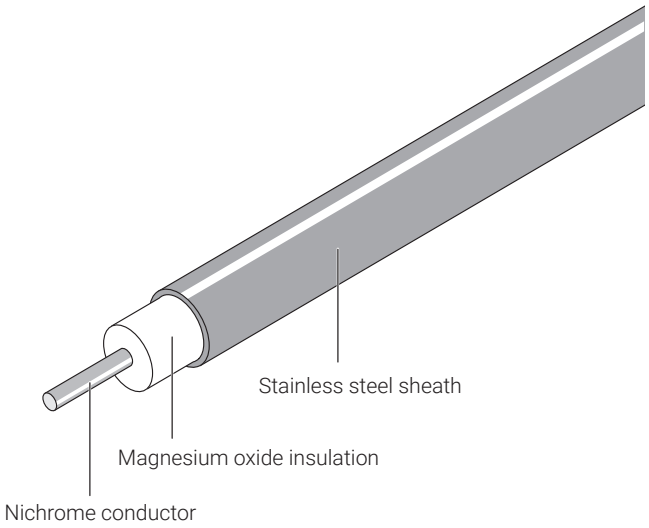
HSQ

CONNECT AND PROTECT

Mineral insulated (MI) stainless steel sheathed heating cable

PRODUCT OVERVIEW



nVent RAYCHEM HSQ mineral insulated (MI) Stainless steel series heating cables are suited for use in hazardous areas. The Stainless steel sheath offers excellent corrosive properties against a wide range of organic acids and alkalis in combination with a high temperature withstand capability. HSQ cables are typically used in bitumen plants, gas plants, oil refineries, reactors and vessels, sodium loops and a wide variety of other heat-tracing applications where temperature resistance, power output and durability are paramount. The heating cables can be used for exposure temperatures up to 680°C and a typical power output up to 150 W/m. Higher temperatures and power outputs can be achieved, contact nVent for assistance. The heating cables are offered as bulk cables as well as factory-terminated heating units employing brazing or laser welding techniques to ensure optimum quality of the connections. The offering is completed with a full range of components for installation, connection and splicing of the heating cables.

PRODUCT SPECIFICATIONS

Technical details		
Cable sheath material	321 Stainless steel	
Conductor material	Nichrome	
Max. exposure temperature	550°C (brazed heating units) 680°C* (laser welded heating units) *Higher temperatures can be realized, contact nVent	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (Uo/U) 300/500 Vac 460/600 Vac (laser welded heating units)	Max. power output* 150 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230 Vac, 50 - 60 Hz)	
Min. cable spacing	25 mm for hazardous areas	

MI series heating cables HSQ

Order Reference	Nominal Resistance (Ω/km @ 20°C)	Outer Diameter (mm)	Temp. Coefficient (x 10^{-3}/K)	Max. Coil Length [m]	Nom. Weight (kg/km)
HSQ1M10K	10000	3.2	0.09	740	39
HSQ1M6300	6300	3.2	0.09	741	39
HSQ1M4000	4000	3.2	0.09	743	39
HSQ1M2500	2500	3.4	0.09	660	46
HSQ1M1600	1600	3.6	0.09	591	52
HSQ1M1000	1000	3.9	0.09	506	62
HSQ1M630	630	4.3	0.09	419	78
HSQ1M400	400	4.7	0.09	354	96
HSQ1M250	250	5.3	0.09	280	127
HSQ1M160	160	6.5	0.09	187	191

Recommended cold leads for HSQ MI series heating cables

Cold Lead Code	Sheath Material	Current Rating (A)	Voltage Rating (Vac)	No. of Conductors	Design*	Cable O.D. (mm)	Pigtail Size (mm^2)	Gland Size
S33A	Alloy 825	33	600	1	B	5.5	3.3	M25
S55A	Alloy 825	55	600	1	B	6.4	8.4	M25
SC33A	Stainless steel	33	600	1	B	5.5	3.3	M25
SC55A	Stainless steel	55	600	1	B	6.4	8.4	M25

* For details on the different heating unit designs, refer to chapter MI heating Systems - MI heating Cables in the Databook (reference DOC2210)

Nickle plated brass glands are standard on all heating units. Other materials are possible, contact nVent for more information.

Cold leads attached to HSQ heating cables are provided with an Alloy 825 outer sheath when the joint connection method is brazed or SS321 sheath when the connection method is laser welded. As the cold lead is an exposed component, not protected by insulation, it can be subject to extremely variable corrosive environments. The Alloy 825 sheath provides enhanced life expectancy with a superior level of corrosion protection against a wide range of exposure conditions.

By default, all cold leads are supplied with M25 glands intended for use with a standardized range of nVent RAYCHEM MI junction boxes which include an integral earth plate. Delivery length of bulk cable on coil depends on type of resistance and is limited by max. coil length as indicated in the table on top. Factory terminated elements are limited by a max. weight of 50 kg, however to ensure practical and safe on-site handling, it is strongly recommended to limit element lengths to 25 - 30 kg. Not all resistances are standard items and as such may not be in stock. Contact nVent to confirm lead time. nVent requires the use of a 30 mA residual current device to provide maximum safety and protection from fire.

Where design results in higher leakage current, the preferred trip level for adjustable devices is 30 mA above any inherent capacitive leakage characteristic of the heater as specified by the trace heater supplier or alternatively, the next common available trip level for non adjustable devices, with a maximum of 300 mA. All safety aspects need to be proven.

Also refer to the components section for more details on heating units, accessories and nomenclatures.

Table 3 Chemical resistance

Sheath Material	Description	Sulphuric Acid	Hydrochloric Acid	Hydrofluoric Acid	Phosphoric Acid	Nitric Acid	Organic Acid	Alkalis	Sea Water	Chloride
Stainless Steel 321 DIN 1.4541	18/8 austenitic stainless steel with added titanium	NR	NR	NR	NR	X	GE	A	NR	NR

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.

APPROVALS

For use in ordinary and hazardous area Zone 1 and Zone 2 (Gas), Zone 21 and Zone 22 (Dust)

Temperature Classification

T6 ... T1

nVent RAYCHEM heat-tracing products are approved for the listed temperature classifications by using the principles of stabilized design. Use TraceCalc design software or contact nVent.

Product certification

More details about product certification, approvals and conditions of safe use are available in the installation manual at www.nVent.com/RAYCHEM.

ORDERING INFORMATION

- Due to the sensitivity & craftsmanship required to assemble an MI heating unit, they are usually purchased as factory terminated units. Refer to the "MI Heating Systems Nomenclature" datasheet for more information on the ordering references for complete units or contact your local nVent representative.
  It is strongly recommended to use nVent design software such as TraceCalc Pro to validate the design and ordering string.
- To purchase MI heating cables in bulk, refer to the tables with the cable references on page 2 in this document.

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