

The background of the entire page is a blue-tinted image of a space station or satellite in orbit. Overlaid on this are several white and yellow circuit-like lines that start from the left edge and branch out towards the center and right, ending in small circles. The main title is positioned in the middle-right area, enclosed in a white box with a yellow border.

# Thermocouple, athermanous & heating wires

# THERMOCOUPLE EXTENSION CABLES

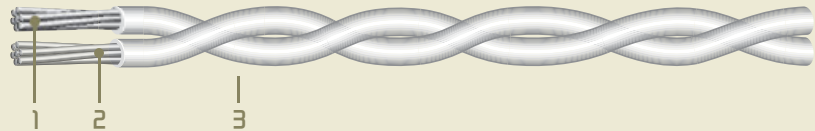
AXON' offers thermocouple extension cables to test the thermal behaviour of satellites in a vacuum chamber.

AXON' thermocouple extension cables have the following properties:

- Made with cost effective but vacuum compatible materials including bare copper, constantan® and FEP. These thermocouple extension cables can be left inside the satellite for flight.
- Accurate and reliable: AXON' thermocouple extension cables are delivered with a calibration certificate made by qualified laboratories.
- Compatible with dedicated contacts and connectors (please contact us).

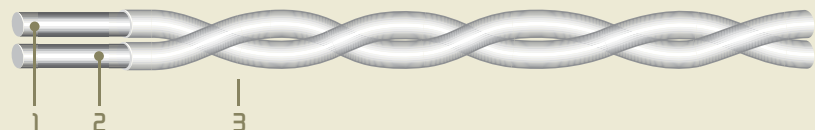
## Examples of construction

### Thermocouple extension cable 2xKT2407



- 1 - 2407 AWG Bare copper conductor,
  - 2 - 2407 AWG Constantan® (T-type) conductor (-200°C to 350°C)\*,
  - 3 - FEP insulation (colours upon request).
- Wire operating temperature: -90°C / +200°C.

### Thermocouple extension cable 2xKT2801

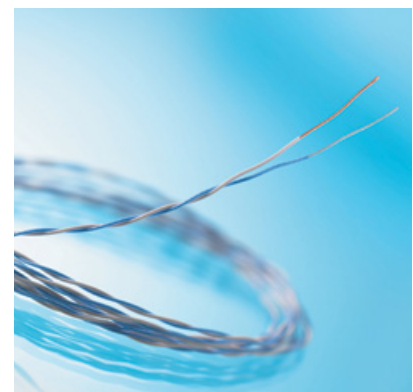


- 1 - 2801 AWG Bare copper conductor,
  - 2 - 2801 AWG Constantan® (T-type) conductor (-200°C to 350°C)\*,
  - 3 - FEP insulation (colours upon request).
- Wire operating temperature: -90°C / +200°C.

24, 26 and 30 AWG also available.  
For applications requiring very high temperatures, such as a rocket motor, other conductor materials\* can be offered:

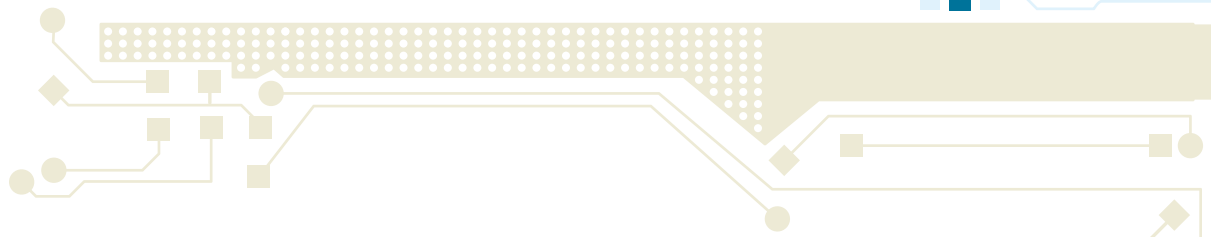
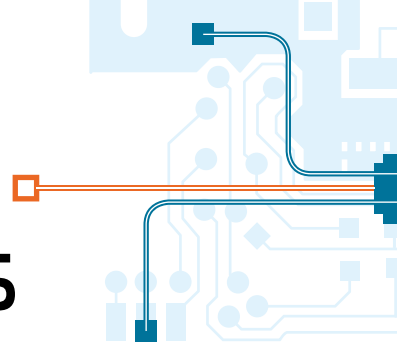
- J-type: Iron / Constantan® (-40°C to +750°C),
- E-type: Chromel® / Constantan® (-200°C to +900°C),
- N-type: Nicrosil® / Nisil® (-200°C to +1200°C).

\*: Temperature range of the thermocouple conductors.  
Wire operation temperature will depend on the insulation material used. Don't hesitate to contact us for special queries.



THERMOCOUPLE EXTENSION CABLE (COPPER / CONSTANTAN®)

# Athermanous and heating wires

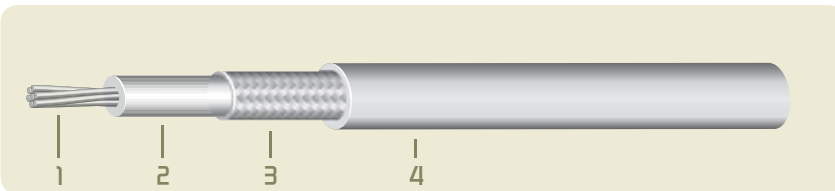


Both AXON' athermanous and heating wires have the following properties:

- Can be made with any ESCC construction available in our *ESA Wires & Cables* chapter. Custom constructions available on request.
- Compatible with dedicated contacts and connectors (please contact us).

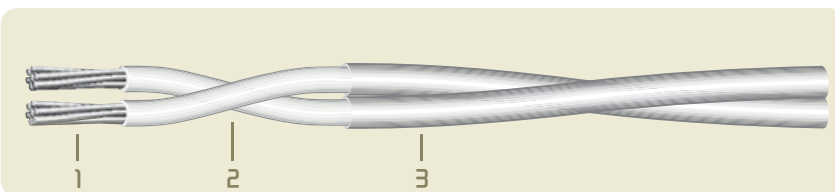
## Examples of construction

### Shielded jacketed single stainless steel wire



- 1 - Stranded stainless steel conductor,
- 2 - PTFE insulation,
- 3 - Stainless steel,
- 4 - PFA insulation.

### Twisted pair



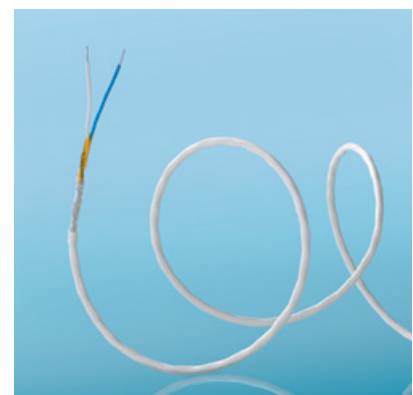
- 1 - Stranded brass conductor,
- 2 - Extruded PTFE insulation,
- 3 - Polyimide protective coating.

Designed to cover a range of thermal conductivity and linear resistance requirements, AXON' uses the following conductor types:

	Copper	Brass	Stainless steel 316L*	Kanthal
Thermal conductivity (W/mK)	400	150	15	11 (@ 50°C)
Linear resistance ( $\Omega$ .m)	$1.724 \cdot 10^{-8}$	$6.3 \cdot 10^{-8}$	$76 \cdot 10^{-8}$	$145 \cdot 10^{-8}$

\*Other grades of stainless steel are available

AXON' offers cables & wires with special thermal properties to either facilitate or reduce the transmission of heat.



ATHERMANOUS TWISTED PAIR WIRES

