Heating Group International
Bijsterhuizen 5118
6604 LX Wijchen
The Netherlands

Construction of mineral insulated cables, units and sensors

Mineral insulated cables and units and sensors, are made up of a metal conductor or conductors embedded in an inorganic insulant of compacted ceramic, typically, magnesium oxide powder inside a metal sheath. The inorganic nature of the construction enables the cables to operate for long periods of time at high temperatures or in extremely harsh environments e.g. petro-chemical, reactor vessels, automotive and other applications where the integrity of the cable is most important.

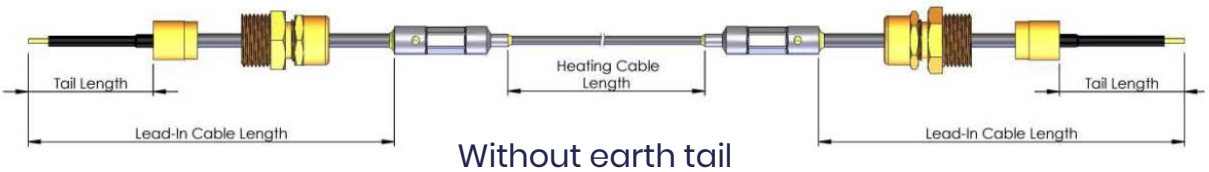
Operating temperatures

Operating temperature of mineral insulated cables vary over a wide range on temperatures from cryogenic up to 1300°C, depending on materials used in the cable or sensor and methods of the unit or sensor assembly. For details, please, see relevant chapter below.

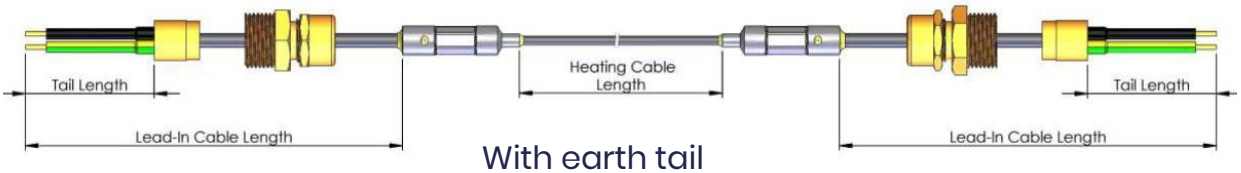
Heating Units Design Types

Design B

Single core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath



Without earth tail



With earth tail

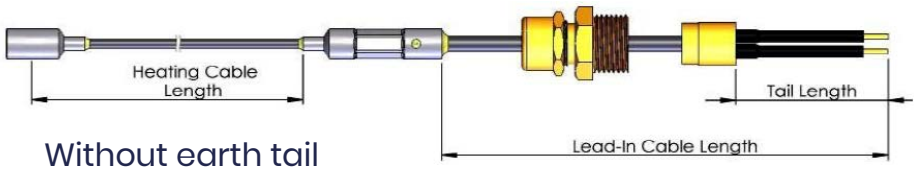
Single core heating cable with Copper sheath bare (right) or HDPE served (left)

Without earth tail

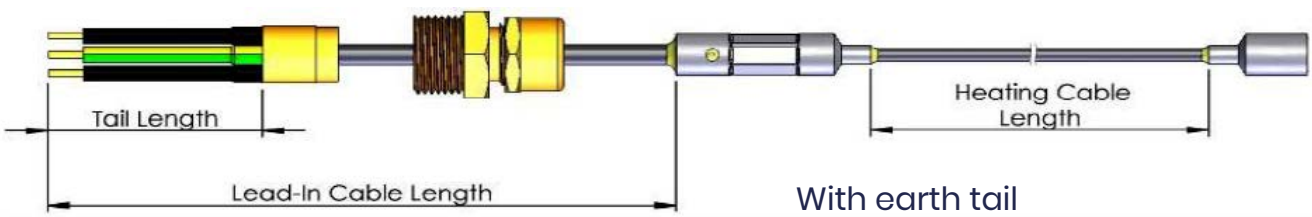
With earth tail

Design D

Twin core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath



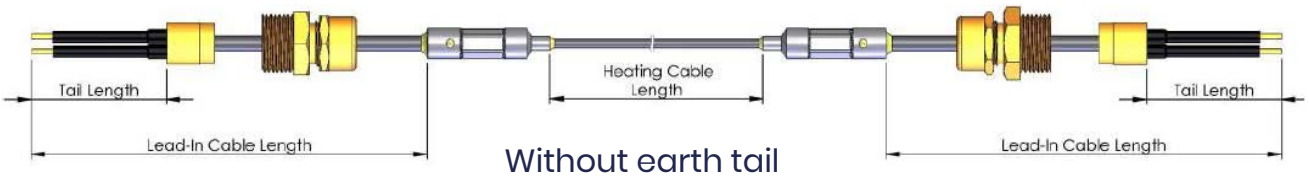
Without earth tail



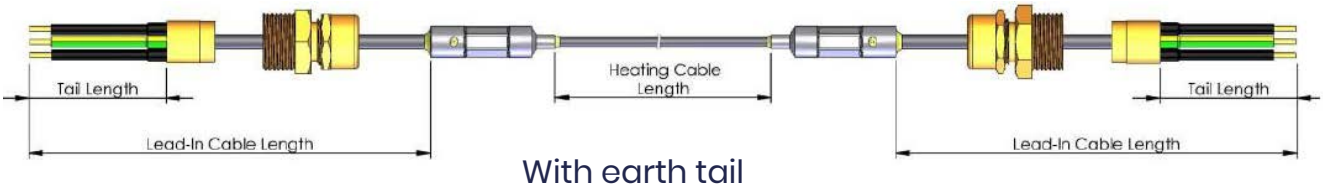
With earth tail

Design E

Twin core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath



Without earth tail



With earth tail

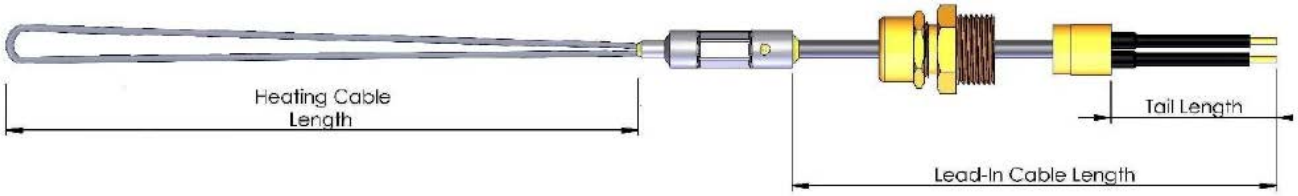
Twin core heating cable with Copper sheath bare (right) or HDPE served (left)

Without earth tail

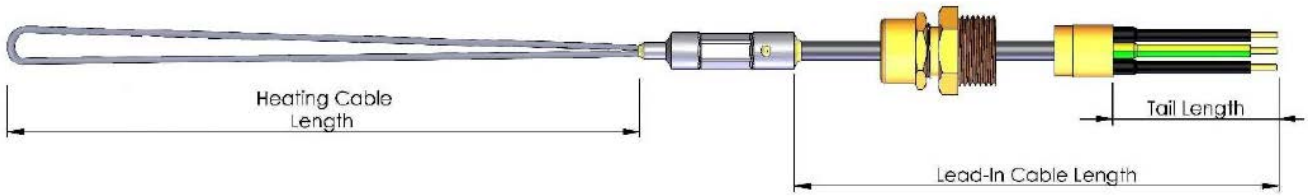
With earth tail

Design U

Single core heating cable with Stainless Steel, Cupronickel or Nickel alloy sheath



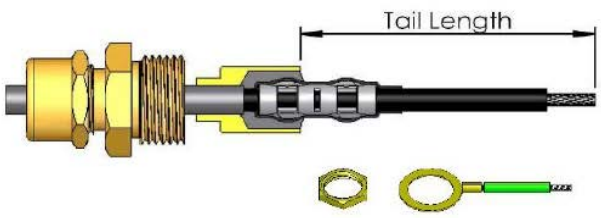
Without earth tail



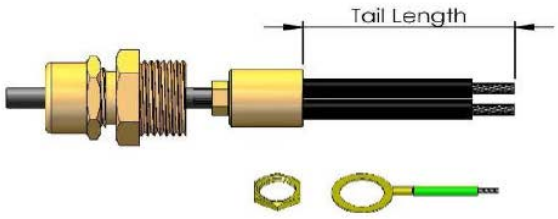
With earth tail

Termination Types

TYPE 1



Single core cable

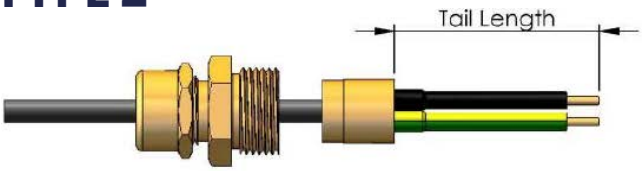


Twin core cable

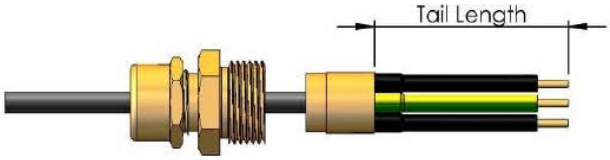
Seal reference	T1
Description	ATEX approved seal for use in hazardous area terminations
Conductor Type	Flexible
Earth tail type	Flexible earth tag with locknut
Pot type	Crimp on pot
Gland thread	M20x1.5 Other sizes on request
Sealant	Epoxy resin

Standard tail lengths: 250 mm, other lengths on request

TYPE 2



Single core cable

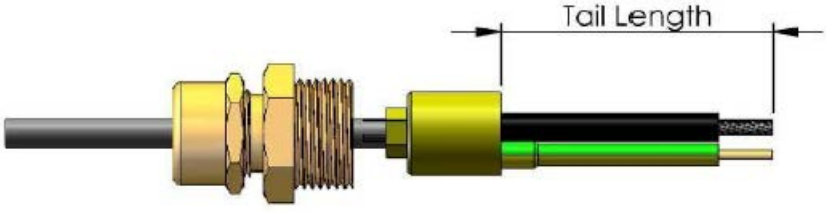


Twin core cable

Seal reference	T2
Description	ATEX approved seal for use in hazardous area terminations
Conductor Type	Solid
Earth tail type	Solid
Pot type	Braze on pot
Gland thread	M20x1.5 Other sizes on request
Sealant	TRMX compound

Standard tail lengths: 250 mm, other lengths on request

TYPE 3



Seal reference	T3
Description	Wiring cable flexible tail seal
Conductor Type	Flexible
Earth tail type	Solid
Pot type	Crimp on pot with earth tail
Gland thread	M20x1.5 Other sizes on request
Sealant	Epoxy resin

Heating cables ranges

Notes:
- Unless specified otherwise, conductor resistance in tables below is subject to ± 10% tolerance on shown nominal.
- Other sheath materials on request

Single core heating cables with stainless steel, Inconel 600 and alloy 825 sheath
European 500 V rated range
ATEX & EAC certified

Cable Reference			Cable diameter over metal sheath	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
AISI 321 Sheath	Inconel 600 Sheath	Alloy 825 Sheath	mm	Ohm/m	mm^2	mm	T1_ &	T2_ or T3_ &
H321-A10K	H600-A10K	H825-A10K	3.20	10.000	2.50	5.30	1H2.5-20	1H2.5-20
H321-A6300	H600-A6300	H825-A6300	3.20	6.300	2.50	5.30	1H2.5-20	1H2.5-20
H321-A4000	H600-A4000	H825-A4000	3.20	4.000	2.50	5.30	1H2.5-20	1H2.5-20
H321-A2500	H600-A2500	H825-A2500	3.40	2.500	2.50	5.30	1H2.5-20	1H2.5-20
H321-A1600	H600-A1600	H825-A1600	3.60	1.600	2.50	5.30	1H2.5-20	1H2.5-20
H321-A1000	H600-A1000	H825-A1000	3.90	1.000	2.50	5.30	1H2.5-20	1H2.5-20
H321-A630	H600-A630	H825-A630	4.30	0.630	2.50	5.30	1H2.5-20	1H2.5-20
H321-A400	H600-A400	H825-A400	4.70	0.400	2.50	5.30	1H2.5-20	1H2.5-20
H321-A250	H600-A250	H825-A250	5.30	0.250	6.00	6.40	1H6.0-20	1H6.0-25
H321-A160	H600-A160	H825-A160	6.50	0.160	6.00	6.40	1H6.0-20	1H6.0-25

Twin core heating cable with Inconel 600 and stainless steel sheath
European 500 V rated range
ATEX certified

Cable Reference		Cable diameter over metal sheath	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
Inconel 600 Sheath	AISI 321 Sheath	mm	Ohm/m	mm^2	mm	T1_ &	T2_ &
H600-2A11K	H321-2A11K	4.80	22.00	2.50	8.70	2H2.5-20	2H2.5-20
H600-2A6500	H321-2A6500	5.30	13.00	2.50	8.70	2H2.5-20	2H2.5-20
H600-2A3300	H321-2A3300	5.70	6.600	2.50	8.70	2H2.5-20	2H2.5-20
H600-2A1650	H321-2A1650	6.50	3.300	2.50	8.70	2H2.5-20	2H2.5-20
H600-2B1150	H321-2B1150	6.00	2.300	2.50	8.70	2H2.5-20	2H2.5-20

Single core heating cables with cupronickel and stainless steel sheath
European 500 V rated range

ATEX & EAC certified

Cable Reference			Cable diameter over metal sheath	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
Cupronickel Sheath	AISI 321 Sheath	AISI 316L * Sheath	mm	Ohm/m	mm^2	mm	T1_ &	T2_ or T3_ &
H400-B1600	H321-B1600	H316L-B1600	3.20	1.600	2.50	5.30	1H2.5-20	1H2.5-20
H400-B1000	H321-B1000	H316L-B1000	3.40	1.000	2.50	5.30	1H2.5-20	1H2.5-20
H400-B630	H321-B630	H316L-B630	3.70	0.630	2.50	5.30	1H2.5-20	1H2.5-20
H400-B400	H321-B400	H316L-B400	4.00	0.400	2.50	5.30	1H2.5-20	1H2.5-20
H400-B250	H321-B250	H316L-B250	4.40	0.250	2.50	5.30	1H2.5-20	1H2.5-20
H400-B160	H321-B160	H316L-B160	4.90	0.160	6.00	6.40	1H6.0-20	1H6.0-20
H400-C63	H321-C63	H316L-C63	3.20	0.063	2.50	5.30	1H2.5-20	1H2.5-20
H400-C40	H321-C40	H316L-C40	3.40	0.040	2.50	5.30	1H2.5-20	1H2.5-20
H400-C25	H321-C25	H316L-C25	3.70	0.025	6.00	6.40	1H6.0-20	1H6.0-25
H400-C17	H321-C17	H316L-C17	4.60	0.017	6.00	6.40	1H6.0-20	1H6.0-25
H400-C11	H321-C11	H316L-C11	4.90	0.011	6.00	6.40	1H6.0-20	1H6.0-25
H400-C7	H321-C7	H316L-C7	5.30	0.007	10.00	7.30	1H10-20	1H10-25
H400-C4	H321-C4	H316L-C4	5.90	0.004	16.00	8.30	1H16-20	1H16-25

* not ATEX certified

Twin core heating cable with cupronickel sheath
Standard European 500 V rated range

ATEX certified

Cable Reference	Cable diameter over metal sheath	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
Cupronickel Sheath	mm	Ohm/m	mm^2	mm	T1_ &	T2_ &
H400-2B1250	5.70	2.500	2.50	8.7	2H2.5-20	2H2.5-20
H400-2B800	6.00	1.600	2.50	8.7	2H2.5-20	2H2.5-20
H400-2B500	6.70	1.000	2.50	8.7	2H2.5-20	2H2.5-20
H400-2B315	7.40	0.630	2.50	8.7	2H2.5-20	2H2.5-20
H400-2B160	8.80	0.320	6.00	10.9	2H6.0-20	2H6.0-25
H400-2B80	10.80	0.160	6.00	10.9	2H6.0-20	2H6.0-25

Single core heating cables with copper sheath bare and HDPE served European 500 V rated range

ATEX & EAC certified

Cable Reference		Cable diameter over metal sheath	Cable diameter over HDPE	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
Bare	HDPE served	mm	mm	Ohm/m	mm^2	mm	T1_ &	T2_ or T3_ &
H122-D2000-300V *	H122-D2000-300V-H *	2.80	4.60	2.000	2.50	5.30	1H2.5-20	1H2.5-20
H122-D1250-300V *	H122-D1250-300V-H *	2.80	4.60	1.250	2.50	5.30	1H2.5-20	1H2.5-20
H122-D800	H122-D800-HDPE	3.50	5.300	0.800	2.50	5.30	1H2.5-20	1H2.5-20
H122-D630	H122-D630-HDPE	4.00	5.80	0.630	2.50	5.30	1H2.5-20	1H2.5-20
H122-D450	H122-D450-HDPE	4.00	5.80	0.450	2.50	5.30	1H2.5-20	1H2.5-20
H122-D315	H122-D315-HDPE	4.30	6.10	0.315	2.50	5.30	1H2.5-20	1H2.5-20
H122-D220	H122-D220-HDPE	4.50	6.30	0.220	2.50	5.30	1H2.5-20	1H2.5-20
H122-D140	H122-D140-HDPE	4.90	6.70	0.140	2.50	5.30	1H2.5-20	1H2.5-20
H122-D100	H122-D100-HDPE	5.20	7.00	0.100	2.50	5.30	1H2.5-20	1H2.5-20
H122-C63	H122-C63-HDPE	3.20	5.00	0.063	2.50	5.30	1H2.5-20	1H2.5-20
H122-C40	H122-C40-HDPE	3.40	5.20	0.040	2.50	5.30	1H2.5-20	1H2.5-20
H122-C25	H122-C25-HDPE	3.70	5.50	0.250	6.00	6.40	1H6.0-20	1H6.0-25
H122-C17	H122-C17-HDPE	4.60	6.40	0.017	6.00	6.40	1H6.0-20	1H6.0-25
H122-C11	H122-C11-HDPE	4.90	6.70	0.011	6.00	6.40	1H6.0-20	1H6.0-25
H122-C7	H122-C7-HDPE	5.300	7.10	0.007	10.00	7.30	1H10-20	1H10-25
H122-C4	H122-C4-HDPE	5.90	7.70	0.004	16.00	8.30	1H16-20	1H16-25

* 300V rated cable. The rest of the range 500V rated

Twin core heating cable with copper sheath European 500 V rated range

ATEX certified

Cable Reference		Cable diameter over metal sheath	Cable diameter over HDPE	Conductor resistance at 20 °C (nominal)	Typical lead-in cable conductor area	Typical lead-in cable diameter	Seal reference	
Bare	HDPE served	mm	mm	Ohm/m	mm^2	mm	T1_ &	T2_ &
H122-2D800	H122-2D800-HDPE	6.00	7.80	1.600	2.50	8.70	2H2.5-20	2H2.5-20
H122-2D500	H122-2D500-HDPE	6.50	8.30	1.000	2.50	8.70	2H2.5-20	2H2.5-20
H122-2D315	H122-2D315-HDPE	7.20	9.00	0.630	2.50	8.70	2H2.5-20	2H2.5-20
H122-2D200	H122-2D200-HDPE	8.00	9.80	0.400	2.50	8.70	2H2.5-20	2H2.5-20
H122-2D100	H122-2D100-HDPE	9.70	11.50	0.200	2.50	8.70	2H2.5-20	2H2.5-20

Heating Group International

Heating Group International always guarantees the right temperature by means of electric heating. You can see this as our mission, which goes beyond the delivery of products. It is our expertise from engineering up to and including commissioning which makes the difference between a product and a solution. With a trustworthy heater we guarantee the continuity of your processes.

In addition to the hundreds of duct heaters, finned tube heaters and convector heaters that we manufacture per year, especially for residential/ commercial and shipbuilding, we now also produce five to ten industrial heaters a week on average. Particularly because of our Quicknovation method we are able to build a (semi)bespoke heater much faster than the average in the market. This is clearly appreciated by the market, judging by the continuous large increase in our revenue over the past years.

HEATING GROUP
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WHEN RELIABILITY MATTERS!

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