



G1/2"

85

≈ 75

≈ 82

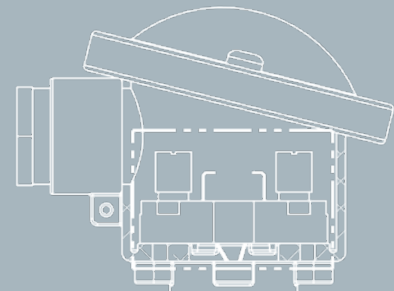
∅ 6

33

∅ 44

SENSORS CATALOGUE

TEMPERATURE MEASUREMENT IN INDUSTRIAL ENVIRONMENTS



∅ 1/2"

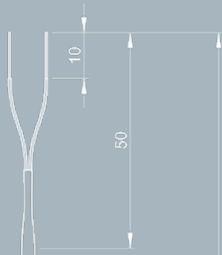
1/2

≈ 35

L3

L2

R45 ≥ ∅ 1/2"
R60 ≥ ∅ 3/4"



10

50

2000

PG7

∅ 18

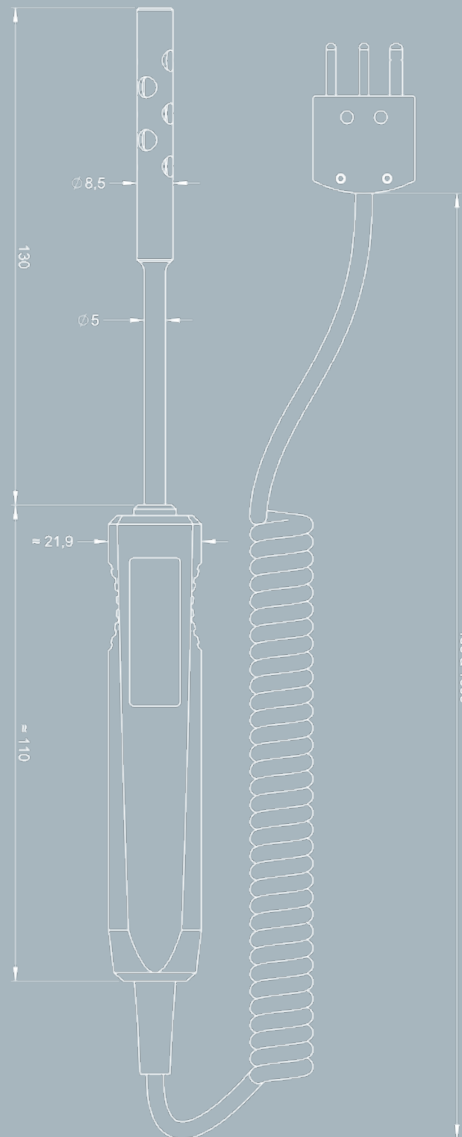
80

100

∅ 15

∅ 6,5

5



∅ 8,5

∅ 5

130

≈ 21,9

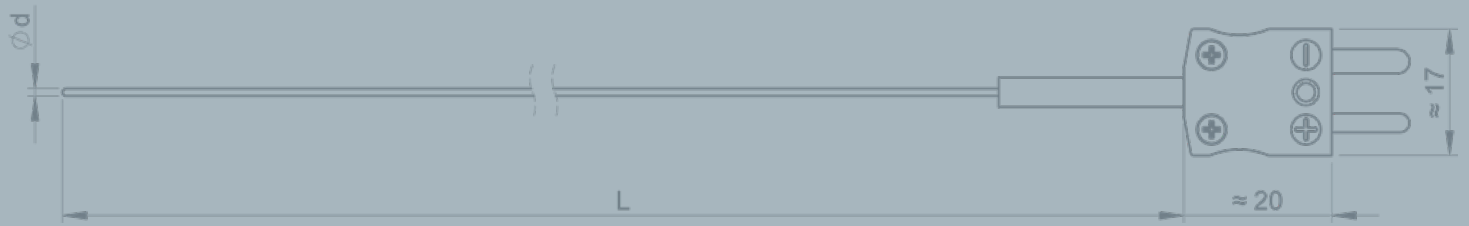
≈ 110

450 à 1000





SENSORS COMPLIANT WITH AMS 2750 E



AMS 2750E THERMOCOUPLE APPLICATIONS **274**

AMS 2750E CERTIFICATION **275**

DESCRIPTION

Aerospace Material Specifications Rev. E (AMS 2750E) defines a certain number of rules concerning the thermal treatments of metals in the aerospace sector. As a specialist in pyrometric measurement, Pyrocontrole has a complete range of thermocouples compliant with the requirements of this standard.

Discover the various applications of these sensors installed in industrial furnaces.

Providing reliable, accurate measurements, **the thermocouple range** fulfils the four control functions required by the AMS 2750E standard for **heat-treatment furnaces in classes 1 to 6**. The higher the requirements of the furnace's class, the more the instruments need to be accurate.

CARACTÉRISTIQUES

Furnace class	TUS (Temperature Uniformity Surveys)	Maximum SAT (System Accuracy Test) difference
	°C	°C
1	± 3	± 1.1
2	± 6	± 1.7
3	± 8	± 2.2
4	± 10	± 2.2
5	± 14	± 2.8
6	± 28	± 5.6

AMS 2750E THERMOCOUPLE APPLICATIONS

AMS 2750E thermocouples can be used for four applications.

- Sensors for ensuring temperature uniformity in the furnace (TUS - Temperature Uniformity Survey),
- Sensors for checking the accuracy of the reading (SAT -System Accuracy Test)
- Sensors for controlling and recording the process
- Sensors for monitoring the temperatures of the loads (sensors installed on the parts)
- The SAT/TUS tests must be performed by the customer with temperature sensors which operate independently from the instruments in the furnace.

AMS 2750 E REQUIREMENTS CONCERNING THERMOCOUPLE

- § 3.1.2.6.2: Thermocouple accuracy: $\pm 1.1^{\circ}\text{C}$ or 0.4 % of ITI; whichever is larger.
- § 3.1.2.6.3: maximum difference tolerated between the couples: $\pm 1.1^{\circ}\text{C}$

OUR CALIBRATION SERVICES

Equipped with its own COFRAC-accredited metrology laboratory, Pyrocontrole can supply COFRAC-accredited calibration certificates and specific reports concerning the requirements mentioned above:

- Calibration of the beginning and end of the coil of sheathed cables used to manufacture the sensors.
- Calibration every 140°C across the sensor's operating range.
- See page 24

In addition, we can also perform calibration per batch to guarantee that the batch of sensors is homogeneous.

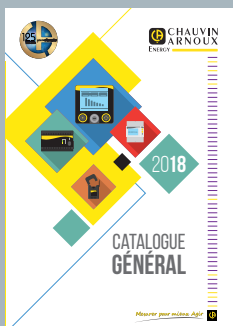
Certification of the AMS 2750E standard			PYROCONTROLE offering		
Application (AMS classification)	Reference standard	Calibration frequency	Max. error	TC	Temperature range
Reference standard (3.1.2 reference standard)	National ref. standard	Before 1st use + every 5 years	None	-	-
Primary standard (3.1.3 primary standard)	Reference standard	Before 1st use + every 3 years	± 0.6 or $\pm 0.001 \times t$	-	-
Secondary standard (3.1.4 secondary standard)	Reference standard or primary standard	Before 1st use + every year	± 1.1 or $\pm 0.004 \times t$	N	$-40^{\circ}\text{C} \leq t \leq 1000^{\circ}\text{C}$ (2)
		Before 1st use + every 2 years	± 0.6 or $\pm 0.005 \times t$	B	$600^{\circ}\text{C} \leq t \leq 1700^{\circ}\text{C}$
Mapping (3.1.5 temperature uniformity survey)	Reference standard or primary standard	Before 1st use + every 3 months	± 2.2 or $\pm 0.0075 \times t$	J	$375^{\circ}\text{C} \leq t \leq 750^{\circ}\text{C}$
		Before 1st use - Prohibited afterwards		N	$-40^{\circ}\text{C} \leq t \leq 1200^{\circ}\text{C}$
		Before 1st use + every 6 months	K	$-40^{\circ}\text{C} \leq t \leq 1200^{\circ}\text{C}$	
			S/R	$0^{\circ}\text{C} \leq t \leq 1600^{\circ}\text{C}$	
Measurement chain variations (3.1.6 system accuracy test)	Reference standard or primary standard	Before 1st use + every 3 months	± 1.1 or $\pm 0.004 \times t$	N	$-40^{\circ}\text{C} \leq t \leq 1000^{\circ}\text{C}$ (2)
		Before 1st use - Prohibited afterwards		K	$-40^{\circ}\text{C} \leq t \leq 1000^{\circ}\text{C}$
		Before 1st use + every 6 months	± 1 or $\pm 0.005 \times t$	B	$600^{\circ}\text{C} \leq t \leq 1700^{\circ}\text{C}$
Process (3.1.7 control, recording and monitoring)	Furnace class 1 and 2	Reference standard or primary standard	Before 1st use	K/N	$-40^{\circ}\text{C} \leq t \leq 1000^{\circ}\text{C}$
				S/R	$0^{\circ}\text{C} \leq t \leq 1600^{\circ}\text{C}$
				B	$600^{\circ}\text{C} \leq t \leq 1700^{\circ}\text{C}$
	Furnace class 3 to 6	Reference standard or primary standard	Before 1st use	J	$375^{\circ}\text{C} \leq t \leq 750^{\circ}\text{C}$
				K/N	$-40^{\circ}\text{C} \leq t \leq 1200^{\circ}\text{C}$
				S/R	$0^{\circ}\text{C} \leq t \leq 1600^{\circ}\text{C}$
Load (3.1.8 load)	Reference standard or primary standard	Before 1st use - Prohibited afterwards	± 2.2 or $\pm 0.0075 \times t$	B	$600^{\circ}\text{C} \leq t \leq 1700^{\circ}\text{C}$
				J	$375^{\circ}\text{C} \leq t \leq 750^{\circ}\text{C}$
				K/N	$-40^{\circ}\text{C} \leq t \leq 1000^{\circ}\text{C}$
Load (3.1.8 load)	Reference standard or primary standard	Before 1st use + every 6 months	± 2.2 or $\pm 0.0075 \times t$	S/R	$0^{\circ}\text{C} \leq t \leq 1600^{\circ}\text{C}$
				B	$600^{\circ}\text{C} \leq t \leq 1700^{\circ}\text{C}$



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