

Danfoss DEVpipeheat 10 V3 Self-Limiting Cables on Drum Installation Guide

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Danfoss DEVpipeheat 10 V3 Self-Limiting Cables on Drum



Introduction

In this installation guide, the phrase “heating cable” refers to the self-limiting cable on drum DEVIpipeline™ 10 V3. To get the full installation guide, warranty registration, product information, tips & tricks, addresses, etc visit www.devi.com.

Safety instructions

Heating cables must always be installed according to local building regulations and wiring rules as well as the guidelines in this installation manual

- De-energize all power circuits before installation and service
- Residual current device (RCD) protection is required RCD trip rating is maxed 30 mA
- The maximum fuse size is 10 A
- The screen from each heating cable must be connected to earthing terminal in accordance with local electricity regulations
- Heating cables must be connected via a switch providing all-pole disconnection
- The heating cable must be equipped with a correctly sized fuse or circuit breaker according to local regulations
- Never exceed the maximum heat density (W/m or W/m²) for the actual application Refer to the Application Guide
- Heating cable must be used together with an appropriate thermostat to secure against overheating and reduce energy consumption

CAUTION:

If the cable is installed inside a drinking water pipe, it is a precondition for the certification for in drinking water application, to secure that the water does not reach a temperature of 23 °C or above It is a must to secure the installation by a thermostat with a set-point of +5 °C.

The presence of a heating cable must

- Be made evident by affixing caution signs in the fuse box and in the distribution board or markings at the power

connection fittings and/or frequently along the circuit line where clearly visible (tracing).

- Be stated in any electrical documentation following the installation.

Installation guidelines

- It is not recommended to install heating cables at temperatures below -5°C.
- The heating cable bending diameter must be a minimum of 50 mm (to the inside of the cable).
- Ensure that the cable is sufficiently fixed and mounted according to the installation guide.
- The heating cables must be temperature controlled See safety instructions.
- Ensure controllers and sensors are connected according to the applicable installation guide and/or application guide.
- Measure, verify and record insulation resistance during installation.
- Persons involved in the installation and testing of electrical trace heating systems shall be suitably trained in all special techniques required Installations are intended to be carried out under the supervision of a qualified person.

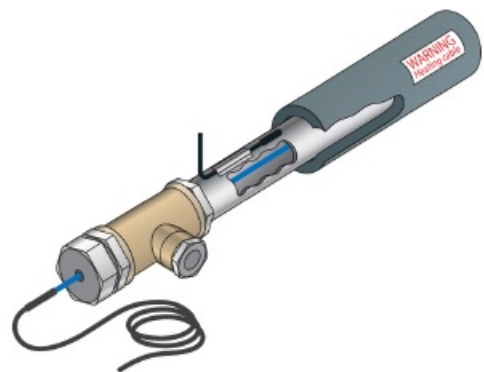
Application/Product overview

	Pipe frost protection	Tank frost protection
DEVpipeheat™ 10 V3	right	right

DEVpipeheat™ 10 V3 is designed for preventing frozen water pipes DEVpipeheat™ 10 V3 can be used on the outside of the water pipe and will heat through the pipe and prevent it from freezing DEVpipeheat™ 10 V3 can also be installed inside the water pipe, by using the dedicated fitting It is certified to be suitable for drinking and common water pipes and is designed to be installed on the pipe in all countries and inside the pipe in certified countries (DK, EE, FI, LT, LV, SE, NO, RU), on the condition that water temperature is always kept below 23 °C.



On water pipe installation



In water pipe installation

Product specification

Type	Value
Nominal voltage	230 V~
Nominal output (tolerance)	10 W/m @ 10 °C (7,5-13,5 W/m @ 10 °C)
Max. permissible use temperature, powered	65 °C
Max. permissible use temperature, unpowered	65 °C
Minimum installation temperature	– 5 °C
Max. water temperature (inside water pipe installation)	23 °C
Max. water pressure (inside water pipe installation)	10 bar
Heating cable dimensions	8,75 × 5,15 mm
Outer sheath	HDPE + blue PVDF
Minimum Screen Coverage	100% aluminum foil
Maximum resistance of protective aluminum foil and drain wire	36 Ω/Km
Bending Ø, min.	50 mm (to the inside of the cable)
IP Class	IP68

Maximum heating circuit length on a pipe, with circuit breaker with C-characteristic.

Switch on temperature	DEVIpipeheat™ 10 V3	
	On pipe installation	In pipe installation
	10 A	10 A
10 °C	100 m	60 m
0 °C	96 m	–
-20 °C	77 m	–

Heating cables can be customized for the specific project, depending, on the length of the heating cable and length of cold leads For more details contact your local DEVI sales company.

Note:

It is the full responsibility of the installer/designer to use proper cold lead dimensioned for the purpose and assembly sets that establish sufficient mechanical strength, flammability resistance, UV resistance, and waterproofing – and to design the heating unit with the correct output for the specific application to avoid overheating of the cable or building materials.

Regarding other types of applications please contact your local DEVI sales company.

More information about applications (maximum linear output, specific output, heating circuit length, voltage, etc) can be found at www.devi.com.

Thermostats/controllers

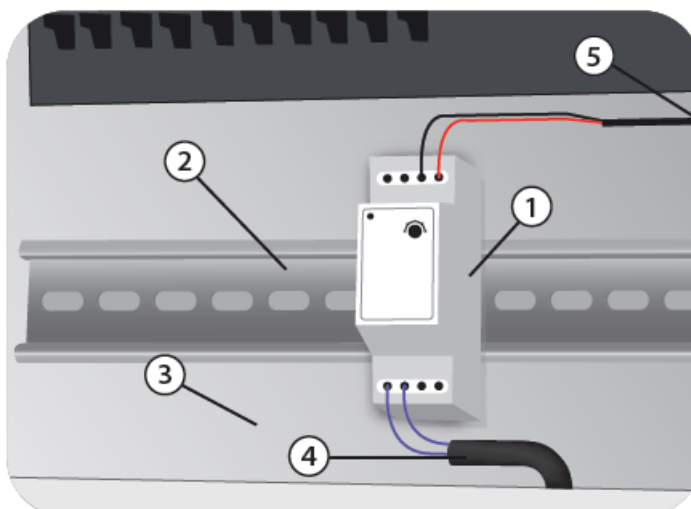
	Pipe frost protection	Tank frost protection
DEVlreg™ 330	Right	Right
DEVlreg™ 610	Right	
DEVlreg™ Multi	Right	Right

The DEVlreg™ thermostat/controller must be commissioned as prescribed in the installation instruction for the actual controller and adjusted where local conditions vary in relation to factory settings Before every heating season or at least once per year, check for faults in the switchboard, thermostat, and sensors. Each heating cable screen must be earthed in accordance with local electric regulations and connected to a residual current device (RCD). The heating cables must be temperature controlled and not operate at ambient temperatures higher than 5 °C. The DEVlreg™ thermostat must be commissioned as prescribed in the thermostat manual Recommended temperature setting is according to the Application Guide or Installation Guide

More information about thermostats and controllers can be found at www.devi.com.

Sensors:

- Sensors can be live (230 V) components and must be treated according to specific Installation Guide and local standards
- Sensors can be extended using cable with the same cable construction and cross sections (up to 50 m)
- See section 7 for specific installations



1 – Controller; 2 – DIN-rail; 3 – Electric cabinet; 4 – Cold lead connection; 5 – Sensor connection

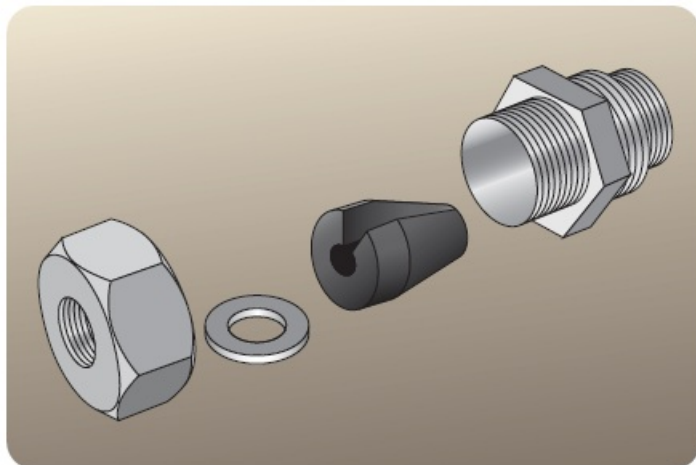
Accessories

A comprehensive range of accessories for self-limiting cables is available. In order to find all accessories please refer to the Product Catalogue or visit www.devi.com.

Fixing elements



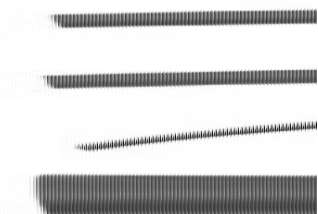
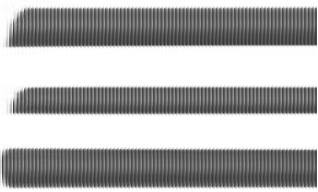
DEVI Aluminium Tape (19805078) For ensuring efficient heat transfer.



3/4" + 1" Pipe fitting for DEVIpipeline™ 10 V3 (140F0956) Wadding for internal mounting in pipe Rubber conic sliced sleeve, oval hole Max water pressure – 10 Bar at max water temperature 23 °C.

Connection kits

Connection kits for DEVIpipeline™ 10 V3

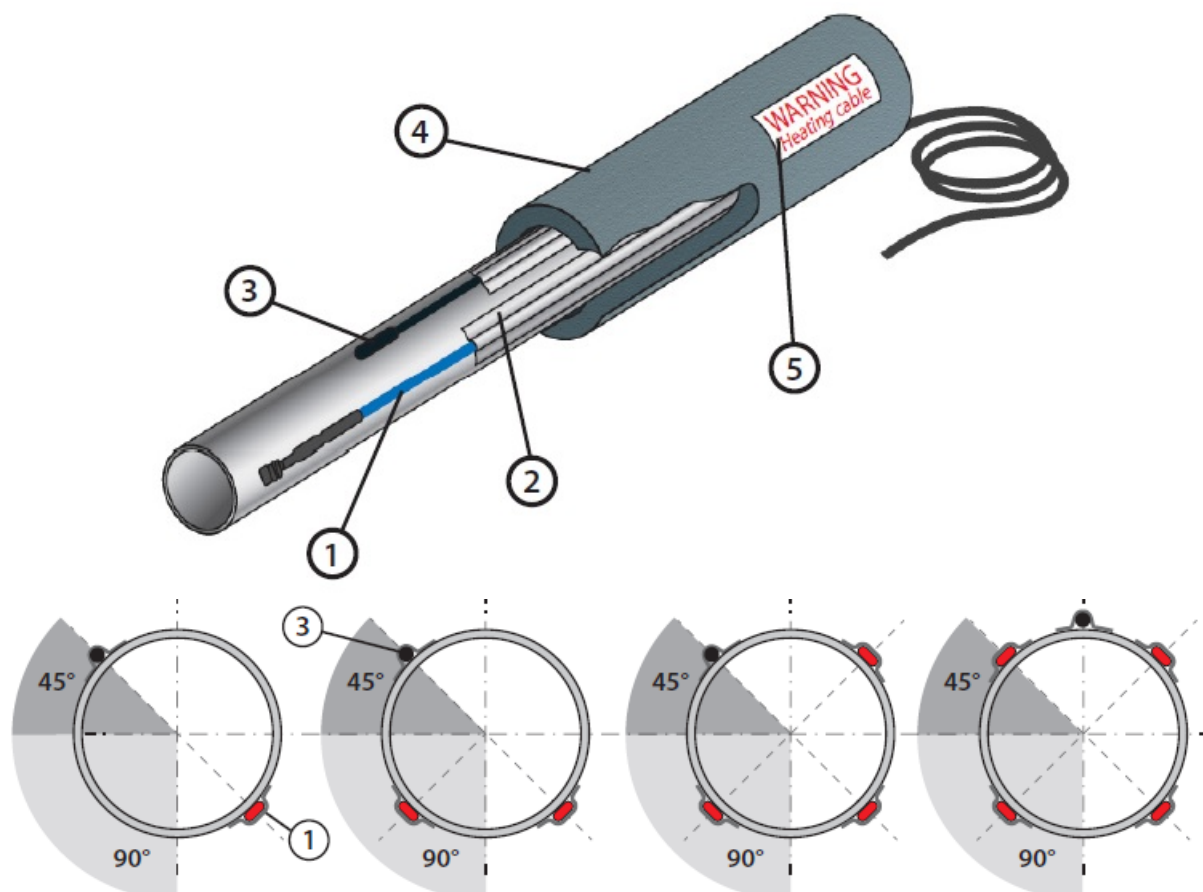
Picture	Name	Description
	Connection kit cable to junction box, end termination (Pipeheat), (140F0954)	Connection set with end-cup for assembly between DEVpipeheat™ 10 and junction box and assembly end termination.
	Connection kit cable to cold lead, end termination (Pipeheat), (140F0955)	Connection set with end-cup for assembly between DEVpipeheat™ 10 and cold lead/self-limiting cable and assembly end-termination.

Typical installations

Typical pipe tracing installation

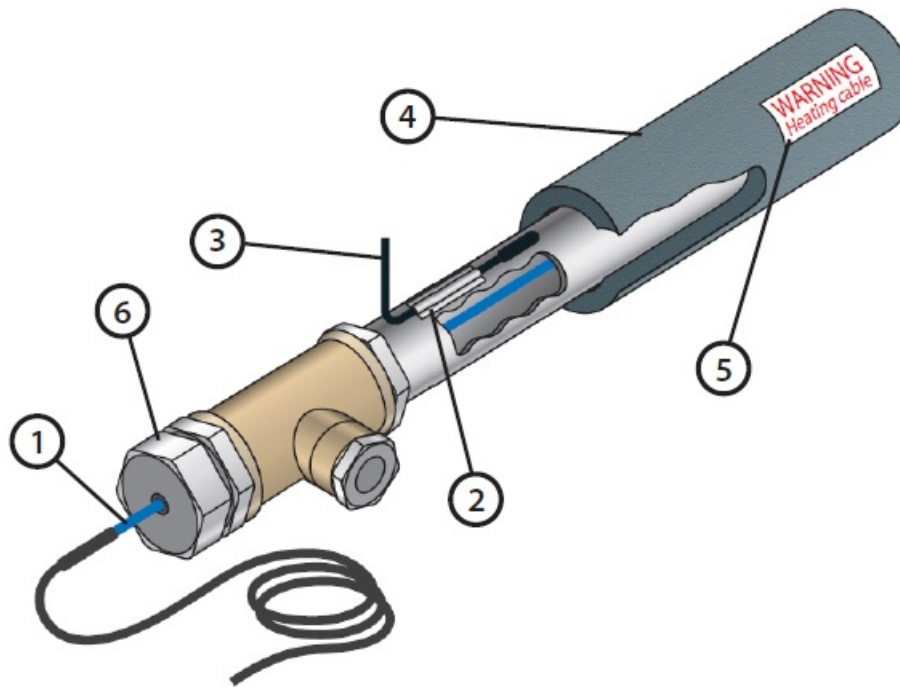
On water pipe installation

1. Apply aluminum tape below (mandatory for plastic pipes) and on top on the whole length of the cable.
2. Insulate the pipe with at least 30 mm insulation or thicker if required based on heat loss calculation.



1 – Heating cable; 2 – Aluminum tape; 3 – Wire sensor; 4 – Insulation; 5 – Warning label/tape

In water pipe installation



1 – Heating cable; 2 – Aluminum tape; 3 – Wire sensor; 4 – Insulation; 5 – Warning label/tape; 6 – 3/4" + 1" Pipe fitting

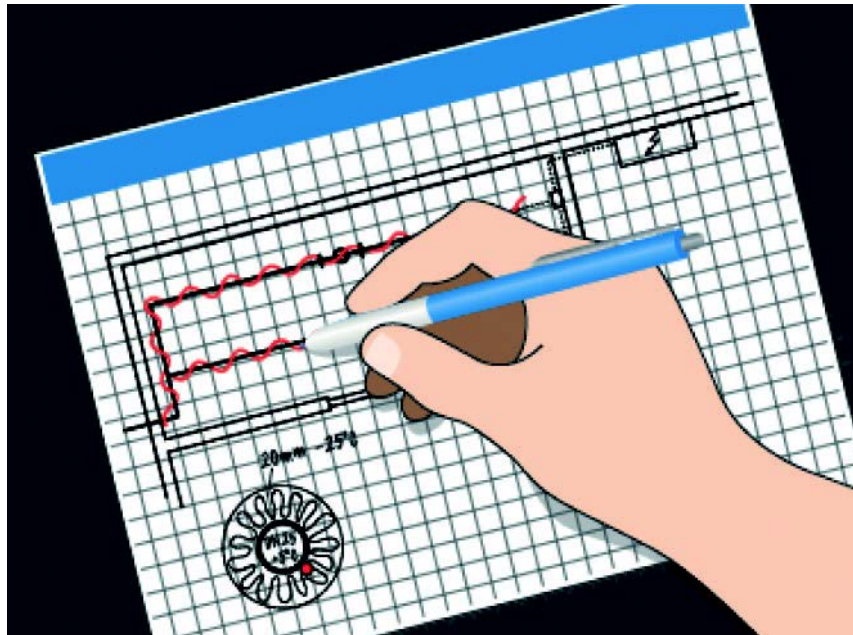
1. Fit a T-shaped pipe of a generous size over the pipe (3/4" and 1")
2. Fit the clean wadding (without side thread or sharp edges) inside the T-shaped pipe with a small hole in the center
3. Keep the cable clean and push the cable through the wadding, to facilitate the installation. The connection between the heating cable and connecting cable must be outside the wadding. Mount the wadding in the following sequence:
 - use only clean tools before installation as the heating cable could be in contact with drinking water;
 - first you put the nut on facing the connection;
 - mount the washer on the cable;
 - mount the threaded part with the threaded part facing the end of the cable;
 - insert almost the whole length of the cable inside of the pipe, leave approx 0,5 m of cable to install rubber seal afterward;
 - the heating cable must be extended straight through the T-shaped pipe;
 - install rubber seal on the cable. The conic rubber seal has a slice for heating cable.
4. Turn the nut until it fits tightly (max torque for pipe fitting is 30 N·m).

Insulate the pipe with at least 30 mm insulation or thicker if required based on heat loss calculation.

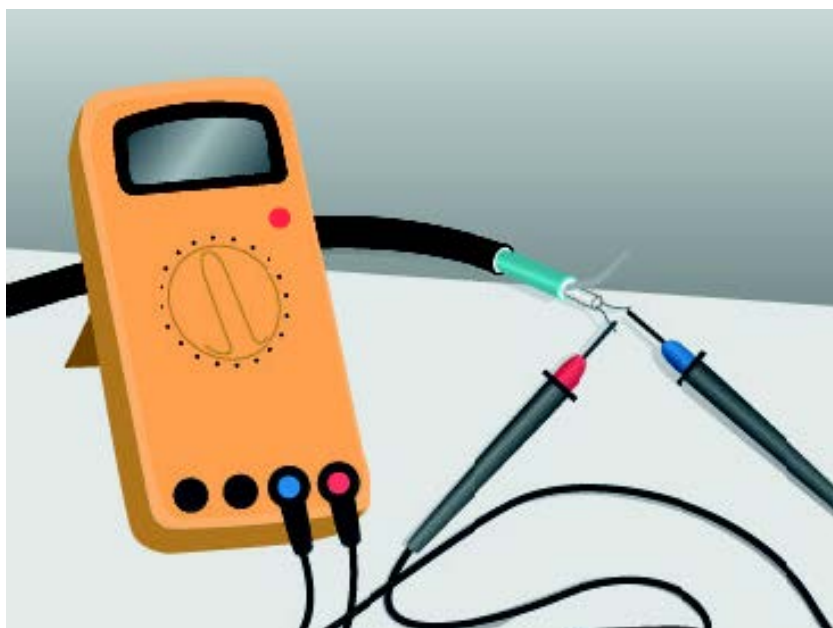
1. Check the pipe system to be heated and make sure that the pipes are dry, smooth, and tight. Check and prepare the switchboard.



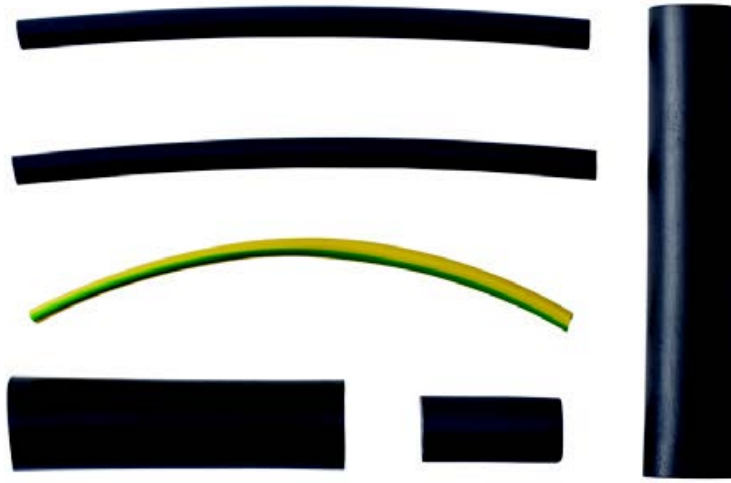
2. Draw a plan positioning cable(s), sensors and thermostat, cable connections, cold tail, connection box, cable paths, and switchboard.



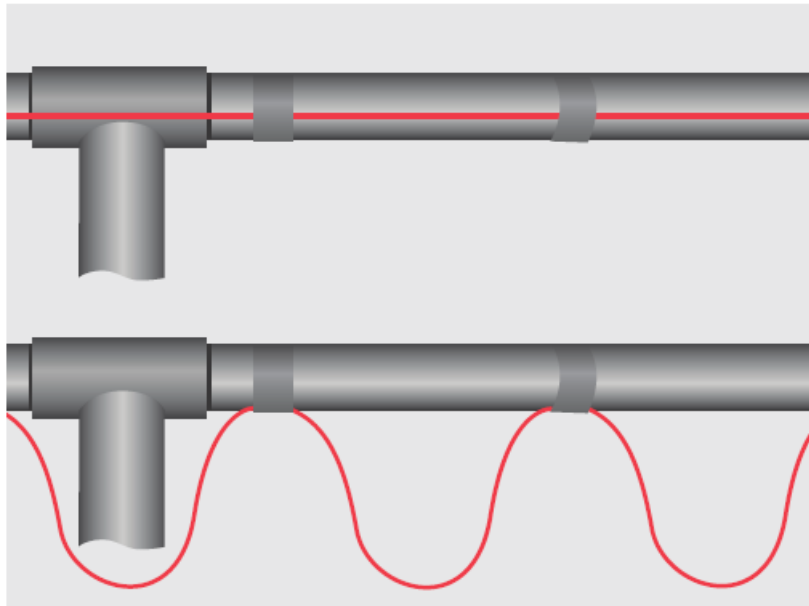
3. Check the insulation resistance of the heating cables The measured value shall be no less than 50 MΩ.



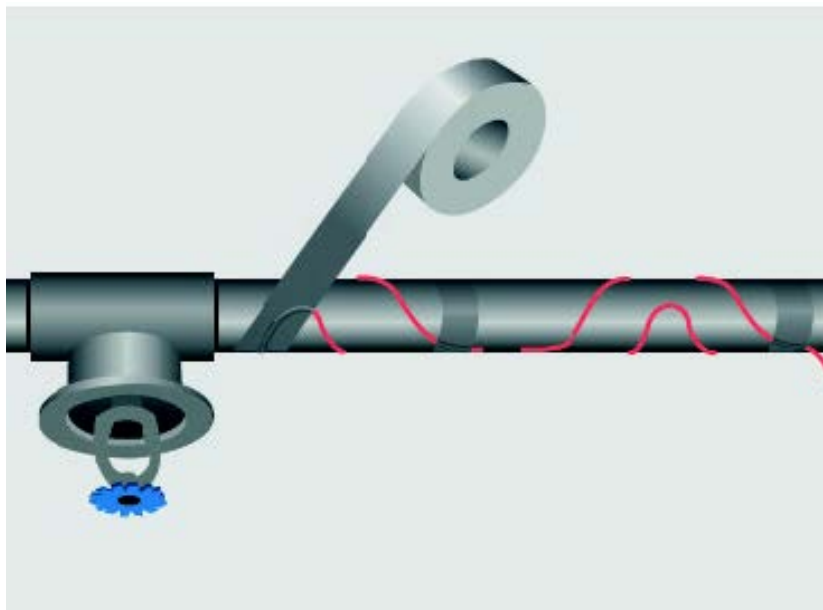
4. Make connections and end terminations using only authorized accessories.



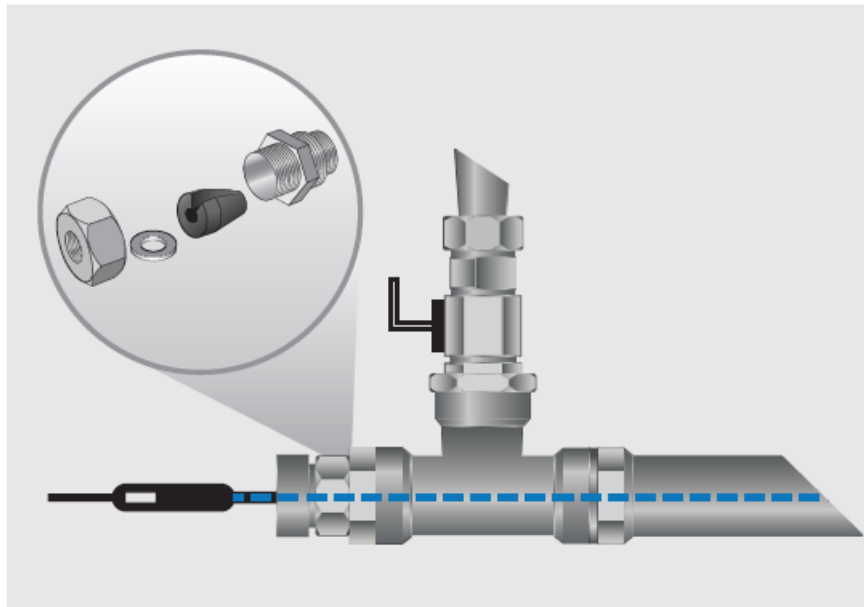
5. Straight lines and sensor must be fitted as shown at Fig 2 Twisted lines are attached as shown for every approx 1 m pipe with aluminum tape.



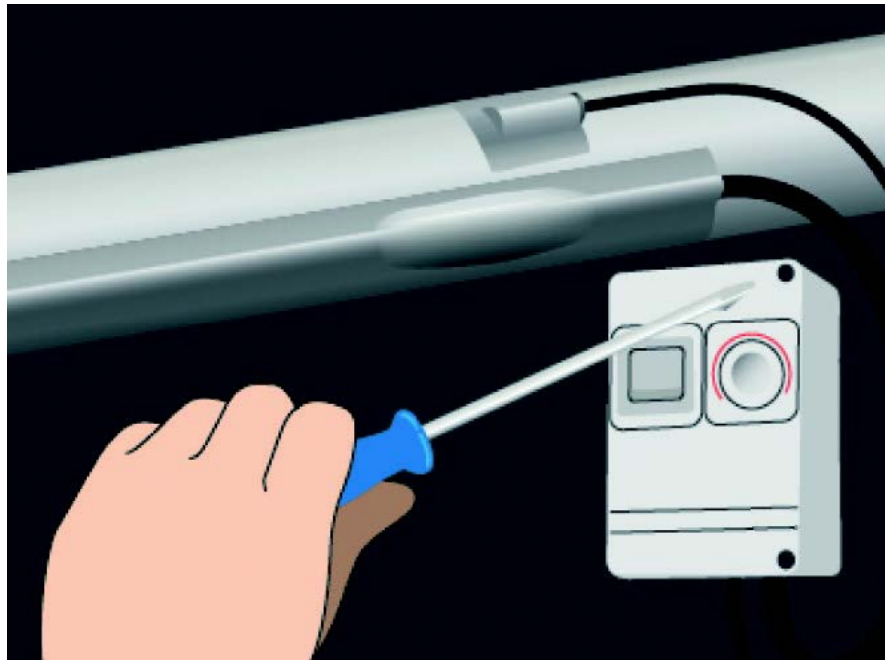
6. Apply aluminum tape below (mandatory for plastic pipes) and on top of the whole length of the cable Make sure that the cables do not cross sharp edges.



7. For in-pipe installation using 3/4" + 1" Pipe fitting for DEVlpipeheat™ 10 V3 to fit cable inside of pipe Max water pressure – 10 Bar at max water temperature 23 °C Max torque for pipe fitting is 30 N·m.



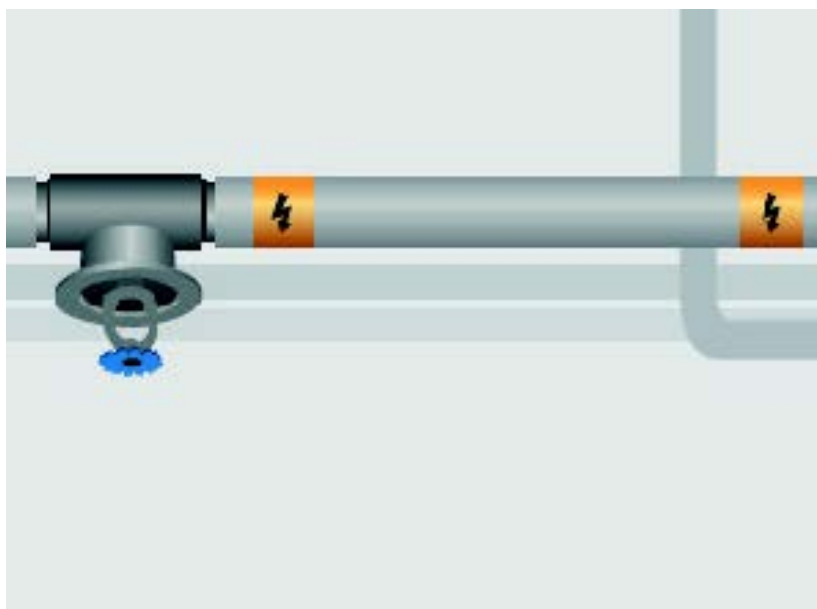
8. Attach and cover the sensor on top of the pipe with aluminum tape. Extend cold tails/leads and keep connections dry. Mount the connection box on the pipe or close to it and install the thermostat on the pipe or near it (depending on the thermostat).



9. Re-check the insulation resistance. Connect cables to connection boxes and to the switch board.





10. After insulation, place safety marking tape on the insulation jacket or pipe trenches every 5 m. In subsurface installations, a cover ribbon with a warning sign must be laid 10 cm above the cables.



Standard compliance

IEC 60800 Heating cables with a rated voltage of 300/500 V for comfort heating and prevention of ice formation.
KTW-BWGL – Testing and inspections on products and materials in contact with drinking water.

Holder	Danfoss A/S
Product name, and relevant article number	Refer to the product label
Production site	Refer to the product label
Traceability to the production	To be found on insulation inside the cable
Cable length, nominal voltage, IP class, etc.	Refer to the product label
The registered trademark of Boverket No 241 217	
Certification Body	Kiwa Certification AB 
Accreditation number	1913
Type Approval No	TG 1747
Inspection Body	Danish Technological Institute (DTI)

Warranty

A 5-year product warranty is valid for:

self-limiting cables: DEVIpipeheat™ 10 V3 Should you, against all expectations, experience a problem with your DEVI product, you will find that Danfoss offers a DEVI warranty valid from the date of purchase that was no later than 2 years from the production date on the following conditions: During the warranty period Danfoss shall offer a new comparable product or repair the product if the product is found to be faulty by reason of defective design, materials or workmanship The repair or replacement.

The decision to either repair or replacement will be solely at the discretion of Danfoss Danfoss shall not be liable for any consequential or incidental damages including, but not limited to, damages to property or extra utility expenses No extension of the warranty period following repairs undertaken is granted.

The warranty shall be valid only if the WARRANTY CERTIFICATE is completed correctly and in accordance with the instructions, the fault is submitted to the installer or the seller without undue delay and proof of purchase is provided Please note that the WARRANTY.

CERTIFICATE must be filled in, stamped, and signed by the authorized installer performing the installation (Installation date must be indicated) After the installation is performed, store and keep the WARRANTY CERTIFICATE and purchase documents (invoice, receipt, or similar) during the whole warranty period.

DEVIwarranty shall not cover any damage caused by incorrect conditions of use, incorrect installation or if the installation has been carried out by non-authorized electricians All work will be invoiced in full if Danfoss is required to inspect or repair faults that have arisen as a result of any of the above The DEVIwarranty shall not extend to products which have not been paid in full Danfoss will, at all times, provide a rapid and effective response to all complaints and inquiries from our customers.

The warranty explicitly excludes all claims exceeding the above conditions For full warranty text visit www.devi.com. devi.danfoss.com/en/warranty/.

WARRANTY CERTIFICATE

The DEVIwarranty is granted to:

The insulation resistance shall be measured by means of a DC voltage of at least 500 V for one minute.

The measured value shall be no less than 50 MΩ.

Address _____ Stamp _____

Purchase date _____

Serial number of the product _____

Product _____ Art. No. _____

Installation Date _____ Insulation [MΩ] _____
& Signature _____

Connection Date _____ Insulation [MΩ] _____
& Signature _____

Danfoss A/S Nordborgvej 81 6430 Nordborg, Syddanmark Denmark.


Danfoss A/S

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Any information, including, but not limited to information on selection of product, its application or use, product

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Documents / Resources

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