



BVF SRHC 18-36 HEATING CABLE INSTALLATION MANUAL

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IMPORTANT SAFETY NOTICE

 **WARNING:** Shock and fire hazard!

- ◆ If the BVF SRHC 18-36 heating cable is damaged or not installed properly, fire or shock hazard could occur resulting in serious personal injuries or damage to property. You must carefully follow the warnings and instructions contained in this manual.
- ◆ Use controllers only designed for electric heat tracing systems.
- ◆ It is important that this equipment is installed only by qualified electricians who are familiar with the proper sizing, installation, construction and operation of electric heat tracing systems and the hazards involved. The installation must comply with all national and local electrical codes. If you are unfamiliar with these requirements, contact an electrician.
- ◆ The BVF SRHC 18-36 heating cable is designed for defrosting purposes only. Be sure that the installation surfaces are well prepared for installation.
- ◆ If the BVF SRHC 18-36 heating cable is damaged, it must be replaced. Do not attempt to splice or repair any part of the system

1 GENERAL INFORMATION

1.1 Use of the Manual

This manual describes the BVF SRHC 18-36 heating cable — how to design and install the system, connect to cold lead and equip the cable with connecting set. It is important to thoroughly review this manual before installation.

For additional information contact to the distributor

1.2 Safety Guidelines

The safety and reliability of any electric heat tracing system depends on proper design, installation, and testing. Incorrect installation or mishandling of the product can cause damage to the heating cable, system components and property, and can create a risk of fire or shock. The guidelines and instructions contained in this guide are important. Follow them carefully to minimize these risks and to ensure that the BVF SRHC 18-36 heating cable performs reliably.

Pay special attention to the following notices:

Instructions marked Important



Safety warnings identified as WARNING



1.3 Remember to measure resistance



Important: measure the resistance two times during the installation

Remember to always measure, verify and record the actual resistance throughout the installation process (out of the box, during and after installation)

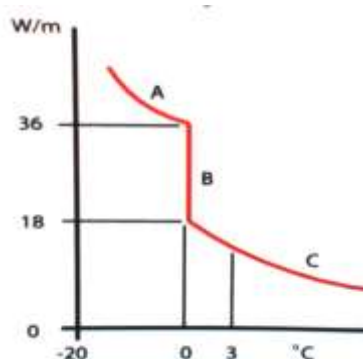
1.4 10 years Extended Warranty

For a period of ten (10) years from the date of purchase warrants that the BVF SRHC 18-36 heating cable is free from defects in material, design and workmanship. The extended warranty is only valid if the warranty certificate has been properly completed, and the installation is in accordance with the installation instructions

2 BVF SRHC 18-36

2.1 BVF SRHC 18-36 Specifications

Cable Construction:	Twin conductor self regulating heating cable
Safety ranking:	Certified for explosive environment
Rated Voltage:	230V
Output:	18W-36W/m +-10%
Minimum cable spacing:	35mm
Cable Diameter:	10,5 x 5,9 mm
Conductor Insulation:	THP
Outer Insulation:	THP
Max. Ambient Temp.:	+ 65°C
Cold lead and connection set:	not included



3 INSTALLATION OF BVF SRHC 18-36 ON PIPES

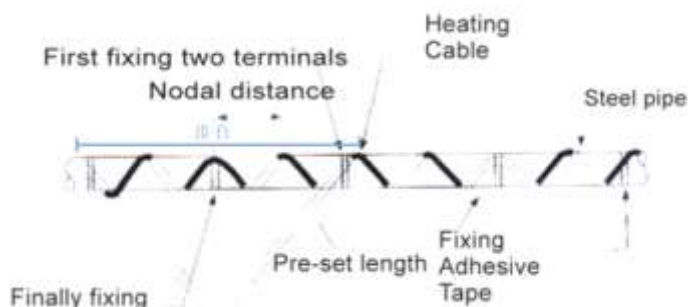
3.1 Prepare for installation

- ◆ Store the heating cable in a clean, dry place.
- ◆ Complete piping pressure test.
- ◆ The heating cable will have the heating cable type printed on the outer jacket.
- ◆ Walk the system and plan the routing of the heating cable on the pipe.
- ◆ All welding, hydrostatic testing and painting of pipe should be completed before heating cable installation.
- ◆ The piping system shall be inspected to ensure that it is clean and has no sharp or jagged edges that might damage the heating cable.
- ◆ Installation of the heat tracing before completion of the piping system is not recommended.

3.2 Cut the cable to length

- ◆ Cut the heating cable to the length required. This can be done before or after the cable is attached to the pipe.
- ◆ Leave a minimum of 30 cm extra heating cable for connection to power.
- ◆ For splice and tee connections, leave a minimum of 30cm for each section of heating cable.
- ◆ Heating cable can be cut to length without affecting its heat output.
- ◆ Protect the heating cable ends from moisture or mechanical damage if they will be left exposed before connection.

3.3 Position and attach heating cable to pipe



- ◆ Be sure all piping to be traced is dry.
- ◆ Install heating cable, using straight tracing, spiraling, or multiple tracing according to the capacity need

- ◆ For straight tracing, install the heating cable on a lower half of the pipe; for example, in the 4 o'clock or 8 o'clock position.
- ◆ Be sure to install the additional heating cable required for valves, flanges, etc.
- ◆ When the design calls for spiraling, begin by suspending a loop every 3 meters
- ◆ To determine the loop length, obtain the spiral factor
- ◆ Grasp the loop in its center and wrap it around the pipe. Even out the distance between spirals by sliding the wraps along the pipe. Use glass tape to secure the center of the loop to the pipe. Secure the heating cable flat to the pipe to obtain good contact.
- ◆ Do not use vinyl electrical tape, duct tape, metal bands, or wire.

3.4 Install heating cable end seals, splices, tees and cold lead connection


- ◆ Install all end seals, splices, and tees and power connection end, eventual controller prior turning the system on.

3.5 Check the installation

- ◆ Prior to installing thermal insulation, make sure the heating cable is free of mechanical damage (from cuts, clamps, etc.) and thermal damage
- ◆ Visually check all power connections, end seals, splices, and tees.
- ◆ Using a megohm meter, test each circuit both before and after installing the thermal insulation. The resistance should be measured between the two conductors. Also, measure the resistance between the bus wires and the heater grounding braid or metal pipe. Using a 2500Vdc megohm meter minimum reading should be 20 megohms, regardless of length. If you get a different reading, contact to the distributor.

3.6 Install thermal insulation

- ◆ A reliable system depends on properly installed and weather-proofed thermal insulation.
- ◆ Ensure that type and thickness of the insulation are in accordance with heating cable capacities, pipe materials and diameters

 **WARNING:** The cables must be installed away from combustible surfaces, such as wood. The minimum bending radius of each flexible heating device is 1/2 inch.

4 INSTALLATION OF BVF SRHC 18-36 ON ROOFS AND GUTTERS

Important:

- ◆ In-line splices and tee splices should be avoided where possible.
- ◆ Heating cable in downspouts should be looped [610 mm of heater per 300 mm of downspout] and should extend below the frost line if tied into a drainage system.
- ◆ Field-assembled end terminations should not be located in an area where moisture is present. End terminations should not be located at the lowest point of downspouts.
- ◆ The circuit length for a given over current protection device shall not exceed the maximum length specified by the manufacturer.
- ◆ The maximum exposure temperature of all roof, gutter, and downspout materials shall be verified, and a heater shall be selected that will not exceed their temperature ratings.

4.1 Prepare the installation

- ◆ Store the heating cable in a clean, dry place.
- ◆ Carefully plan the routing of the heating cable for roof and gutter de-icing.
- ◆ Make certain gutters and downspouts are free of leaves and other debris.
- ◆ The mounting surface shall be inspected for sharp edges where the heating cable will be located (and removed as necessary).
- ◆ A weatherproof power connection should be located and mounted in a sheltered area

4.2 Cut the cable to length

- ◆ Cut the heating cable to the length required. This can be done before or after it is installed. Leave a minimum of 30 cm extra heating cable for connection to power. For splice and tee connections leave a minimum of 30 cm for each section of heating cable. Heating cable can be cut to length without affecting its heat output.
- ◆ Protect the heating cable ends from moisture and mechanical damage if they will be left exposed before connection.

4.3 Position and attach the heating cable on roofs

- ◆ Loop the heating cable on the overhang area of the roof. This is the part that extends past the building wall. Extend the bottom of each heating cable loop over the roof edge and, using a UV-resistant cable tie, connect the bottom of each loop to the cable running in the gutter to ensure a drainage channel off the roof and into the gutter and downspout. The cable running in the gutter should remain against the bottom of the gutter. Extend the top of each heating cable loop beyond where the wall joins the roof.
- ◆ Use roof clips to attach heating cable to the roof surface.
- ◆ For flat roofs, the heating cable can be spaced as needed to create runoff paths for melting ice and snow. Use single ended clips located at 1 meter intervals to secure the cable to the roof. Roof clips may be attached to a shake or shingle roof with nails or screws. Reseal the nail or screw holes if necessary before installing heating cable in the clips. Roof clips may be attached to a metal roof using screw, nail or adhesive.
- ◆ A barrier (snow fence) can be placed on the roof above the heating cable. This prevents damage to the cable and keeps the installation from coming loose due to ice slides. If desired, the heating cable can be attached to the barrier with UV-resistant cable ties, instead of using roof clips. Do not use wire or other materials because they may damage the heating cable.
- ◆ All penetrations made on the surface of any style of roof should be moisture proofed by using sealing type fasteners. The installation of any heating system should not affect the overall integrity of the roof or gutter.
- ◆ The mounting hardware should be made of corrosion resistant material and should not have sharp edges or burrs

In gutters and downspouts

- ◆ Run heating cable along gutters and into downspouts, ending below the freezing level. Permanent attachment of the cable to the gutter bottom is not necessary. Loop the heating cable in downspouts if convenient, such as when the downspout is not at the end of the run.
- ◆ Use downspout hangers to protect the heating cable from fraying and from damage from sharp edges and to provide strain relief. Use roof clips to route heating cable into and out of the gutter in such a way as to prevent abrasion to the cable. Protect all cable that protrudes past the lower opening of the downspout.

4.4 Install heating cable end seals, splices, tees and cold lead connection

- ◆ Install all end seals, splices, tees, and power connection prior to plugging in.
- ◆ Use only weatherproof junction boxes approved for wet locations
- ◆ Use only watertight construction or enclosure
- ◆ When possible, all power connection boxes should be located in a protected area (such as under eaves) and entry should be at the bottom of the box. In all case, a drip loop should be provided.

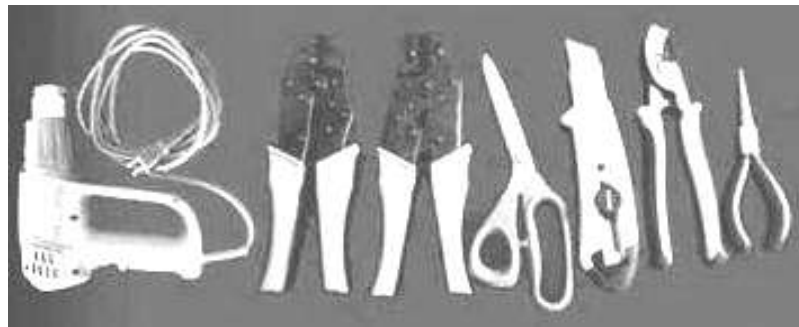
⚠ WARNING: The cables must be installed away from combustible surfaces, such as wood. The minimum bending radius of each flexible heating device is 1/2 inch. Do not cross or overlap cable heating section. In all locations, route and secure cable to avoid possible mechanical damage, such as from ladders, etc. All actual lengths installed should be recorded. The installer should provide as built drawings and data. The minimum installation temperature for the heating device is -18°C. The heating device shall be connected to cold leads of a weather-resistant type. The installer should protect the cold leads from damaged by installing them in a rigid metal or nonmetallic raceway.

5 INSTALLATIONS OF THE CONNECTION SET AND COLD LEAD

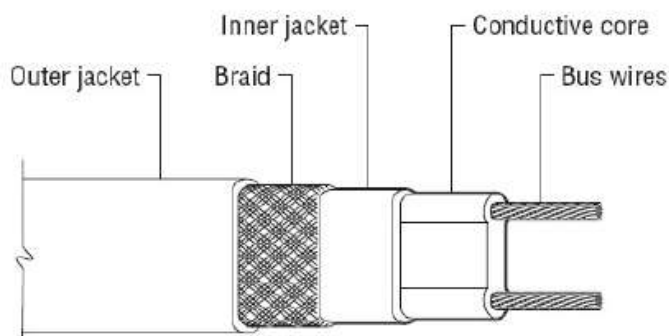
i Important: Tools and materials required

You will require the following items to install and test the heating system:

- ◆ Scissors
- ◆ Utility knife
- ◆ Wire strippers
- ◆ Pliers
- ◆ Heat gun
- ◆ Multimeter



5.1 Structure of the BVF SRHC 18-36 heating cable



5.2 Installation of the cold lead to the heating cable with the connection set

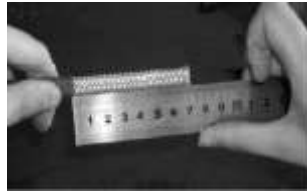
1. Slide 127mm tube and 203mm black heat-shrinkable tube over end of the plug-in cord.



2. Lightly score completely around and then down outer jacket. The length is 70mm.



3. Bend heating cable to break jacket at score then peel off outer jacket



4. Unravel the braid back to the out jacket. Straighten the braid and twist into a "pigtail".



5. Lightly score completely around and then pull down inner jacket. The length is 45mm.



6. Bend heating cable to break jacket at score, then peel off inner jacket.



7. Skive matrix material from conductors with utility knife.



8. Slide the 3.2mm x 25mm shrink tubes over bus wires.



9. To shrink tubing move heat source continuously from side to side. While shrinking, ensure that tubes remain up against black core.



10. Center the 15mm x 25mm heat-shrinkable tube over the end of heating cable as shown.



11. Shrink the tube completely until it shrinks and adhesive flows out both ends.



12. Immediately after shrinking, pinch with pliers between wires while tube is still hot. Hold for 10 seconds to ensure seal.



13. Trim the front bus wires to 7mm.



14. Use insulated bus wire crimps or a crimp tool to connect black and white wires to bus wires of heating cable. Polarity does not matter.



15. Remove release paper from strips, wrap one strip of mastic around the black wire against the end of the splice.



16. To provide a water block, then repeat for the white wire. Squeeze the mastic together.



17. Center the 127mm heat-shrinkable tube over the splice. Shrink the tube completely.



18. Make sure the adhesive will appear at both ends. Immediately after shrinking, pinch first one end of the tube and then the other end.



19. Use crimp tool to connect braid to ground wire.



20. Wrap black cloth tape evenly around crimp and splice. Cover crimp completely.



21. Center the 203mm heat-shrinkable tube over and shrink the tube completely.



22. Make sure the ring of adhesive will appear at both ends. Total heating time should be about 3 minutes.



6 COMMISSIONING

Important

For the extended 10-year warranty to apply, you must perform these tests, record the results on the warranty card, and retain a copy of the record.

You must perform the Insulation Resistance Test, the Heating Cable Resistance Test, during the installation process.

EXTENDED WARRANTY

For a period of ten (10) years from the date of purchase warrants that the BVF SRHC 18-36 heating cable is free from defects in material, design and workmanship. The warranty is only valid if the warranty certificate has been properly completed, and the installation is in accordance with the installation instructions. For more details check the warranty certificate.

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