

MI HEATING SYSTEMS NOMENCLATURE

RAYCHEM

MI HEATING CABLES

TYPICAL CABLE CONSTRUCTIONS

Single conductor cable

Heating conductor(s)

Dual conductor cable

Insulation (magnesium oxide)

nVent RAYCHEM MI heating cables are available for a wide range of applications.

For more details about the different MI heating cable types, also refer to the product datasheets.

VARIOUS CONSTRUCTIONS OF THE MI BULK HEATING CABLES ARE AVAILABLE:

HCC/HCH:	Copper sheathed MI heating cables
HDF/HDC:	Cupro-nickel sheathed MI heating cables
HSQ:	Stainless steel sheathed MI heating cables
HAX:	Alloy 825 sheathed MI heating cables
HIQ:	Inconel sheathed MI heating cables

MI BULK HEATING CABLES ARE SUPPLIED IN A RANGE OF DIFFERENT CONSTRUCTIONS, THE PRODUCT REFERENCES USE THE FOLLOWING NOMENCLATURE:

Example: HCHR1L2000-RD

H	H denotes a heating cable	H =Heating Cable
C	Sheath material	C =Copper D =Cupro-Nickel S =Stainless steel A =Alloy 825 I =Inconel 600
H	Conductor material (examples)	C =Copper H =Copper Alloy and a variety of other metal alloys
R	Oversheath material (optional for copper cables only, oversheath colour is red)	R =LSZH
1	Number of conductors	1 or 2
L	Normal operating voltages	Refer to datasheets of individual heating cables
2000	Conductor resistance	in Ω/km - i.e. 2000=2000 Ω/km

MI HEATING UNITS

MI heating units consist of a heating cable, the hot-cold joint as well as the cold lead cables with an appropriate seal and gland. The connection and sealing of an MI heating unit is critical for a safe and reliable operation.

nVent strongly recommends the use of factory-terminated heating units, which guarantee a consistently high level of quality. The stainless steel (HSQ), Inconel 600 (HIQ) and Alloy 825 (HAX) can be delivered with either brazed joints and/or end caps or laser welded joints and/or end caps. We recommend the use of laser welded joints and/or end caps if the load or exposure temperatures cause element temperatures above 550°C.

Lower temperatures can be fulfilled with brazed connections. (Alloy 825 heating cables or cold leads should not be used at temperatures between 650°C and 750°C).

When brazed connections are used, nVent offers heating units with Alloy 825 cold leads regardless of the sheath material used to obtain maximum corrosion resistance on the exposed parts. (except copper heating cables which are offered with a copper cold lead) Brazed heating units also come with an additional strain relief for bending protection on the heating cable side.

When laser welded connections are used, we offer either stainless steel cold leads when stainless steel heating cables have been selected or Alloy 825 cold leads if Inconel or Alloy 825 heating cables are the choice.

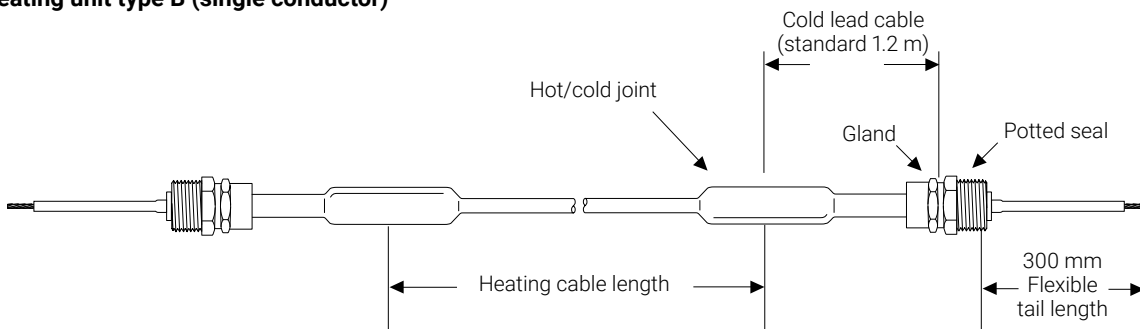
The standard gland material is nickel plated brass but they are also available in stainless steel. The gland size is M25 for all cold lead sizes.

Appropriate earthing of the heating units is realized through the glands and use of junction boxes with integral earth plate or metallic junction boxes. Consult our product literature for more information on our junction box offering with integral earth plates.

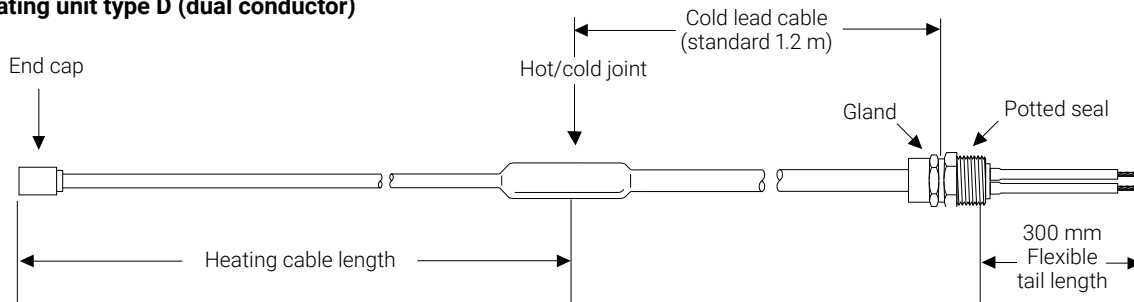
For use in hazardous areas, MI heating units need to be assembled by nVent or an authorized installer.

MI HEATING UNITS ARE AVAILABLE IN DIFFERENT CONFIGURATIONS (UNIT TYPES)

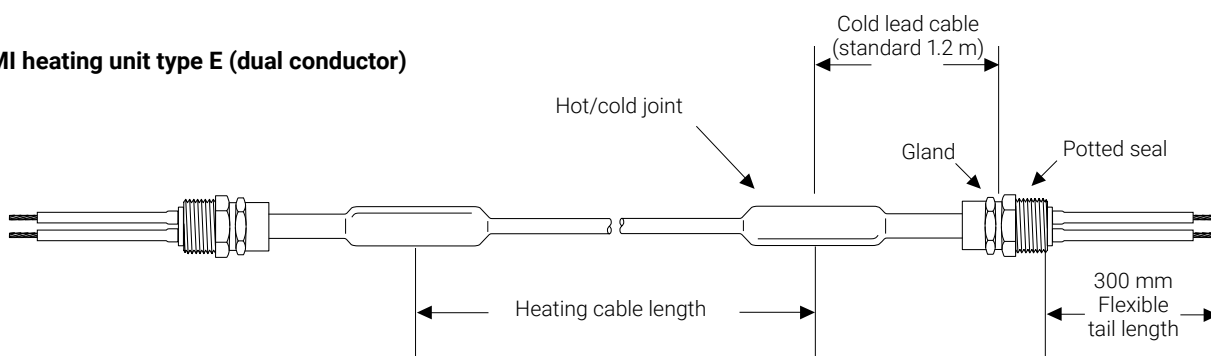
MI heating unit type B (single conductor)



MI heating unit type D (dual conductor)



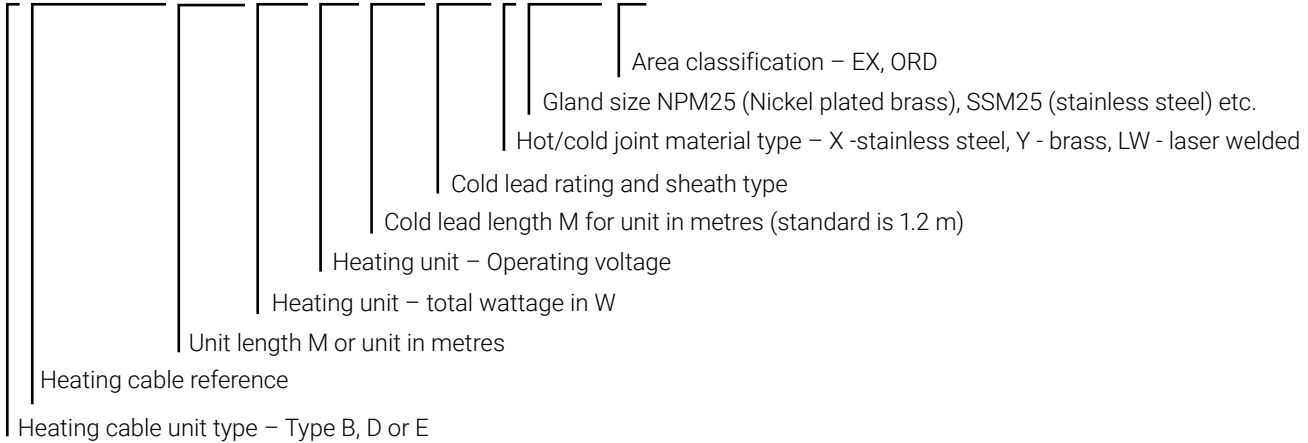
MI heating unit type E (dual conductor)



The cold lead length includes 300 mm long flexible tails. Glands are fitted with washers and locknuts. Other configurations available on request.

THE ORDER REFERENCE OF MI HEATING UNITS USES THE FOLLOWING NOMENCLATURE

B/HSQ1M1000/43.0M/1217/230/1.2M/S33A/X/NPM25/EX



When ordering, the complete order reference of the MI heating unit needs to be provided. For hazardous areas, information must also be provided about the T-rating and temperature data relevant to the application (max. sheath temperature data) to enable the correct representation of data on hazardous area tags attached to the completed heating unit in the factory.

Any missing detail may lead to potential delays in order processing.

SELECTION OF MI COLD LEADS

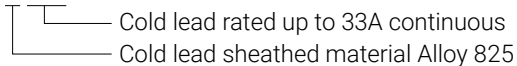
Standard cold leads consist of 1.2m of mineral insulated cold lead cable and 300mm of stranded flex tails. The glands are always M25 and the standard gland material nickel plated brass.

Earthing of the units is realized through the glands and use of junction boxes with earth plate or metallic junction boxes. The cold leads do not have an integrated earth wire.

(alternatively earth lugs can also be used if the junction boxes are in plastic without earth plate – contact nVent for more information) Optionally stainless steel glands or different cold lead lengths are also available but will increase lead time. Contact nVent for more information for a specific request.

The reference of a cold lead always consists of one or 2 letters indicating the sheath material and a number followed by 'A' indicating the maximum continuous current rating.

And example : S 33A



Raychem MI cold lead cables are available in different sheath materials:

- S...A : Alloy 825 sheathed cold lead
- SC...A : Stainless steel sheathed cold lead
- C...A : Copper sheathed cold lead

For selection of the MI cold lead, the environmental exposure (chemicals etc...), as well as the current rating need to be considered :

- nVent typically recommends using the same or superior sheath materials for the cold lead as used for the heating cable. When a unit is brazed, nVent default cold lead is in Alloy 825 to offer maximum corrosion protection on the most exposed part. (except for copper heating units for which the cold leads are also copper sheathed or overjacketed)

When a unit is laser welded (available for stainless steel, Alloy 825 and Inconel sheathed cables), nVent will offer an Alloy 825 cold lead on both Inconel and Alloy 825 heating units and a stainless steel cold lead on a stainless steel unit.

- Cold leads are normally selected based on the operating current of the heating unit at maintain temperature. For higher maintain temperatures, the current can be significantly higher during the transitional start-up phase.

If the application involves more frequent heat-up from lower temperatures, we recommend selecting the cold lead size based on the start-up

The option for laser welded units is not available for MI heating cables with a copper or cupro-nickel sheath.

COLD LEAD SELECTION TABLE

Number of conductors	Cross section of pigtail (mm ²)	Cold lead order reference	Current rating (A)	Connection method (LW : Laser welded / B : Brazed)	Outer diameter (mm)	Sheath material	Gland size
1	3.3	C33A SC33A S33A	33	B LW B or LW	5.5	Copper Stainless steel Alloy 825	M25
	8.4	C55A SC55A S55A	55	B LW B or LW	6.4	Copper Stainless steel Alloy 825	
	13.3	C76A S76A	76	B B or LW	8.1	Copper Alloy 825	
	21.2	C123A S123A	123	B B or LW	10.2	Copper Alloy 825	
2	2.1	LS28A** S28A	28	B or LW B or LW	8.1 9	Alloy 825	M25
	5.3	S41A	41	B or LW	10.2	Alloy 825	
	8.4	S57A	57	B or LW	12.6	Alloy 825	
	13.3	S77A	77	B or LW	13.8	Alloy 825	

** Cold lead is limited up to 300Vac

For over jacketed cables (copper sheathed only), add 2mm to the outer diameter

Nickel plated brass glands are standard on all heating units. Optionally glands in stainless steel are also available.