

- Optional Overjacket Constructions
- Tinned Copper Metal Braid

LT23-J  
LT25-J  
LT28-J  
LT210-J

- Stranded Plated Copper Conductors
- Continuous Self-Regulating Conductive Core
- Bonded Inner Thermoplastic Jacket
- Outer Thermoplastic Elastomer Jacket

### Description:

Nelson Type LT 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, 16-gauge copper bus wires.

Two jackets provide extra dielectric strength, moisture resistance, and protection from impact and abrasion damage. The inner thermoplastic jacket is extruded over and bonded to the core material. A thermoplastic elastomer

outer jacket is then extruded over the inner jacket.

A stranded copper metal braid and fluoropolymer overjacket is supplied on all heaters.

### 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 provides for the efficient use of electric power, producing heat only when and where it is needed, and also limiting the maximum sheath temperature.

### Specifications:

Maintain Temperature	65°C
Maximum Continuous Exposure Temperature	65°C (continuous power on)
Maximum Intermittent Exposure Temperature	85°C (1000 hours cumulative exposure)
Temperature Classification (T Code)	T6 (85°C) / T5 (100°C) as per IEC 60079 standards
Bus Wire Size	1.22 mm <sup>2</sup> Copper Conductors
Tinned Copper Braid Resistance	Maximum 0.015 Ω/m
Product Dimensions (Nominal)	6.0mm x 11.9mm (LT-J) 6.2mm x 12.5mm (LT-JT)
Product Weight	106.0 g/m
Minimum Installation Temperature	-40°C
Minimum Bend Radius	25mm at -40°C

### Application:

Nelson's Type LT self-regulating heater cable is ideal for maintaining fluid flow under low ambient conditions. The product is used for freeze protection and low watt density process temperature maintenance of pipes and vessels.

Typical applications include process water, lube oil, fire protection, dust suppression and structure deicing. The standard cable is supplied with a tinned copper metal braid and a fluoropolymer overjacket suitable for exposure to

excessive moisture, organic and inorganic chemicals, solvents, etc. in Zone 1 and Zone 2 hazardous areas and in ordinary areas.



### Performance and Rating Data:

Catalog Number	Service Voltage	Maximum Segment Length	Maximum Maintenance Temperature	Maximum Intermittent Exposure	T-Rating*
LT23	230	185	65°C	85°C	T6
LT25	230	155	65°C	85°C	T6
LT28	230	125	65°C	85°C	T5
LT210	230	115	65°C	85°C	T5

\*Electrical equipment T-rating codes define the maximum surface temperature that equipment will reach. It is intended for applications in potentially explosive atmospheres – Directive 94/9/EC.

### Circuit Breaker Selection:

Watts/M	Start-Up Temp.	Total Heater Length in Meters <sup>2</sup> Vs. Circuit Breaker Size				
		230 Volt				
		16A	20A	25A	32A	40A
9	10°C	241	302	377	482	603
	-5°C	192	240	300	384	480
	-20°C	159	199	249	319	398
	-30°C	143	179	224	286	358
15	10°C	170	213	266	341	426
	-5°C	135	169	212	271	338
	-20°C	112	140	175	225	281
	-30°C	101	126	157	202	252
25	10°C	90	113	141	180	225
	-5°C	74	92	116	148	185
	-20°C	63	78	98	125	157
	-30°C	57	71	89	114	142
32	10°C	57	72	89	115	143
	-5°C	48	60	75	96	120
	-20°C	41	52	65	83	104
	-30°C	38	47	59	76	95

- Notes:
1. The circuit length values shown above are for estimation only.
  2. Total Heater Length is the total length of heater cable that can be installed on a breaker without tripping either under start-up or operating conditions. Values may indicate that multiple heater segments must be installed on the breaker with none of the segments exceeding the Maximum Segment Lengths as shown in the Performance and Rating table.
  3. For detailed information on maximum circuit lengths or additional voltages, refer to Nelson Heat Tracing Systems Selection software or contact your local Nelson representative for assistance.

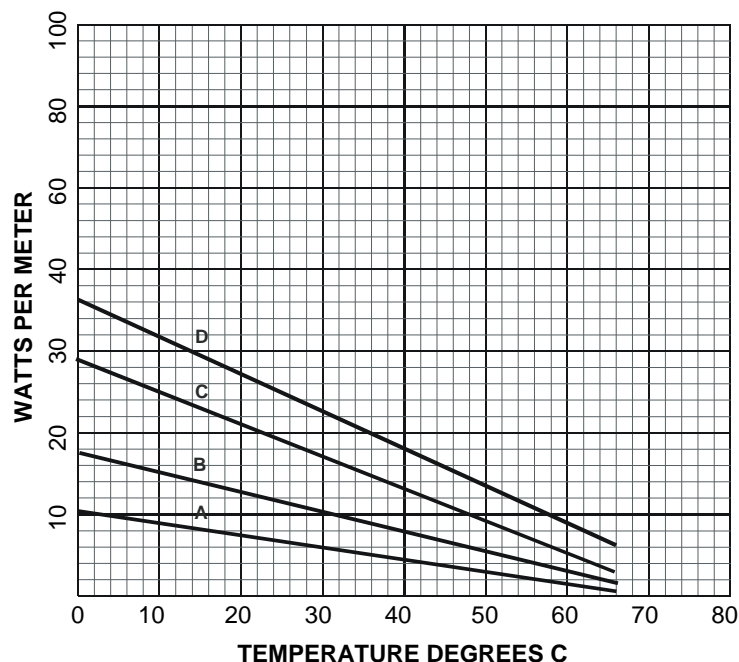
### Construction Options:

Standard Feature Suffix	Optional Feature Suffix (Delete –J and add)
<b>-J</b> A tinned copper metal braid with a fluoropolymer overjacket for use when the heater cable is exposed to excessive moisture, organic chemicals, solvents, etc. in hazardous and ordinary areas.	<b>-JT</b> A tinned copper metal braid with a thermoplastic elastomer overjacket is available for use when the heater cable is exposed to aqueous solutions of inorganic chemicals or where mechanical abuse is a problem in hazardous and ordinary areas.



### Power Output Rating:

Power output on insulated metallic pipe at 230VAC



A	B	C	D
LT23-J	LT25-J	LT28-J	LT210-J
LT23-JT	LT25-JT	LT28-JT	LT210-JT
Power Output (watts per meter at 10°C)			
9	15	25	32

### Approvals:

LT Series heating cables are approved for use in Zone 1 and Zone 2 hazardous areas by KEMA.  
The product type has been tested in accordance with the European Standard EN 50014:1997 and EN 50019:2000.



II 2 G D EEx e II  
KEMA 03ATEX 2019U  
KEMA 03ATEX 2020X  
-40° C ≤ T<sub>amb</sub> ≤ +55° C, T<sub>P</sub> 85° C



### Accessories:

- Connection Kits for Power Connection, Splices and End Seals (Nelson Z1-PLT Series, Z1-ALT Series, and Component Series)
- Thermostatic Controls (Nelson TA and TH Series)
- Enclosures, Tapes and Warning Signs

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](http://www.nelsonheaters.com).