



WARMFLOOR

INSTALLATION MANUAL

EP warmfloor is a 24 Voltage under-floor heating system that is connected to the electric net through a transformer. The heating elements are made of electrically conductive polyethylene with a self-regulating effect developing heat through resistance in the material. The system can be used for all types of rooms and is approved by Electric Authorities.

To obtain a functional and pleasant floor, considerations must be made not only to heating, but also to mechanical strength and aesthetic qualities. It is therefore essential to read through this installation manual carefully. If in doubt, or you need advice, please contact the distributor.

Before closing the floor, connect transformer and control the installation by skilled electric personnel

EP warmfloor system is basically supplied with:

1. EP heating element with crimping clips mounted
2. Secondary cable (from heating element to transformer)
3. Transformer
4. Installation Manual and Verification document

Additional accessories are thermostats / regulators, connection boxes, adhesive, tape, insulation etc.

Cable primary side, circuit breakers and other 230 Volt parts are normally not supplied by us

PREPARATION OF THE UNDERLYING FLOOR

EP warmfloor is build as a «sandwich» construction where it is important that every layer is well adjusted to each other. Be aware of chemicals in compounds and materials that may react with the plastics in the element. Please check the following prerequisites:

- Mechanical movements in the floor must be eliminated.
- The floor must be even and without sharp edges.
- Humidity must be dried out and water leakage's eliminated.
- Degree of insulation must be checked.

CHECK DEGREE OF INSULATION

It is expensive in running costs to replace a low degree of insulation by more power of energy . EP warmfloor is by calculation based on K-value according to NS 3031: 0,24 Watt/m² by 0° C. Floors with little or no insulation should be improved before installing a floor-heating system. EP warmfloor is a low temperature heating system.

If in doubt of existing insulation, a 3 or 6 mm thick sheet of Kapron or Depron insulation material may be glued down. EP heating elements can be installed directly onto these.

CALCULATION OF WATTAGE

The table below give an idea on average calculation, but insulation, outside temperature, wind, number of outside walls, type of room, use, demand for comfort etc. are factors to be considered:

TYPE OF ROOM	SIZE	WATT	SIZE	WATT	SIZE	WATT
Bathroom	< 3 m ²	70 W/m ²	3-7 m ²	60 W/m ²	> 7 m ²	55 W/m ²
Entrance	< 3 m ²	70 W/m ²	3-5 m ²	60 W/m ²	> 5 m ²	55 W/m ²
Kitchen	< 8 m ²	55 W/m ²	8-15 m ²	50 W/m ²	> 15 m ²	45-50 W/m ²
Living room	< 10 m ²	55 W/m ²	10-25 m ²	50 W/m ²	> 25 m ²	45-50 W/m ²

The individual distance between elements and distance from walls are ways of adjusting the Wattage. Concentrate elements to the active area of the floor, and do not exceed 6 cm between them to avoid cold zones. Heating elements must *not* be placed under fixed installations. A comfort heating can be down to 30 W/m², but then additional heating is needed on colder days.

1. PREPARATION OF UNDERFLOOR BEFORE INSTALLATION OF EP ELEMENTS

EP heating elements may be installed on all types of floor materials, also burnable materials like wood, vinyl etc. Be aware that ceramic tiles on top needs a stable under-floor construction

EXISTING FLOOR	TREATMENT	COMMENT
Wood, untreated	Vacuum cleaning, primer	Nails etc. must be covered
Wood, varnished / painted	Vacuum cleaning, grease removal	Nails etc. must be covered
Parquet, laminated parquet	Vacuum cleaning, grease removal	
Chipboard, cardboard sheets	Vacuum cleaning, primer	Nails etc. must be covered
Gypsum sheets	Vacuum cleaning, primer	Nails etc. must be covered
Vinyl, plastic floors	Grease removal, rubbing, primer	Must stick to under-floor
Carpets	Remove	Too unstable to build upon
Ceramic tiles	Grease removal, rubbing	May be plastered to level
Concrete, even surface	Vacuum cleaning, primer	
Concrete, uneven surface	Plaster and primer	

Recommended primer is Maxit Floor 4718, SERPO 550 or equivalent quality. When using Kapron insulation material under and wooden floor on top, no primer is necessary.

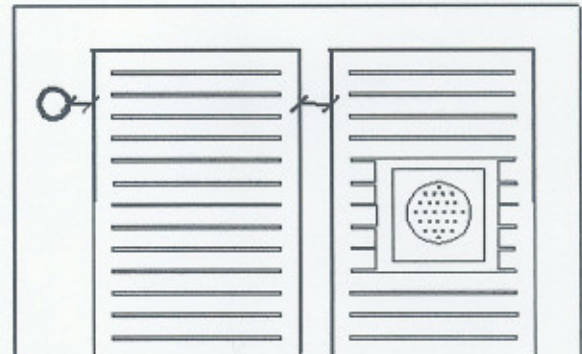
NOTE: EP elements can *not* be installed directly onto electrically conductive surfaces as steel, aluminium etc.

2. ROLL OUT THE ELEMENTS AND POSITION THEM ON THE FLOOR

- Minimum distance between elements is 2 cm – maximum 6 cm
- Distance between heating elements and plumbing, or other conductive objects, must be at least 3 cm
- Elements must be placed in open spaces and not underneath fixed items as cupboards etc.
- Cut elements to correct length if this is not done by supplier
- Mark the element placing with numbers and mark where cables are to be placed



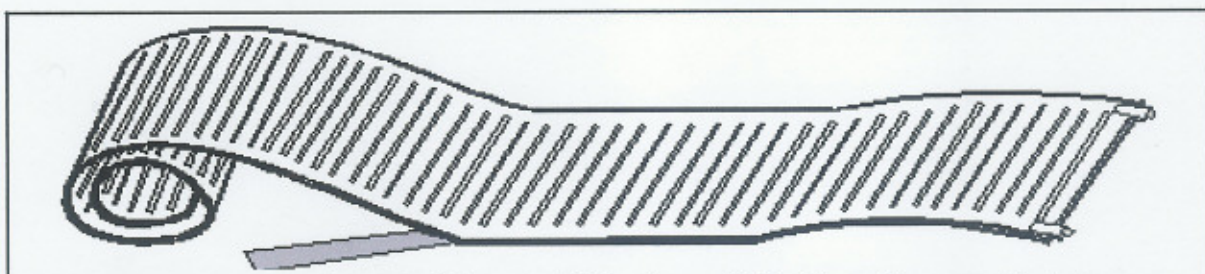
Measure placing from walls and in between them and mark. Put down the end with the crimping clips first so that you are able to cut length if necessary.



Distance to conductive material is min. 3 cm. Membrane is placed above heat i wet rooms. Ensure sealing at drainage, pipes and corners.

3. REMOVE ADHESIVE BACKPAPER AND STICK ELEMENTS TO THE FLOOR

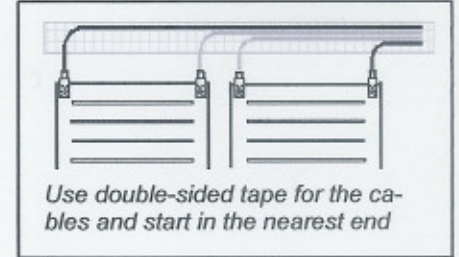
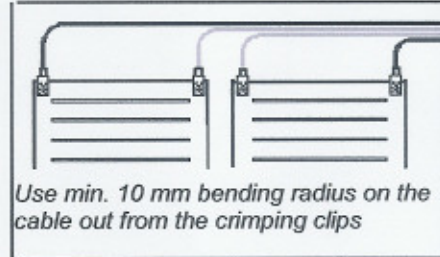
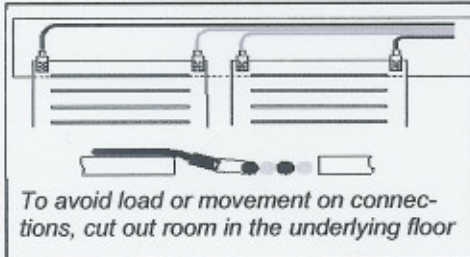
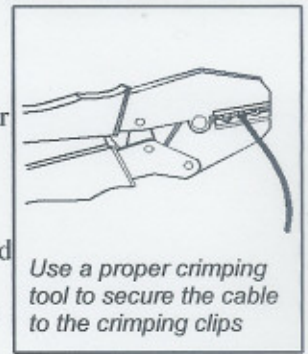
- The elements should be installed at room temperature and stretch them a bit lengthwise before placing
- Leave about 15 cm of adhesive back paper at crimping clips end to simplify the cable connecting work



When the first 20-30 cm has been glued down, stretch the element before the rest is pressed firmly down

4. CONNECT THE CABLES TO THE ELEMENTS

- Use two different colours on cables to separate phases / polarity.
- Both cables from every element is to be taken out of the floor without crossing one another
- Place two-sided self-adhesive tape underneath clips and cables to secure them.
- The elements must be connected so that the same phase / polarity is beside each other.
- Use a connection box if there are long stretches or many cables.
- Cable of 1,5 mm² to be used up to 7 m element and 5 m of cable. 2,5 mm² cable to be used for up to 10 m of cable from a 7 m element.
- Cut out room for crimping clips in the Kapron or underlying floor to prevent movements

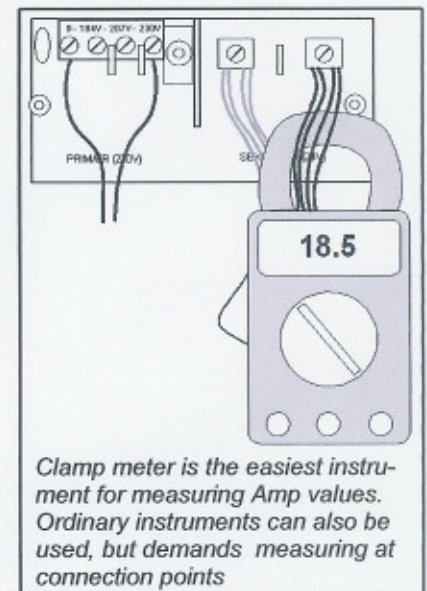
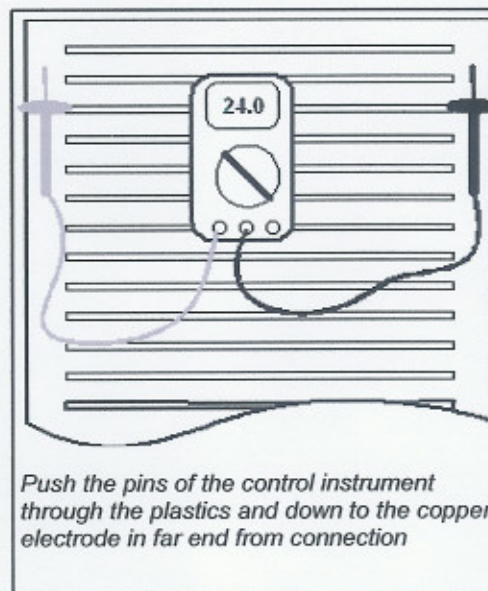
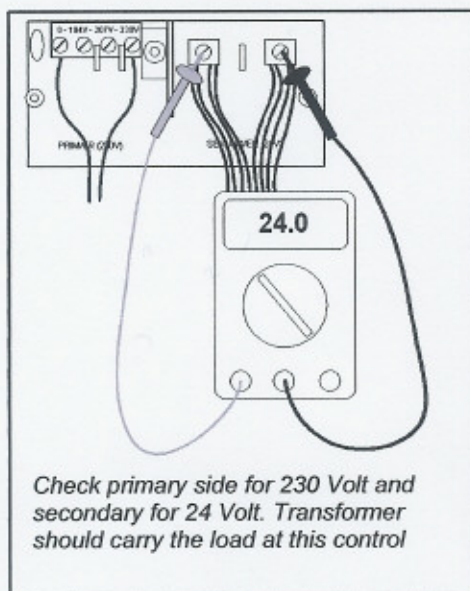


5. SET UP TRANSFORMER AND CONNECT THE CABLES FROM ELEMENTS

- The transformer can be placed in cupboards or on the wall, in or outside the room.
- Observe the degree of protection (IP) in wet circumstances.
- Ensure proper attachment to wall. Should vibrations occur, use a rubber washer in between.
- Connect the cables from elements to secondary side; one colour on each terminal.
- Check that all cables are properly secured and tighten after some time.

6. CONNECT PRIMARY SIDE OF TRANSFORMER AND CHECK INSTALLATION

- On / off switch or EP thermostat is to be used on primary side.
- Set the installation on for 30—40 minutes and check that everything is in order
- Check that crimping clips and elements achieve the same temperature. Cables are to remain cold.
- Check for 24 Volt on secondary side of transformer and measure the far end of element on the electrodes
- Measure the Amp value - average consumption is 1,1 A/m at 20° C at start. Note that the self-regulation ability will start quickly and dropping values will show.
- Fill in the Verification document and store it. Turn off the heating system and finish building the floor.
- If it is impossible to connect the heating system to the house net before finishing the floor, the Ohm value must be measured on each individual element
- Note that when the element is without cover, it will be close to surrounding temperature. Cover to obtain heat.



COVERING OF EP WARMFLOOR

EP warmfloor may be covered with all types of flooring materials due to low temperature and selfregulating effect. To make a successful installation it is important to consider:

TOP MATERIAL	CONSTRUCTION ABOVE EP WARMFLOOR
Wooden floor – floating	Woollen paper on top of element. Use extra layers where uneven.
Wooden floor – nailed	Woollen paper on top of element. Screws / nails between elements
Parquet and laminate	Woollen paper on top.
Vinyl and linoleum	6 - 12 mm self-levelling, flexible compound or wooden sheet. Note: Observe humidity value before vinyl is laid down. Measure or tape a piece of plastics down to check.
Carpets	6 - 12 mm self-levelling flexible compound. Preferably use carpets for heat constructions
Ceramic tiles	Use flexible adhesive. Note: Membrane on top of EP warmfloor in wet rooms.

When using Kapron insulation underneath the heating element, a layer of self-levelling compound of 5-6 mm must be used for ceramic tiles. For carpets and vinyl a higher thickness must be used.

We recommend Maxit products for EP warmfloor: Primer type Floor 4718 (alt. SERPO 550 in wet rooms). Self-levelling compounds type Maxit 4320. Tile adhesive SERPO 610. Membrane SERPO 554. When using other compounds or screeds, the heating element should be protected by primer Floor 4718 or SERPO 550.

- Refer to suppliers instructions regarding advice on floor construction.
- Wood, parquet and laminate needs some days of acclimatization in the room before installation.
- Wooden floors should be heated only 2 – 3 hours a day the first 3 days when starting up.
- EP warmfloor may be turned on after 7 – 10 days of drying when using self-levelling compound, tile adhesive or membrane.

TIPS ON USE AND SERVICE

After about one year of running, the connections in transformer and switches should be checked and retightened. Otherwise there are no other demands for maintenance of the installation.

When EP warmfloor is installed in large rooms or rooms with large windows, a total heating solution may give too high room temperature at times. EP thermostat can then be installed by removing the switch and place this in the same box. This thermostat is also necessary if the installation is to be used at summer time. Refer to separate installation instructions.

If a higher level of temperature is desired, this can be obtained by a reconnection in the transformer connection box. Refer to second page of the Verification document

There are fuses for safety reasons that may disconnect the installation:

- | | |
|---|---|
| 1. Fuse for the circuit of the house net | Change for D-type fuse (for transformers) |
| 2. Thermo safety switch in transformer connection box | Press knob for 3-4 seconds |
| 3. Glass fuse in transformer connection box | Change for new. Turn power off |
| alternatively resistance fuse to be reset | Turn power off, wait, turn on again. |

Before changing any fuse, the installation must be turned off and preferably the cause should be found. Contact a certified electrician or the supplier for further information or assistance.

ElektroPlast AS

HØVIKVEIEN 11, NO 1363 HØVIK, NORWAY

Mail: info@elektroplast.no
WEB: www.elektroplast.no

TLF.: 67 58 14 00
Fax.: 67 58 14 01

Distributor: