EBECO
Heating solutions

Ebeco Foil 48 V

SE | ASSEMBLY INSTRUCTIONS

Create warranty certificate
directly in the mobile phone

garantera.ebeco.se

Welcome

Thank you for choosing Ebeco. We hope that you will enjoy your underfloor heating system for a long time to come. For the warranty to apply, the product must be installed and operated according to this manual. It is therefore important that you read the manual.

If you have questions, you are of course always welcome to contact Ebeco. Call 031-707 75 50 or send an email to support@ebeco.se. Please visit ebeco.se for more information.

Important

- For the warranty to apply, the warranty certificate must be correct and completely filled out.
- Check that the foil is marked with 48V.
- The floor must be stable, smooth, clean and without failure. All material in the floor must be well dried. In the case of tiling on chipboard or wooden floors, the floor must normally be reinforced with plasterboard, putty or the like according to current industry regulations. Concrete floors are sanded. For concrete floors with a risk of moisture, this system is not suitable, as the glue can dissolve and the foil is damaged.
- In wet rooms, the foil must be placed under the moisture barrier.
- The foil must be protected against mechanical damage. The floor covering must be carried out immediately after the foil installation.
- Crimping pliers E 89 606 90 must be used for the warranty to apply.
- The foil must not be placed under fixed furnishings, e.g. kitchen counters, wardrobes, interior walls etc. as it causes elevated temperature.
- Insulating furnishings such as thick carpets or seat cushions must not be present.
- Maximum load/foil/cable max 10A. In case of larger load than 10A, the foils are split and fused on the secondary side of the transformer.

Preparations for your placement

In addition to Ebeco Foil, you also need

- Connection Kit Foil (8960651 / 8960652 / 8960653)
- Crimping pliers E 89 606 90
- Transformer, see transformer size calculation
- Adhesive 89 601 90
- Coating (only applies to tiles as surface coating)

Power selection

In order to calculate the size of the transformer, you must know the number of meters of foil that will be included in the installation.

Calculation of the size of the transformers:

Number of meters 43-width: x 32 =

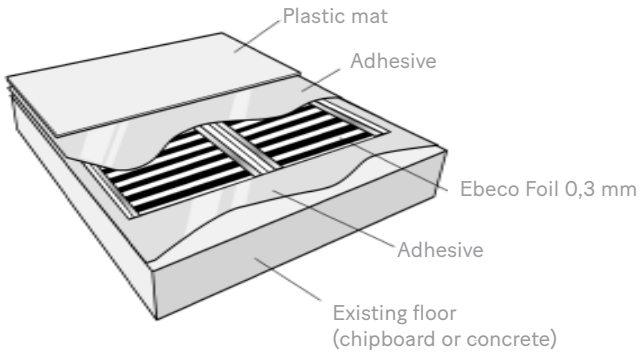
Number of meters 53-width: x 40 =

Number of meters 69-width: x 53 =

Sum = xx (minimum transformer size)

Article number	Article
E 520 70 11	Transformer 250 VA
E 520 70 13	Transformer 350 VA

Construction 2 is used for plastic carpet as a surface coating.



Planning your facility

Make an exact sketch of the floor and draw in how the foil lengths should lie. Consider the following when drawing the sketch:

- Plan location for the transformer.
- The foil lengths are placed edge to edge. The foils should cover as much of the surface as possible, but the foil lengths should not be pulled apart, as the temperature differences become noticeable. This applies especially to plastic carpet. Part of the transparent border
- (approx. 15 mm wide) can be cut off, but at least 5 mm must remain.
- It is important to get the best coverage on the surfaces where you are standing, e.g. in front of kitchen furniture or wash basins.
- Plan so that the foil is placed against the outer wall to minimize cold drafts. The following three options, Figure 1-2, show different possibilities for placing and connecting the foils.

The following two options, see fig 1-2, show different possibilities for placing and connecting the foils. For larger floors, it may be necessary to use a combination of fig 1 and fig 2. The different widths can be combined as desired to cover the surface in the best way.

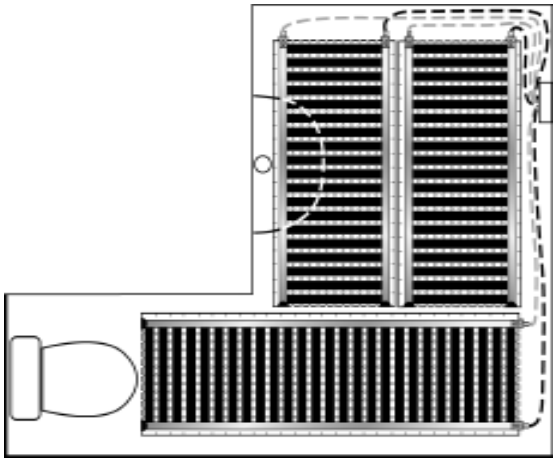


fig. 1

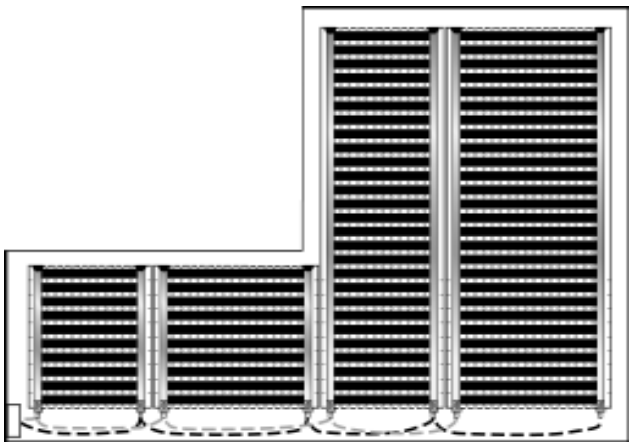


fig. 2

This is where your placement begins

Measure the foil and cut

Roll out the foil to the correct length. Cut perpendicularly with scissors along one of the dashed lines, see fig 3. DO NOT cut in the black fields. The distance from the cut edge to the black pattern must never be less than 5 mm.

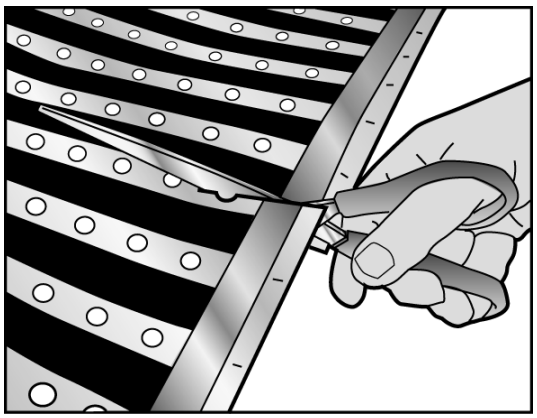


fig. 3

Seal the copper tape

Seal the copper tape with the green round pieces of tape, see fig 4. Seal only the short side that is not to be connected to the next length of foil.

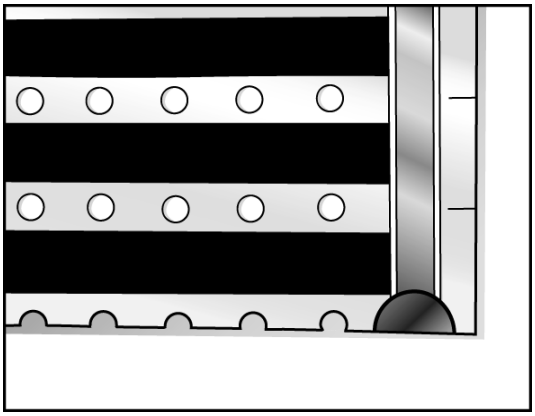


fig. 4

Cut out the floor

Lay out the foils in place. Mark where the connections and connection cables will end up. Remove the foils. Cut open the floor for cables and connections according to figs 5, 6 and 7. Vacuum the floor thoroughly.

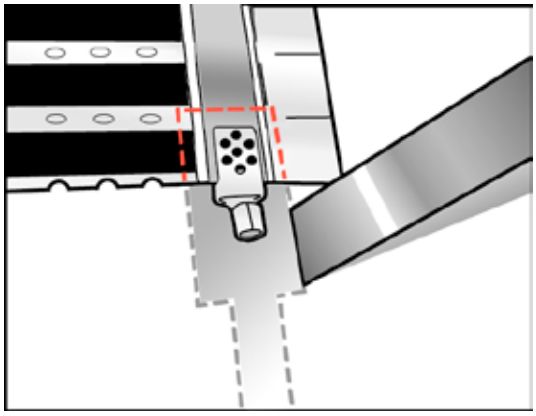


fig. 5

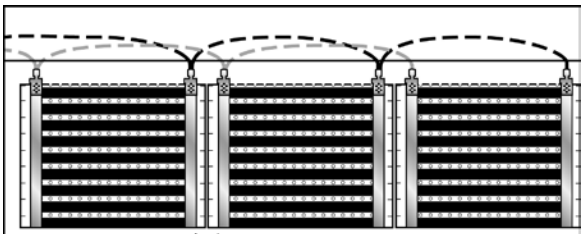


fig. 6

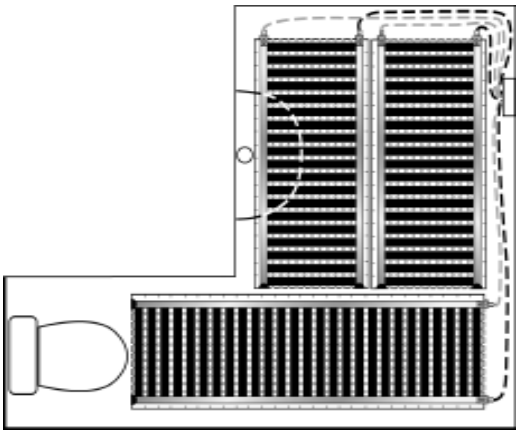


fig. 7

Glue the foils

Glue the foils with E 89 601 90. Make sure that the foils end up correctly according to the cutouts in the floor. Adhesive bonding is applied to non-absorbent surfaces. Press the foils firmly against the floor with a rubber scraper. Let the glue dry. Leave about 10 cm at the connection ends, these parts are glued after the connection pins are mounted.

Adjust the crimping pliers, E 89 606 90

In order for the pressing of the clamps to be correct, the tongs must be set correctly. On compressed seaweed sheep the opening does not exceed 1.3 mm. Adjust by loosening the screw and turning the toothed disc on its side the pliers according to Fig 8.

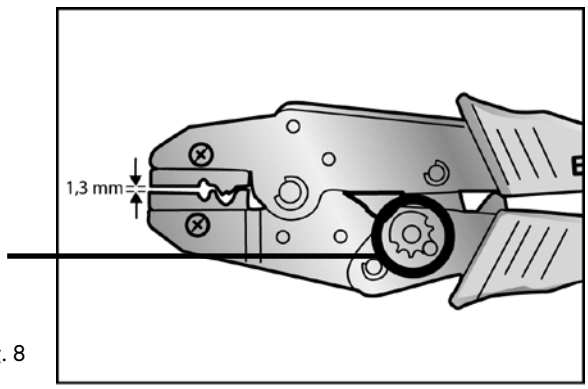


fig. 8

Install the connection clamps

Thread the clip onto the foil and center it over the copper tape. Clamp the clamp with your fingers, according to Fig 9. Press the clamp with the pliers from both sides at a 45° angle over the perforated field, according to Fig 10.

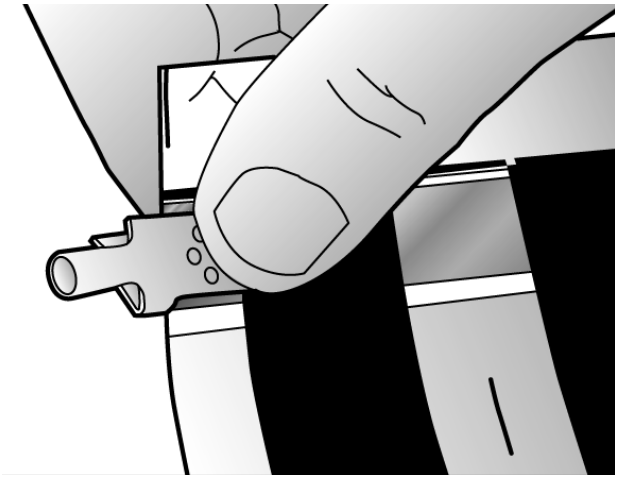


fig. 9

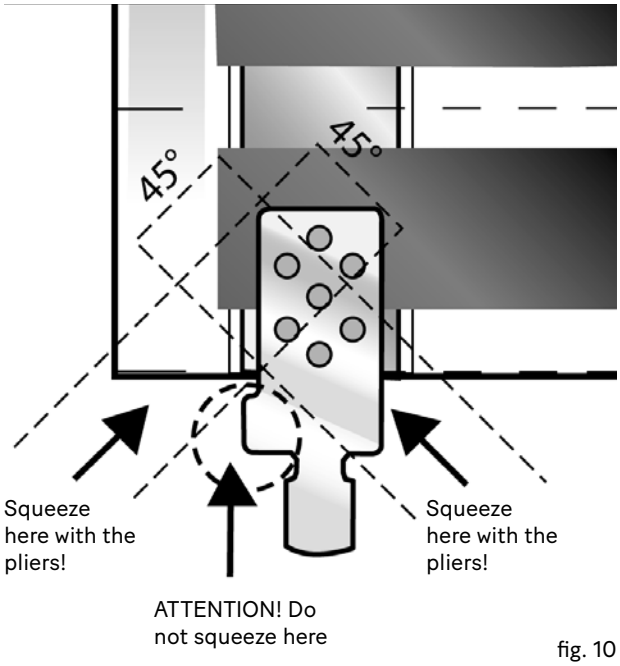


fig. 10

Cable assembly

Connect the foil lengths. De-insulate approx. 6 mm and insert the cables into the connection clamp. With only one cable, the stripped part is folded double, according to Fig 11.

Clamp the cables with the crimping tool according to Fig. 12.

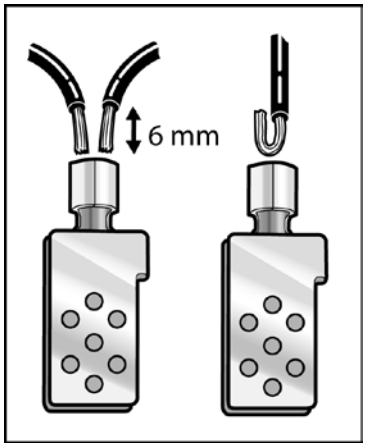


fig. 11

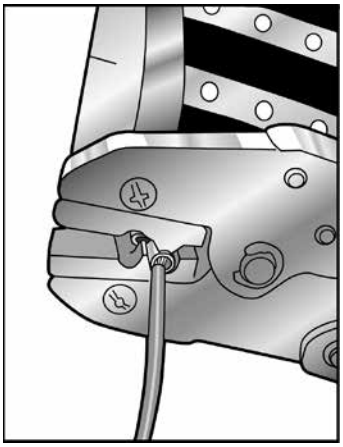


fig. 12

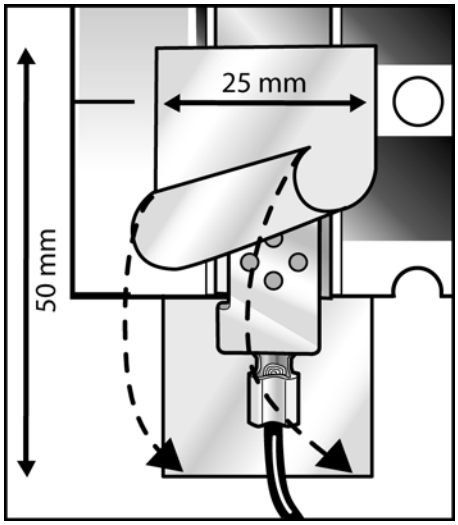


fig. 13

Insulate the connection terminals

Cut pieces of 50x25mm from the black insulation tape. Pull off the protective paper. Center a piece of tape under the clamp and one above the clamp, according to Fig 13. The tape must sit at least 5 mm outside the edges of the clamp. Carefully press the insulating tape with your fingers.

Note that the clamps must not be stretched or subjected to mechanical stress.

Construction with plastic mat as surface coating

Putty the irregularities

Putty over connections and cables. To prevent the foils from being visible in trailing lights when the new carpet is laid, foil edges should also be puttyed. Then sand the puttyed surfaces smooth. Vacuum the floor thoroughly.

Test the foils

First calculate the length 69/53 cm foil to 43 cm foil according to formula 2/3. Then calculate the theoretical resistance value according to formula 1. Enter the resistance value and the length in the test report.

Enter the value in the protocol

Measure the resistance of the foils and enter the value in the report. Compare the theoretical value with the measured value. Tolerance on resistance values: -5% to +10%. Insulation test the foils and enter the value in the test report that you find on the next page. Document the installation with a photo according to the instructions on the warranty certificate.

Gluing the plastic mat

Spread glue all over the floor. Pull out glue with a smooth rubber scraper over the foil so that the holes are filled and the foil is covered with it a thin layer of glue. The carpet will then be attached to the substrate partly via the holes and partly via the thin adhesive layer.

Test the foils after carpet installation

The foils are tested again. The values are entered in the test report.

Turn on the heat

The heat is switched on after 3 days at the earliest.

Test protocol (Foil 48 V)

First calculate the length 69/53 cm foil to 43 cm foil according to formula 2/3. Then calculate the theoretical resistance value according to formula 1. Enter the resistance value and the length in the test report.

Formula 1

48 V, 80 W/m², width 43 cm

$$\frac{72}{\text{Total length (m)}} = \text{Theoretical resistance value}$$

Formula 2

Ebeco Foil 48 V: Recalculate all the foil 43 cm-width:

Length 69 cm-width (..... m) x1,65 = (..... m)
Length 43 cm-width = + (..... m)
Total length (..... m)

Add the lengths together and enter the total length in formula 1.

Formula 3

Ebeco Foil 48 V 53 cm: Recalculate all the foil 43 cm-width:

Length 53 cm-width (..... m) x1,25 = (..... m)
Length 43 cm-width = + (..... m)
Total length (..... m)

Add the lengths together and enter the total length in formula 1.

Test protocol

	After fixation		After flooring	
Product	Resistance value* (Ω)	Insulation value* (MΩ)	Resistance value* (Ω)	Insulation value* (MΩ)
E-nr: ..... Installed length: ..... (m)				
E-nr: ..... Installed length: ..... (m)				

Minimum insulation value 10 MΩ. The foil lacks soil. Measure between the foil and a grounded object.

*Tolerance -5 % - +10 %

☐ The facility documented with photo/sketch

Installation performed by:

.....
according to the attached material specification.

Date .....

Signature: .....

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Manual Foil 48V Eng 55218, 221117