Installation instructions Ebeco Foil Kit

Contents

Article	unit	E8960640	E8960642	E8960644	E8960646	E8960648	E8960650
Foil	(m)	13,5	18	22,5	27	31,5	22,5
Thermostat	(pcs)	1	1	1	1	1	-
Flexible conduit pipe	(pcs)	1	1	1	1	1	-
Terminals	(pcs)	20	20	20	24	24	20
RTK cable black	(m)	6,25	6,25	8	8	8	6,25
RTK cable blue	(m)	6,25	6,25	8	8	8	6,25
Fixing tape, white	(pcs)	1	1	1	2	2	1
Sealing tape green	(pcs)	20	20	20	24	24	20
Insulating tape black	(pcs)	0,54	0,54	0,54	0,65	0,65	0,54
Sign	(pcs)	1	1	1	1	1	-
Installation instruction	(pcs)	1	1	1	1	1	-

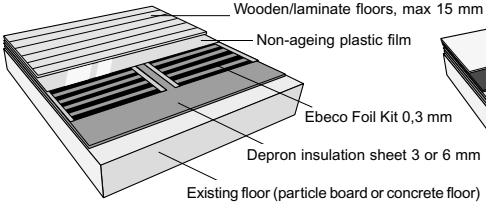
Read carefully through all the installation instructions before starting the installation

The Ebeco Foil Kit underfloor heating system runs on mains electricity. This means that the installation must be supervised by a qualified electrician. The installation must comply with applicable regulations.

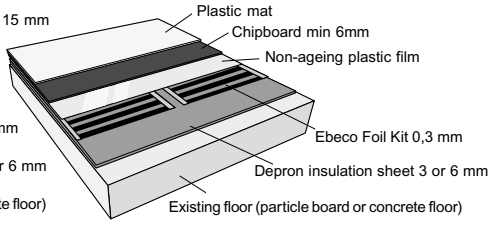
General instructions

- Check that the foil is labelled for 230 V and 65 W/m^2.
- Ebeco Foil Kit must only be installed in dry areas.
- The installation must be connected via a 30 mA earth fault relay.
- The foil must be protected from damage. The floorcovering must be laid immediately after the foil has been laid.
- The foils must be covered with non-ageing plastic film, at least 0,2mm, before the floor is laid.
- Crimping tool E 89 606 90 must be used, otherwise the warranty will be invalid.
- The foil must not be laid under fixed fittings such as kitchen units, wardrobes, internal walls, etc., since this leads to an increase in temperature.
- Insulating interior furnishings such as thick carpets or floor cushions must not be used.
- The maximum load per foil is 10 A. Above 10 A load, the foils must be divided up and connected via a contactor.
- The foils must be controlled by Ebeco thermostat E 85 816 62 or E 85 816 63.
- Ebeco´s single core double insulated cable (RTK) supplied must be used.

Configuration 1 is used where the floorcovering is wood/laminate



Configuration 2 is used where the floorcovering is plastic matting



PREPARING TO LAY THE FOIL

In addition to the Ebeco Foil Kit you will need:

- Non-ageing plastic film
- Depron 3 mm E 89 601 86 or 6 mm E 89 601 88. **6 mm is recommended for easier laying.**
- Crimping tool E 89 606 90
- Earth fault relay – if not already installed in the building (eg E 21 643 06)

Remove any existing plastic matting.

Existing plastic matting must be removed, since the plasticiser in the matting may eventually damage the Depron sheets.

PLANNING HOW TO LAY THE FOIL

Make an accurate sketch of the floor and draw in the positions of the lengths of foil. Points to think of when drawing the sketch:

- The position of the thermostat should take account of the power supply. Do not position the thermostat where it will be in direct sunlight at any time.
- The lengths of foil must be butted edge-to-edge. The foils must cover as large an area as possible, but the lengths of foil must not be pulled apart, since the differences in temperature will be noticeable.
- The total width of the foil is 43 cm. The foils may be laid slightly overlapping, but **the distance between the copper strips must never be less than 5 mm**.
- It is important to ensure optimum cover where you will often stand, for example in front of kitchen units.
- To avoid draughts, plan for the foils to be laid right up to outside walls.

Figures 1 to 3 below show various possible ways of laying and connecting the foils.

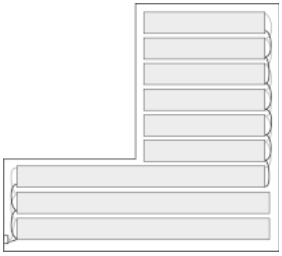


fig. 1

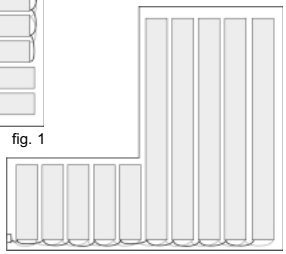


fig. 2

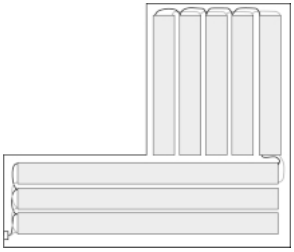


fig. 3

If there are obstacles:

If there is an obstacle in the way, cut the foil square and fit jumper wires around the obstacle, as shown in figure 4.

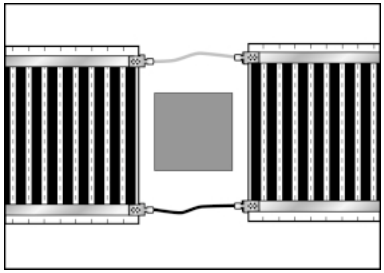


fig. 4

GETTING STARTED

Make space for the flexible conduit pipe
Cut or chase a channel for the flexible conduit pipe, as shown in figure 5. The end of the flexible conduit pipe must be positioned centrally under a foil. The bend in the flexible conduit pipe must not be too sharp or it will be difficult to insert the floor sensor. Feed the sensor into the flexible conduit pipe and tape off the end.

Vacuum-clean the area thoroughly.

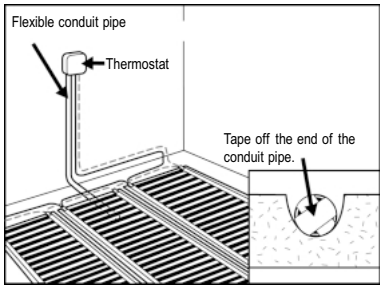


fig. 5

Lay the Depron
Lay the Depron sheets butted edge-to-edge. Leave a gap of about 1 cm at the wall on the connection side, as shown in figure 6.

To get a level surface, lay Depron over the entire floor, even where no foil will be laid.

Fix the Depron sheets with tape, as shown in figure 6, to stop them moving around while you are working. Cut away the Depron above the flexible conduit pipe.

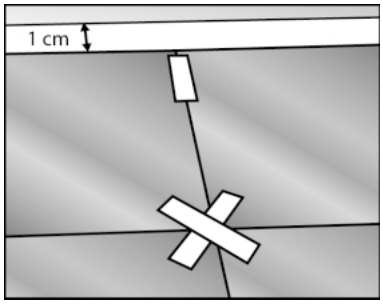


fig. 6

Measure up the foil and cut it
Roll out the foil to the correct length. On the connection side, end the foil about 4-5 cm from the wall. Using scissors, cut the foil square along the broken lines, as shown in figure 7. **DO NOT cut into the black areas.** The distance from the cut edge to the black area must never be less than 3 mm. Use the white fixing tape supplied (E 89 605 46) to tape the long sides of the foil together. Fully tape the long sides up to about 150 cm from the ends of the foils, as shown in figure 8.

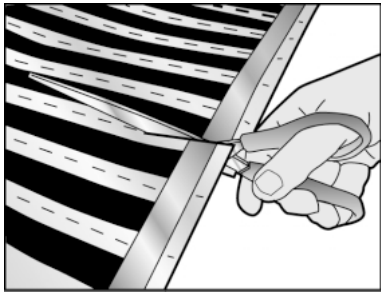


fig. 7

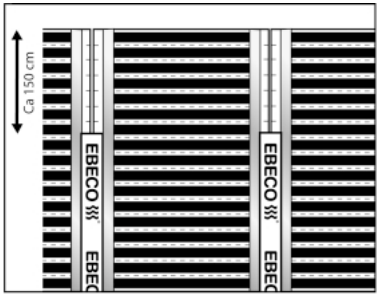


fig. 8

Seal off the copper strip

Seal off the copper strip with the round green pieces of tape, as shown in figure 9. Seal only the short side that will not be connected to the next length of foil.

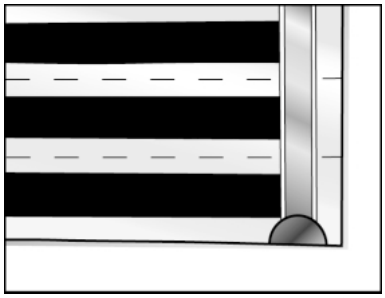


fig. 9

Cut out for the terminals and make space for the connection cable

Mark the Depron where the terminals will go, as shown in figure 10. Make a cutout of about 3 x 6 cm in the Depron. The terminals and the cables must not be protude of the upper surface of the Depron. **Important! Never apply mechanical load to the cables.**

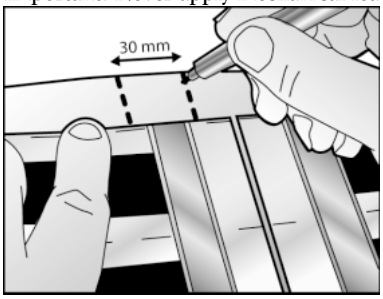


fig. 10

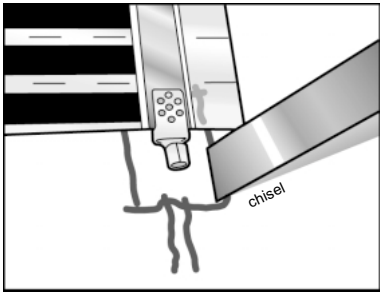


fig. 11

If you are using 3 mm Depron you will have to cut out the floor. Expose about 1 metre of the floor by folding back the foil and the Depron. Cut out as shown in figure 11. Make a space in the floor or at the bottom of the wall for the connection cable, as shown in figure 12. Vacuum-clean the area thoroughly. Put back the Depron and the foils.

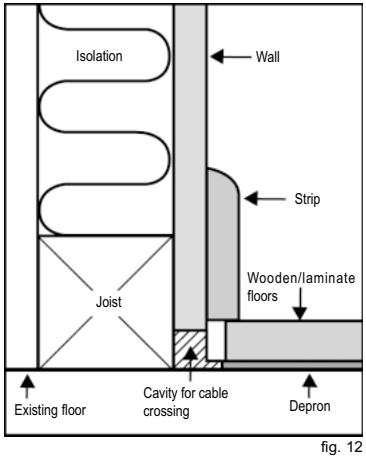


fig. 12

Adjust the crimping tool, E 89 606 90

For the terminals to be properly crimped, the pliers must be correctly adjusted. When the crimping tool is closed, the opening must not be larger than 1.3 mm. To adjust the crimping tool, unfasten the screw and turn the toothed disc on the side of the crimping tool; see figure 13.

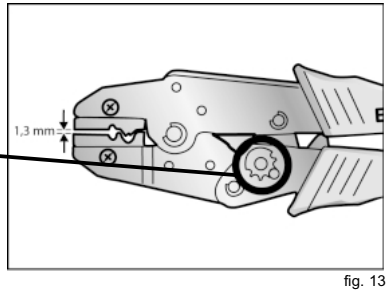


fig. 13

Fit the terminals

Slip the terminal on to the foil and centre it on the copper strip. Squeeze the terminal firmly with your fingers as shown in figure 14.

Crimp the terminal from both sides at an angle of 45° across the perforated part, as shown in figure 15.

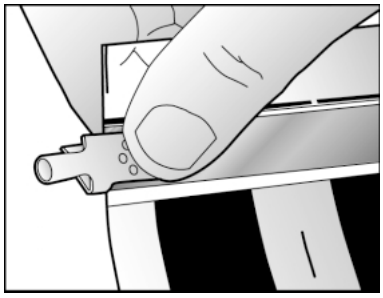


fig. 14

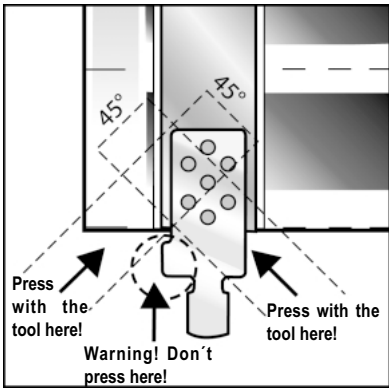


fig. 15

Connect the foils together

Connect the foils together as shown in figure 16. In an L-shaped room, the foils can be connected as shown in figure 17.

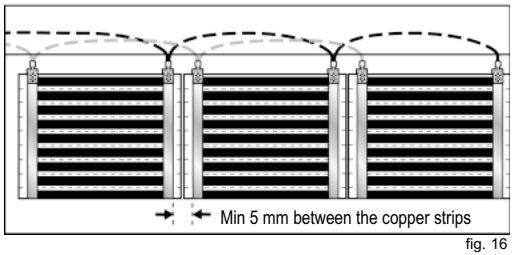


fig. 16

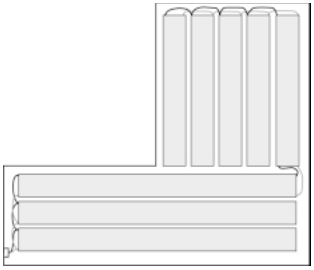


fig. 17

Run the cables

Fix the connection cables with tape etc in the cavity shown in figure 18. Cables can cross over in this cavity.

Important! <u>Never</u> apply mechanical load to the cables.

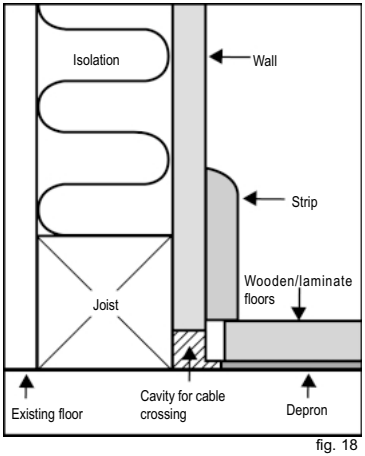


fig. 18

Connect the cables

Connect the lengths of foil together with the double-insulated RTK cables supplied. Strip off about 6 mm of insulation and insert the wire into the terminal. If there is only one cable, bend the stripped wire double, as shown in figure 19.

Crimp the terminal to the cable with the crimping pliers as shown in figure 20.

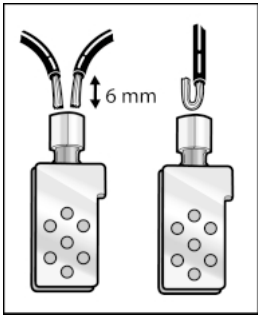


fig. 19

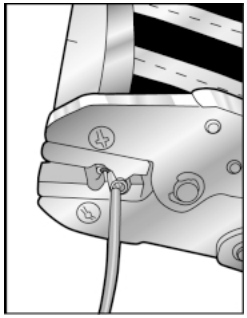


fig. 20

Insulate the terminals

Cut 50x25 mm pieces of the black insulating tape. Pull off the backing paper. Centre one piece of tape under the terminal and one over the terminal, as shown in figure 21. The tape must extend at least 5 mm beyond the end of the terminal. Press the insulating tape firmly together with your fingers.

Do not apply mechanical strain or load to the terminals.

Apply the white tape (Fixing tape E 89 605 46) to the remaining 150 cm of the foil.

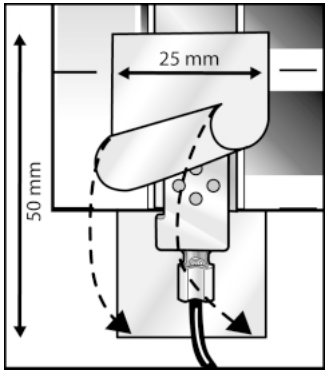


fig. 21

Test the foils

Measure the total length of the foils. Work out the theoretical resistance by inserting the total length into the formula in the test report. Enter the value in the report. Measure the resistance of the foils and enter the value in the report. Compare the theoretical value with the measured value.
The tolerance on the resistance values is -5% to +10%. Measure the insulation resistance of the foils and enter the value in the report. Make a record of the installation in the form of a photograph or a sketch, in accordance with the instructions on the guarantee certificate.

Testreport

Ebeco Foil Kit	Type of room	Before laying Theoretical Resistancevalue Ohm	After laying Resistance-value Ohm	Insulation-value Mohm	After floor laying Resistance-value Ohm	Insulation-value Mohm
E-no: Length (m):						
E-no: Length (m):						

Extract from the guarantee certificate

Cover with non-ageing plastic film and lay the floorcovering

Cover the foils with non-ageing plastic film, at least 0,2mm, eg Tenotät. When adding the next piece of plastic film overlap at least 200mm. Then lay the floorcovering immediately, in accordance with the arrangements illustrated on page 1. Some kinds of wood, especially beech and Canadian maple, exhibit more natural movement and are therefore not so suitable for underfloor heating. The floorcovering should be chosen with the guidance of the flooring supplier.

Test and connect the installation

After laying the floorcovering, test the foils. Enter the values in the test report. Keep the test report near the electricity distribution board. Connect the thermostat.