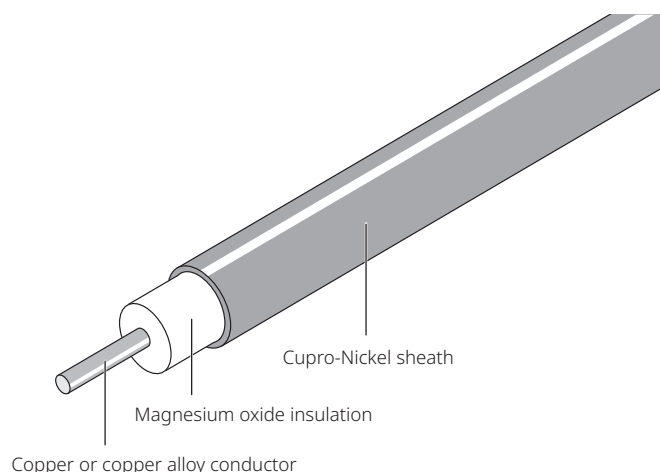


Mineral insulated Cupro-Nickel sheathed heating cable

PRODUCT OVERVIEW



Raychem HDC/HDF mineral insulated (MI) Cupro-Nickel series heating cables are suited for use in hazardous areas. They are extensively used for a wide variety of industries, such as oil and gas, chemical and petrochemical, power generation, gas storage and many other industrial applications. Cupro-Nickel heating cables with copper conductors (HDC) are available in very low resistances to allow for long line applications with a limited amount of supply points, in particular for applications exceeding the capabilities of Polymer Insulated (PI) series heating cables. The heating cables can be used for exposure temperatures up to 400°C and a typical power output up to 70 W/m. The heating cables are offered as bulk cable as well as factory-terminated heating units 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

Cable sheath material	70/30 Cupro-Nickel	
Conductor material	Copper (HDC) or Copper Alloy (HDF)	
Max. exposure temperature	400°C	
Min. installation temperature	-60°C	
Min. bending radius	6 x outer diameter at -60°C	
Max. supply voltage and power	Voltage (U0/U) 300/500 Vac	Max. power output* 70 W/m <small>*typical value, depending on application</small>
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 HDF/HDC

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)
HDF1M1600	1600	3.2	0.04	625	40
HDF1M1000	1000	3.4	0.04	550	45
HDF1M630	630	3.7	0.04	465	55
HDF1M400	400	4	0.04	400	67
HDF1M250	250	4.4	0.04	330	84
HDF1M160	160	4.9	0.04	265	108
HDC1M63	63	3.2	3.9	620	39
HDC1M40	40	3.4	3.9	550	44
HDC1M25	25	3.7	3.9	440	55
HDC1M17	17	4.6	3.9	300	84
HDC1M11	11	4.9	3.9	265	98
HDC1M7	7	5.3	3.9	225	119
HDC1M4	4	5.9	3.9	180	155

Recommended cold leads for HDF/HDC 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
S76A	Alloy 825	76	600	1	B	8.1	13.3	M25
S123A	Alloy 825	123	600	1	B	10.2	21.1	M25

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

Nickel plated brass glands are standard on all heating units. Other materials are possible, contact Chemelex for more information. Cold leads attached to cupro nickel sheathed heating cables are provided with an Alloy 825 outer sheath. 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 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 Chemelex to confirm lead time. Chemelex 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.

Chemical resistance

Sheath material	Maximum cable sheath temp (°C)	Description	Sulphuric acid	Hydrochloric acid	Hydrofluoric acid	Phosphoric acid	Nitric acid	Organic acid	Alkalies	Sea water	Chloride
Cupro-Nickel	400	Cupro-Nickel alloy 70% copper 30% nickel	NR	X	X	X	X	X	X	GE	GE

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

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

Product certification



More details about product certification, approvals and conditions of safe use are available in the installation manual for Mineral Insulated (MI) series heating systems at www.chemelex.com.

ORDERING INFORMATION

- Due to the sensitivity & required craftsmanship 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 Chemelex representative.
It is strongly recommended to use Chemelex 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 of this document.

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