

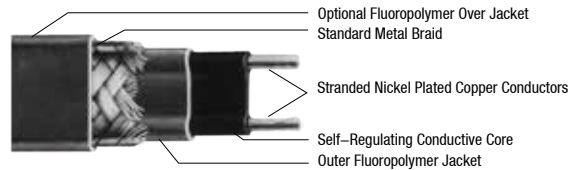
Type XLT Self-Regulating Heater Cable

For use in Ordinary (Unclassified) and Hazardous (Classified) Locations

UL: -CB or -J options: Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class I, Zone 1, AEx e II	UL: D1- option: Class I, Division 1, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class III	CSA: -CB or -J options: Class I, Division 2, Groups B, C, D; Class II, Division 2, Groups E, F, G; Class III, Class I, Zone 2, Group IIB+H2	CSA: -J option: Class I, Division 1, Groups B, C, D; Class II, Division 1, Groups E, F, G; Class I, Zone 1, Group IIB, Zone 1, Ex e II T3	FM: -CB or -J options: Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III	FM: -J option: Class I, Zone 1 AEx e II; Group IIC	FM: D1- option: Class I, Division 1, Groups B, C, D; Class I, Zone 1; Group IIB
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Description

- Nelson Type XLT self-regulating heater cable is a parallel circuit electric heater strip.
- A conductive fluoropolymer core material is extruded over the multi-stranded, nickel-plated, 14-gauge copper bus wires.
- A fluoropolymer jacket provides excellent dielectric strength, moisture resistance, protection from impact and abrasion damage, and a wide range of chemical resistance.
- A stranded tinned copper metal braid is supplied on all heaters.
- An optional fluoropolymer over jacket can be specified when the heater cable is to be installed in wet or corrosive environments.
- The base product is supplied with a tinned copper metal braid that may be used in both general applications and in dry, non-corrosive hazardous (classified) areas.



Operating Principle

- The parallel bus wires apply voltage along the entire length of the heater cable.
- The conductive core provides a continuous parallel heating element permitting the cable to be cut to any length in the field with no dead or cold zones developing.
- The heater cable derives its self-regulating characteristic from the inherent properties of the conductive core material.
- As the core material temperature increases, the number of conductive paths in the core material decreases, automatically decreasing the heat output.
- As the temperature decreases, the number of conductive paths increases, causing the heat output to increase.
- This occurs at every point along the length of the cable, adjusting the power output to the varying conditions along the pipe.
- The self-regulating effect allows the cable to be overlapped without creating hot spots or burnout.
- As the cable self-regulates its heat output, it limits the maximum sheath temperature, while also providing useful power for process temperature maintenance.

Application

- Nelson Type XLT self-regulating heater cable is ideal for maintaining flow over a wide range of operating temperatures.
- The product is used for freeze protection of periodically steam (420 psig) cleaned pipes and temperature maintenance for 150°C (300°F) or lower processes.
- Typical applications include hydrocarbon and chemical product piping.

Accessories

- Nelson AX Series Connection Kits for Power, Splice, Tee Splice, Powered Splices and End Terminations
- Nelson HASK Series Division 1 Connection Kits for Power, Splice, Tee Splice and End Terminations
- Nelson EX Series Zone 1 Connection Kits for Power, Splice, Tee Splice, Powered Splices and End Terminations
- Nelson TA, TH, TE and HC Series Thermostats and Contactors
- Junction Boxes, Tapes and Warning Signs
- Custom Control, Monitoring and Power Panels

Certifications and Compliances

- UL Listed: E33597, E53501, E49805
- CSA Standard: C22.2 No. 130-16
- CSA Certified: LR42103, LR42104
- FM Approved: JI 5D0A4.AX, JI 3B3A6.A6, JI 3B6A4.AX
- Other Standards: IEEE 515-2011, IEEE 515.1-2012

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Performance Rating

Service Voltage	Maximum Maintenance Temperature °C (°F)	Maximum Intermittent Exposure °C (°F)	T-Rating ①	Watts/m (Watts/ft)
120	150 (300)	230 (450)	T3 (T3)	16 (5)
240				
120	150 (300)	230 (450)	T3 (T3)	33 (10)
240				
120	150 (300)	230 (450)	T3 (T3)	49 (15)
240				
120	150 (300)	230 (450)	T3 (T3)	66 (20)
240				

Circuit Breaker Selection

Watts/m (Watts/ft)		Start-Up Temp. °C (°F)		Maximum Length in Meters (Feet) Vs. Circuit Breaker Size									
				120 Volt					240 Volt				
				15A	20A	30A	40A	15A	20A	30A	40A	50A	
16 (5)	10 (50)	65 (220)	90 (295)	110 (365)	110 (365)	135 (445)	180 (595)	220 (725)	220 (725)	220 (725)			
	-18 (0)	60 (195)	80 (260)	110 (365)	110 (365)	115 (380)	155 (510)	220 (725)	220 (725)	220 (725)			
	-29 (-20)	55 (185)	75 (245)	110 (365)	110 (365)	115 (370)	150 (490)	220 (725)	220 (725)	220 (725)			
33 (10)	10 (50)	40 (125)	50 (170)	75 (250)	80 (255)	75 (250)	100 (335)	150 (500)	155 (515)	155 (515)			
	-18 (0)	35 (110)	45 (145)	65 (220)	80 (255)	65 (220)	90 (295)	135 (440)	155 (515)	155 (515)			
	-29 (-20)	30 (105)	45 (140)	65 (210)	80 (255)	65 (210)	85 (280)	130 (420)	155 (515)	155 (515)			
49 (15)	10 (50)	25 (85)	35 (115)	55 (175)	60 (195)	55 (175)	70 (230)	105 (350)	120 (390)	120 (390)			
	-18 (0)	25 (80)	30 (105)	45 (155)	60 (195)	50 (160)	65 (215)	100 (320)	120 (390)	120 (390)			
	-29 (-20)	25 (75)	30 (100)	45 (150)	60 (195)	45 (150)	60 (200)	90 (300)	120 (390)	120 (390)			
66 (20)	10 (50)	20 (65)	25 (90)	40 (135)	45 (150)	40 (135)	55 (180)	80 (265)	90 (300)	90 (300)			
	-18 (0)	20 (60)	25 (80)	35 (120)	45 (150)	35 (120)	50 (165)	75 (245)	90 (300)	90 (300)			
	-29 (-20)	20 (60)	25 (80)	35 (120)	45 (150)	35 (120)	45 (155)	70 (235)	90 (300)	90 (300)			

① Electrical equipment T rating codes define the maximum surface temperature that equipment will reach. It is used in hazardous (classified) area applications.

Notes

1. Circuit breakers are sized per national electrical codes and are based on start-up temperatures between -29°C (20°F) and 10°C (50°F).
2. When using 240 volt product at 208, 220 or 277 volts, use the circuit adjustment factors shown in the Voltage Adjustment Table.
3. When using 2 or more heater cables of different wattage ratings in parallel on a single circuit breaker, use the 15A column amperage of 15 amps, divide it by the maximum footage to arrive at an amps/foot figure for each cable. You can then calculate circuit breaker sizes for these combination loads. These amps/foot factors include the 125% sizing factor.
4. National electrical codes require ground-fault equipment protection for each branch circuit supplying electric heating equipment. Exceptions to this requirement can be found in the NFPA 70, National Electrical Code.
5. Heater cables with D1- optional construction require the use of a ground fault interrupter/ground leakage device with a trip setting no greater than 30mA.

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NELSON™

INDUSTRIAL HEATING SYSTEMS: SELF-REGULATING HEATING CABLES

UL:
-CB or -J options:
Class I, Division 2,
Groups A, B, C, D;
Class II, Division 2,
Groups F, G; Class I,
Zone 1, AEx e II

UL:
D1- option: Class I,
Division 1, Groups
B, C, D; Class II,
Division 1, Groups E,
F, G; Class III

CSA:
-CB or -J options:
Class I, Division
2, Groups B, C, D;
Class II, Division 2,
Groups E, F, G; Class
III, Class I, Zone 2,
Group IIB+H2

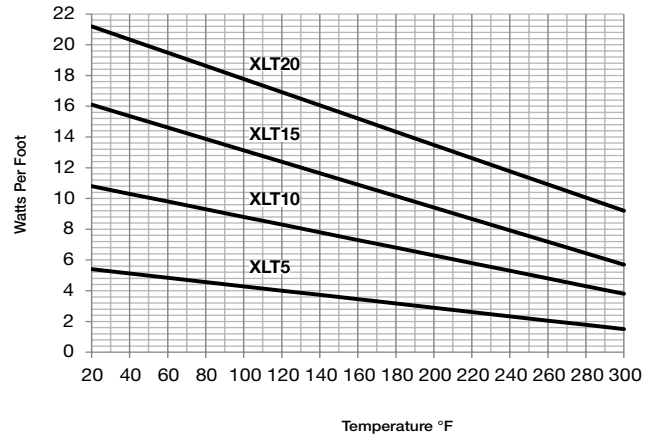
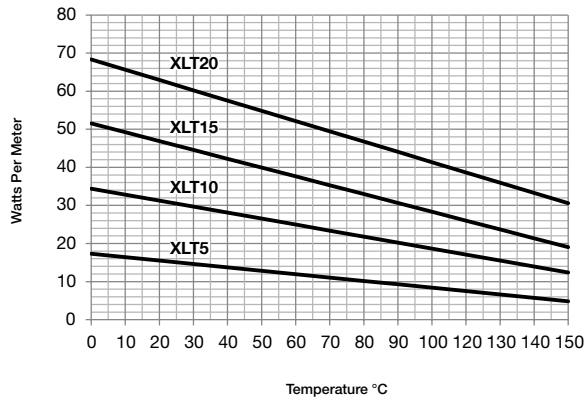
CSA:
-J option: Class I,
Division 1, Groups
B, C, D; Class II,
Division 1, Groups E,
F, G; Class I, Zone 1,
Group IIB, Zone 1, Ex
e II T3

FM:
-CB or -J options:
Class I, Division 2,
Groups A, B, C, D;
Class II, Division 2,
Groups F, G; Class III

FM:
-J option: Class
I, Zone 1 AEx e II;
Group IIC

FM:
D1- option: Class I,
Division 1, Groups B,
C, D; Class I, Zone 1;
Group IIB

Power Output Rating



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Selection Table

Service Voltage	Maximum Segment Length Meters (Ft)	Description	Catalog Number
120	110 (365)	Tinned Copper Braid	XLT5-CB
		Tinned Copper Braid and Fluoropolymer	XLT5-J
		Class I, Division 1, Groups B, C and D	D1-XLT5
240	220 (725)	Tinned Copper Braid	XLT25-CB
		Tinned Copper Braid and Fluoropolymer	XLT25-J
		Class I, Division 1, Groups B, C and D	D1-XLT25
120	80 (255)	Tinned Copper Braid	XLT10-CB
		Tinned Copper Braid and Fluoropolymer	XLT10-J
		Class I, Division 1, Groups B, C and D	D1-XLT10
240	155 (515)	Tinned Copper Braid	XLT210-CB
		Tinned Copper Braid and Fluoropolymer	XLT210-J
		Class I, Division 1, Groups B, C and D	D1-XLT210
120	60 (195)	Tinned Copper Braid	XLT15-CB
		Tinned Copper Braid and Fluoropolymer	XLT15-J
		Class I, Division 1, Groups B, C and D	D1-XLT15
240	120 (390)	Tinned Copper Braid	XLT215-CB
		Tinned Copper Braid and Fluoropolymer	XLT215-J
		Class I, Division 1, Groups B, C and D	D1-XLT215
120	45 (150)	Tinned Copper Braid	XLT20-CB
		Tinned Copper Braid and Fluoropolymer	XLT20-J
		Class I, Division 1, Groups B, C and D	D1-XLT20
240	90 (300)	Tinned Copper Braid	XLT220-CB
		Tinned Copper Braid and Fluoropolymer	XLT220-J
		Class I, Division 1, Groups B, C and D	D1-XLT220

Voltage Adjustment ①

Absolute Max Length Meters (Feet)	Adjustment Multiplier						Product
	208 Vac		220 Vac		277 Vac		
	Power	Length	Power	Length	Power	Length	
220 (725)	0.76	0.93	0.85	0.96	1.29	1.07	XLT25
155 (515)	0.80	0.93	0.88	0.96	1.23	1.07	XLT210
120 (390)	0.83	0.93	0.89	0.96	1.19	1.02	XLT215
90 (300)	0.88	1.00	0.93	1.00	1.15	1.00	XLT220

① Use of self-regulating heater products at other than rated voltages require minor adjustments in power and maximum circuit lengths..