

## BFV-AT HEATING BLANKETS

Heating blankets for the straightening of high voltage cables



**Installation manual**

BFV-AT standar heating blankets



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## Security instructions

### Important

- Read and make sure you understand this manual before installing the heating blanket.
- Not understanding this manual correctly can cause serious accidents, injuries, and structural damage.

### General points

No modifications or alterations can be made to the heating blanket without authorisation from the manufacturer, in the event of this, the guarantee will be invalidated.

National standards and safety regulations must be observed.

### Fundamental safety instructions



Anyone involved with the operation, maintenance and repair of the heating jacket should read and be aware of the contents of the instruction manual.

The heating jacket should only be operated by trained personnel.



The mains supply connection has to be in accordance with the corresponding regulations. For safety reasons the equipment must be only operated, if a Residual Current protective Device (RCD) with a release current of 30 mA is connected upstream. This must be checked by a qualified electrician.

**According to current regulations, electrical resources must be checked periodically.**



Repairs on the electrical components in the heating jackets must be carried out by an electrician or trained personnel under the supervision of an electrician.



The heating jacket should only be used when it is in full working order under the supervision of the operator.



The heating jacket should not be used in damp or wet conditions and should not be exposed to aggressive chemicals. Do not use any other heating appliances in addition to the heating jacket.

## Security instructions

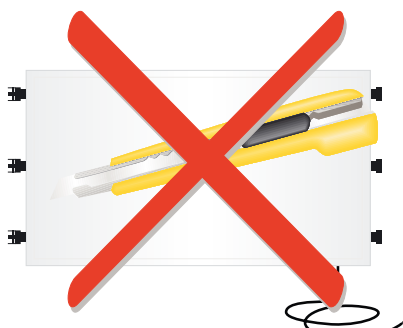
### Important safety Instructions

The user who has not read or understand all the steps in these instructions is not qualified to use this product.

- Check for suspected damage to the heater like rips, punctures, etc.
- Never immerse the heater into liquids.
- Keep sharp metal objects away from the drum heater.
- Avoid volatile fuels near the heater when it is running.



**Do not dip into liquids**



**Do not expose to sharps**



**Avoid volatile fuels**

- Do not use the heater with tears or breaks in the surface.
- If the heater is damaged or malfunctions, do not repair the heating blanket, contact the manufacturer.
- Do not crush the heater or subject it to severe stress, neither the power input cable (mains cable).
- When the heater is not in use, unplug from mains.
- Before removing the heater, wait until it is cold.
- Use the heater for its specific purpose, do not use it for other applications..
- Do not overlap the blanket when the drum heater dimensions are larger than the container.

### The end user must meet the following requirements

- Only qualified personnel are authorized to handle and connect the electrical wiring.
- All electrical wiring must follow the electrical applicable regulations.
- The final installation and wiring must comply with current regulations.
- The end user is responsible for providing a secure network and, if necessary, give it the necessary mechanisms for maximum safety (thermostats, icp, breaker, etc.).

## Heating blankets for high voltage cables

### Introduction

At **ECAS** we have developed, along with experts in the field of the cable industry, a range of heating blankets for the handling and straightening of high voltage cables.

These heating blankets provide constant temperatures and can be adjusted up to 120° C, which improves the handling of high voltage cables, allowing us to straighten and flex them easily.



### Description

Our heating blankets make it easy to straighten high-voltage cables before laying, bonding, and finishing tasks are performed by cable assemblers.

The heating jacket allows heating of the HV cable (132 kV - 400 kV) before installation.

The temperature of the blankets is controlled through a PTC1000 sensor built into the blanket. The sensor connects to the **DP16A / 321** digital thermostat via a five-pin connector.

Both heating blankets and thermostats can be manufactured to work at 230 or 110 Volts.

### Application areas

High-voltage power cables for power companies and high-voltage renewable energy (EHV-HV) sectors.

**This product is suitable for:**

- Bending of high voltage cables.
- Straightening of high voltage cables.
- Cable relaxation.
- Post curing of epoxy joints.
- High voltage cable joints.

### Cable manufacturers brands

Tyco, ABB Kabeldon, Pfisterer, uniones de cables Prysmian, etc.

## High voltage cable heaters

### Handling and straightening

High voltage (HV) and ultra high voltage (UHV) cables are very rigid.

The internal cables of the high voltage cables have strong mechanical stresses. It is very difficult to bend such cables.

Most of the time the cable is laid straight down underground, but sometimes it is necessary to bend the cable to follow a precise route, or to make junctions or terminations.

The solution is to preheat the high voltage cables before bending them.

The heat makes the internal cables and the complete cable more flexible. Operators can then bend the cable or initiate the connection.

**Elementos Calefactores AS**, with its **BFV-AT** product range, offers flexible heating blankets that meet the requirements of high voltage (HV) cable manufacturers and installers.



**BFV**<sup>AT</sup>

### The goal

The goal is to provide flexible heating covers based on heating cable technology with the following performance:

- An efficient safety system to prevent any risk of overheating.
- Durable and easy to wear fasteners.
- Heating blanket length up to 2 meters.
- Sensors positioned to optimize the temperature control of the heating blanket.
- An electronic control device for temperature control.

## Technical characteristics

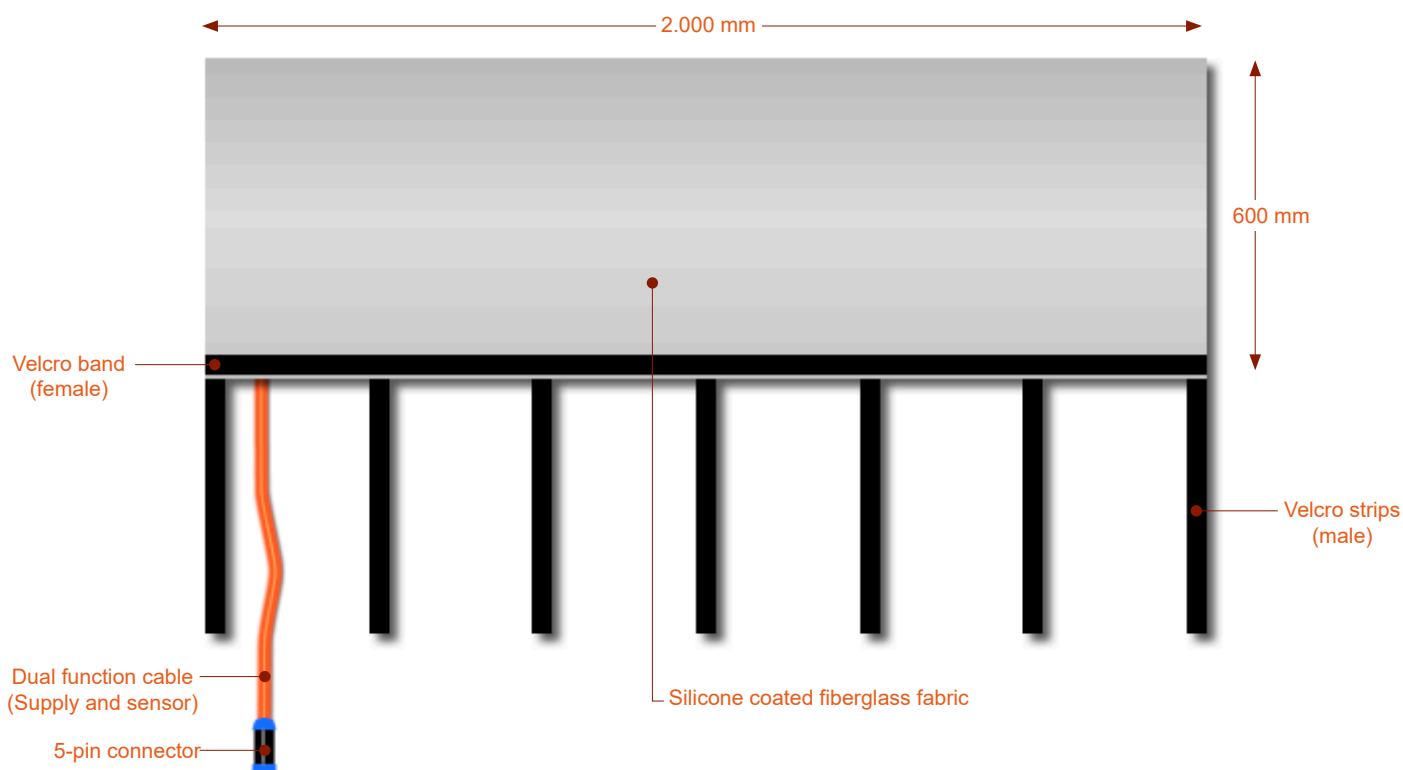
Ref. code:	BFV-AT2000600900	BFV-AT20006001500
Application areas:	Straightening and manipulation of high voltage cables	
Power delivery at 230 V:	900 W	1.500 W
Maximum working temperature:	120° C ± 5° C	
Minimum working temperature:	- 40° C ± 5° C	
Heating conductor:	Ni/Cr 80/20	
Conductor insulation:	Thermal silicone double insulation	
Maximum working temp. of the conductor:	- 40 / 180° C	
Heating blanket insulation:	Siliconed fiberglass fabric (both sides)	
	100% Textured filament fiberglass	
	Treatment: One side silicone translucent	
	Weft: EC-9-136 Tex * 1	
	Warp: EC-9-136 Tex * 1	
	Tensile strength	
	Weft: 5000N/5 cm	
	Warp: 3000N/5 cm	
	Total thickness of the heating blanket: 14 mm	
	Fabric: Cross Twill	
	Fire resistance: IMO Res. MSC.61(67) FTP - Cod	
Approximate dimensions:	2.000 x 600 x 14 mm	
Type of fastener device:	Velcro	
Dielectric strength:	1.500 V 1 min. ≥ 50GΩ	
Power cable:	Conductor 3 x 1 mm <sup>2</sup> H07RN-F	
Standards:	2014 / 35 / UE	
	2014 / 30 / UE	
	EN60335-1	
	EN ISO 12100-1 & 2	
Safety sensor:	Thermal fuse 130° C	
Thermostat:	DPA16/321	



## System components

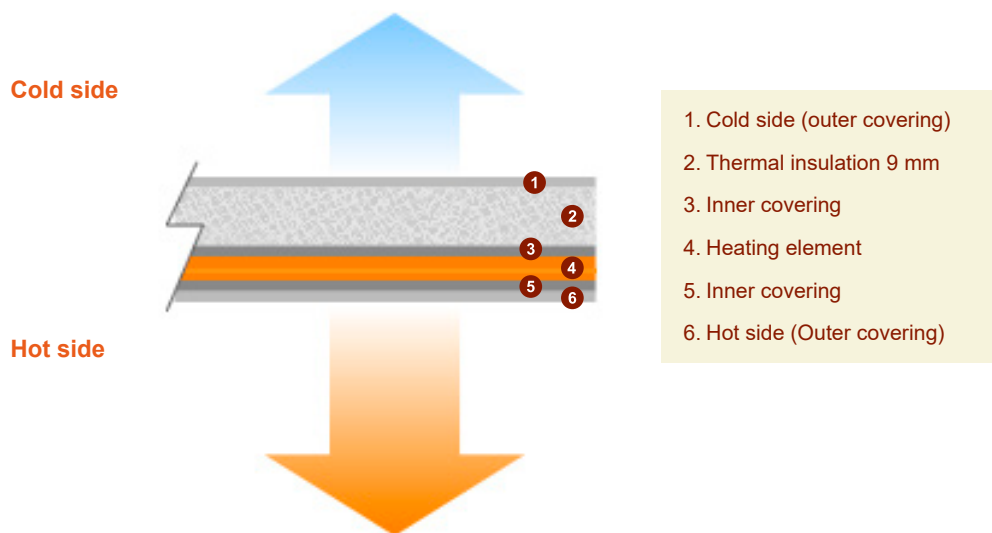
### Heating blanket BFV-AT

Heating blanket for handling high voltage cables.



### Efficacy and safety

The heating blanket heats only on one side, the one we call hot side. The opposite side of the blanket is kept cold because it incorporates a 9mm layer of thermal insulation. This measure preserves the integrity of the workers and reduces heat losses.





## System components

### 5-pin connector

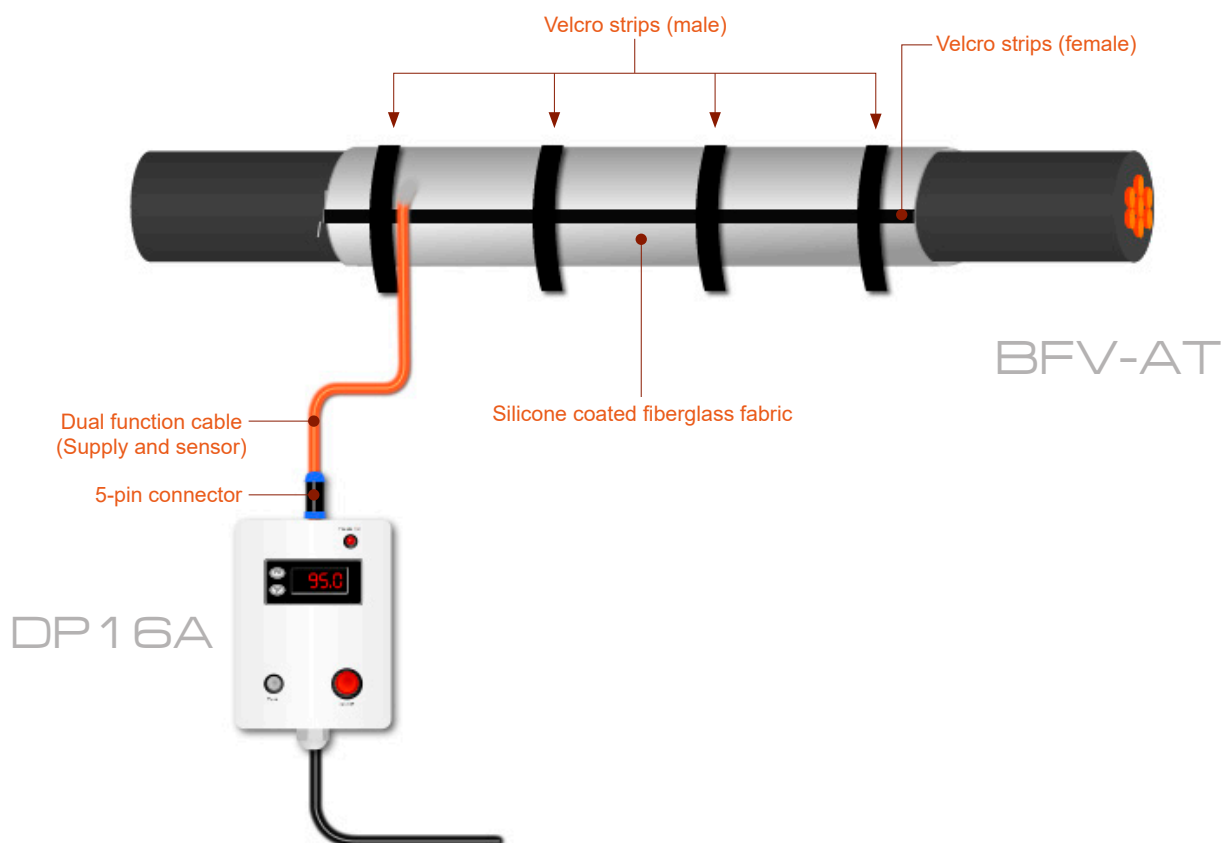
This connector allows us to supply power to the heating blanket, and at the same time control the temperature of the sensor integrated inside the heating blanket.



5-pin female connector - IP68



5-pin male connector - IP68



## System components

### DP16A/321

Standard programmable digital thermostat to control and regulate the temperature of heating blankets for high voltage cables.

### DP16A/321



Reference	DP16A / 321
Case size (L x W x H):	155 x 110 x 74 mm
Box without window:	IP-65
Temperature range:	-40 / 140° C
Supply voltage:	230 V AC
Maximum power:	3.500 W
Sensor input:	PTC1000 via a 5-pin plug
Heater outlet:	5-pin connector - IP68
Electrical protection:	Depending on the heating blanket specifications. See technical sheet
Power cable:	2,5 meters - 3 x 1,5mm² H07RNF



• **Attention:** Removing the seal from the screws or the security seal invalidates the guarantee.

## BFV-AT heating blanket installation

### Installation / operating instructions

Installation instructions for the heating blankets of the **BFV-AT** range.

It is important to read and understand this manual thoroughly before operating the heating blanket.

These instructions are for the following standard models, as well as HV cables heating blankets on demand that include the **DP16A / 321** digital thermostat or similar:

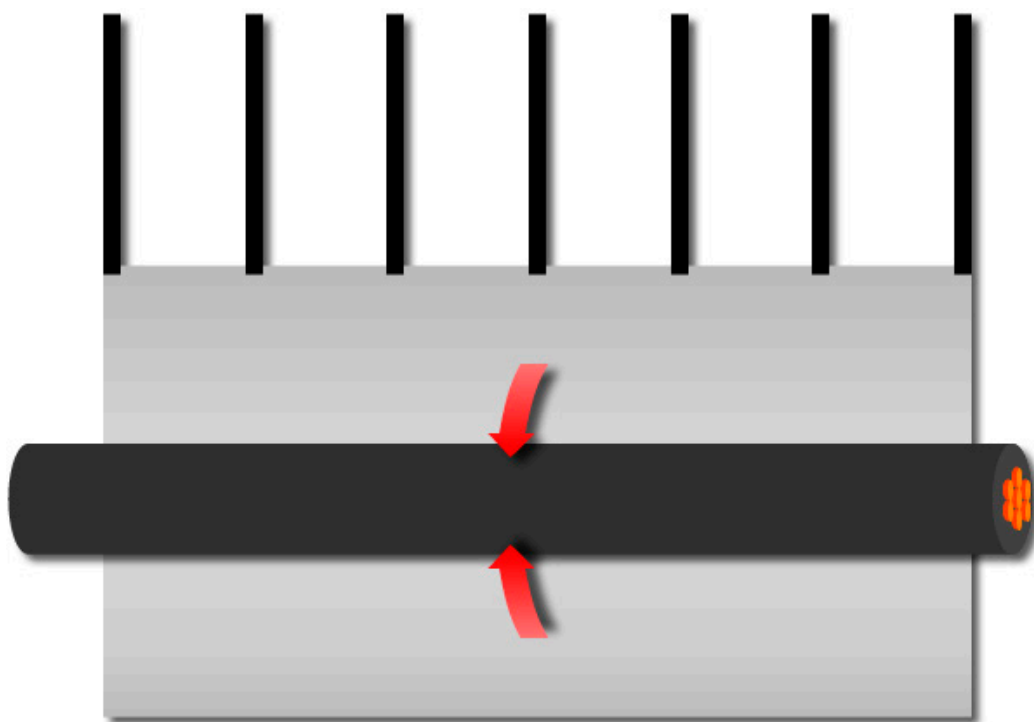
- BFV-AT 2000600900DP16A/321
- BFV-AT 20006001500DP16A/321

### Step 1

- 1.1. We will take the heating blanket out of the box. We will check that no accessories are missing.
- 1.2. We will do a visual inspection of the blanket. We will not use the heating jacket if it shows any tear or is damaged.
- 1.3. The inspection and installation is preferable to be carried out by two people.

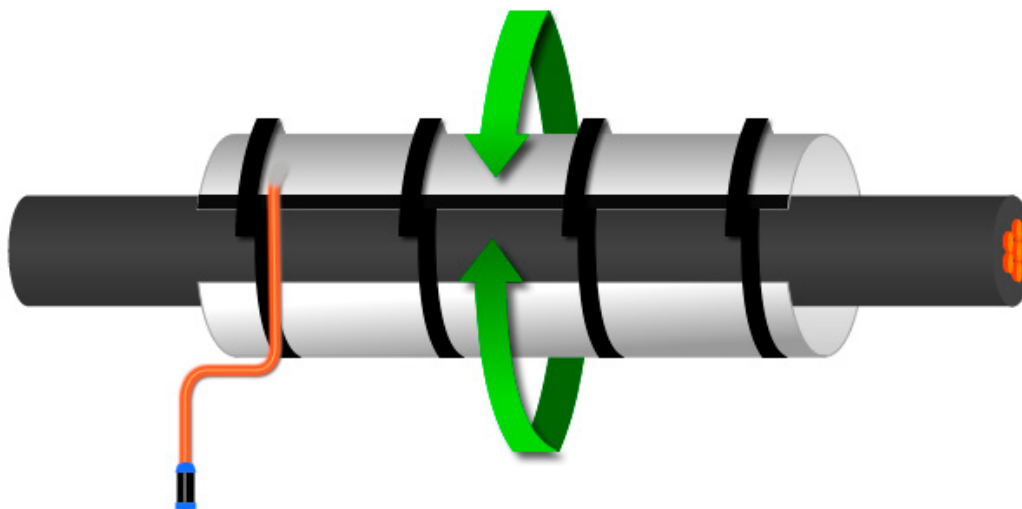
### Step 2

- 2.1. Place the heating blanket in the area of the high voltage cable that we want to straighten.

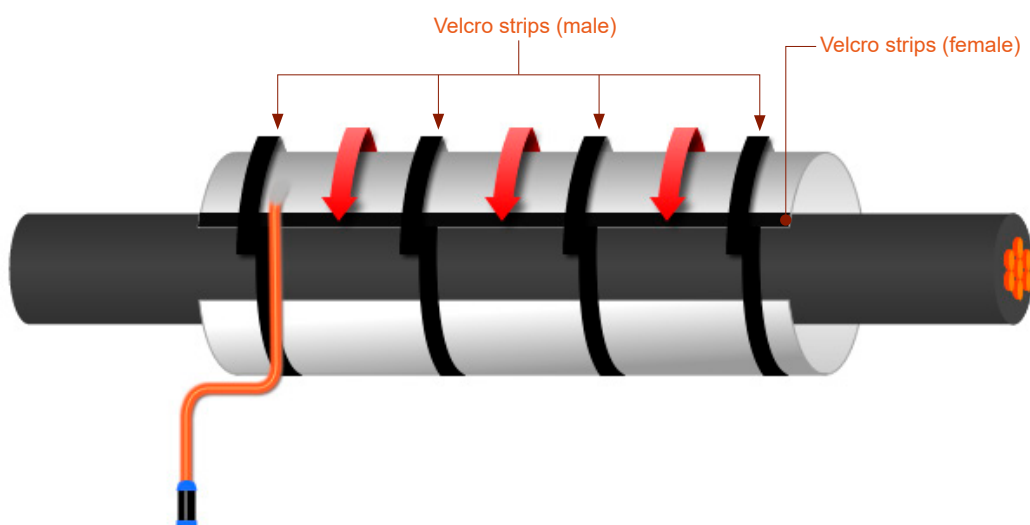


## BFV-AT heating blanket installation

2.2. Wrap the body of the high voltage cable with the heating blanket.

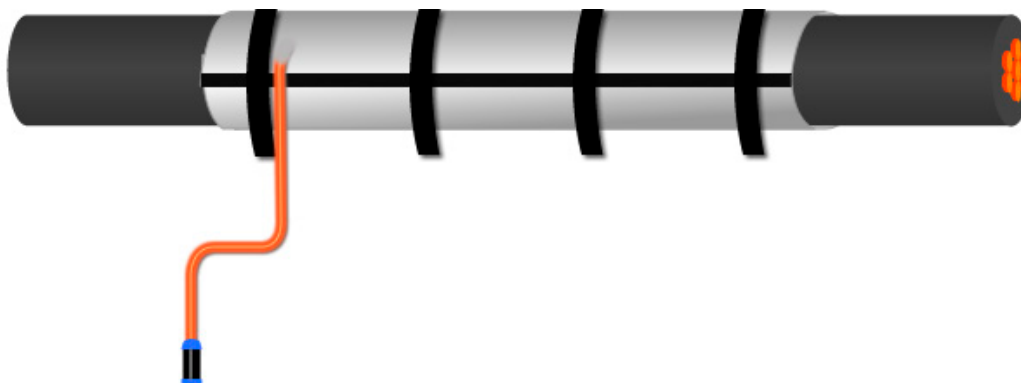


2.3. Firmly tighten the blanket to the high voltage cable body.

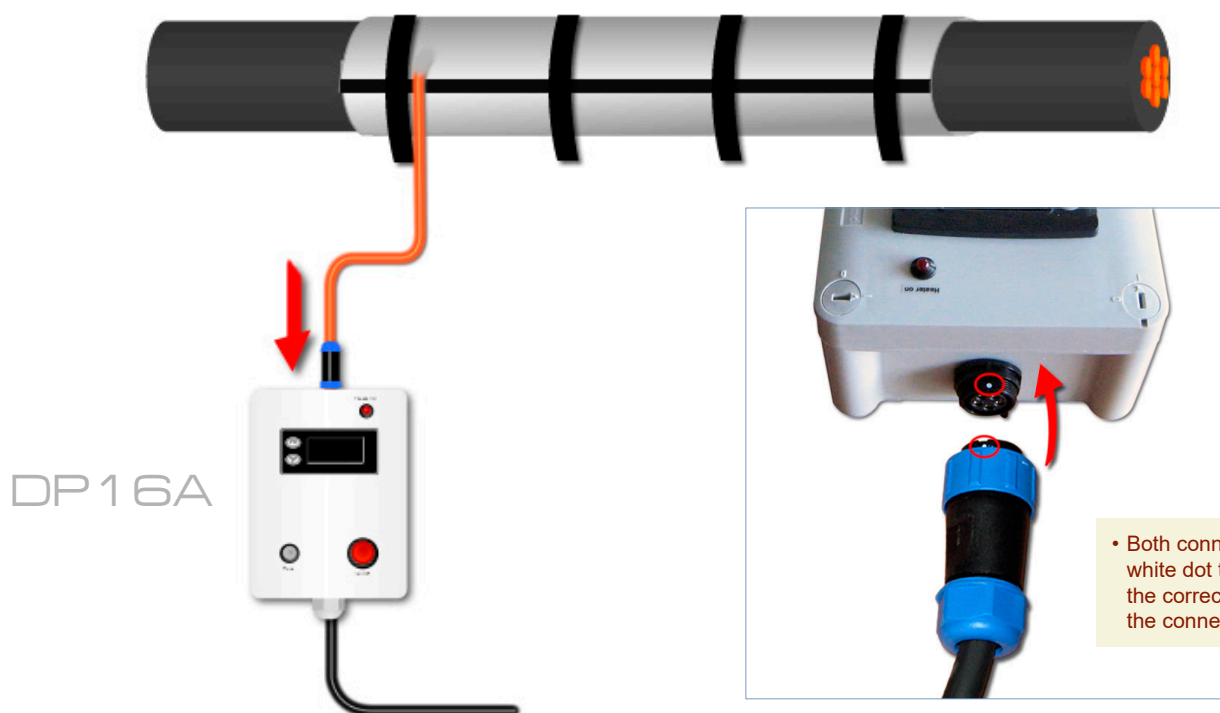


## BFV-AT heating blanket installation

2.4. Anchor the velcro strips (male) on the cross velcro strip (female).



2.5. Connect the cable (electrical supply and temperature sensor) of the heating blanket to the **DP16A** digital thermostat.

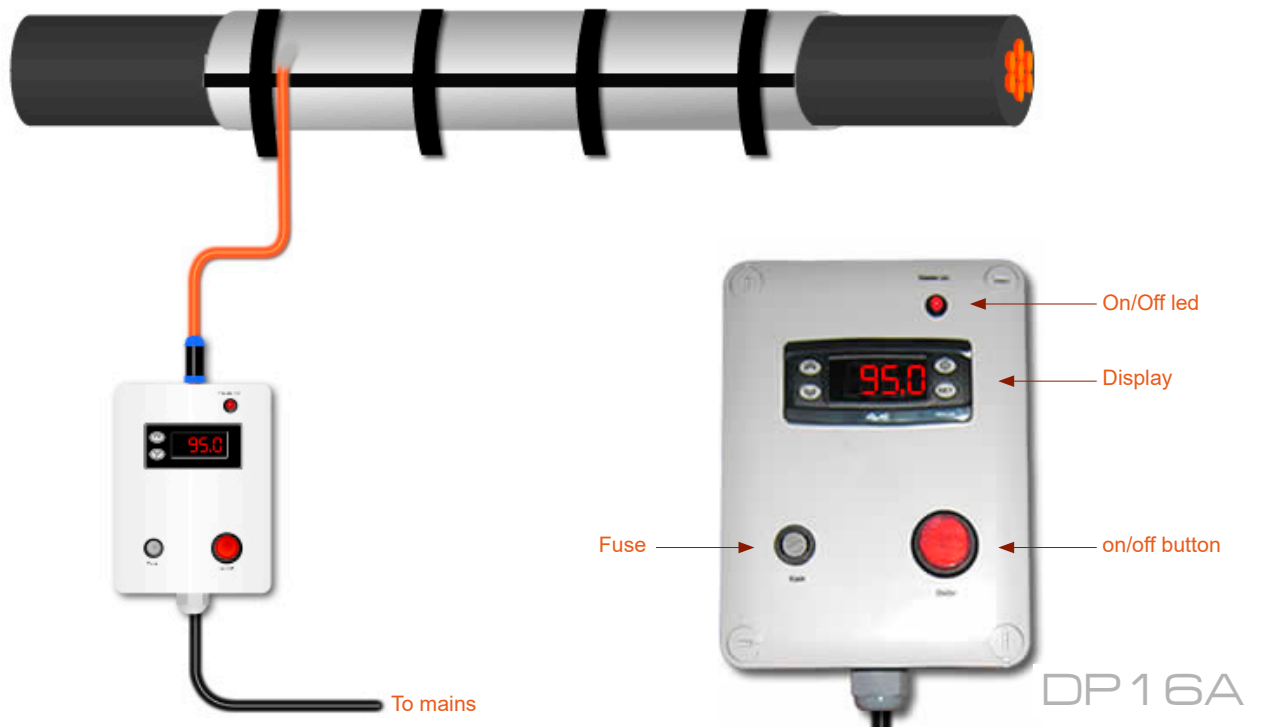


DP 16A

• Both connectors have a white dot that indicates the correct way to make the connection.

## BFV-AT heating blanket installation

2.6. Connect the **DP16A** unit to mains.



\* Before turning on and using the **DP16A**, read the thermostat manual included with the thermostat.

2.7. Activate the power button and let the heating blanket heat the high voltage cable for approximately 1 hour.

Remember that BFV-AT blankets can reach 120° C, but the temperature required for the straightening and handling operation of most high voltage (HV) cables is around 85-90° C.

Make sure which is the recommended temperature for handling the cable you want to handle.

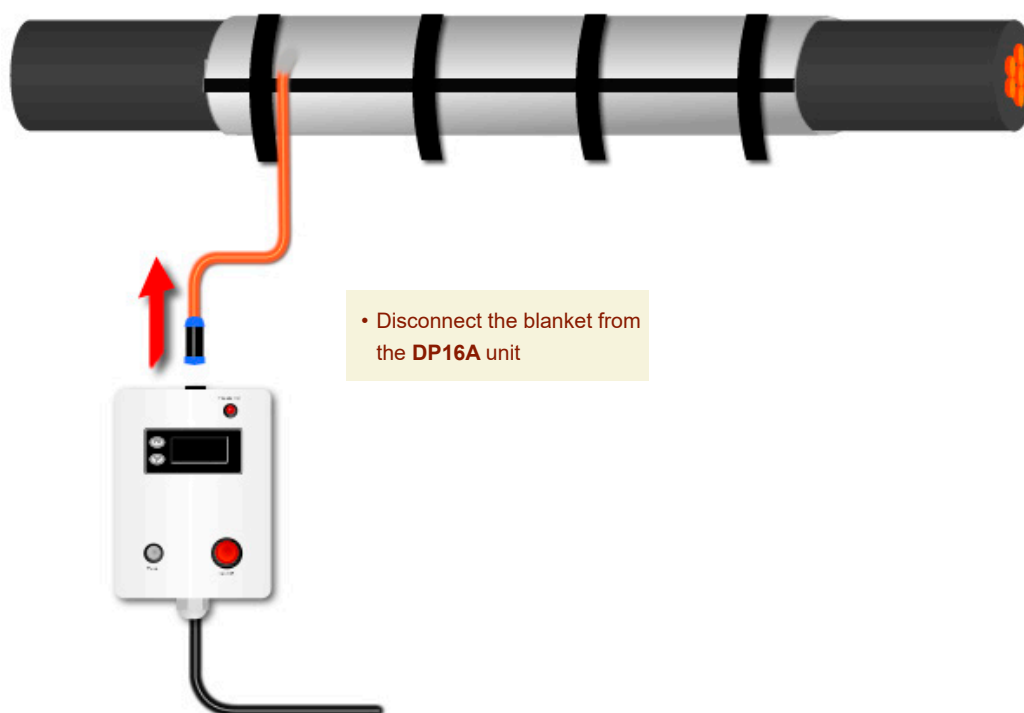
2.8. Before straightening the high voltage cable, we will turn off the **DP16A** unit, disconnect the thermostat from the power, and remove the heating blanket

## BFV-AT heating blanket installation

### Storage

The heating mantle and thermostat will not be stored until the temperature of the heating jacket does not drop to match the room temperature.

1. Disconnect the heater from the thermostat.



2. Fold the blanket and store it together with the thermostat inside the storage bag or carrying pipe.
3. Do not insert sharp tools or items into the storage bag or carrying pipe.



## Operation and maintenance

### Operation

It is very important that when we use the heating blanket to heat the drum and its contents, safety is guaranteed.

1. Check the electrical cable and the distribution box before using the heating blanket. Let's check that they do not present any damage.
2. Wrap the high voltage cable that we want to heat with the heating blanket.
3. Tight the heating blanket with the straps so that it adapts well to the container, firm, but without being extremely tight.
4. Make sure that the container is always open, to avoid pressure build-up from heating.
5. The heating blanket has an adjustable thermostat. We will turn the knob until we get the desired value. The temperature It is not the inner temperature, but the temperature of the walls of the container.
6. Connect the heating blanket only when it is properly placed, the top of the container is open and the temperature is regulated.
7. Monitor the heating process. We will not let the heating blanket work without the supervision of a qualified operator.
8. **ATTENTION!** During heating, superheated vapors may be released.
9. **ATTENTION!** During heating, hot surfaces will emerge.
10. When we finish using the heating blanket, we will first unplug it from the power supply and let it cool down to not suffer burns.
11. Let the blanket cool by spreading it carefully on a flat surface. We will not leave it rolled up or folded.
12. Once cold, we will keep it in a place where it is not exposed to moisture, sharp objects, etc.

### Maintenance and conservation

Before cleaning the heating blanket, unplug it from the power supply.

Pass a damp cloth on the surface of the blanket.

Do not use solvents or bleach and never immerse it in any type of liquid.

### Waste management



Following the Electrical and Electronic Equipment Act, owners of old equipment are required by law to take old electrical and electronic equipment to a waste collection point.  
Help protect the environment; do not throw your old equipment in the household trash.



## Troubleshooting

### Troubleshooting

Please, read this manual before you contact **Elementos Calefactores AS**, or your local distributor.

This guide is designed to answer frequently asked questions. If you can not identify the problem or need additional assistance, please contact **Elementos Calefactores AS** through the following data::

Telf. 00 34 93 486 36 82

Fax: 00 34 93 486 38 14

E-mail: [as@elementoscalefactores.com](mailto:as@elementoscalefactores.com)

### Troubleshooting solutions guide

#### The heating blanket does not heat:

1. Make sure the blanket is connected to the correct voltage supply. You will find technical specifications of the tank heater at the label attached to the cord or at the product data sheet.
2. Unplug the heating blanket:
  - For blankets with the analog thermostat **AT056** (AT057,AT058...), turn the radio button at 0° C, re-connect it and re-select the desired temperature work.
  - For blankets with the **DPA** digital thermostat, turn-off the thermostat, turn it on again, and check the set temperature SET POINT.
3. Check that the tank heater is connected to a magneto-thermic switch with enough amperage.
4. Verify the power supply cable of the heating blanket, is not damaged.

### Important

The **BFV-AT** heating blankets for handling and straightening high voltage cables are designed for a specific use. Giving it another use can affect its effectiveness, cause structural damage, and even cause serious accidents to personnel who handle the blankets.

Misuse or tampering with the heating blanket, as well as its components and/or accessories, may invalidate the warranty.



## Request for heating blankets on demand

### Request form

If you can not find the heating blanket that meets your specifications, we can also manufacture custom models.

Send us your specifications:

- **Email:** [as@elementoscalefactores.com](mailto:as@elementoscalefactores.com)
- **Fax:** 00 34 93 486 38 14

### Contact data

Name | Last name: ..... Company:.....  
 Telephone:..... Email:.....  
 Address: ..... PC: .....  
 City: ..... Country: .....

### Project details

Location (city): .....  
 To be used indoors, outdoors, both: .....

### Type of fastener

Hook and loop: .....  
 Nylon straps with plastic buckles: .....  
 Springs: .....  
 Other (specify):.....

### Temperature and controll device

**AT056:** Analog thermostat -10/90° C .....  
**DP16A:** Digital programmable thermostat -20 a +140° C .....  
 Other: ..... Specify:.....  
 .....  
 .....

## Our other heating blankets



**BFV-IBC:** Heating blankets for IBC tanks of 1.000 L.

Learn more: <https://www.elementoscalefactores.com/aplicaciones-en/ibc-tank-heaters.htm>



**BFV:** Drum-heaters for 25, 50, 100 and 200 L. drums.

Learn more: <https://www.elementoscalefactores.com/aplicaciones-en/drum-heaters-200L.htm>



**BFV-EM:** Heating bands for electric motors.

Learn more: <https://www.elementoscalefactores.com/aplicaciones-es/calentadores-motores.htm>



**BFV-CC:** Heating blankets for curing.

Learn more: <https://www.elementoscalefactores.com/aplicaciones-en/heating-blankets-curing.htm>

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- **Online store** •

[www.electriceatingstore.com](http://www.electriceatingstore.com)

