatory ecodesign requirements set out in Regulation (EU) 2024/1103

Contact details	Ceilhit SLU , C/ Galileu 38-40 , 08850 Gavà, Barcelona, Spain
Model identification mark	**ADPSZV Heating mats**

Heat Output	Symbol	Value	Unit
Nominal Heat Output	Pnom	0,12 -1,76 kW	kW
Minimum heat output (inidcative)	Pmin	Not aplicable	kW
Maximum continuous heat output	Pmax,c	0,12 -1,76 kW	kW

Control unit functions necessary to meet the mandatory ecodesign requirements set out in Regulation (EU) 2024/1103

Type of heat output / room temperature control (select one)	
One level of heat output, without room temperature control	No
Two or more manual stages, without room temperature control	No
Mechanical thermostat for room temperature control	No
Electronic room temperature control	No
Room temperature control with daily program	No
Electronic room temperature control with weekly program	**Yes**
Other control options (multiple options can be selected)	
Presence detection	No
Open window detection	No
Distance control option	No
Adaptive start control	No
Working time limitation	No
Black bulb sensor	No
Self-learning functionality	No
Control accuracy	**Yes**

		Code of temperature control (TC)	Control functions							
			f1	f2	f3	f4	f5	f6	f7	f8
Type of temperature control	Single stage, no temperature control	NC								
	Two or more manual stages, no temperature control	TX								
	Mechanic thermostat room temperature control	TM								
	Electronic room temperature control	TE								
	Electronic room temperature control plus day timer	TD								
	Electronic room temperature control plus week timer	TW								
Control functions	Presence detection		1							
	Open window detection			2						
	Distance control option				3					
	Adaptive start control					4				
	Working time limitation						5			
	Black bulb sensor							6		
	Self-learning functionality								7	
	Control accuracy with CA < 2 Kelvin and CSD < 2 Kelvin									8

Instructions for dismantling, disposing of or recycling the product at the end of its life:

Products marked with this symbol must not be disposed of with normal household waste, but must be disposed of separately and recycled. Collection and recycling of products at the end of their life must be ensured in accordance with local regulations and ordinances.

In Spain, the manufacturer is involved in a collective product take-back system ECORAEE.
After the end of its useful life, please return the product to the nearest product take-back point (collection yard).

4. General Information

-The heating mat consists of a fibreglass mesh and an ADPSZV heating cable, with two heating conductors and a metallic screen. It is suitable for both renovation and new construction.

-The use of the heating mat considerably reduces the risk of error or damage to the heating cable during installation.

-The heating mat is designed to be installed in 'wet' construction systems (concrete, flexible cement, self-levelling cement, adhesive mortar, etc. that meet thermal flexibility requirements). The heating mat must be completely embedded in these materials (with no air bubbles for good heat diffusion).

-The heating cable must be positioned so as to leave a free space of at least 5 cm from the walls.

-The heating cable must be installed in accordance with the drawings in section 7.

-The heating cable can never be cut or shortened, but the cold connection cable can be shortened if necessary.

-The 'junction' - the element where the heating cable and the cold lead cable are connected - must be installed on a straight section of cable and must not be located next to an elbow. It must also be embedded in the cement/mortar adhesive.

-Never install the heating mat under a bath, shower tray or WC, or under furniture that does not allow air to circulate (without feet). The maximum thermal resistance between the heating mat and the room must be R = 0.18 m^2K/W.

-The heating cable must not pass through layers of materials that expand and contract (e.g. through wood, which can absorb/release moisture). If the cold lead must pass through such a material, it should be placed inside a protective corrugated tube.

-For safety reasons, the heating mat should not be installed on walls.

-When handling and installing the heating mat, take care not to mechanically damage the heating cable. The integrity of the cable must be visually checked before covering the heating mat.

-The heating mat must not be installed on uneven floors.

-There is a label on the heating mat indicating the results of the factory checks: batch, operators, nominal power measured (the tolerance of the power in watts (W) is +5/-10%, the tolerance of the resistance (Ω) is: -5/+10% of the nominal value).

-The layout of the cable throughout the room must be recorded on the warrant certificate by means of a diagram or photos (including the exact location of the end connection and the connection of the heating cable to the power supply cable).

-You must keep the properly completed certificate.

-Before and after installing the heating mat, its resistance and insulation resistance must be measured. These measured values must match the values shown on the label.

-The insulation resistance between the heating cable and the earth must be measured before and after laying the mat. The measured value must not be less than 0.5MΩ. The measured values are recorded in the warranty certificate.

-Insufficient thermal insulation under the heating mat can lead to significant heat loss. See recommendations in section 6: Types of installation.

5. Electrical Installation

The electrical connection must comply with the standards applicable in the country of installation.

Installation must be carried out by a qualified electrician, in accordance with the standards applicable in the country of installation.

-The heating mat must be installed using a fixed electric installation.

-The cold lead earthing cable of each element must be connected to an earthing point of the electrical installation in accordance with the standards in force.

-The electrical supply to the system must be ensured by the presence of a residual current circuit breaker (RCCB) with a maximum rating of 30mA. The installation of a RCD for each circuit is recommended.

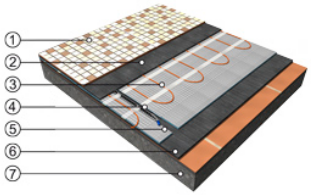
-The system's power supply must be capable of disconnecting both poles and must be fitted with a fuse or circuit breaker.

The installation of the heating mat must be indicated on the electrical supply switchboard using the label supplied with this manual for future interventions.

6. Types of Installations

As we mentioned previously, underfloor heating systems with heating mats can be used in both renovations and new constructions.

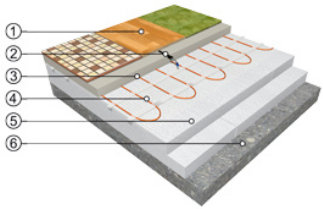
a.Direct heating - Renovation



1. Floor covering
2. Flexible adhesive
3. Heating mat or heating cable
4. Floor sensor in protection tube
5. Additional thermal insulation
6. Flexible cement adhesive
7. Original floor (previous tiles, concrete)

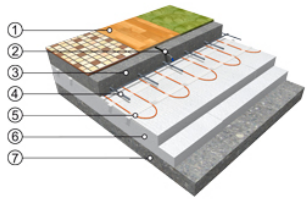
This is one of the most common installation systems: the underfloor heating system is placed directly on an existing floor, with thermal insulation (between 6 and 10 mm) and a heating mat with a total thickness of less than 1.5 cm.

b.Direct heating - New construction



1. Floor covering
2. Floor sensor in protection tube
3. Self-levelling screed
4. Heating mat or heating cable
5. Thermal insulation (3 cm minimum)
6. Slab - Concrete base

c.Semi-accumulation heating - New construction



1. Floor covering
2. Floor sensor in protection tube
3. Concrete screed
4. Metal reinforcement
5. Heating mat or heating cable
6. Thermal insulation (minimum 3 cm)
7. Slab - Concrete base

In new constructions for both types of installation, there are generally no problems with thickness. In this case, the underfloor heating system is installed with thicker thermal insulation for greater efficiency. A thermal resistance greater than 1.00 m^2K/W (equivalent to 3-4 cm of XPS (extruded polystyrene)) is recommended when the concrete base is located above a heated room, or greater than 2.00 m^2K/W (equivalent to 7-8 cm of XPS) in other cases.

7. Heating Mat Installation

Before starting installation, please watch our installation video available on our YOUTUBE channel

-Check the product label and make sure that the heating mat corresponds to the surface and wattage required.

-Measure the resistance of the heating cable (see fig. 1), check that it corresponds to the value shown on the label (within the tolerance of -5% /+10%) and record the resistance value on the warranty certificate.

-Measure the insulation resistance between a conductor and the earth conductor. The measured value must not be less than 0.5 MΩ. Record the measurement on the warranty certificate.

-If any of the three points above is not met, stop the installation and contact the supplier.

-If there is no thermal floor insulation in the building, install thermal floor insulation according to the manufacturer's instructions.

-Select and mark on the floor the location of the 'junction' and the thermostat floor sensor. Make the groove in the floor at the marked point (see fig. 2).

-Clean the floor thoroughly and apply a suitable primer if necessary (see fig. 3).

-Insert the floor sensor in the protective tube, seal the tube with adhesive tape (to prevent cement penetration), place the tube in the groove and secure it with adhesive tape (see figure 4).

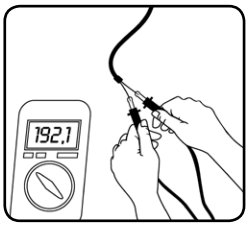


fig. 1

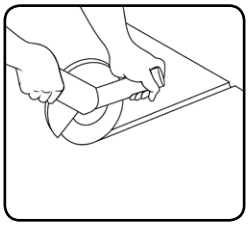


fig. 2

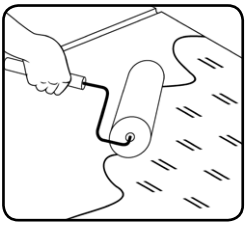


fig. 3

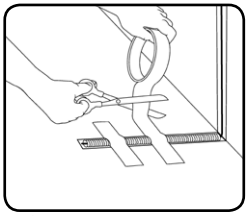


fig. 4

-Remove the ADPSZV heating mat from its packaging and prepare it for installation, starting from the area where the thermostat will be installed. Make sure that the floor sensor protection tube is in the middle of a loop (between the cables) (see fig. 5).

-Remove the paper backing from the double-sided adhesive tapes (see fig. 6) and gradually stick the mat to the floor in the layout you have chosen. If the mat does not have double-sided adhesive tape, tape the heating mat to the floor. The heating mat can be adjusted as shown in Figures 7, 8 and 9.

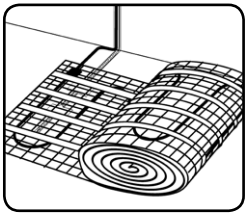


fig. 5

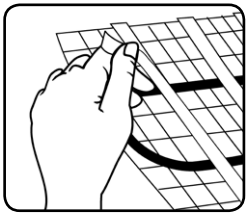


fig. 6

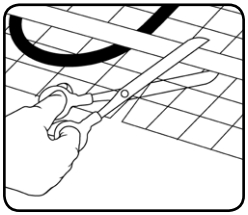


fig. 7

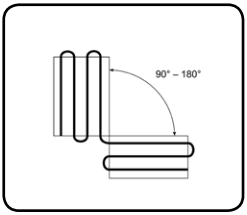


fig. 8

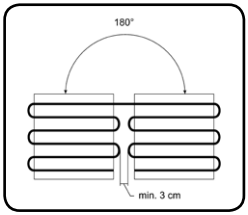


fig. 9

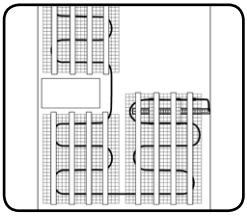


fig. 10

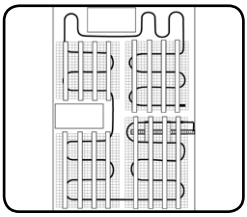


fig. 11

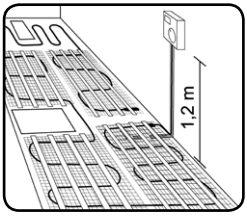


fig. 12

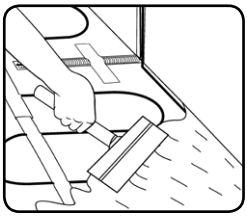


fig. 13

-**The heating cable must never be cut!** Only the fibreglass mesh may be cut. If you need to adjust the cable disposition, please note that the distance between the cables must always be greater than 3 cm (see figs. 10, 11, 12).

-Now that the heating mat and floor sensor have been installed, the cement/mortar adhesive can be applied using a spatula or similar tool (see fig. 13). When applying, make sure that the cement/adhesive mortar penetrates the heating mat and covers the entire cable. **Do not leave any air cavities/bubbles!** Follow the manufacturer's instructions when applying the fixing material (cement, adhesive mortar). Use a smooth spatula or similar to level the heating mat you have laid.

-Before laying the tiles, measure the resistance of the heating cable again (see fig. 14). For small areas (up to 4 m^2), the tiles can be laid immediately (see fig. 15). For larger surfaces, wait 24 hours first.

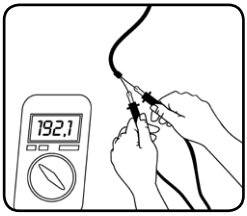


fig. 14

-Draw and mark on the guarantee certificate: the location of the 'junction', the orientation and layout of the heating mat and the values measured (before and after laying).

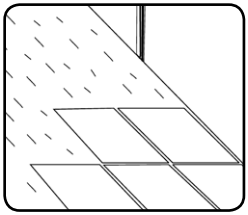


fig. 15

-Before using underfloor heating, wait the time specified by the manufacturer of the bonding material. **The heating system must not be used to accelerate the drying of the material!**

Recommendations for embedding heating elements:

- **Installation with a flexible adhesive mortar directly under the ceramic floor covering.** Use a C2 S1 or S2 fluid adhesive (in accordance with EN 12004). Spread the thin-bed mortar over the heating mat, ensuring that the heating element and the mat are completely covered. The layer of mortar adhesive must be uniform and completely cover the heating element. Smooth the finished surface using a smoothing tool, preferably plastic, to avoid damaging the cable and parallel to the heating element. Observe the curing times for the adhesive mortar indicated by the manufacturer before putting the heating mat into service.

-Installation using self-levelling screed:
Use a self-levelling mortar suitable for radiant heating systems according to the mortar manufacturer's specifications. Carefully follow the manufacturer's instructions (mix, recommended thickness, application method, full setting time, etc.). Then use a C2 S1 or S2 cement-based adhesive to lay the ceramic floor. Wait a minimum of 5 days after laying the floor covering before putting the heating mat into service

8. Temperature Control

The heating mat is a fixed electric local space heater and, in order to comply with the mandatory ecodesign requirements set out in Commission Regulation (EU) 2024/1103, it must be equipped with a control unit that provides at least the following control functions (Refer to the table included at the beginning of this manual):

Electronic room temperature control with weekly program with at least one of the following control options :

- Open window detection
- Distance control option
- Adaptive start control
- Control accuracy with CA<2 Kelvin y CSD<2 Kelvin

The temperature control system uses a thermostat fitted with a floor sensor.

-The floor sensor is placed at least 30 cm inside the heated zone.

-The floor sensor is placed inside a corrugated protective tube, sealed at the end with adhesive tape to prevent mortar penetration. The radius of curvature of the corrugated tube between the floor and the wall must allow the probe to pass in both directions so that it can be replaced if necessary. (Minimum recommended radius 6 cm).

-The sensor should be placed at an equal distance from two cables, taking care not to touch or cross the cable.

To operate the thermostat, refer to the thermostat instructions. The control mode used must be floor temperature or room temperature with floor temperature limitation.

The maximum permissible floor temperature (unless the floor covering manufacturer's technical data sheet specifies a lower maximum value) is:

-28°C for premises used on a regular basis.
-35°C for occasional use.

The system must not be put into service before 5 days after laying the floor covering in the case of self-levelling cement or tile adhesive, or 30 days in the case of installation in concrete. Some thermostats allow the system to be turned on gradually after these 30 days, in which case refer to the thermostat instructions.
These data are indicative and in all cases it is necessary to refer to the instructions for the construction material used.

9. Warranty

The manufacturer offers a 36-month warranty on the functionality of the ADPSZV heating mat provided that :

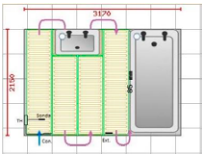
- The warranty certificate and the certificate of purchase (ticket or invoice) are presented
- The instructions in this installation guide have been correctly followed.
- The results of the measurements, the connection data and the layout of the heating mat mentioned in the previous sections are correctly recorded on the warranty certificate.
- When applying the adhesive or mortar, the manufacturer's instructions have been correctly followed.

The warranty period begins on the date of installation recorded on the warranty certificate (or no later than 6 months from the date of sale).

To activate the warranty, the claim must be made in writing to the company that carried out the installation or, if necessary, to the manufacturer.

If all the above warranty conditions are met, even after the end of the initial warranty period, we offer a free post-warranty repair service for 7 years (in accordance with the general warranty conditions).

INSTALLATION LAYOUT



Draw the precise layout of the CEILHIT heating mat on the diagram below. It is important to indicate the exact location of the power cable connection, the end connection and the position of the temperature sensor. Please indicate the exact measurements of the dimensions and location of the sanitary fittings as in the attached example. It is also necessary to keep the labels found on the product..

This duly completed guarantee certificate will be kept by the owner of the installation and must be presented in the event of a complaint under the warranty.

WARRANTY CERTIFICATE

HEATING MAT CEILHIT

Manufacturer: CEILHIT SLU, C/Galileu 38-40, Gavà 08850, Barcelona, Spain
Tel: +34 93 26 111 25 / Email : comercial@ceilhit.es / www.ceilhit.es

Purchase date: _____
Name of purchaser / Address:_____
_____

CEILHIT SLU provides a 10-year guarantee on heating mats against manufacturing defects. This guarantee is subject to the conditions described below:

1. Installation and subsequent use have been carried out in accordance with the installation and use instructions which form an integral part of each product.
2. This CEILHIT warranty certificate has been fully completed* after installation, with all the required data, and has been kept with the sales receipt or invoice. It must be presented to activate the warranty process.

* All fields must be completed, including:

- The electrical resistance measurement record (before and after installation).
- Record of insulation resistance check.
- The name and signature of the qualified electrical installer who carried out the installation.

PRODUCT LABEL DATA

REFERENCE:	**OUTPUT:_____W**	**LENGTH:_____m**
BATCH NUMBER:	**RESISTANCE: _____Ω**	**SURFACE:_____m^2**

MEASUREMENTS DURING INSTALLATION

Initial control		After laying the mat		After floor covering	
Resistance	Insulation	Resistance	Insulation	Resistance	Insulation
_____Ω	_____MΩ	_____Ω	_____MΩ	_____Ω	_____MΩ
Date:		Date:		Date:	
Installer name:		Installer name:		Installer name:	

FLOOR CONSTRUCTION/ DIFFERENT LAYERS

Material (type/reference)	Thickness (cm)	3.	
1.		4.	
2.		5.	

INSTALLATION HAS BEEN PERFORMED ACCORDING TO THE INSTRUCTION MANUAL: YES☐ NO ☐ BY:

Installation company (name/contact) :
Installer (name/contact) :

DATE : **SIGNATURE AND STAMP :**

NB : The layout diagram of the CEILHIT heating mat must be drawn on the reverse side of this guarantee document. All fields must be completed and this certificate must be kept with the sales receipt or invoice..