



Ex Mineral insulated (MI) inconel heating cables

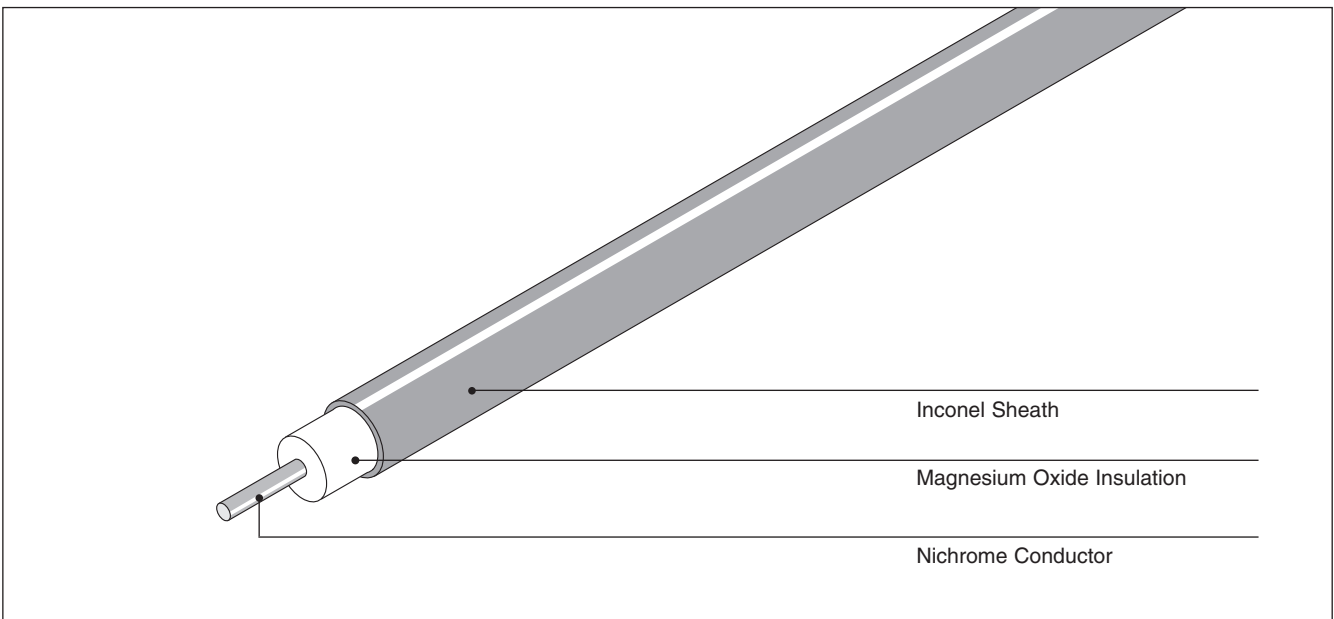
Mineral insulated (MI) Inconel heating cables can operate to a maximum sheath temperature of 600°C. MI inconel cables offer the industrial heat tracing market excellent corrosive properties against a range of harsh environments with a high temperature capability.

Cables are typically used on bitumen plants, gas plants, oil refineries, reactors and vessels, sodium loops and a variety of other heat tracing applications where temperature, efficiency, durability and cable safety is paramount.

MI cable features:

- Corrosion resistance
- High performance output
- High resistance to mechanical abuse
- Safety and fire resistance

Heating cable construction



Inconel 600 Heating Cable

Cable Sheath Material	Inconel 600
Cable Insulation Material	MgO (Magnesium Oxide)
Cable Conductor Material	Nichrome
Supply Voltage	Up to 300/500 VAC
Withstand Voltage	2.0 kV rms ac
Insulation Resistance	1000 MΩ/1000 m (Factory pass level)
Maximum Allowable Sheath Temperature	600°C
Earth Leakage	3mA/100 m (Nominal at 20°C)
Minimum installation temperature	-60°C
Minimum bending radius	6 x OD. (Cable outside diameter) at -60°C
Approvals	Baseefa 2001 Ltd. Ex II 2 G EExe II T6 to T1 Actual T class temperature determined by design
	BAS02ATEX0046X (Units) BAS02ATEX0045U (Bulk cable) GOSGORTECHNADZOR KAZAKH GOST
Area Classification	Hazardous area, Zone 1 or Zone 2, Ordinary
Minimum cable spacing	25 mm



Technical Data

Cable Ref:	Cable Diameter (mm)	Conductor Material	Conductor Diameter (mm)	Resistance (Ω/km)	Nominal Coil Length (m)	Coil Diameter (mm)	Approx Weight (kg/km)
HIQ1M10K	3.2	Nichrome	0.37	10000	772	610	39
HIQ1M6300	3.2	Nichrome	0.47	6300	774	610	39
HIQ1M4000	3.2	Nichrome	0.59	4000	776	610	39
HIQ1M2500	3.4	Nichrome	0.74	2500	689	610	46
HIQ1M1600	3.6	Nichrome	0.93	1600	617	610	52
HIQ1M1000	3.9	Nichrome	1.17	1000	528	610	62
HIQ1M630	4.3	Nichrome	1.48	630	437	610	78
HIQ1M400	4.7	Nichrome	1.85	400	368	610	96
HIQ1M250	5.3	Nichrome	2.35	250	292	610	127
HIQ1M160	6.5	Nichrome	2.93	160	194	915	191

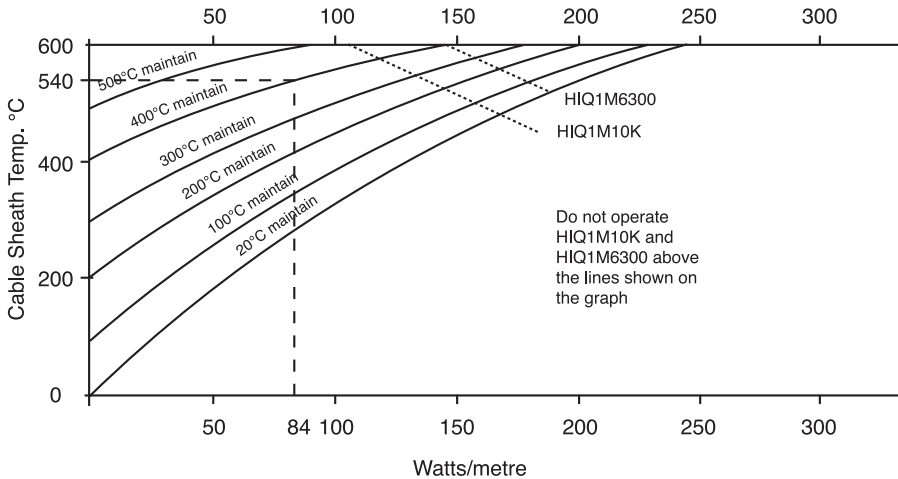
Note: All resistances shown are nominal at 20°C.

Tyco Thermal Controls requires the use of a 30 mA residual current device to provide maximum safety and protection from fire. Where there is a marked increase in nuisance tripping, a maximum 300 mA residual current device may be used.

*Also refer to the components section (pages 77) for more details on heating units, accessories and nomenclatures.

Maximum operating temperatures

Follow steps below to obtain sheath temperature guidelines from the graph, for ordinary area applications.



Rating factor table

Cable Ref.	Rating factor
HIQ1M10K	1.000
HIQ1M6300	1.000
HIQ1M4000	1.000
HIQ1M2500	0.952
HIQ1M1600	0.901
HIQ1M1000	0.840
HIQ1M630	0.769
HIQ1M400	0.714
HIQ1M250	0.645
HIQ1M160	0.538

Step 1: By design, identify cable reference to be used and calculate watts/metre rating of cable/element e.g. HIQ1M1000, 100 W/m.

Step 2: Refer to rating factor table and multiply watts/metre rating of cable/element by rating factor to obtain adjusted watts/metre value. (100 W/m x 0.840 = 84 W/m)

Step 3: Using adjusted value, enter graph on watts/metre axis and obtain cable sheath temperature for application maintain temperature. Cable sheath temperature = 540°C for 400°C maintain - see graph.

MI Heating cable sheath corrosion resistance and temperature data

Sheath Material	Maximum Cable Sheath Temp (°C)	Description	Sulphuric Acid	Hydrochloric Acid	Hydrofluoric Acid	Phosphoric Acid	Nitric Acid	Organic Acid	Alkalis	Sea Water	Chloride
Alloy 600 DIN 2.4816	600*	High nickel, high chromium content inconel alloy 600	X	X	A	X	X	GE	GE	A	GE

Note: NR Not recommended, A acceptable, GE Good to excellent, X Check for specific data

* Temperature limitation based on construction of heating element.

** Corrosion resistance data is dependent on temperature and concentration.