



Heating Element

Minimum bending radius: 3 x OD

Twin core with and without cold ends, with tip swaging

The twin core heating elements are usually recommended for:

Low wattage applications (generally lower than 200 W),

Low power supply.

It is advised not to have a heating length longer than 2 m. Please consult us.

The main advantage of the twin core heating element is that:

The conductors come off the sheath at only one end, this makes it easier to install in systems requiring compactibility or gas tightness.

Similar to the single core, they can be produced in 3 version:

Without cold ends

- 2 NcNc type: Constant power
- 2 BaBa type: Self-regulated

With cold end

- 2 ZE type

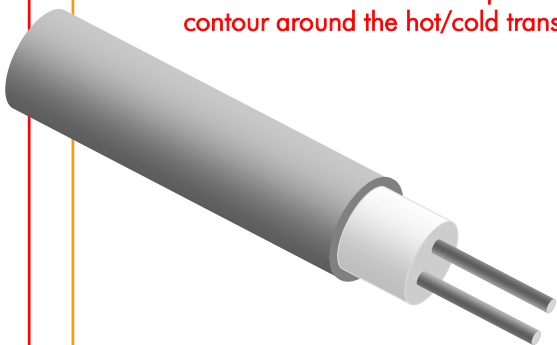
This type should be used when the linear power is higher than 100 W/m or the end has to pass through an insulated wall.

With tip swaging

- 2 NcNc, 2 BaBa, 2 ZE types

The larger diameter is considered to be the cold part and therefore the power in the heated length can be increased.

Continuous sheath without joint or flush contour around the hot/cold transitions.



Standard types

Sheath material	OD in mm	2 NcNc	2 BaBa	2 ZE	
				Hot part	Cold part
Line resistance in ohms/m at 20°C*					
Stainless steel (Ac) or Inconel® (I)	0.5	330	-	-	-
	1.0	82	16	62.5	< 5.80
	1.5	35.5	7.1	27.8	< 2.50
	2.0	20.5	4	15.6	< 1.40
	2.5	13.1	-	10	< 0.75
	3.0	9.1	-	6.9	< 0.37
	4.0	5.1	-	3.9	< 0.22

Maximum voltage

The voltage is determined by calculation. However, it must be limited at 110V for diameters 1 and 1.5 mm and to 220/380 V for larger diameters.

When temperature exceeds 600°C, it is advisable to use an isolating transformer.



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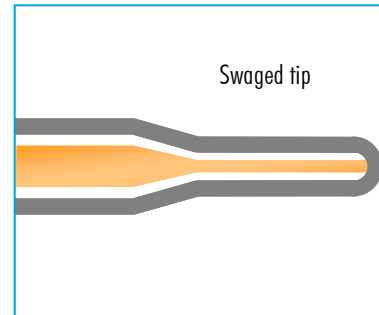
Swaging

To increase the dissipated power without excessively heating up the connectors, a solution with swaging could be the answer.

Swaged tip allows multiplication of the power by a factor of 4. In this case, the end of the cable is normally grounded. The ratio between the diameters is 1 to 2.

This solution can be used when the power supply does not exceed 48 VDC or 24 VAC.

The purpose of the swaged tip is to double or to quadruple the power of the element.



Connection to supply cable

The THERMOCOAX heating elements are designed to work in very diverse and severe conditions.

Our connection range covers this diversity and the specific requirements of any applications.

The most common used connectors are issued from the plastic range where the maximum working temperature is 200°C and the metal/ceramic range where temperature can reach 600°C and operate in vacuum down to 10⁻⁹ bars.

More details are given in data sheet **E185**.



Seal glands and bushings

Any form of brazing or welding of a heating element through a wall requires some skill, and to facilitate the mounting, a range of small seal-glands have been developed and adopted for the standard THERMOCOAX dimensions.

More details are given in data sheet **E186**.



THERMOLOK seal gland



Bushing

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More information in the brochure
« How to choose your heating element »