

HTS1F

Electrical heating cable for the heating of long pipelines

LONGLINE

High Efficiency Series Resistance Single Conductor Heating Cable

- Circuit lengths up to 5km
- Single supply point – minimises supply cabling costs
- High efficiency, flat and flexible
- For process temperature maintenance, freeze protection or heat raising
- High power outputs – up to 60W/m
- Easy installation in convenient lengths

APPLICATIONS

LONGLINE HTS1F is a series resistance, single conductor heating cable supplied in multiples of 3 cables for configuring with a 3 phase heating system. It is used for freeze protection or process temperature maintenance of long pipelines, eg. up to 5km.

A typical application is the temperature maintenance of crude or fuel oils in above ground and buried transfer lines.

MINIMAL SUPPLY / DISTRIBUTION COSTS

LONGLINE minimises the number of electrical supplies needed and so minimises supply cabling / distribution equipment costs. Circuits are often fed at the pipe ends only.

FEATURES

Construction

The single conductor is sheathed with silicone rubber for flexibility.

A continuous conductive cover and over-jacket can be provided for additional mechanical protection or for grounding purposes.

The Design

The number of heating cables and their conductor sizes are designed to produce the desired output for the circuit length required. The LONGLINE heaters are connected directly to the 3 phase mains voltage or, when required, to a step-up transformer.

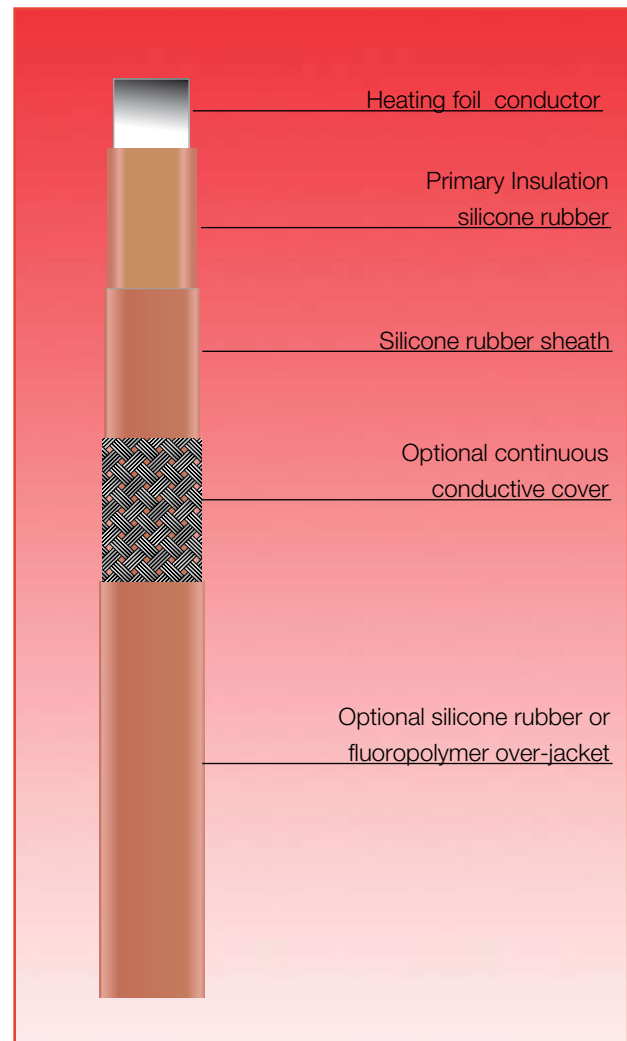
Improved Safety and Efficiency

The large heated surface of LONGLINE's flat foil construction results in lower operating temperatures than equivalent round conductor constructions thereby improving safety and system life. The high efficiency produces high power capability (up to 60W/m) per tape.

Installation

LONGLINE cable may be straight run to above ground pipes. For buried lines, cables are usually drawn into channel raceways within a pre-insulated pipeline system.

Cable is provided in convenient lengths for series connection at site.



LONGLINE – A COMPLETE SYSTEM

Reliability of the heating system is usually paramount. LONGLINE cables form only part of a high integrity LONGLINE heating system including power control, temperature control and circuit health monitoring/alarm equipment – all specifically developed and produced by Heat Trace Ltd.

SPECIFICATION

MAXIMUM TEMPERATURE Un-energised 230°C (446°F)
205°C (401°F)†

MINIMUM OPERATING TEMPERATURE -80°C* (-112°F)

MINIMUM INSTALLATION TEMPERATURE HTS1F-xS -40°C (-40°F)
HTS1F-xF -20°C (-4°F)




TEMPERATURE CLASSIFICATION 205°C (T2)†
230°C (T2)
T3 (200°C)
T4 (135°C)
T5 (100°C)
or T6 (85°C) } Devices are classified according to rated output and the conditions of use. ie. limited pipe temp.

† denotes fluoropolymer outer jacket

POWER SUPPLY up to 600V 3 phase according to application requirements

POWER OUTPUT up to 60W/m by design according to application requirements

APPROVAL DETAILS

| Testing Authority | Certificate No. |
|---|-------------------------|
| ATEX  | Sira 03ATEX3292 |
| FM  | 3009080 |
| EAC*  | TC RU C-GB.ГБ05.В.00188 |

CONSTRUCTION

| | |
|--|--|
| Heating Conductors | Sized to suit application |
| Primary Insulation | Silicone Rubber |
| Sheath | Silicone Rubber |
| Continuous conductive cover (optional) | T-Copper/Aluminium |
| Over Jacket (optional) | Silicone Rubber or Fluoropolymer (FEP) |

ORDERING INFORMATION

Example HTS1F-xF/1.5

| | |
|-----------------------------|-------|
| Silicone Rubber Sheath | _____ |
| One heating conductor | _____ |
| Continuous conductive cover | _____ |
| Fluoropolymer over-jacket | _____ |
| Conductor thickness (mm) | _____ |

MAXIMUM PIPE/WORKPIECE TEMPERATURE

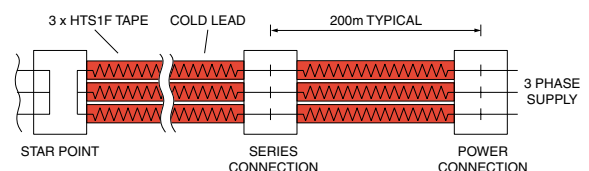
The surface of the heater must not exceed the maximum withstand temperature of its constructional materials or the Temperature Classification (if installed in a hazardous area). This is ensured by limiting the pipe or workpiece temperature to a safe level either by design calculation (a Stabilised Design) or by means of temperature controls.

For worst case conditions, the temperature of steel pipes should be limited to the following levels.

MAXIMUM PIPE/WORKPIECE TEMPERATURE (°C)

| Cat Ref | Nom. Output (W/m) | Area Classification | | | | | | |
|----------|-------------------|---------------------|----|-----|-----|-----|-----|------|
| | | Hazardous | | | | | | Safe |
| | | T6 | T5 | T4 | T3 | T2 | T1 | |
| HTS1F | 10 | | | | | | | 217 |
| | 20 | | | | | | | 189 |
| | 30 | | | | | | | 156 |
| | 40 | | | | | | | 128 |
| | 50 | | | | | | | 98 |
| | 60 | | | | | | | 50 |
| HTS1F-x | 10 | 47 | 66 | 107 | 181 | 217 | 217 | 217 |
| | 20 | - | 32 | 75 | 157 | 191 | 191 | 191 |
| | 30 | - | - | 41 | 132 | 163 | 163 | 163 |
| | 40 | - | - | - | 108 | 133 | 133 | 133 |
| | 50 | - | - | - | 76 | 97 | 97 | 97 |
| | 60 | - | - | - | 30 | 46 | 46 | 46 |
| HTS1F-xS | 10 | 57 | 73 | 112 | 181 | 207 | 207 | 207 |
| | 20 | 37 | 53 | 93 | 166 | 180 | 180 | 180 |
| | 30 | - | 31 | 73 | 152 | 157 | 157 | 157 |
| | 40 | - | - | 51 | 127 | 127 | 127 | 127 |
| | 50 | - | - | 27 | 92 | 92 | 92 | 92 |
| | 60 | - | - | - | - | - | - | 57 |
| HTS1F-xF | 10 | 57 | 73 | 112 | 181 | 192 | 192 | 192 |
| | 20 | 37 | 53 | 93 | 166 | 177 | 177 | 177 |
| | 30 | - | 31 | 73 | 152 | 165 | 165 | 165 |
| | 40 | - | - | 51 | 127 | 127 | 127 | 127 |
| | 50 | - | - | 27 | 92 | 92 | 92 | 92 |
| | 60 | - | - | - | - | - | - | 57 |

TYPICAL ARRANGEMENT



CIRCUIT PROTECTION

Circuit breakers, switch gear and supply cabling should be sized to cater for cold start-up conditions. Heat Trace Ltd will advise operating and start-up loads.

ACCESSORIES

Heat Trace supply and complete range of accessories including termination/splice kits, end seals, junction boxes, controls and fixing tape. These items are recommended for the correct operation of LONGLINE products.



Mere's Edge, Chester Road, Helsby, Frodsham, Cheshire, WA6 0DJ, UK
Tel: +44 (0)11928 726 451 Fax: +44 (0)1928 727 846 <http://www.heat-trace.com>