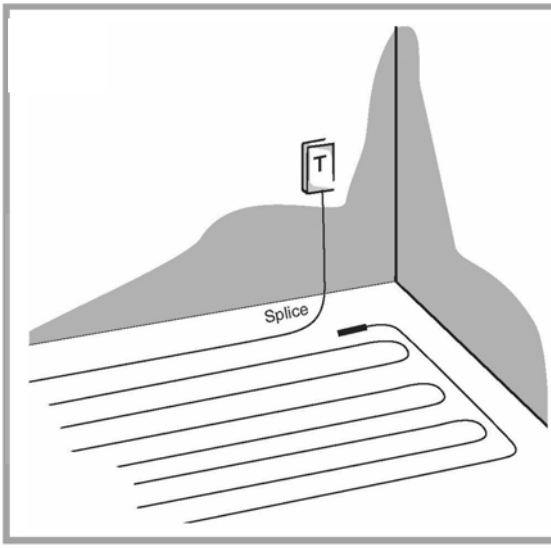
VAUFHC

Underfloor Heating Cable Range

Installation and Wiring Instructions



Stock Ref. N°

446201
446202
446203
446204
446205
446206
446207
446208
446209
446210
446211
446212
446213

220-240V~50Hz

Vent-Axia®

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PLEASE READ INSTRUCTIONS IN CONJUNCTION WITH THE ILLUSTRATIONS.
PLEASE SAVE THESE INSTRUCTIONS

Installation Instructions for BLUE THERMAL heating cables

Product description

BLUE THERMAL resistive twin conductor heating cable, with a metallic alloy as the warm conductor and a solid copper wire as the return conductor. The heating cable has a factory fitted end seal and an integrated hidden splice (marked SPLICE on the cable) between the cold lead and the heating element itself.

Constant power:	As stated on cable/package (Watt)
Rated Voltage:	230V
Maximum Voltage:	500V
Conductor insulation:	XLPE (PEX)
Outer sheath:	PVC
Minimum bending radius:	5x outer diameter of cable

Application

The main area of use for BLUE THERMAL cables is underfloor heating. Cable output [W] and output per meter [W/m] are determined with regards to room size and type, type of installation and floor type. BLUE THERMAL cables can be used both in new and renovation projects.

Important!

Before the installation starts Read through these installation instructions before any work starts. This product should only be installed by qualified personnel, who are familiar with the construction and operation of the product and risks involved. The installation of this heating product shall be in accordance with the manufacturer's instructions and the regulations of the authority having jurisdiction.
Measure insulation resistance and heating element resistance before the cable is taken out of the package.

The heating cable should never be installed directly in contact with combustible materials, except where the following condtions are met:

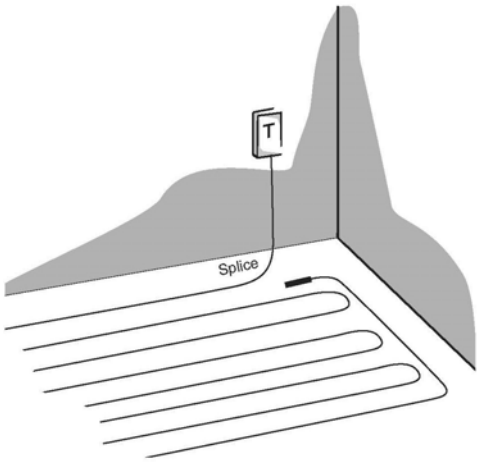
- The heating cable has an output per meter of 10W/m (3W/ft) or less
- Heated area is 80W/m² (7,5W/ft²) or less

To prevent high temperatures in the floor construction the following must be followed:

- Max. 80W/m²(7,5W/ft²), max 10W/m (3W/ft) in wooden floors*
- Max. 80W/m²(7,5W/ft²) when the top surface is parquet*, laminate*, or carpet.
- Max. 150W/m² (13,9W/ft²) when the top covering is stone, tiles, vinyl or linoleum.

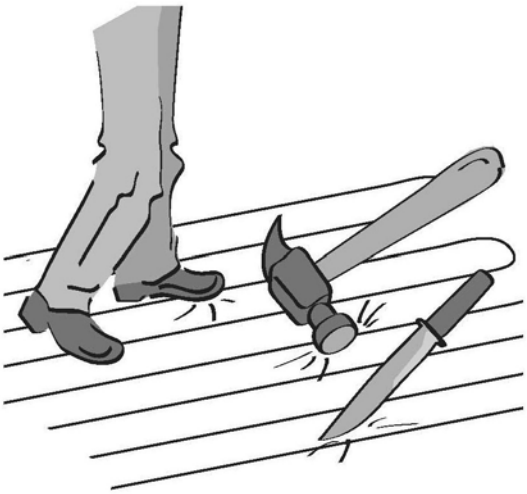
* When installing heating cables beneath a wooden floor it is recommended to contact the vendor of the floor, to ensure the floor is suitable for the planned heating system including output in W/m² (W/ft²). Some wooden floors, allow a maximum area power as low as 60W/m² (5,6W/ft²) and restriction on maximum surface temperature as low as 27˚C(81˚F).

Installation instructions – step by step



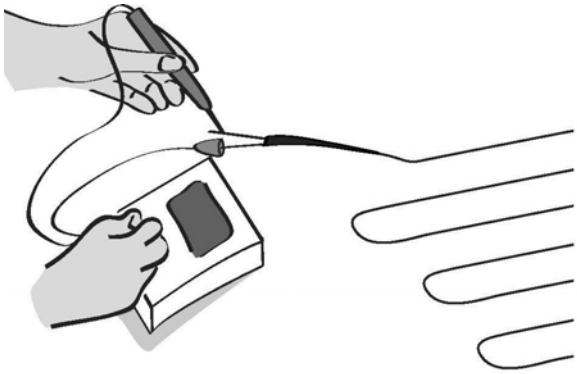
1. Plan the installation first and then lay the cable in the pre-calculated C-C distance on the sub-floor. It is recommended that the sub-floor is insulated to reduce heat-loss downwards. However the heating cable must not be in contact with the insulation or pressed down into it. This can be prevented, e.g. by installing the cable on chicken wire. It is often a good choice to start with placing the splice(s) in the floor near the thermostat. The splice(s) must not be placed in a tube or in a wall. The end-seal of a twin conductor cable is preferably placed in a dry zone of the floor. Apply glue, attach bands, or fix cable ties to keep the heating cable in place at the correct C-C distance. It is important that the cable will stay in place when the floor is poured. Keep the correct distance (C-C) between cables, and avoid at all times overlapping or crossing of cables, as this causes unwanted thermal effects.If attaching the heating cable to reinforcement bars, longitudinal bars are preferred. The heating cable shall not be attached to pipes in the floor or other components preventing heat flow. Be aware that the cable will be exposed during installation to mechanical damage when placed on reinforcement bars. Heating cables should not be installed beneath kitchen cupboards, walls or other permanent installations which do not allow air circulation. Furniture that stands on the heated area must have feet to ensure that air can circulate and that heat emission from the floor is possible. The heating cable is never to be cut or shortened in any way. If a floor sensor is connected to the thermostat this should be installed inside a tube exactly between two cable strings in the floor. The end of the tube should be sealed with tape. When installing the sensor in a tube, it can be changed later if needed. Make a drawing of the installation and/or take a photograph for future reference before pouring the floor.

2. Avoid stepping or dropping items on the cable and use caution in further works with pouring the floor.

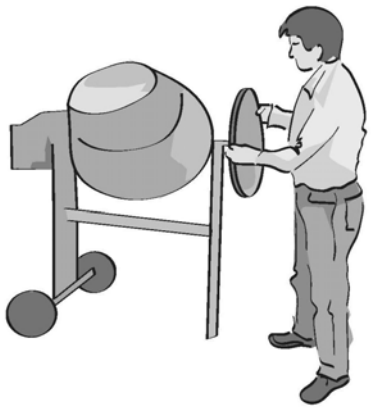


3. Measure insulation resistance and element resistance after the cable has been installed but before any concrete/screed/mortar is poured.

To build a good and efficient heated floor the slab on the sub-floor containing the heating cables must have good heat conductivity to create an even temperature throughout the slab, securing efficient heat emission from the cable to the room.

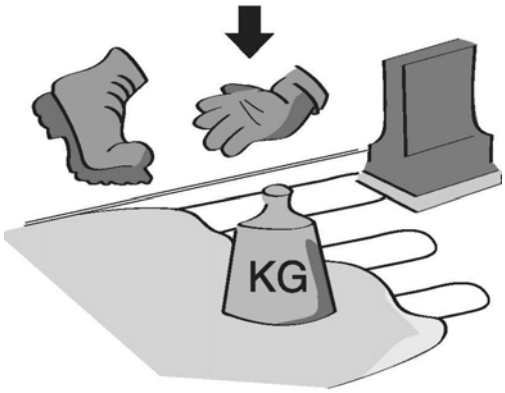


4. When embedding heating cables in concrete/screed/mortar this must be mixed correctly as prescribed by the vendor. Mix the materials well, before pouring the concrete/screed/mortar onto the subfloor and the cables.

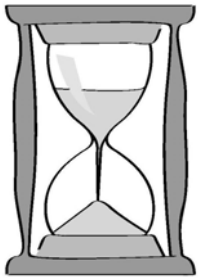


5. BLUE THERMAL cables must be embedded with minimum 5 mm (0,2 inches) concrete/screed/mortar above the cable when the top floor covering is tile or stone. The minimum is 10 mm when the top floor covering is vinyl, linoleum, carpet, engineered wood or other.

6. Compact well to prevent air pockets and a porous slab. The concrete/screed/mortar must surround the cable entirely to ensure good and necessary heat conductivity from the cable to it's surroundings. Good heat conductivity is important for the function of the floor, but also to prevent excessive temperatures. Some concrete types can be mixed with small amounts of water as specified by the vendor. In these cases pay special attention to the mixing and the compacting as these floors easily becomes porous and thereby thermally insulating. It is recommended to use concrete/screed/mortar designed for heated floors. Thermally insulating types cannot be used.



7. The heating cable is not to be used before the concrete/screed/mortar has naturally hardened and dried. This can take up to 6-8 weeks. Please consult the instructions/guide provided by the vendor of the concrete/screed/mortar.



8. A thermostat is recommended to regulate the heating cables. Before this is connected measure the insulation resistance and the element resistance of the heating cable to check cable integrity. This will also reveal any damage done to the cable during installation. The documentation supplied with the thermostat is to be passed to the owner of the installation, being a part of the total documentation of the heating cable system. The heating cable must be connected to electrical earth properly and always be protected by a ground fault circuit breaker. This breaker should have a maximum trip value of 30 mA. If installing more than one heating cable in a room both cables can be connected to the thermostat. However ensure the cables are connected in parallel (not series), and that the total power output does not exceed the limit of the thermostat.

Advice regarding thermostats and regulators

Electrical floor heating gives a very comfortable and economical heat. Floor heating is somewhat slower to regulate than wall mounted heating and the best results are achieved when using an electronic thermostat for temperature control.

In wet rooms it is common to use a thermostat with a floor sensor only. Comfortable bare foot temperature is usually around 26˚C (79˚F).

User manual

The heating cable system should not be turned on before the floor has hardened naturally. The thermostat or control system must be used according to the manufacturer's instructions. Avoid drilling, cutting, attaching bolts or similar in the heated floor. If this must be done contact an electrician who can help locate heating cables. Documentation of the heating system received from the installer should provide information on where the cables are located.

In rooms with an area power of 100 W/m² or more (for example in a bathroom) carpets are not to be used. Caution is to be taken when placing insulating items on the floor such as diaper packages, heaps of clothes and so on. Such items should preferably be placed in other areas. In rooms with an area power of 100W/m² or less, pay attention when placing insulating items on the floor, for example carpets or furniture without feet. Permanent installations covering a room area should always be installed in non-heated areas.

The heating cable is tested in conformity with IEC 60800, EN50265 / IEC 60332-1.

The table below shows recommended BLUE THERMAL heating cables 17W/m and centre spacing for various room sizes and outputs

Room m²	Load 60-80 W/m²	cc-cm	Load 80-100 W/m²	cc-cm	Load 100-120 W/m²	cc-cm	Load 120-150 W/m²	cc-cm
3			1 x 446201	17	1 x 446201	17	1 x 446202	12
4	1 x 446201	22	1 x 446202	17	1 x 446202	17	1 x 446203	13
5	1 x 446201	28	1 x 446202	21	1 x 446203	17	1 x 446204	14
6	1 x 446202	25	1 x 446203	20	1 x 446205	14	1 x 446206	12
7	1 x 446203	23	1 x 446204	20	1 x 446206	14	1 x 446207	12
8	1 x 446203	27	1 x 446205	19	1 x 446206	16	1 x 446207	13
9	1 x 446204	25	1 x 446206	18	1 x 446207	15	1 x 446208	12
10	1 x 446204	28	1 x 446206	20	1 x 446207	17	1 x 446208	13
11	1 x 446205	26	1 x 446206	22	1 x 446208	15	1 x 446209	13
12	1 x 446205	29	1 x 446207	20	1 x 446209	15	1 x 446210	12
13	1 x 446206	26	1 x 446207	22	1 x 446209	16	1 x 446210	13
14	1 x 446206	28	1 x 446208	19	1 x 446209	17	1 x 446210	14
15	1 x 446207	25	1 x 446208	20	1 x 446210	15	1 x 446211	12
16	1 x 446207	27	1 x 446209	19	1 x 446210	16	1 x 446211	13
17	1 x 446208	23	1 x 446209	21	1 x 446210	17	1 x 446211	13
18	1 x 446208	24	1 x 446209	22	1 x 446211	14	1 x 446212	12
19	1 x 446208	25	1 x 446210	19	1 x 446211	15	1 x 446212	12
20	1 x 446208	27	1 x 446210	20	1 x 446211	16	1 x 446212	13
21	1 x 446209	26	1 x 446210	21	1 x 446211	17	1 x 446212	14
22	1 x 446209	27	1 x 446210	22	1 x 446212	14	2 x 446209	14
23	1 x 446209	28	1 x 446211	18	1 x 446212	15	1 x 446213	12
24	1 x 446210	24	1 x 446211	19	1 x 446212	16	1 x 446213	12
25	1 x 446210	25	1 x 446211	20	1 x 446212	16	1 x 446213	13
26	1 x 446210	26	1 x 446212	17	2 x 446209	16	1 x 446213	13
27	1 x 446210	27	1 x 446212	18	2 x 446209	17	1 x 446213	14
28	1 x 446211	23	1 x 446212	18	1 x 446213	14	2 x 446210	14
29	1 x 446211	23	1 x 446212	19	1 x 446213	15	2 x 446211	11
30	1 x 446211	24	1 x 446212	20	1 x 446213	15	1 x 446211	12

Stock Ref number	Model/Cable rating
446201	VAUFHC 300W/17.6m
446202	VAUFHC 400W/23.5m
446203	VAUFHC 500W/29.3m
446204	VAUFHC 600W/35.2m
446205	VAUFHC 700W/41.0m
446206	VAUFHC 840W/49.7m
446207	VAUFHC 1000W/58.3m
446208	VAUFHC 1250W/72.4m
446209	VAUFHC 1370W/80.8m
446210	VAUFHC 1700W/100.0m
446211	VAUFHC 2100W/123.7m
446212	VAUFHC 2600W/154.5m
446213	VAUFHC 3300W/194.0m

VAUFHC WARRANTY FORM

Installed by (Company):				
Installation address:				
Room/area:				m²
Rated values				
Cable type(s):				W
Single-/Twin conductor:				
Linear output:				
Rated resistance:				
Rated voltage:				
Check measurements	**Before installation**	**Before pouring**	**Before connecting**	**Date & signature**
Element resistance (-5/+10%):				
Insulation resistance (>100 MOhm):				
Construction details				
Installation depth:				cm
No. of elements/mats installed:				stk/st/kpl/pieces
Installed/heated area:				m²
Area output in heated area:				W/m²
Size circuit breaker:				A
Trip level RCD/GFCI (ground fault protection):				≤30mA
Earthed cable screen:				
Earthed chicken wire:				
Other (specify):				
Max. temperature in construction is limited to 80 ˚C by:				
Planning:				
Installation:				
Limiting/protecting equipment (specify):				
Control system				
Designation of type:				
Floor sensor				
Room sensor				
Other specify				
Installer statement The heating cable product is installed according to Vent-Axia installation instructions and the building owner has been informed about precautions and limitations which apply to heated floors. **Date/signature/stamp:**				
Special notes about this installation				
Building owner / Purchaser Warranty form and user manual has been received, read and understood. Date & Signature				

Product extended warranty

All of our heating cable units and their components are thoroughly tested during production. The final test is a high voltage test and measurement of the conductor resistance. Only the units which have passed the tests, are sent to the market. Vent-Axia offers an extended 10-year warranty on defects in material and workmanship in the sold product, under proper and normal use and service. In case of a defect, Vent-Axia will repair or replace the product. Please see the terms of warranty for further details. The warranty does not extend to defects caused by a faulty installation. For the extended warranty to be valid these installation instructions must be accompanied with. The written warranty form inside each box containing a product must be filled in. This is to ensure a correct installation and that no damage has been done to the product during the installation. If, during the installation, a heating cable is damaged, it will have to be replaced before the construction is finished. Vent-Axia must be given notice of any defect within 30 days after the defect was discovered, and the warranty form correctly filled in must accompany the claim in order for the extended warranty to be valid.

The *Vent-Axia*® Guarantee

Applicable only to products installed and used in the United Kingdom. For details of guarantee outside the United Kingdom contact your local supplier.

Vent-Axia guarantees its products for two years from date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's option replaced, without charge, provided that the product:-

- Has been installed and used in accordance with the instructions given with each unit.
- Has not been connected to an unsuitable electricity supply. (The correct electricity supply voltage is shown on the product rating label attached to the unit).
- Has not been subjected to misuse, neglect or damage.
- Has not been modified or repaired by any person not authorised by the company.

IF CLAIMING UNDER TERMS OF GUARANTEE

Please return the complete product, carriage paid to your original supplier or nearest Vent-Axia Centre, by post or personal visit. Please ensure that it is adequately packed and accompanied by a letter clearly marked "Guarantee Claim" stating the nature of the fault and providing evidence of date and source of purchase.

The guarantee is offered to you as an extra benefit, and does not effect your legal rights

Vent-Axia®

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UK NATIONAL CALL CENTRE, Newton Road, Crawley, West Sussex, RH10 9JA
SALES ENQUIRIES: Tel: 0844 8560590 Fax: 01293 565169
TECHNICAL SUPPORT: Tel: 0844 8560594 Fax: 01293 539209
For details of the warranty and returns procedure please refer to www.vent-axia.com or write to Vent-Axia Ltd, Fleming Way, Crawley, RH10 9YX

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