

- Circuit lengths up to 2km
- Single supply point – minimises supply cabling costs
- High efficiency, flat and flexible
- CENELEC / FM Approvals for hazardous areas
- High power outputs – up to 60W/m
- Easy installation in convenient lengths

## APPLICATIONS

LONGLINE HTS3F is a series resistance, three phase constant power heating tape used for freeze protection or process temperature maintenance of moderately long pipelines, eg. up to 2km, in safe or hazardous areas.

A typical application is the temperature maintenance of crude or fuel oils in above ground or 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 silicone rubber insulated conductors are sheathed with silicone rubber for flexibility.

A copper braid and overjacket can be provided for additional mechanical protection or for grounding purposes. The braid is mandatory in hazardous areas.

### The Design

Heating conductors are sized to produce the desired heat 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.

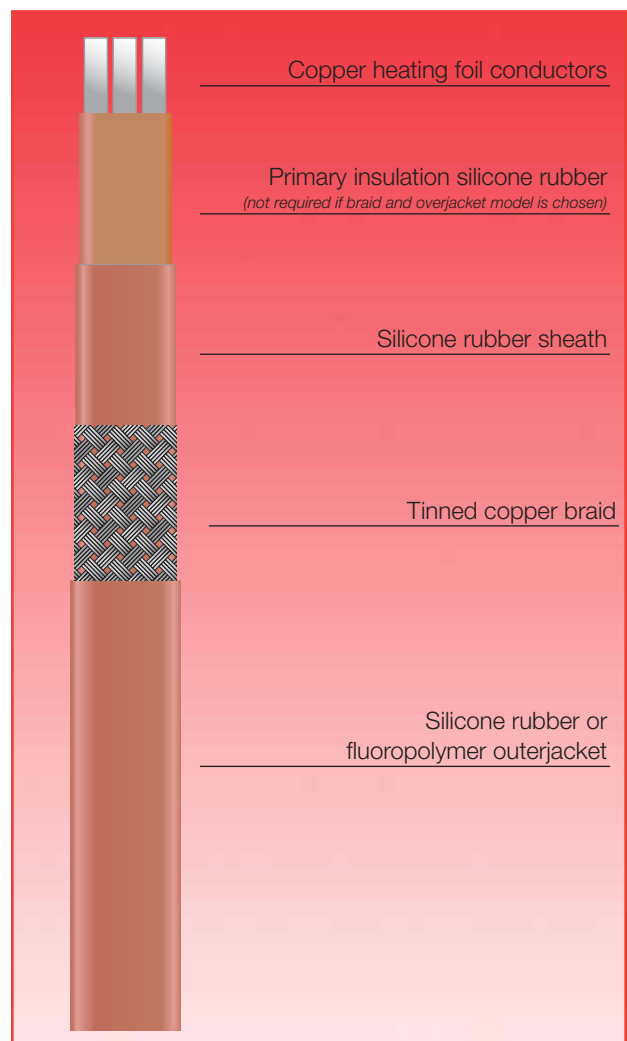
### Improved Safety and Efficiency

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).

### Installation

LONGLINE cable may be straight run or spiralled 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, eg. 200m 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

<b>MAXIMUM TEMPERATURE</b>	Un-energised	230°C (446°F) 205°C (401°F)†
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<b>MINIMUM INSTALLATION TEMPERATURE</b>		-80°C (-112°F) -20° C (-4°F)†
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<b>TEMPERATURE CLASSIFICATION</b>	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.
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<b>POWER SUPPLY</b>	up to 600V 3 phase according to design requirements
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<b>POWER OUTPUT</b>	up to 60W/m by design according to application requirements
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<b>HEATING CONDUCTOR THICKNESSES (4mm WIDE)</b>	0.3mm	0.7mm
	0.4mm	0.8mm
	0.5mm	1.00mm
	0.6mm	1.25mm

Please note that Heat Trace will size conductors to provide the required W/m output for required circuit length.

<b>DIMENSIONS</b>	Type Ref	Nom. Dims (mm)
	HTS3F	20.6 x 6.0
	HTS3F-C	21.0 x 7.0
	HTS3F-CS	23.0 x 9.0
	HTS3F-CF	22.4 x 8.0

### APPROVAL DETAILS

Testing Authority	Certificate No.	Standard
CENELEC 	3170U	EN50014 & EN50019
FM 	J1 OK 8A4 AF (3770)	IEEE Std 515

### CONSTRUCTION

Heating Conductors	Copper 4mm wide
Primary Insulation (where applicable)	Silicone Rubber
Sheath	Silicone Rubber
Braid (optional)	Tinned Copper
Over Jacket (optional)	Silicone Rubber or Fluoropolymer (MFA)

### ORDERING INFORMATION

Example	HTS3F-CF/1.0
Silicone Rubber Sheath	_____
Three heating conductors	_____
Tinned Copper Braid	_____
Fluoropolymer Over Jacket	_____
Conductor Thickness (mm)	_____

† Fluoropolymer (MFA) overjacket

### MAXIMUM PIPE/WORKPIECE TEMPERATURE

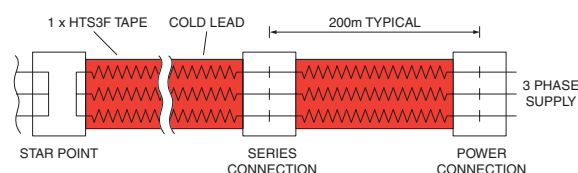
The surface of the heater must not exceed the maximum withstand temperature of its constructional materials or the Temperature Classification (if installed in a hazardous area). This is ensured by limiting the pipe or workpiece temperature to a safe level either by design calculation (a Stabilised Design) 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	
HTS3F	10							217
	20							189
	30							156
	40							128
	50							98
	60							50
HTS3F-C	10	48	66	107	181	218	218	218
	20	-	32	75	158	191	191	191
	30	-	-	41	133	164	164	164
	40	-	-	-	109	134	134	134
	50	-	-	-	76	97	97	97
	60	-	-	-	30	46	46	46
HTS3F-CS	10	58	74	112	181	208	208	208
	20	37	54	94	166	180	180	180
	30	-	31	74	153	158	158	158
	40	-	-	51	127	127	127	127
	50	-	-	27	93	93	93	93
	60	-	-	-	-	-	-	57
HTS3F-CF	10	58	74	112	181	192	192	192
	20	37	54	94	166	178	178	178
	30	-	31	74	153	165	165	165
	40	-	-	51	127	127	127	127
	50	-	-	27	93	93	93	93
	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. When used in hazardous areas, only use approved components.