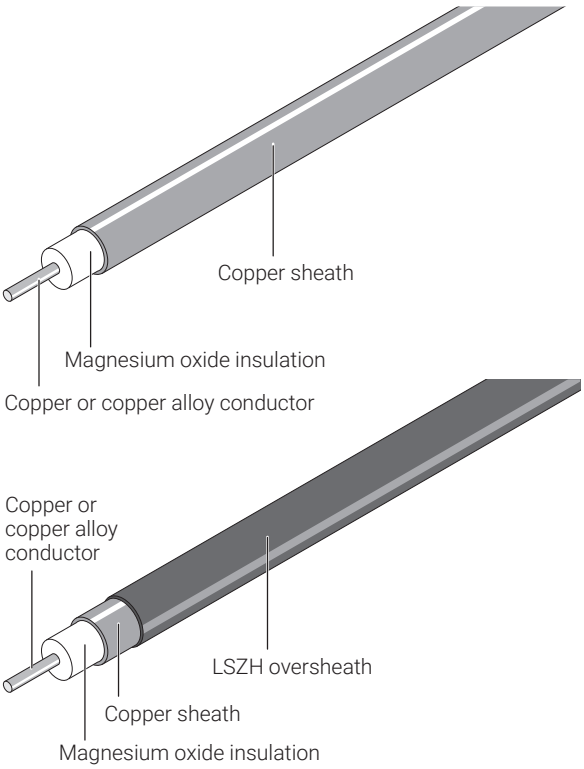
TOPNÝ KABEL S MINERÁLNÍ IZOLACÍ HCH / HCC

Mineral insulated (MI) Copper sheathed heating cable

TYPICAL CABLE CONSTRUCTIONS



nVent RAYCHEM HCH/HCC mineral insulated (MI) Copper series heating cables are suited for use in hazardous areas. They are extensively used in a wide variety of industrial heat-tracing applications, such as long line heating or condensation prevention at low temperatures, and domestic applications, such as under floor or road and ramp heating applications. The copper heating cables with copper conductors (HCC) are available in very low resistances to allow for long line applications with a limited amount of supply points when the maximum operating sheath temperature does not exceed 200°C. The typical maximum power output goes up to 50 W/m. Cables are available with an optional LSZH (Low Smoke Zero Halogen) over-sheath for enhanced corrosion protection up to 80°C, usually applied when buried in concrete. 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.

APPLICATION

Area classification	Hazardous areas*, Zone 1 or Zone 2 (Gas) or Zone 21 or Zone 22 (Dust) Ordinary areas *Cable types HCH1L2000 and HCH1L1250 can only be used in ordinary areas

APPROVALS

System (heating units)	Baseefa 13ATEX0174X	Ex II 2 G Ex 60079-30-1 db eb IIC T* Gb Ex II 2 D Ex 60079-30-1 tb IIIC T*°C Db IP6X (for * see schedule)
	IECEx BAS 13.0090X	Ex 60079-30-1 db eb IIC T* Gb Ex 60079-30-1 tb IIIC T*°C Db IP6X (for * see schedule)
	EAC Ex № ЕАЭС RU C-BE.МЮ62.B.00879/19 ООО «ПРОММАШ ТЕСТ» Ambient temp range: −60°C...+70°C	1Ex e IIC T* Gb X Ex tb IIIC T* Db X *: by design Made in Germany or Poland
	Ex e IIC 80°C~680°C Gb Ex tD A21 IP 6X T80°C~680°C	

APPROVALS

Bulk cable	Baseefa 13ATEX0173U	Ⓔx II 2 G Ex 60079-30-1 IIC Gb Ⓔx II 2 D Ex 60079-30-1 IIIC Db
	IECEx BAS 13.0091U	Ex 60079-30-1 IIC Gb Ex 60079-30-1 IIIC Db
	EAC Ex № ЕАЭС RU C-BE.МЮ62.B.00879/19 ООО «ПРОММАШ ТЕСТ» Ambient temp range: –60°C...+70°C	1Ex e IIC T* Gb X Ex tb IIIC T* Db X *: by design Made in Canada or Italy
	CCC Ex e IIC Gb	

Heating units are also approved for dust environments. Temperature classification (T-rating) has to be established by using the principles of stabilised design or the use of a temperature limiting device. Use TraceCalc design software or contact nVent

TECHNICAL DATA

Cable sheath material	Copper	
Conductor material	Copper (HCC) or Copper Alloy (HCH)	
Max. exposure temperature	200°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* 50 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

**** Note:** Cables available with optional additional oversheath for corrosion protection:
– LSZH (Max Sheath temp 80°C) – add R to the ref. (HCHR...)
For LSZH add 1.8 mm to cable OD.

MI SERIES HEATING CABLES HCH/HCC

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)
HCH1L2000(1)	2000	2.8	0.4	1200	31
HCH1L1250(1)	1250	2.8	0.4	1200	32
HCH1M800	800	3.5	0.4	900	50
HCH1M630	630	4	0.4	1100	65
HCH1M450	450	4	0.4	1000	67
HCH1M315	315	4.3	0.4	1000	77
HCH1M220	220	4.5	0.4	1000	85
HCH1M140	140	4.9	0.4	1000	102
HCH1M100	100	5.2	0.4	800	125
HCC1M63	63	3.2	3.9	2000	41
HCC1M40	40	3.4	3.9	2000	46
HCC1M25	25	3.7	3.9	1600	56
HCC1M17	17	4.6	3.9	500	85
HCC1M11	11	4.9	3.9	500	98
HCC1M7	7	5.3	3.9	400	118
HCC1M4	4	5.9	3.9	800	150
HCC1M2.87	2.87	6.4	3.9	650	170
HCC1M1.72	1.72	7.3	3.9	500	235
HCC1M1.08	1.08	8.3	3.9	400	326

(1) Not approved for hazardous areas, maximum 300 Vac.

RECOMMENDED COLD LEADS FOR HCH/HCC 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 (mm²)	Gland Size
C31A	Copper	31	600	1	B	5.8	2.1	M25
C41A	Copper	41	600	1	B	7	3.3	M25
C54A	Copper	54	600	1	B	6.2	5.3	M25
C70A	Copper	70	600	1	B	7.6	8.4	M25
C94A	Copper	94	600	1	B	8.6	13.3	M25
C127A	Copper	127	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 DOC-2210)

Nickel plated brass glands are standard on all copper sheathed heating units. Other materials are possible, contact nVent for more information. If a cold lead has an LSZH oversheath, the C in the order reference becomes an R. (example : C31A becomes R31A)

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 50kg, however to ensure practical and safe on-site handling, it is strongly recommended to limit element lengths to 25 - 30kg. 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.

CHEMICAL RESISTANCE

Sheath Material	Maximum Cable Sheath Temp (°C)	Description	Sulphuric Acid	Hydro-chloric Acid	Hydro-fluoric Acid	Alkalis	Phosphoric Acid	Sea Water	Nitric Acid	Chloride	Organic Acid
Copper-LSZH	80	Copper with Low Smoke Zero Halogen oversheath	GE	GE	A	A	A	NR	A	A	
Copper	200	Copper	NR	NR	A	A	NR	A	A	NR	X

Note: NR Not recommended, A acceptable, GE Good to excellent, X Check for specific data.
Corrosion resistance data is dependent on temperature and concentration.