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Series-resistance heating cables for longline systems

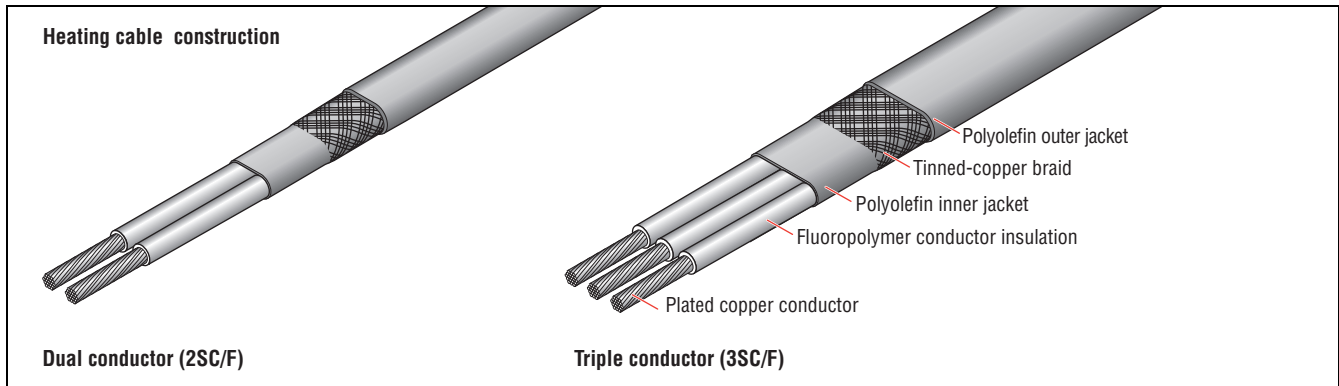
Electrical freeze protection for long pipelines in both nonhazardous and hazardous locations.

SC/F series-resistance technology provides freeze protection for longline applications with low heat loss.

This series-resistance type heating cable can withstand continuous exposure temperatures up to 195°F (90°C), and is suitable for use in hazardous locations. SC/F heating cables can be used for continuous circuit lengths to 12,000 feet (3659 m), powered from a single source.

Raychem brand SC/F heating cables meet the requirements of the U.S. National Electrical Code and the Canadian Electrical Code.

For additional information, contact your Tyco Thermal Controls representative or call Tyco Thermal Controls at (800) 545-6258.



Application

| | |
|---------------------|--------------------------------------|
| Area classification | Nonhazardous and hazardous locations |
| Chemical resistance | Aqueous inorganic chemicals |

| | |
|-----------------------|-----------------|
| Supply Voltage | Maximum 600 Vac |
|-----------------------|-----------------|

| | |
|---|---------------|
| Temperature Rating | |
| Maximum continuous exposure (Power off) | 195°F (90°C) |
| Minimum installation temperature | -40°F (-40°C) |

| | |
|---|--|
| Temperature ID Number (T-Rating) | Established by calculating the maximum sheath temperature for the application. Contact Tyco Thermal Controls for assistance. |
|---|--|

Approvals

2SC/F

Hazardous Locations

Class I, Div. 2, Groups A, B, C, D
Class II, Div. 2, Groups F, G
Class III

For T-Rating, see design documentation

II 2 GD Ex e II T* (see schedule) Ex tD A21 IP66
Baseefa06ATEX0189X

Ex e II T* (see schedule) Ex tD A21 IP66
IECEx BAS 06.0049X

Ex e II T⁽¹⁾
-W

09-IEEx-0008X
BR-Ex e II T* (see Observation b)

⁽¹⁾ For T-Rating, see design documentation

3SC/F

Hazardous Locations

Class I, Div. 2, Groups A, B, C, D
Class II, Div. 2, Groups F, G
Class III

For T-Rating, see design documentation

II 2 GD Ex e II T* (see schedule) Ex tD A21 IP66
Baseefa06ATEX0189X

Ex e II T* (see schedule) Ex tD A21 IP66
IECEx BAS 06.0049X

Ex e II T⁽¹⁾
-W

09-IEEx-0008X
BR-Ex e II T* (see Observation b)

⁽¹⁾ For T-Rating, see design documentation

Application

Design and Installation

SC/F applications must be designed and approved by Tyco Thermal Controls. Series heating cable technology requires that SC/F cables must not be overlapped. The use of appropriate control and monitoring equipment specified by Tyco Thermal Controls is required.

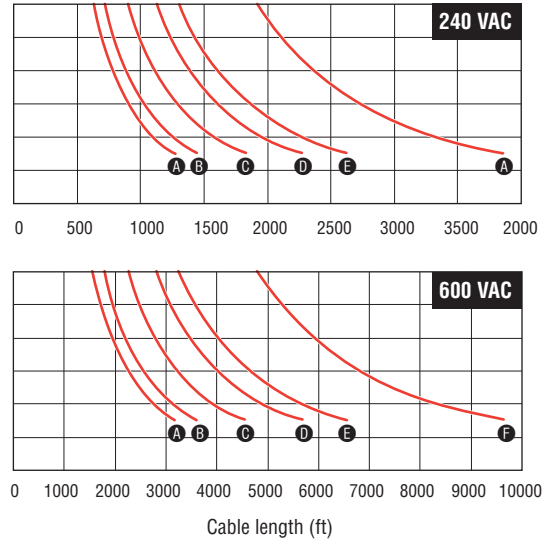
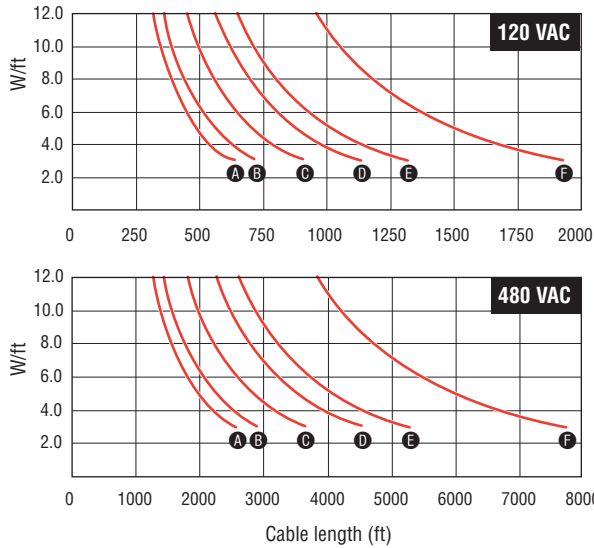
Nominal Power Output Rating

These graphs are general guides to selection. Actual designs require consideration of other important variables and must be confirmed by Tyco Thermal Controls. Also, many other voltages and electrical configurations are possible.

Nominal Power Output at 68°F (20°C)

For 2SC/F Cables

- Ⓐ 2SC/F30
- Ⓑ 2SC/F40
- Ⓒ 2SC/F50
- Ⓓ 2SC/F60
- Ⓔ 2SC/F70
- Ⓕ 2SC/F80

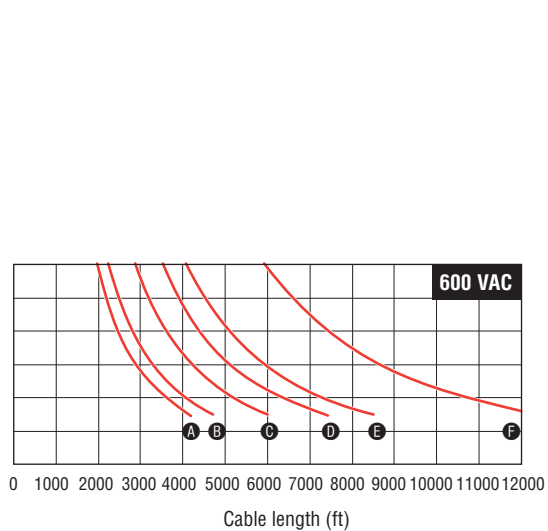
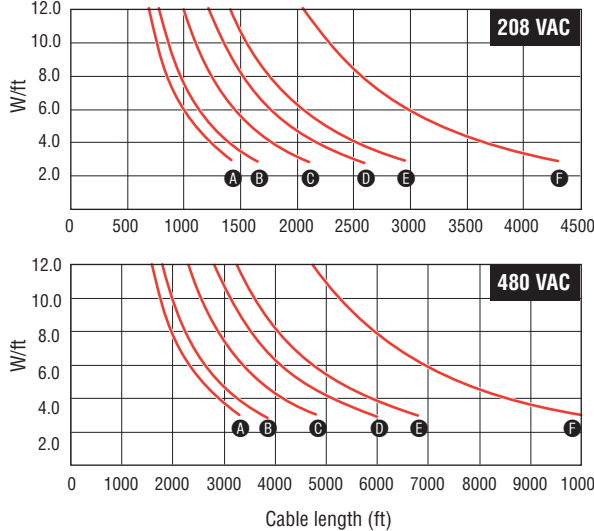


Nominal Power Output at 68°F (20°C)

For 3SC/F Cables

- Ⓐ 3SC/F30
- Ⓑ 3SC/F40
- Ⓒ 3SC/F50
- Ⓓ 3SC/F60
- Ⓔ 3SC/F70
- Ⓕ 3SC/F80

Note: Voltages shown are 3-phase transformer phase-to-phase voltages. The heater is assumed to be in WYE configuration.



Ground-Fault Protection

To minimize the danger of fire from sustained electrical arcing if the heating cable is damaged or improperly installed, and to comply with the requirements of Tyco Thermal Controls, agency certifications, and national electrical codes, ground-fault equipment protection must be used on each heating cable branch circuit. Arcing may not be stopped by conventional circuit protection. Many DigiTrace control and monitoring systems meet the ground-fault protection requirement.

Product Characteristics

| SC/F | Conductor size | Cable resistance (nominal) @ 68°F (20°C) | | Weight (nominal) lb/10 ft | Maximum circuit breaker size | Cable Dimensions (nominal) | Minimum bend radius |
|---|----------------|---|---------|---------------------------------|------------------------------------|-------------------------------|------------------------|
| | | ohms/ft | ohms/m | | | | |
| (Dual conductor cable) | | | | | | | |
| 2SC/F30-CR | 18 | 0.01180 | 0.03869 | 0.8 | 40 | 0.31" x 0.21" | 1" |
| 2SC/F40-CR | 16 | 0.00916 | 0.03004 | 1.0 | 40 | 0.32" x 0.22" | 1" |
| 2SC/F50-CR | 14 | 0.00580 | 0.01902 | 1.2 | 40 | 0.35" x 0.23" | 1" |
| 2SC/F60-CR | 12 | 0.00374 | 0.01226 | 1.4 | 60 | 0.39" x 0.25" | 1" |
| 2SC/F70-CR | 10 | 0.00240 | 0.00787 | 1.8 | 80 | 0.44" x 0.28" | 1" |
| 2SC/F80-CR | 8 | 0.00130 | 0.00426 | 2.4 | 100 | 0.54" x 0.33" | 1" |
| (Triple conductor cable, resistance per conductor) | | | | | | | |
| 3SC/F30-CR | 18 | 0.00590 | 0.01935 | 1.2 | 40 | 0.41" x 0.21" | 1" |
| 3SC/F40-CR | 16 | 0.00458 | 0.01502 | 1.5 | 40 | 0.43" x 0.22" | 1" |
| 3SC/F50-CR | 14 | 0.00290 | 0.00951 | 1.8 | 40 | 0.47" x 0.23" | 1" |
| 3SC/F60-CR | 12 | 0.00187 | 0.00613 | 2.1 | 60 | 0.53" x 0.25" | 1" |
| 3SC/F70-CR | 10 | 0.00120 | 0.00394 | 2.7 | 80 | 0.60" x 0.28" | 1" |
| 3SC/F80-CR | 8 | 0.00065 | 0.00213 | 3.6 | 100 | 0.75" x 0.33" | 1" |

Connection Kits

Tyco Thermal Controls offers a full range of connection kits for power connections, splices, and end seals. These connection kits must be used to ensure proper functioning of the product and compliance with warranty, code, and approvals requirements.

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