



# Heating Element

Single core self-regulated: 1 N and 1 Ba types

Minimum bending  
radius: 3 x OD

- Nickel core: 1 N type
- Balco® core : 1 Ba type

The THERMOCOAX heating elements are used for applications which require relatively low powers (from tens to hundreds of watts) and particularly for de-icing components on aircraft.

The increase in resistance of nickel or Balco with the temperature allows limitation of temperature without a thermostat or regulator.

The sheath and the insulant are identical to the 1NC type heating element (Data sheet E179). Only the nature of the core is different: nickel or Balco (nickel alloy).

## Materials

**Core:** nickel or Balco®

**Insulant:** highly compacted mineral powder.

**Sheath:** continuous over the complete length, stainless steel (Ac) or Inconel® 600 alloy (I), without any joints, flush contour around the hot/cold transitions..



## Standard types

Sheath material	O.D. in mm	1N		1Ba	
		Line resistance in ohms/m at 20°C*			
		at 20°C	at 600°C	at 20°C	at 600°C
Stainless steel (Ac) or Inconel® (I)	0.5	5	24	-	-
	1.0	1.2	6	4	19
	1.5	0.53	2.5	1.8	8
	2.0	0.3	1.5	1	5

The characteristics are also identical to the 1NC type except for the line resistance which varies with temperature.

As for the nickel-chromium heating elements, the thermal dissipation can be diminished at the ends and particularly at the connectors by means of a median swaging or on the tip with earth return.

These elements can be manufactured on request subject to minimum economic batch quantities.



## Heating elements

Single core with cold ends: TET and TUT types

### Swaging

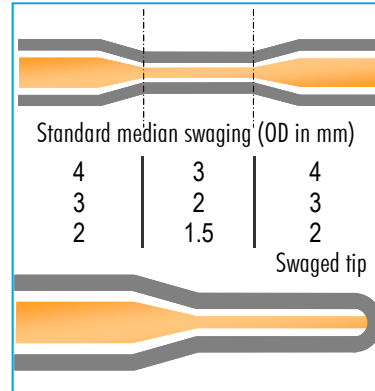
To increase the dissipated power without excessively heating up the connectors, a solution with swaging could be the answer.

**Median swaging** allows the power to be doubled. Numerous combinations of diameters are possible

**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<sup>-9</sup> 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

## Your Contact

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