

- Automatically adjusts heat output in response to increasing or decreasing pipe temperature
- Can be cut to length with no wastage
- Will not overheat or burnout, even when overlapped
- Full range of controls and accessories
- Approved for use in non-hazardous, hazardous and corrosive environments
- Ideal for fitting to instrument lines and small diameter pipes
- Available for 110-120VAC and 220-277VAC

**FEATURES**

FREEZSTOP MICRO is an industrial grade self-regulating heating tape that can be used for freeze protection or temperature maintenance of pipework and vessels.

It is particularly suited to small diameter pipes and instrument tubing such as impulse or analyser lines.

It can be cut-to-length at site and exact piping lengths can be matched without any complicated design considerations.

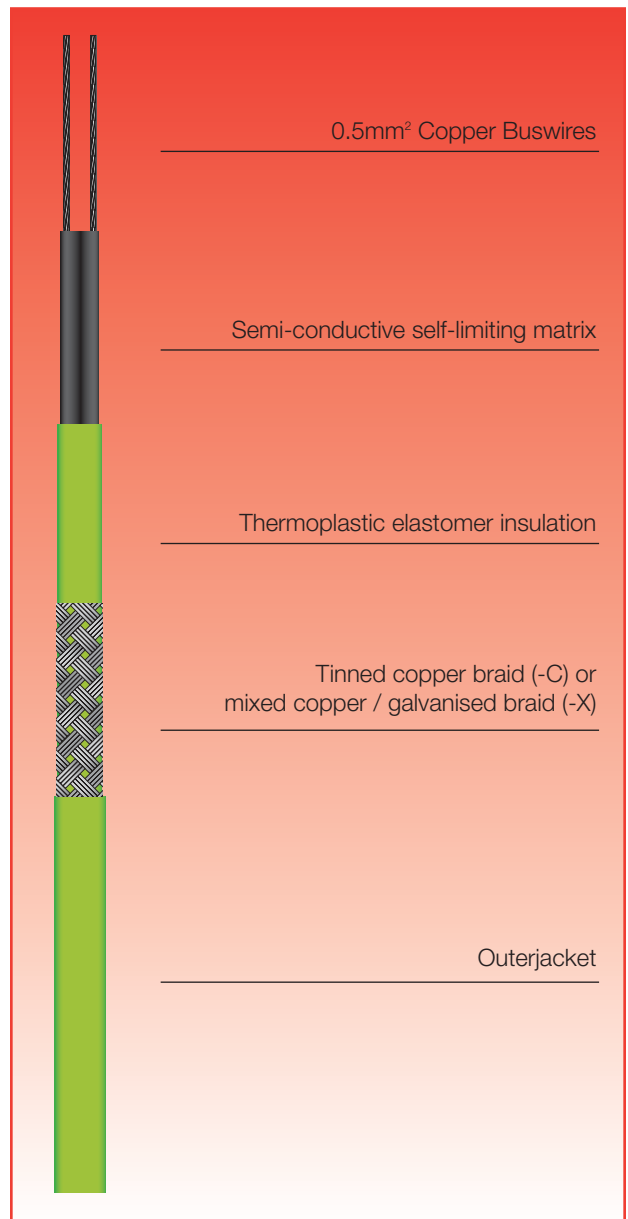
FREEZSTOP MICRO is approved for use in non-hazardous, and hazardous areas to world wide standards.

Its self-regulating characteristics improve safety and reliability. FREEZSTOP MICRO will not overheat or burnout, even when overlapped upon itself. Its power output is self-regulated in response to the pipe temperature.

The installation of FREEZSTOP MICRO is quick and simple and requires no special skills or tools. Termination, splicing and power connection components are all provided in convenient kits.

**OPTIONS**

- FSM..\*T Thermoplastic outerjacket over a tinned copper, or a mixed braid provides additional protection.
- FSM..\*F Fluoropolymer outerjacket over a tinned copper, or a mixed braid provides protection where corrosive chemical solutions or vapours may be present.



## SPECIFICATION

**MAXIMUM TEMPERATURE** 65°C (149°F)

**MAXIMUM PERMISSIBLE de-energised (1000 hrs cumulative)** 85°C (185°F)

**MINIMUM INSTALLATION TEMPERATURE** -40°C (-40°F)  
(CENELEC -20°C, -4°F)

**POWER SUPPLY** 110 – 120VAC, 220 – 277VAC

**TEMPERATURE CLASSIFICATION** T6 (85°C)







**MAXIMUM RESISTANCE OF PROTECTIVE BRAIDING** 18.2 Ohm/km

### WEIGHTS AND DIMENSIONS

Type Ref	Nominal Dimensions (mm)	Weight kg/100m	Min. Bending radius	Gland Size
FSM .. *T	7.9 x 5.6	7.5	20mm	M16
FSM .. *F	7.9 x 5.6	7.4	25mm	M16

\* Denotes tinned copper braid (C), or mixed braid (X)

### APPROVAL DETAILS

Testing Authority	Certificate No.	Standard
CENELEC 	SCS Ex 99E3147	EN50014 & EN50019
ATEX 	Sira 02ATEX3075	EN50014, EN50019 & IEC62086
IEC 	Sira 02Y3065	CEI IEC62086 & IEC60079-7
FM 	3009080	ANSI/IEEE Std 515
SEMKO 	9837071/01-02	SS 424 24 11
CSA 	214197-1295278	C22.2 No. 130.1 C22.2 No. 130.2 C22.2 No. 138
Lloyds Register	02/00062	EN50014, EN50019, BS6351, IEEE Std 515

Further approvals are available on request.

### ORDERING INFORMATION

Example	17FSM2 - CT
Output 17W/m at 5°C	_____
FREESTOP MICRO	_____
Supply Voltage 220 – 277VAC	_____
Braid	_____
Thermoplastic Outerjacket	_____

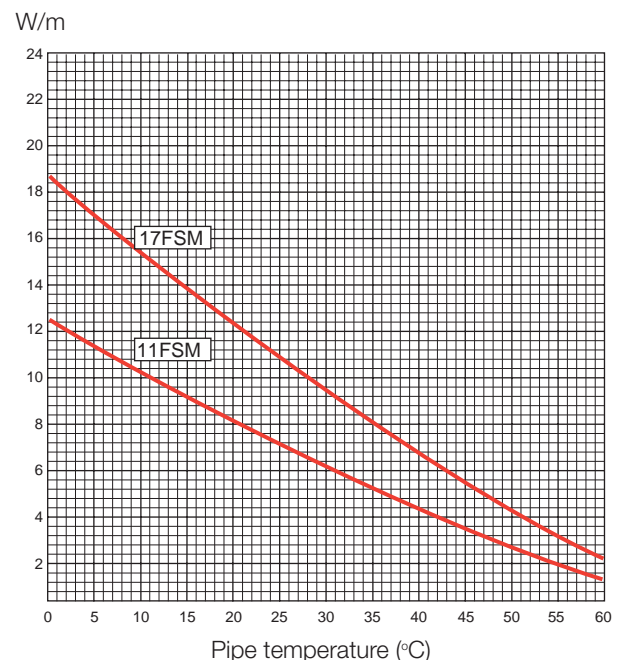
### MAXIMUM LENGTH (m) vs. CIRCUIT BREAKER SIZE

Cat Ref	Start-up Temperature	230V			
		6A	10A	16A	20A
11FSM	5°C	76	126	128	-
	0°C	70	118	128	-
	-20°C	46	78	124	128
	-40°C	36	60	96	120
17FSM	5°C	54	88	102	-
	0°C	50	84	102	-
	-20°C	34	56	88	102
	-40°C	26	42	68	86

Using circuit breaker Type C to BS EN 60 898

### THERMAL RATINGS

Nominal power output at 230V when FSM is installed on insulated metal pipes.



### ACCESSORIES

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

### FURTHER INFORMATION

Please consult the appropriate termination instructions and the Heat Trace Installation, Testing and Maintenance Manual (IMEHT010) for further details.



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- Automatically adjusts heat output in response to increasing or decreasing pipe temperature
- Can be cut to length with no wastage
- Will not overheat or burnout, even when overlapped
- Approved for use in non-hazardous, hazardous and corrosive environments
- Full range of controls and accessories
- Available for 110-120VAC and 220-277 VAC

### FEATURES

FREEZSTOP LITE is a light industrial/commercial grade self-regulating heating tape that can be used for freeze protection or temperature maintenance of pipework and vessels in the construction and refrigeration industries.

It can be cut-to-length at site and exact piping lengths can be matched without any complicated design considerations.

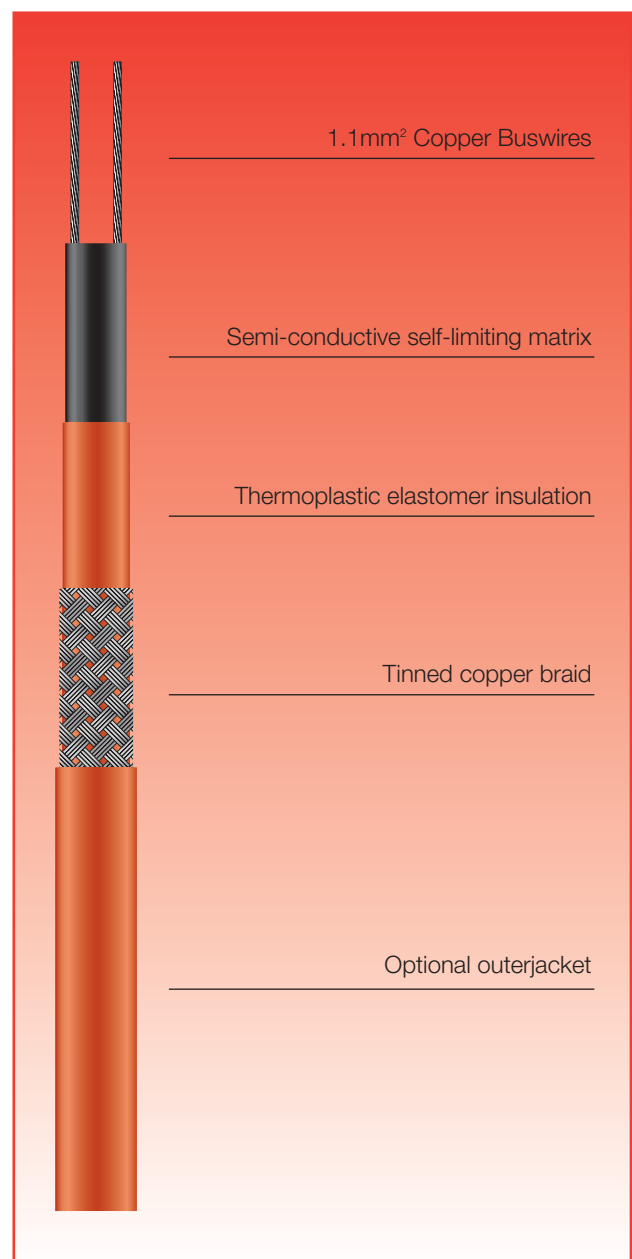
FREEZSTOP LITE is approved for use in non-hazardous, hazardous and corrosive environments to world wide standards.

Its self-regulating characteristics improve safety and reliability. FREEZSTOP LITE will not overheat or burnout, even when overlapped upon itself. Its power output is self-regulated in response to the pipe temperature.

The installation of FREEZSTOP LITE is quick and simple and requires no special skills or tools. Termination, splicing and power connection components are all provided in convenient kits.

### OPTIONS

- FSLe .. C** Tinned copper braid providing mechanical protection or where traced equipment does not provide an effective earth path. eg. plastic pipework.
- FSLe .. CT** Thermoplastic overjacket over tinned copper braid provides additional protection.
- FSLe .. CF** Fluoropolymer overjacket over tinned copper braid provides protection where corrosive chemical solutions or vapours may be present.









## SPECIFICATION

<b>MAXIMUM TEMPERATURE</b>	65°C (149°F)
<b>MAX. PERMISSIBLE TEMPERATURE de-energised (1000 hrs cumulative)</b>	85°C (185°F)
<b>MINIMUM INSTALLATION TEMPERATURE</b>	-40°C (-40°F) (CENELEC -20°C, -4°F)
<b>POWER SUPPLY</b>	110 – 120VAC, 220 – 277VAC
<b>TEMPERATURE CLASSIFICATION</b>	up to 23W/m T6 (85°C) 31W/m and/or 277V T4 (135°C)
<b>MAXIMUM RESISTANCE OF PROTECTIVE BRAIDING</b>	18.2 Ohm/km

### WEIGHTS AND DIMENSIONS

Type Ref	Nominal Dimensions (mm)	Weight kg/100m	Min. Bending radius	Gland Size
FSLe	8.5 x 3.9	4.6	25mm	M20
FSLe .. C	9.3 x 4.7	9.2	30mm	M20
FSLe .. CT	10.5 x 5.9	10.2	35mm	M20
FSLe .. CF	10.5 x 5.9	9.9	35mm	M20

### APPROVAL DETAILS

Testing Authority	Certificate No.	Standard
CENELEC 	SCS Ex 99E3146	EN50014 & EN50019
ATEX 	Sira 02ATEX3074	EN50014, EN50019 & IEC62086
IEC 	Sira 02Y3064	CEI IEC62086 & IEC60079-7
FM 	3009080	ANSI/IEEE Std 515
VDE 	114665	DIN VDE 0254
CSA 	214197-1295278	C22.2 No. 130.1 C22.2 No. 130.2 C22.2 No. 138
Lloyds Register	02/00062	EN50014, EN50019, BS6351, IEEE Std 515

Further approvals are available on request.

### ORDERING INFORMATION

Example	12FSLe2-CT
Output 12W/m at 5°C	_____
FREESTOP LITE	_____
Supply Voltage 220 – 277VAC	_____
Tinned Copper Braid	_____
Thermoplastic Outerjacket	_____

### ACCESSORIES

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

### MAXIMUM LENGTH (m) vs. CIRCUIT BREAKER SIZE

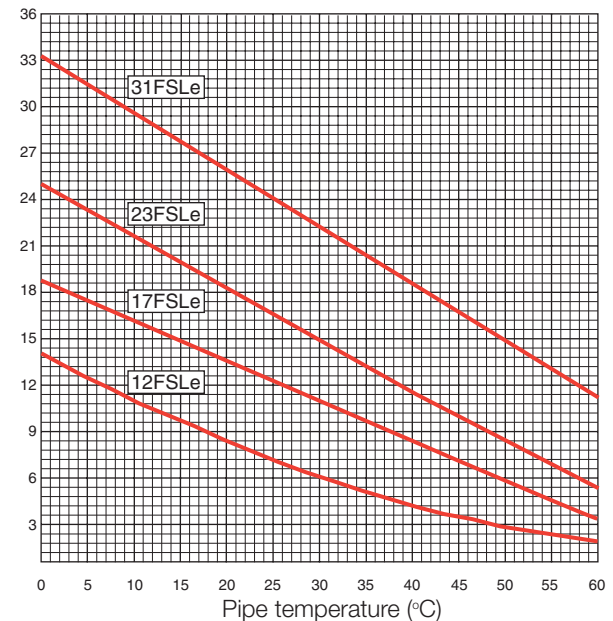
Cat Ref	Start-up Temperature	230V			
		6A	10A	16A	20A
12FSLe	5°C	78	132	180	-
	0°C	74	124	180	-
	-20°C	56	94	150	180
	-40°C	46	76	124	154
17FSLe	5°C	62	104	146	-
	0°C	60	100	146	-
	-20°C	48	82	130	146
	-40°C	42	70	112	138
23FSLe	5°C	46	76	124	-
	0°C	42	70	114	124
	-20°C	34	56	88	110
	-40°C	28	46	72	90
31FSLe	5°C	34	58	92	102
	0°C	32	52	84	102
	-20°C	24	40	56	66
	-40°C	20	34	54	66

For use with Type C circuit breakers to BS EN60898

### THERMAL RATINGS

Nominal output at 115V or 230V when FSLe is installed on insulated metal pipes.

W/m



### FURTHER INFORMATION

Please consult the appropriate termination instructions and the Heat Trace Installation, Testing and Maintenance Manual (IMEHT010) for further details. For VDE compliant heaters, please consult the installation principles for flexible electric heat tracing (TDS9078/001).

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SETTING THE STANDARDS LEADING THE WAY

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- Automatically adjusts heat output in response to increasing or decreasing pipe temperature
- Can be cut to length with no wastage
- Will not overheat or burnout, even when overlapped
- Approved for use in non-hazardous, hazardous and corrosive environments
- Full range of controls and accessories
- Available for 110-120VAC and 220-277VAC

**FEATURES**

FREEZSTOP REGULAR is an industrial grade, self-regulating heating tape that can be used for freeze protection or temperature maintenance to 65°C.

It can be cut to length on site and exact piping lengths can be matched without any complicated design considerations.

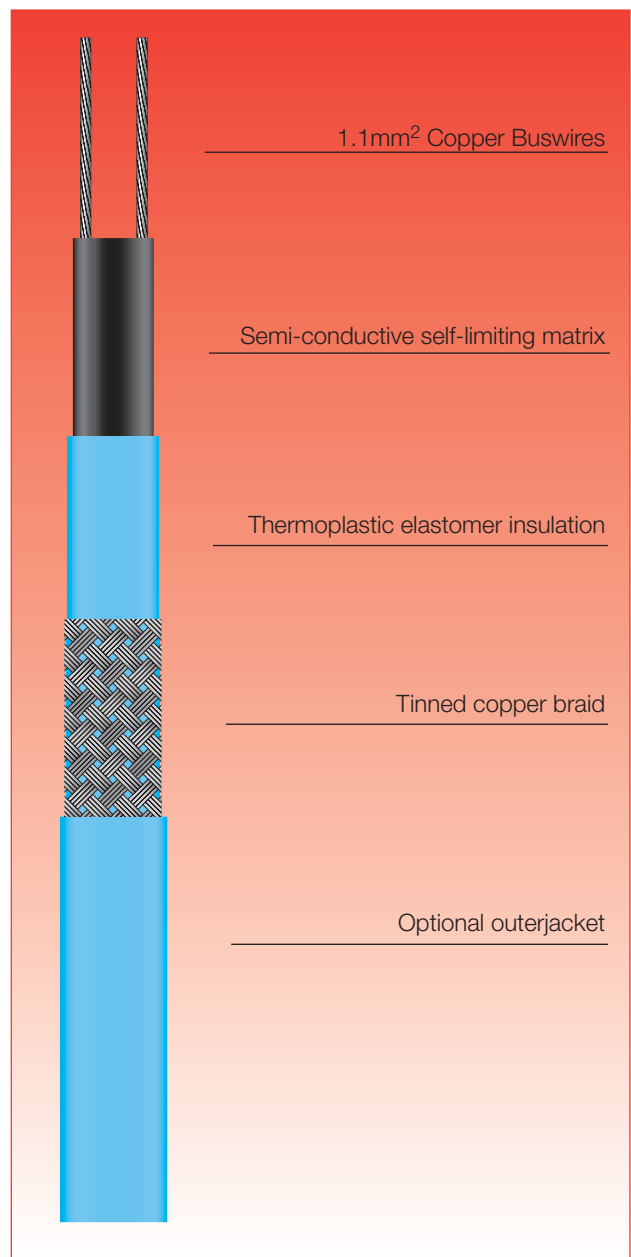
FREEZSTOP REGULAR is approved for use in non-hazardous, hazardous and corrosive environments to world wide standards.

Its self-regulating characteristics improve safety and reliability. FREEZSTOP REGULAR will not overheat or burnout, even when overlapped upon itself.

The installation of FREEZSTOP REGULAR heating tape is quick and simple and requires no special skills or tools. Termination, splicing and power connection components are all provided in convenient kits.

**OPTIONS**

- FSR .. C** Tinned copper braid for non-hazardous areas, hazardous areas or where traced equipment does not provide an effective earth path, eg. plastic pipework.
- FSR .. CT** Thermoplastic overjacket over tinned copper braid provides additional protection.
- FSR .. CF** Fluoropolymer overjacket over tinned copper braid provides protection where corrosive chemical solutions or vapours may be present.



## SPECIFICATION

**MAXIMUM TEMPERATURE** 65°C (150°F)

**MAX. PERMISSIBLE TEMPERATURE de-energised (1000 hrs cumulative)** 85°C (185°F)

**MINIMUM INSTALLATION TEMPERATURE** -40°C (-40°F)  
(CENELEC -20°C, -4°F)

**TEMPERATURE CLASSIFICATION** up to 31 W/m T6 (85°C)  
40 W/m and/or 277V T4 (135°C)

**POWER SUPPLY** 110 – 120VAC, 220 – 277VAC

**MAXIMUM RESISTANCE OF PROTECTIVE BRAIDING** 18.2 Ohm/km

### WEIGHTS & DIMENSIONS

Type Ref	Nom. Dims. (mm)	Weight kg/100m	Min. Bending radius	Gland Size
FSR	10.9 x 3.8	5.8	25 mm	M20
FSR .. C	11.8 x 4.7	11.2	30 mm	M20
FSR .. CT	13.1 x 6.0	13.1	35 mm	M20
FSR .. CF	13.1 x 6.0	13.4	35 mm	M20

### APPROVAL DETAILS

Testing Authority	Certificate No.	Standard
CENELEC	SCS Ex 94D3079	EN50014 & EN50019
ATEX	Sira 02ATEX3070	EN50014, EN50019 & IEC62086
IEC	Sira 02Y3060	CEI IEC62086 & IEC60079-7
FM	3009080	ANSI/IEEE Std 515
VDE	114665	DIN VDE 0254
CSA	214197-1295278	C22.2 No. 130.1 C22.2 No. 130.2 C22.2 No. 138
Lloyds Register	02/00062	EN50014, EN50019, BS6351, IEEE Std 515

Further approvals are available on request.

### ORDERING INFORMATION

Example	17FSR2-CT
Output 17W/m at 10°C	
FREEZSTOP REGULAR	
Supply Voltage 220 - 277V AC	
Tinned Copper Braid	
Thermoplastic Outerjacket	

### ACCESSORIES

Heat Trace supply a complete range of accessories including termination/splice kits, end seals, junction boxes and controls. Such items carry separate approvals from the heating tapes. When used in hazardous areas, only use approved components.

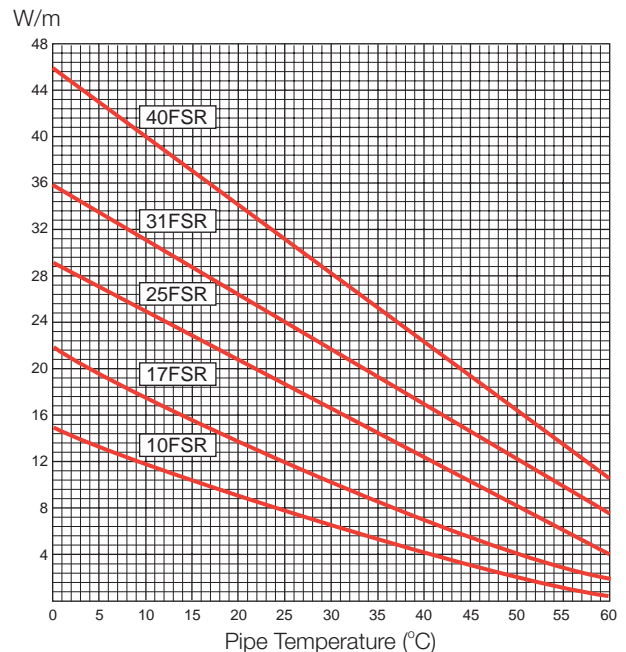
### MAXIMUM LENGTH (m) vs. CIRCUIT BREAKER SIZE

Cat Ref	Start-up Temperature	230V				
		6A	10A	16A	20A	25A
10FSR	10°C	90	152	198	-	-
	0°C	74	122	196	198	-
	-20°C	50	84	136	170	198
	-40°C	44	74	118	148	184
17FSR	10°C	60	102	154	-	-
	0°C	48	82	130	154	-
	-20°C	40	66	106	132	154
	-40°C	30	50	80	100	124
25FSR	10°C	46	76	122	124	-
	0°C	36	62	98	122	124
	-20°C	20	34	56	70	88
	-40°C	20	32	50	64	80
31FSR	10°C	28	46	74	92	110
	0°C	20	34	54	66	84
	-20°C	16	26	40	50	64
	-40°C	14	24	38	48	60
40FSR	10°C	20	34	56	70	88
	0°C	14	24	40	50	62
	-20°C	12	20	30	38	48
	-40°C	10	18	30	36	46

For use with Type C circuit breakers to BS EN60898:1991

### THERMAL RATINGS

Nominal output at 115V or 230V when FSR is installed on insulated metal pipes.



### FURTHER INFORMATION

Please consult the appropriate termination instructions and the Heat Trace Installation, Maintenance and Testing Manual (IMEHT010) for further details. For VDE compliant heaters, please consult the installation principles for flexible electric heat tracing (TDS9078/001).

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