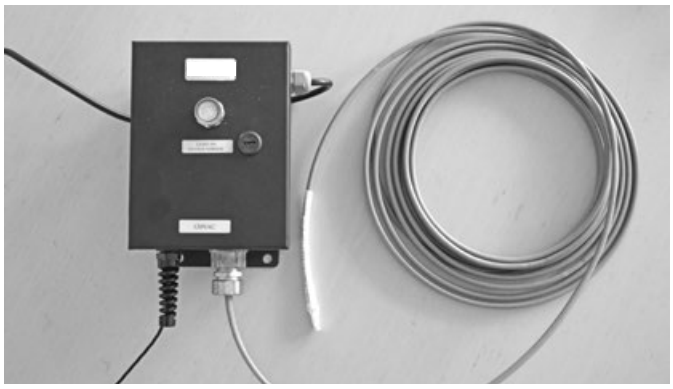
The DEF-System by BRUGG

The Best Way to defeat the problem of DEF heat
Installation Instructions

BRUGG PIPESYSTEMS
Flexible solutions

Content

Description of DEF System



Starting on January 1, 2010, EPA required diesel vehicles to reduce nitrogen oxide emissions significantly.

Diesel exhaust fluid (DEF) is used in this process as a special catalytic converter to reduce the harmful emissions and meet EPA's standard. This water-based fluid needs to be liquid even under the coldest temperatures to have it on hand for dispensing it to the vehicles.

The combination of the flexible stainless steel pipe system SECON-X®, a heating trace and an electrical thermostat gives you the unique opportunity to keep the DEF in a liquid state even in the coldest winter.

- Endless, corrugated, flexible, double-wall, metallic and safe from corrosion pipe system
- Fast and easy installation without welding
- Minimum downtime on retrofits
- Submersible heat trace with ETFE overjacket
- Electrical thermostat provides optimal performance and safety
- NEMA-4X steel enclosure
- Approved for Class I / Division 2 hazardous areas
- Ground Fault Protection

Advantages

- One convenient, compact and economically priced package
- Bring in the heat to where it is needed: with the submersible heat trace inside the pipe
- No hazard of harming the pipe's polyethylene outer jacket due to the maximum temperature set point of the heating trace

Installation Information of heat trace

Product Information

Heating cables are now used inside pipes for freeze protection. These cables incorporated a Tefzel jacket, which is a suitable waterproof food grade material. The product was further enhanced with the introduction of parallel resistance heaters, made from power limiting resistance wire. The heat cable was now able to limit its temperature and was suitable for inside the pipe application. Testing confirmed that this new combination of materials offered superior product performance in the area of heat transfer with small or non-existent heat cable in-rush during cold starting.

The new materials also extended cable life outlasting other cables 3 to 1 and added greater abrasion resistant quality for all commercial and industrial applications.

The heat cable system was additionally improved with the introduction of an exclusive heat fused waterproof end cap and butt splice which stopped water infiltration into the cable allowing the heat trace to be placed in pressurized waterlines. This heat trace product in its present form has been used for over 20 years successfully.

Additional cost savings are also realized, because no special channel or modified insulation area needs to be added when the heat trace is placed directly inside the pipe in contact with the liquid. Retrofit or the replacement of failed heat trace in buried insulated lines now becomes simple and tremendous cost savings are achieved when excavation is not required for replacement of existing heating cables.

Our design also offers cut-to-length cable and completely waterproof field components.

Caution:

This product must only be installed by qualified personnel, who fully understands electrical equipment placement, and must never under any circumstance be placed in service without the use of an adequate ground fault circuit interrupter to protect personnel from shock or injury. After this equipment has been placed in service, it must be tested to ensure all wiring and safety devices are working. All National, State, and Local Electrical Codes must be followed. Canada - Internal heating of plastic pipes and vessels need to be installed in accordance with the Canadian Electrical Code Part I (CEC Part I) section 62-312 (2)

- De-energize all power circuits before installation or servicing
- Keep ends of heating devices and bit components dry before and during installation
- – 40 °F Minimum installation temperature
- The conductive covering (or metal sheath or metal braid) of this heating device must be connected to a suitable grounding/earthing terminal
- The presence of the heating devices shall be made evident by the posting of caution signs or markings at appropriate locations and/or at frequent intervals along the circuit
- Bond the metallic braid, metallic or sheath or conductive covering of the heating device to a suitable earth terminal
- Maximum heating cable length to be 1000 feet not to exceed 25 amp for any single circuit
- 3/4" Minimum bending radius.

If this product is not installed properly, fire, death, or injury may result.

Important:

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their application. BRUGG makes no warranties as to the accuracy of completeness of the information, and disclaims any liability regarding its use. BRUGG's only obligations are those its Standard Terms and Conditions of Sales for this product, and in no case will BRUGG or its distributors be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use or misuse of the product. Specifications are subject to change without notice. In addition, BRUGG reserves the right to make changes – without notification to Buyer – to processing or materials that do not affect compliance with any applicable specification.

Installation Information

This information will provide a general overview of the procedures involved in the installation of the BRUGG DEF Heat System.

Inspection:

Check all material received to insure that the proper voltage, AMP output, and the cable jacket are suitable for your application.

Caution:
Do not install heat cable that shows any type of damage.

Caution:
Do not connect power to the heating cable while it is on a reel or in the shipping carton.

Installation of the Heating Trace Inside the Pipe

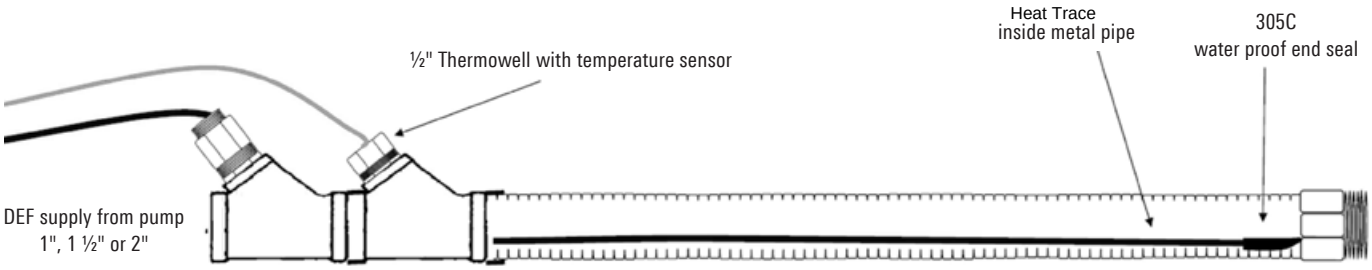
Pull heat cable through SECON-X® to be heat traced as you would any other electrical wire. Care should be taken to assure heat cable is not damaged by abrasions in the line. Do not place heat cable in any unsafe way such as valve closures, or any mechanical device that may cut or damage the cable.

Exit SECON-X® from the ½" FNPT fitting through the ½" MNPT Pressure connector / strain relief , as listed in these instructions.

Run heat cable to the junction box of the electric thermostat. Heat cable must only be installed by a qualified electrician and all National, State, and Local Electrical Codes need to be followed.

Connect power with a suitable GFCI as required by National Electric Code.

Temperature control inside metal pipe

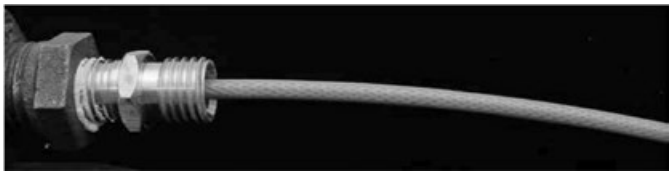


Installation Information

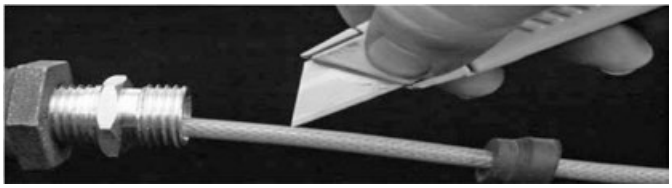
Installation Instructions for the ½" x ½" MNPT DEF liquid proof pressure fitting

To insure a water tight seal follow installation instruction carefully. Failure to do so may cause liquid to leak from the pressure fitting and may enter the power connection.

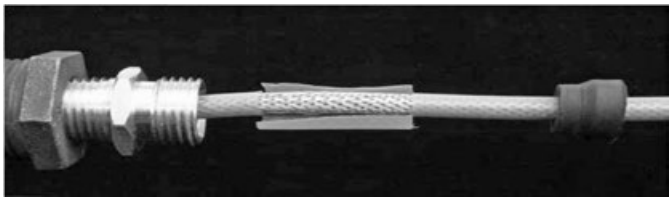
Install heat trace in pipeline or vessel with waterproof end cap attached. Leave ample room to make electrical connections. Disassemble the pressure fitting. Apply Teflon paste to the ½" MNPT connection and screw it into your ½" FNPT pipe, tank or vessel.



Slide the rubber grommet on the heat trace. Using a clean sharp blade cut a 2" slit along the heat trace outer jacket in the area where you are going to install the rubber grommet. Use extreme caution not to damage or cut the metal braid.

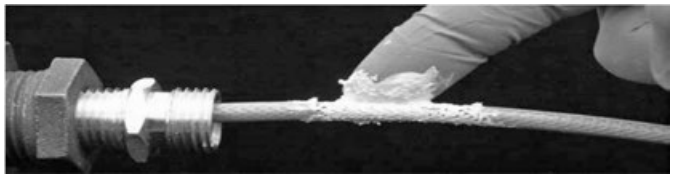


Carefully remove the overall jacket from the repair area. Use extreme caution not to damage or cut the metal braid.



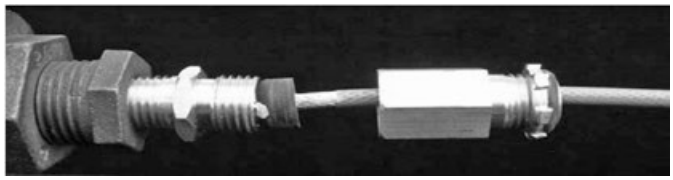
Apply Teflon paste to the exposed metal braid.

Massage the Teflon paste into the exposed metal braid. Make sure the paste covers the metal braid completely and fills all the holes in the metal braid as seen in Fig 1.

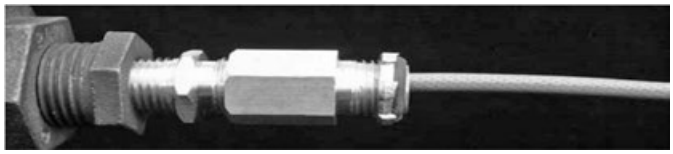


Slide the rubber grommet over the metal braid placing it in the center of the prepared area.

Reassemble the union assembly making sure the rubber grommet stays in place centered in the prepared area during this assembly.



Completely tighten the union assembly compressing the rubber grommet making a water tight seal.



Test the assembly for leaks before making any electrical connection. If leaks occurs repeat the field repair process until no leaks are found.

Caution

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Warranty

The manufacturer warrants each unit that it manufactures to be free from defective material or workmanship for a period of 12 months from date of purchase.

Under this warranty, the obligation of the manufacturer is limited to repairing or replacing the defective unit at its option, when returned to the manufacturer's factory with shipping charges prepaid.

If failure has been caused by misuse, incorrect application or alteration of the unit, this warranty will be void.

UNLESS SPECIFICALLY PROVIDED FOR IN WRITING IN THIS WARRANTY, EACH UNIT IS PROVIDED WITHOUT ANY WARRANTY OF ANY KIND EITHER EXPRESSED OR IMPLIED. IN PARTICULAR, WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE FOLLOWING IMPLIED WARRANTIES AND CONDITIONS ARE EXPRESSLY DISCLAIMED:

a). ANY IMPLIED WARRANTY OR CONDITION THAT THE CONTROL WILL MEET YOUR REQUIREMENTS.

b). ANY IMPLIED WARRANTY OR CONDITION THAT THE OPERATION OF THE CONTROL WILL BE UNINTERRUPTED OR ERROR FREE; AND

c). ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

The user shall be made aware that if the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Pipe system expertise

without limits

12/16 / pictures by Key




International network
www.pipesystems.com

Your partner for pipe systems
We are just the people to contact if you are looking for efficient solutions for transporting liquids. Our project engineers, our development department, our in-house manufacturing systems and our professional installation team put us in a position to accompany your project in a competent and reliable way.
Be it local or district heating, filling station construction, industrial system construction or building services engineering.

Customer-specific solutions
BRUGG is the full service provider in the field of single-wall, double-wall and insulated pipe systems. This know-how allows us to manufacture project-specific customised items. Give us a call! Our engineers would be pleased to advise you and find a made-to-measure solution.

International network
Our global partnership network can be reached on site at any time. More than 34 partners in 20 different countries will look after you wherever you are.

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