# PlugIn PLUS Installation Instructions

Self-limiting heating cable with thermostat for frost protection or temperature maintenance on pipes or inside pipes.

**General information**
The PlugIn PLUS self-limiting heating cable is a double-insulated heating cable. In the entire length of the cable, phase and zero lie parallel with a temperature-dependent heating element between them. At low temperatures, high power is delivered. At higher temperatures, low power is delivered. The power thus varies according to the current ambient temperature. This occurs everywhere throughout the length of the cable. The heating cable must be disconnected when it is no longer cold. Therefore, the thermostat turns off the heat when the temperature exceeds approx. 13 °C. The thermostat is placed outdoors or on the pipe under the insulation. If the thermostat is placed on the pipe, it should be able to be affected by the heat from the cable. The heat from the cable could be led to the thermostat with aluminium tape or some other heat-conducting material.

- The self-limiting heating cable has an idle power of approx. 20% of the nominal power. Therefore, the thermostat turns off the installation when the heat from the cable is no longer required.
- Pipes fitted with heating cable inside or outside must be insulated with at least 30 mm insulation material. Mark the insulation with a warning that this is an electrical installation (warning label is included. Warning labels can be purchased as required. Article no. 02000033).
- The heating cable must be connected to ground and a ground fault circuit interrupter. The grounding is extremely important as without it, there is a fire hazard.
- The cable must be protected against sharp objects and possible deposits in the pipe, as these may damage the cable.
- The product itself must be warmer than -15 °C when installed.

**The bag contains**
- PlugIn PLUS self-limiting heating cable preassembled with power supply line and plug.
- Warning labels to mark the completed installation.
- These installation instructions.

**Data**

| | Type: | PlugIn PLUS |
|---|---|---|
| • | Application: | On the outside of or inside pipes |
| • | Application: | Suitable for use in drinking water supply |
| • | Power: | 11 W/m@ 10 °C |
| • | Cover material: | Adflex. Plastic material approved for use in drinking water |
| • | Cold cable: | 1.5 m neoprene rubber (H05RN-F 3G) |
| • | Plug: | Schuko plug or grounded DK plug |
| • | Max. water pressure: | 10 bar |
| • | Min. bending radius: | 35 mm. The cable must not be twisted. |
| • | Thermostat: | Bimetal strip thermostat 3-13 °C Tolerance +/- 2.5 °C |
| • | Max. allowable cable temp.: | 65 °C |

**Accessories for PlugIn**

| Number | Name | Application |
|---|---|---|
| 56470100 | PlugIn ½" and ¾" nipple | For the introduction of PlugIn PLUS heating cable into pipe |
| 40049008 | Alu. tape 50 mm x 25 m | For the fixation and distribution of heat when fitting on pipe |
| 2000033 | Warning label | Warning about electrical installation. To be placed visibly |

**Installation:**
Before installation, create an overview of the places where frost protection is needed and choose a cable length, which corresponds to the need. In addition, make sure that the necessary components and tools are available.

**A) Installation of heating cable on the <u>outside</u> of pipe**

1) Provide, from the list of accessories, aluminium tape for fitting the heating cable to the pipe.
2) Apply aluminium tape throughout the length of the blue heating cable. This ensures good heat distribution.
3) When fitting on plastic pipe, use aluminium tape throughout the length of the heating cable.
4) Place the thermostat outdoors or on the pipe under the insulation. If the thermostat is placed on the pipe, it should be able to be affected by the heat from the cable. The heat from the cable could be led to the thermostat with aluminium tape or some other heat-conducting material.
5) Insulate the pipe (at least 30 mm insulation).
6) Apply warning labels to the insulation to warn third parties of the electrical installation.
7) Check that the grounding on the cable is connected and that the installation is protected by a ground fault circuit interrupter.

   If the cable is longer than the pipe or if more power per meter of pipe is required, spiral the cable as shown in Fig. 1A.
   If large valves or the like need frost protection with heating cable, your supplier will be able to provide you with proposals as to location.

**B) Installation of heating cable <u>inside</u> pipe**

1) Provide, from the list of accessories, the ½" and ¾" nipple fittings for the introduction of the heating cable into the pipe.
2) Fit union and washer on the cable. The hole of the washer is bevelled in one side. This side must face the sealing. The sealing is slotted and can be fitted on the cable afterwards (see Fig. 1B).
3) The cable must be protected against sharp edges and burrs so that it is not damaged when introduced into the pipe. Be particularly aware of deposits inside the pipe. Introduce the cable through a T-piece. This allows the cable to be lead directly into the pipe to be made frost proof.
4) If the cable is to be pulled backwards, this must be done <u>carefully</u> so that the sealing at the end does not get stuck, which could cause it to leak.
5) Place the thermostat outdoors or on the pipe under the insulation. If the thermostat is placed on the pipe, it should be able to be affected by the heat from the cable. The heat from the cable could be led to the thermostat with aluminium tape or some other heat-conducting material.
6) If the pipe is not insulated, insulate it (at least 30 mm insulation).
7) Apply warning signs to the insulation to warn third parties of the electrical installation.
8) Check that the grounding of the cable is connected and that the installation is protected by a ground fault circuit interrupter.

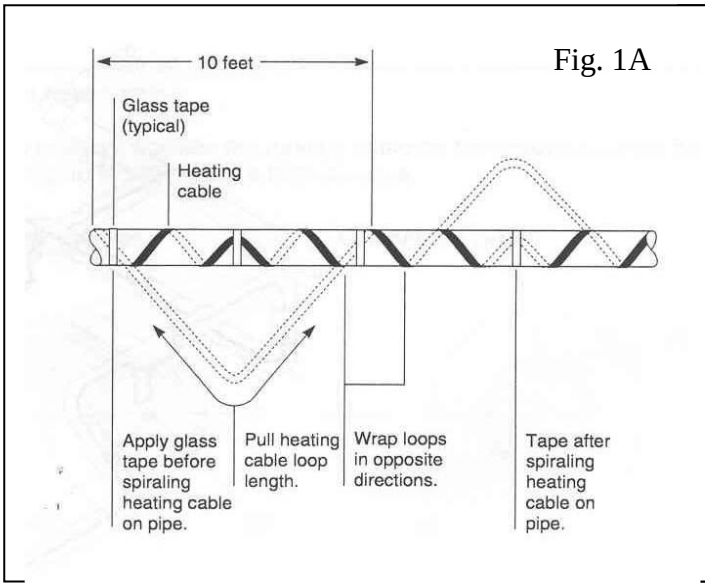

Fig. 1A

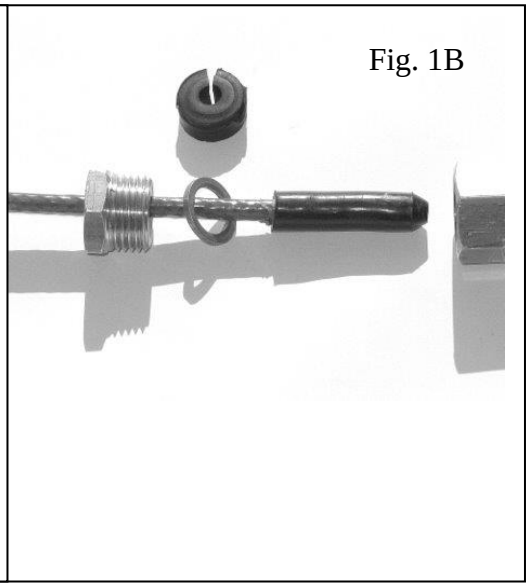
Fig. 1B