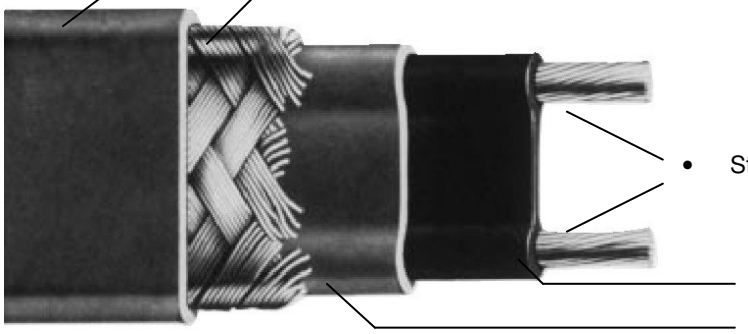
NELSON™

SPECIFICATION/APPLICATION

CLT SELF-REGULATING HEATERS

INFORMATION



- Standard Overjacket
- Standard Metal Braid
- Stranded Copper Conductors
- Self Regulating Conductive Core
- Thermoplastic Elastomer Jacket

CLT3-JT CLT23-JT
CLT5-JT CLT25-JT
CLT8-JT CLT28-JT

Description:

Nelson Type CLT self-regulating heater cable is a parallel circuit electric heater strip. An irradiation cross-linked conductive polymer core material is extruded over the multi-stranded, tin-plated, 18-guage copper bus wires. The conductive core material increases or decreases its heat output in response to temperature changes. A thermoplastic elastomer dielectric jacket is then extruded over the conductive core. A copper braid is installed over this jacket providing a continuous ground path. A UV stabilized thermoplastic elastomer overjacket is provided to cover the braid for wet applications and exposure to the sun.

Principle of Operation:

The parallel bus wires apply voltage along the entire length of the heater cable. The conductive core provides an infinite number of parallel conductive paths 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 decrease, automatically decreasing the heat output. As the temperature decreases, the number of conductive paths increase, 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 it heat output, it provides for the efficient use of electric power, producing heat only when and where it is needed, and also limiting the maximum surface temperature.

Application:

Nelson's Type CLT self-regulating heater cable is ideal for use in maintaining fluid flow under low ambient conditions. Freeze protection and low watt density process temperature systems such as pipelines, fire protection, process water, dust suppression systems, hot water and structure anti-icing are typical applications for this product.

For other than metal pipe heating, see appropriate application guide.

The base product is supplied with a copper metal braid with a thermoplastic elastomer overjacket for wet applications, exposure to the sun, and where mechanical abuse is a problem.

Performance and Rating Data:

Catalog Number	Service Voltage	Maximum Length	Maximum Maintenance Temperature	Maximum Intermittent Exposure
CLT3	120	221	150°F (65°C)	185°F (85°C)
CLT23	240	533	150°F (65°C)	185°F (85°C)
CLT5	120	178	150°F (65°C)	185°F (85°C)
CLT25	240	458	150°F (65°C)	185°F (85°C)
CLT8	120	142	150°F (65°C)	185°F (85°C)
CLT28	240	347	150°F (65°C)	185°F (85°C)

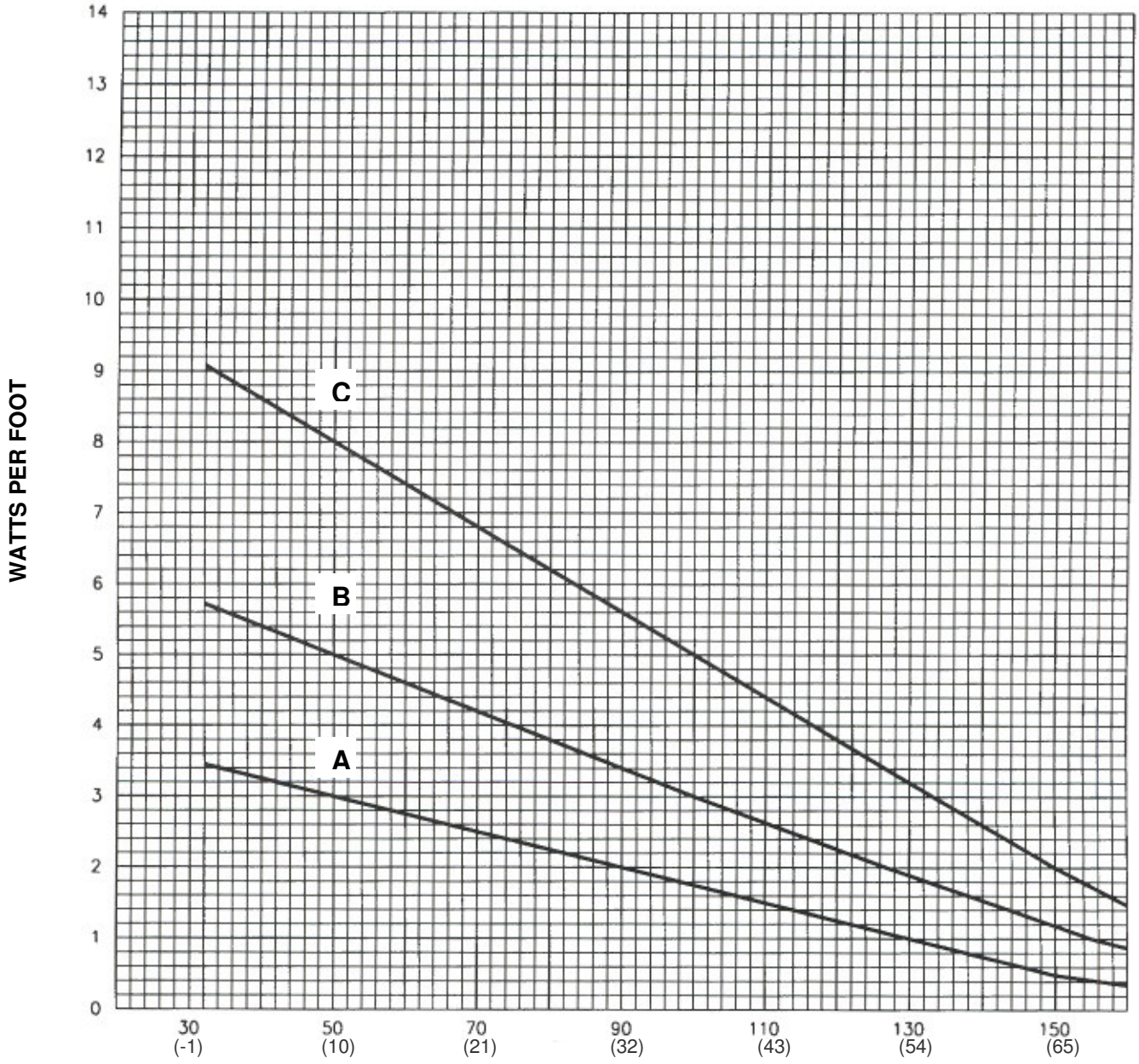
Circuit Breaker Selection:

Watt/Ft	Start-Up Temp.	Max. Length (Feet) Vs. Circuit Breaker Size					
		120 Volt			240 Volt		
		15A	20A	30A	15A	20A	30A
3	50°F (10°C)	221	---	---	533	---	---
	0°F (-18°C)	208	221	---	416	533	---
	-20°F (-29°C)	187	221	---	374	499	533
5	50°F (10°C)	178	---	---	413	458	---
	0°F (-18°C)	150	178	---	299	399	458
	-20°F (-29°C)	135	178	---	269	359	458
8	50°F (10°C)	142	---	---	289	347	---
	0°F (-18°C)	105	140	142	210	280	347
	-20°F (-29°C)	95	127	142	190	253	347

NOTES:

1. Circuit breakers are sized per national electrical codes.
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.

Power Output Rating:



A CLT3, CLT23 **B CLT5, CLT25** **C CLT8, CLT28**

WATTS PER FOOT X 3.28 = WATTS PER METER
PIPE TEMPERATURE °F CONVERSION TO °C = 5/9 (°F-32)

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Catalog Numbers:

BASIC CATALOG NUMBERS			
Voltage	Watts Per Foot		
	3	5	8
120 VAC	CLT3	CLT5	CLT8
240 VAC	CLT23	CLT25	CLT28

Standard Feature Suffix:

-JT Copper Braid and Thermoplastic Elastomer Overjacket

Voltage Adjustment:

Use of products at other than nominal voltages requires minor adjustments in power and maximum circuit lengths.

ADJUSTMENT MULTIPLIER							
	208 VAC		220 VAC		277 VAC		Absolute
Product	Power	Length	Power	Length	Power	Length	Max Length
CLT23	.71	1.04	.81	1.02	1.34	.98	533 ft.
CLT25	.80	1.01	.87	1.00	1.22	1.02	458 ft.
CLT28	.87	1.00	.92	1.00	1.12	1.03	347 ft.

Approvals:

CSA
Ordinary Locations-

UL
Ordinary Locations-

Accessories:

- Connection Kits for Power Connection, Tee Splice, Splices and End Seals (Nelson PLT Series)
- Thermostatic Controls (Nelson TA, TH, TE and HC Series)
- Junction Boxes, Tapes and Warning Signs
- Custom Control, Monitoring and Power Panels

Nelson Heat Tracing Systems products are supplied with a limited warranty. Complete Terms and Conditions may be found on Nelson's website at www.nelsonheaters.com.

NELSON HEAT TRACE

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