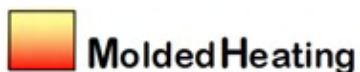


Installation Instructions for IntelliOhm™ Floor Heating FH 230



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IntelliOhm's floor heating system is designed for lying under wood, parquet and laminate floors. The floor heating mat is provided with an insulating layer of cellular foam which also renders stepping sound damping.

We recommend following installation: When so required, lay first a vapour barrier PE-film over the under floor. On top of that, place the floor heating mats and cover those with so called floor paper. Finally lay the actual wood, parquet- or laminate floor. The mat shall always be laid with the cellular foam layer downwards. If underlayment is a vinyl or linoleum mat one needs not to use any moisture barrier. However you have to place floor paper between that kind of underlayment and the floor heating mats. We recommend you to contact your supplier of the top floor for best advice in the matter.



Technical data

Self regulating	
Voltage	230 V
Current	0,12 A/m at 20 °C (varies with temperature)
Heating power	70 W/m ² +5% - 10% at 20 °C (varies with temperature)
Individual mat length	Maximum 10 m
Weight	1,4 kg/m ²
Material	Polyolefin (recyclable)
Thickness	5 mm
Electromagnetic fields	Negligible
PVC and halogen free	Yes, except for the cables

Accessories

- 1 Wire loom
- 2 Connectors
- 3 Insulation tape
- 4 Mastic Tape
- 5 Thermostat



Important to consider before installation

Take your time in carefully studying the following matters:

1. The floor heating mat shall be installed on a flat surface.
2. During the installation the floor heating mat should not be subjected to sharper bending than what the rolls have when delivered.
3. There must not be any sharp edges or objects over or under the floor heating mat.
4. The floor heating mats must not be subjected to any abuse during installation. Be careful when you walk over the mats.
5. Never, place any thermal insulation between the heating mat and the wood, parquet or laminate floor. You definitely don't want to obstruct the heat flow.
6. If you need to use a vapour barrier film in the installation, place it between the under floor and the floor heating mat.
7. If the underlayment is a vinyl or linoleum mat you normally do not need any extra moisture barrier. However you should place flooring paper between those underlayments and the floor heating mat.
8. Always place floor paper between the heating mats and the wood, parquet or laminate floor.
9. Never apply any tape onto the heating mats except for electrical insulation of it's ends. The adhesive in the tape can impart the properties of the heating mat.
10. Always place the floor perpendicular to the heating mats when possible.
11. Do not install the system in installed premises like a glazed balcony. Avoid Installation in premises with large temperature variations ranging outside the interval from, -10 to +30 °C.
12. Cut the floor heating mat crosswise at a right angle.
13. The top floor in form of wood, parquet or laminate floor shall have a thickness of at least 5 mm.

14. Always, place the white cellular foam downwards. Do not under any circumstance remove the foam from the heating mat. It shall only be freed at the ends of the mat when applying insulating tape and mastic tape at the connectors.
15. Test the installation prior to the laying of the wooden floor. Record the resistance (Ohm) between phases. Check thereafter the current in the conductor using an Ampere meter. The current should be between 0,1 and 0,15 A/meter.
16. The electrical installation must be carried out by a certified electrician. Always install an earth fault protection breaker in the circuit.
17. A mains two pole circuit breaker with least 3 mm breaking distance should be part of the installation or in the thermostat.
18. The floor heating mats must not come into contact with solvents, vegetable and mineral oils. Please be careful when you recondition your floor surface. Use only water based reconditioners and polishes.
19. Plates must be placed in the rooms that are equipped with floor heating. Such plates are part of the delivery where it states that Molded Heating AB is the manufacturer of installed product IntelliOhm™ FH 230 which is solely intended for use for floor heating. The information printed on the plate advice you not to place thick mats, mattresses and other objects that can block the heat transfer from the floor heating mats. Note that it not allowed putting nails or screws through the floor.
20. When laying wood, parquet floor, remember that the warranty given by the manufacturer is only valid if you have a relative humidity between 30 to 60 %RH indoors, before during and after the installation of the floor. It is advisable to install a humidifier for control of RH.

We will continuously upgrade this information on our home page, see www.intelliohm.se

Yours Sincerely/Molded Heating AB

Electrical circuit diagram and connection details

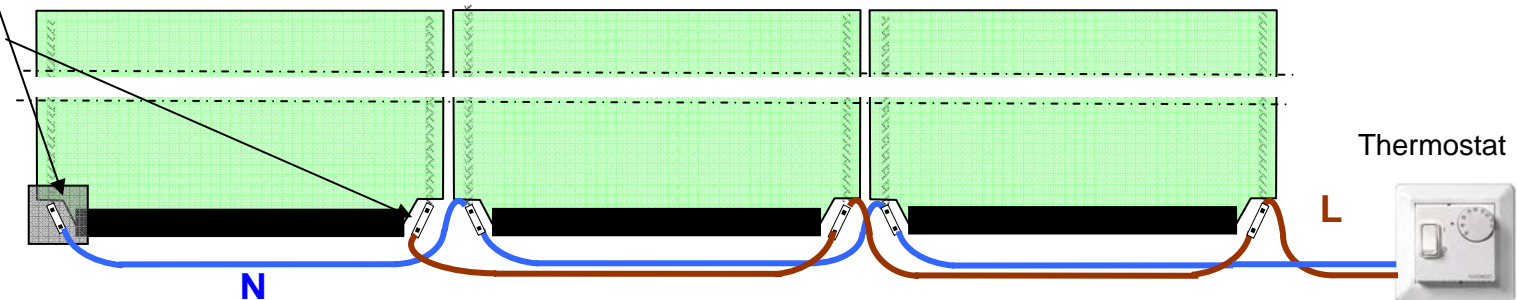
1. Cut the wires loom so they will come as close to the wall as possible. Use ordinary (0.5 – 1.5) mm² crimp connectors at the start of the wiring. The remaining connections should be made using the step down (0.5 - 1.5:1.5-2.5) mm² connection.



Connect the wire loom to the electrodes with a ratchet tool for use with non insulated connectors. Tape all connections with mastic tape.

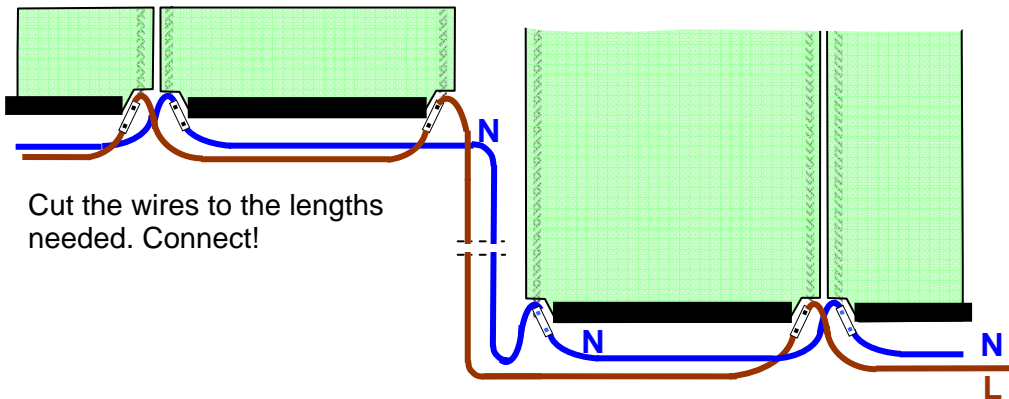
2. Cut the wires in lengths of about 44 cm in the numbers required. Peel of the wire insulation and crimp the step down connector narrow part, marked with a red ring, onto one end of the peeled off cable end. Use only cables and connectors provided by IntelliOhm AB.

3. Insert the other end of the cut wire together with the peeled mat electrode into the blue end of the crimp connector and connect using the ratchet tool. Always insulate the cut edge of the mat with an electric tape. The connectors are insulated using a mastic tape. Do not install individual mat lengths longer than 10 m. Never connect more than 50 m (20 m²) on the same 1.5 m m² wire cable. Always include an earth fault protection device. Note that the mat length furthest away from the power supply should be connected using an ordinary connector (0.5 – 1.5) mm².



4. Where one chooses to use a thermostat with both room and floor temperature sensor, use a router to make a channel in the underlayment and place a 10 mm VP tube in the channel. The sensor is placed in the VP tube at a distance exceeding 60 cm from the edge of the warm floor. However it is normally sufficient to use room temperature sensor(s) only.

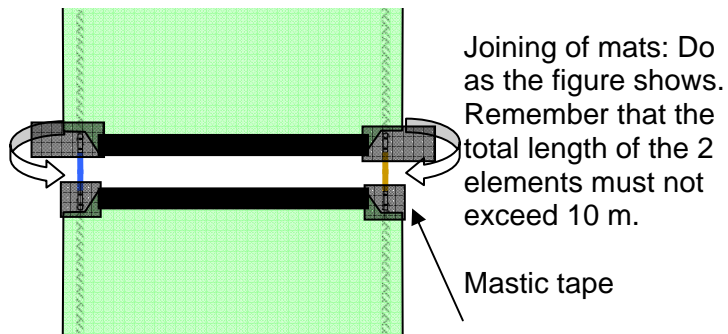
5. Sometimes the cut cables must > 44 cm. In case, do as the figure shows.



Cut the wires to the lengths needed. Connect!

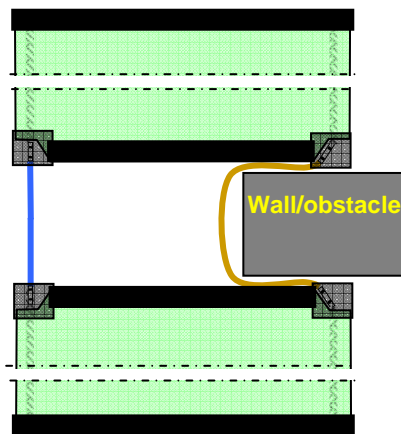
6. Sometimes one must make a splice in the wire loom. For that purpose, always use the components provided by IntelliOhm AB, consisting of non insulated crimp connectors and shrink hoses internally coated with melt adhesives. When heating the shrink hose, the adhesive melts at the same time as the shrink hose reshapes. Remember to put the shrink hose over the cable before the pressing of the butt splices. The splice will become waterproof.

Important information about IntelliOhm™ Floor Heating FH 230



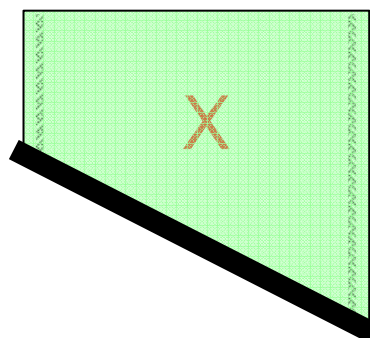
Joining of mats: Do as the figure shows. Remember that the total length of the 2 elements must not exceed 10 m.

Mastic tape



At a wall or another obstacle proceed as the figure shows. The cut electrode is spliced with 0,5 or 1,5 mm² wire cables. Insulate!

Wall/obstacle

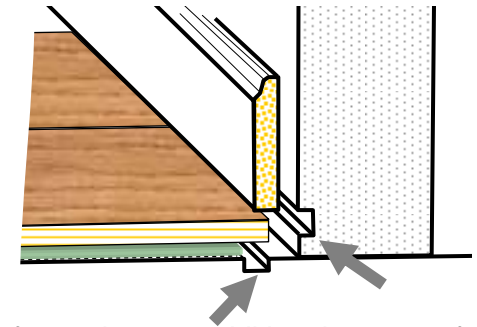


Cut the mat cross-wise at a right angle.



Note! Use a ratchet crimp tool for non-insulated crimp connector. Do not use a ratchet tool for insulated connectors.

The electrician has such a tool.



The cellular foam gives an additional space sufficient for accommodation of the wire loom. If more space is needed one can use the following measures:

1. Use a router to make a 10 mm wide channel in the low part of the wall.
2. Use a router to make such a channel in the underlayment.
3. Use a special socket intended for the accommodation of cables.

Remember to provide for about 8 mm clearance for allowing the floor to move due to temperature and humidity induced expansion.

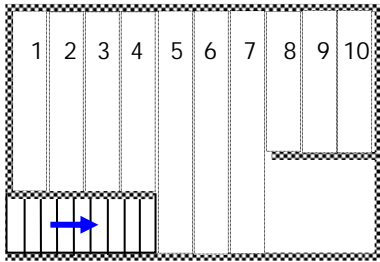
No sharp edges or foreign objects may be present on the underlayment!

The symbol with the man, printed onto the foamed plastic, shows that the mat is purely intended for floor heating placed directly underneath the top floor. The symbol shows with the vertical wavy lines that heat is transferred upwards.



Layout and stepwise installation

1
Plan your project. Remember to install the flooring crosswise to the orientation of the warm floor.

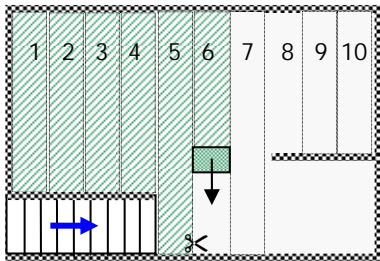


2
Install underlayment (moisture barrier).

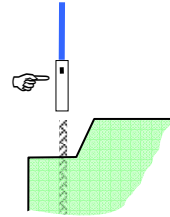
Ask your floor wholesaler for advice if needed.



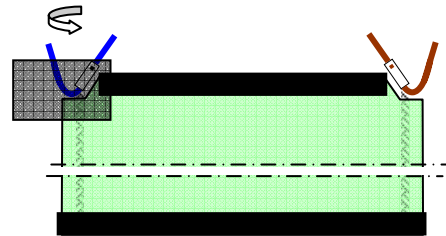
3
Roll out mat elements and cut to length. Any voids next to the mats can be filled with surplus mat pieces, floor paper and foam.



4
Expose the electrodes, connect and test for electrical connectivity.

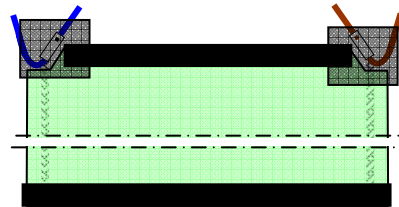


5
Insulate both ends of the mat and thereafter the connections.

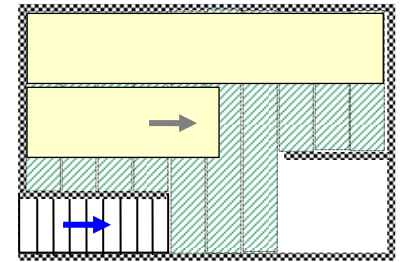


6
Ends and connections are insulated.

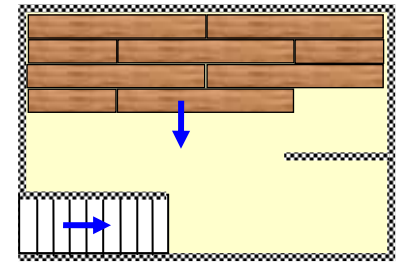
Note! Only one end of the mat shall be connected to 230 V.



7
Place floor paper!



8
Install wood, parquet or laminate floor. Do not nail or screw anything through floor.



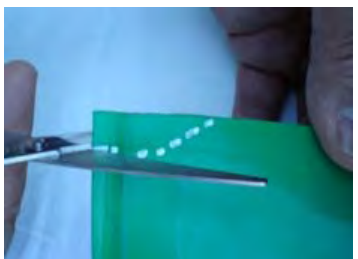
Step by step in pictures



1. The cellular foam faces downwards. Note the date of manufacture. It is a six digit number printed onto the mat element.



2. Roll out each mat element parallel to each other. Leave a space 5 - 10 mm between the mat elements.



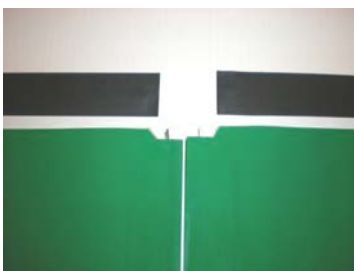
3. Use the scissors and make cuts on both sides of the electrode as indicated by the white marks. Be careful not to cut the electrode.



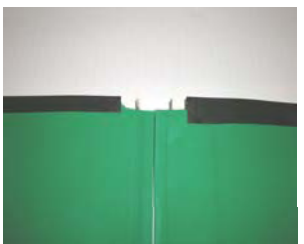
4. Place the "stripping pliers" as shown by the figure and squeeze. The electrician has such a tool.



5. The result is a naked end of the electrode. Free the second electrode in the same manner.



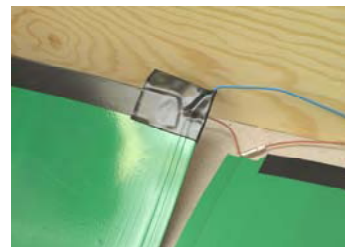
6. Cut the insulation tape to length. Lift the foam at the edge at a distance of a few centimetres and fold it backwards. Insert the tape.



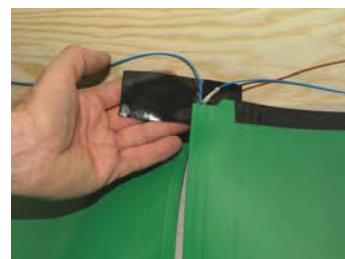
7. Fold two sets of tape around the edge of the mat and press to expel any air bubbles under the tape. Insulate the other end too. **The tape shall only cover the mat material – not the foam.**



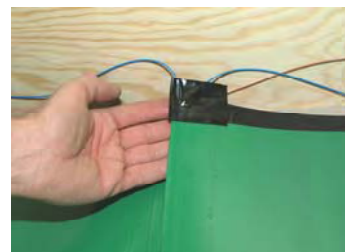
8. Adjust the wire loom so the mat edge can be placed 10 - 20 mm from the wall. Tread the connector over the electrode and the stripped wire and press.



9. Make sure that the connections are properly made. Test for connectivity using an Ohmmeter before insulating connections.



10. Insulate the connections with pieces of mastic tape. Fold the tape around the connection. Proceed in the same way with remaining connections.



11. Now connect to 230V and thermostat. The electrical installation is finished.

12. Do not cross any wire cables underneath the flooring where they might be subjected to pressure. Just after the electric power is switched on, measure the floor temperature and current and note the reading in the installation protocol.

The thermostat with its sensor is placed at an inner wall about 1,5 m above the floor.