

Ebeco Snow Melt and Multiflex 27

0406

The mat is normally laid about 30-70 mm under the finished surface. If it is laid deeper, the system will react slower.

NOTE: THE HEATING CABLE MUST BE INSTALLED BY A QUALIFIED ELECTRICIAN.

THE INSTALLATION MUST COMPLY WITH VALID HEAVY-CURRENT REGULATIONS AND THE APPLICABLE SWEDISH STANDARD.

The heating cable and mat have a built-in return conductor. This means that connections are made at one end only. The heating cable and mat are intended to be installed in a bed of sand under an asphalt or stone surface. It can also be laid in a fine mix over a concrete slab or fixed to reinforcing steel for embedding in concrete. If the mat is laid in a sand bed or on top of a concrete slab in accordance with these instructions, the depth to the underside of the surface finish must be 30 mm. The mat/cable can be laid deeper but it will make the system react slower, and this is particularly undesirable where control using temperature and humidity sensors is concerned. Multiflex 27 heating cable and Ebeco Snow Melt is delivered with a 5 m cold cable.

If the installation is controlled by a thermostat, the sensor must be installed in a VP conduit midway between two runs of cable. For larger installations (>5 kW) we recommend temperature- and humiditybased control. This type of control can give an energy saving of up to 75 %.

Always follow the general instructions first, before you move on to the specific instructions for the product you are using.

General instructions for Multiflex 27 and Ebeco Snow Melt

1. Check that the hardware supplied agrees with the details on the delivery note.
2. Measure the insulation of the heating cable/mat. It should be at least 10 Mohm. Measure the resistance of the cable/mat; see the figures in the table below. The readings may vary by $\pm 10\%$. Enter the readings in the test report.
3. **The cold cable splice must be laid in the sand/concrete. The heating cable must not be cut.** You may only shorten the cold cable.
4. The cable runs must be separated and must not cross. Minimum spacing 60 mm.
5. The cable must not cross expansion joints.
6. The insulation and resistance of the cable must be measured before and after embedding in concrete/surface finishing. This ensures that any damage to the cable during laying is detected. Enter the readings in the testreport.

Fill in and set up the heating cable signs at the relevant junction boxes. There must be a sketch of the heating cable/mat layout at the distribution board. For other documentation, see Swedish Standards.

Specific laying instructions for the Ebeco Snow Melt

The design of Ebeco Snow Melt is unique: it can be stretched to vary its size and so change the power output /m².

Determine whether the mat must be stretched and if so, to what length. The centre-to-centre (c/c) distance when the mat is not stretched is 9 cm. This gives about 300 W/m². At 11% stretch (c/c 10 cm) the power output is about 270 W/m²; at 22% stretch (c/c 11 cm) it is about 245 W/m²; and at 33% stretch (c/c 12 cm) it is about 225 W/m².

7. **Laying in sand or on a concrete slab:**
Determine whether the mat must be stretched and if so, to what length. Mark on the ground how the mat will be laid. Calculate how the mat must be cut in terms of the stretch. Adjust the bed on which the mat will be laid. Check that there are no sharp stones etc sticking up from the bed. Begin at the connection end. Roll out the mat, cut the rubber tapes, roll the mat back. If the mat is stretched, loads must be applied to the ends until the mat has been covered with sand or concrete. At 25 % stretch, covering of the cables is enough to ensure that the mat remains in place.
8. **Laying in sand or similar:**
Place 1x4 inch boards on the mat, three on each length (1 metre mat width) to keep the mat in place. Cover the mat with sand, crushed stone or similar, levelling off the sand to the boards.
9. Remove the boards and fill the gaps. This will give about 25 mm of covering. If a thicker covering is needed, use thicker boards.
10. **Laying on reinforcing steel:**
Determine the c/c distance. Lay reinforcing at that spacing. Roll out the mat, stretch it if necessary and secure the cable to the reinforcing. If necessary, cut the rubber tapes, roll back the mat and secure the cable to the reinforcing.
The cable must be supported by reinforcing steel along its entire length to protect the cable during pouring of the concrete.

Specific laying instructions for Multiflex 27, ground heating – snow melting

7. The normal centre-to-centre (c/c) distance is about 100 mm. To obtain the exact c/c distance, measure the surface where the cable is to be laid and divide it by the length of the cable.

8. When laying in a sand bed or similar: Check that there are no sharp stones or other objects sticking up from the bed. The cable must be laid in a sand bed, in crushed stone or similar fine material so that it is covered to a depth of about 20 mm. This is to give the cable both mechanical and thermal protection. If steel spacers (E 89 609 68, 25 m) are used, fix them at right angles to the run of the cable (c/c 600 mm).

9. When embedding in concrete, secure the cable to the reinforcing. The cable must be supported by reinforcing steel along its entire length to protect the cable during pouring of the concrete. Check that the cable will be at least 30 mm below the finished surface.

10. Roll out the cable starting at the junction box. Secure the cable to the steel spacers or to the reinforcing steel with cable ties, for instance. If the cable is lashed, it must be lashed loosely so that it is not damaged.

| Ebeco Snow Melt | | | | | | |
|-----------------|---|---|---|-----------|-----------|----------------|
| E-nr | Area (m ²) at 300W/m ² | Area (m ²) at 250W/m ² | Area (m ²) at 200W/m ² | Width (m) | Power (W) | Resistance (Ω) |
| E 89 602 90* | 7 | 9 | 11 | 0,5 | 2200 | 25 |
| E 89 602 92* | 9 | 11 | 13,5 | 1,0 | 2700 | 20 |
| E 89 602 94* | 12 | 14,5 | 18 | 1,0 | 3600 | 14,5 |
| E 89 602 96* | 14 | 17 | 21,5 | 1,0 | 4250 | 12,5 |

| Multiflex 27 | | | | | | | |
|--------------|---|---|---|--------------|------------|-----------|----------------|
| E-nr | Area (m ²) at 300W/m ² | Area (m ²) at 250W/m ² | Area (m ²) at 200W/m ² | Description | Length (m) | Power (W) | Resistance (Ω) |
| E 89 607 60* | 3,5 | 4 | 5 | Multiflex 27 | 37 | 1000 | 52 |
| E 89 607 62* | 4,5 | 5 | 6,5 | Multiflex 27 | 46 | 1300 | 41 |
| E 89 607 64* | 5 | 6 | 7,5 | Multiflex 27 | 55 | 1500 | 35 |
| E 89 607 66* | 6 | 7,5 | 9 | Multiflex 27 | 68 | 1850 | 29 |
| E 89 607 68* | 7 | 8,5 | 11 | Multiflex 27 | 79 | 2150 | 25 |
| E 89 607 70* | 9 | 11 | 13,5 | Multiflex 27 | 99 | 2700 | 20 |
| E 89 607 72* | 11 | 13 | 16 | Multiflex 27 | 120 | 3250 | 16 |
| E 89 607 74* | 12 | 14,5 | 18 | Multiflex 27 | 132 | 3650 | 14,5 |
| E 89 607 76* | 14 | 17 | 21,5 | Multiflex 27 | 156 | 4250 | 12,5 |

* Delivered with a 5 m cold cable. Voltage: 230V. The sign "Heating cable system" is included in the package.

TESTREPORT

for Snow Melt and Multiflex 27

| Mat / Cable no 1 - 5 | Before laying | | After fixing | | After floor laying / casting-in | |
|----------------------|------------------|------------------|------------------|------------------|---------------------------------|------------------|
| | Resistance-value | Insulation-Value | Resistance-value | Insulation-Value | Resistance-value | Insulation-value |
| No 1, E-no: | | | | | | |
| No 2, E-no: | | | | | | |
| No 3, E-no: | | | | | | |
| No 4, E-no: | | | | | | |
| No 5, E-no: | | | | | | |

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