



We create chemistry

Temperature measurement solutions for the semiconductor industry: Thermocouples



Custom engineering

The BASF team of highly trained engineers offers technical assistance to address any specific temperature measurement problem and provides guidance on the most cost-effective route to a solution.

Many designs, originally developed to satisfy the needs of a particular application, have subsequently proved to offer much wider benefits and have become accepted as standard by the industry.

Specific examples of custom engineering capability are:

- Flexible, armored cable to protect external leads from breakage or damage.
- Grouped and bracket-mounted connectors to prevent improper connection.
- Rigid, right-angle lead-out adaptors to control assembly length when fitting in tight mounting quarters.

Repairs

Profile thermocouples suffer occasional deterioration and breakage during normal use. Sheath devitrification or excessive grain growth of the wire may occur, weakening the wire which leads to broken conductors. Sheath deterioration affects the entire assembly, and promotes early breakage. BASF undertakes a comprehensive, quick repair and modification service, generally conducted in conjunction with recalibration.

Assemblies for semiconductor processing

BASF supplies profile thermocouples to both manufacturers of original equipment and to end users. We have long been a leading supplier of profile and spike thermocouples, and epitaxial thermocouples to the semiconductor industry. We offer profile and spike thermocouples for furnaces including Tel, Kokusai, ASML, and ASM.

BASF precious metal thermocouples utilize R, S, B, PII, and K-type wires. Platinel[®] thermocouple wire (PII) is a proprietary precious metal combination developed by BASF. We produce profile thermocouples with 0.020" wire that delivers a longer lifespan. And, our scrap metal return program saves you money on future orders.

BASF engineers work directly with end users to customize their traditional and multi-junction thermocouples for maximum longevity. Proven products and proven performance are the result of the dedicated, professional people that produce and service your products.

In our state-of-the-art production facilities, extraordinary care is taken to ensure every instrument is manufactured with the highest degree of quality. Instruments are tested and calibrated against exacting standards before they leave our ISO 9002-certified facilities in Fremont, California or Rome, Italy.

BASF is committed to providing innovative designs, exceptional quality, rapid deliveries and competitive pricing. Contact a technical specialist today for recommendations about your unique needs, including made-to-order, custom-designed thermocouple assemblies – our specialty.

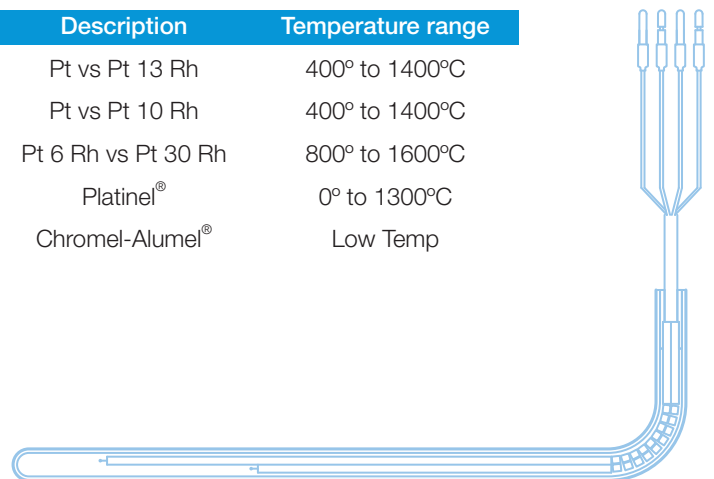


Calibration services

Each profile thermocouple is supplied with a calibration report traceable to national standards laboratories and conforming with the latest national and international specifications and criteria. Periodic recalibration and certification on a six-month cycle is good practice, particularly in applications subject to rigorous quality-assurance requirements. BASF will automatically notify customers of recalibration due-dates upon request.

BASF precious metal thermocouple calibration codes:

Wire type	Description	Temperature range
R	Pt vs Pt 13 Rh	400° to 1400°C
S	Pt vs Pt 10 Rh	400° to 1400°C
B	Pt 6 Rh vs Pt 30 Rh	800° to 1600°C
PII	Platinel [®]	0° to 1300°C
K	Chromel-Alumel [®]	Low Temp



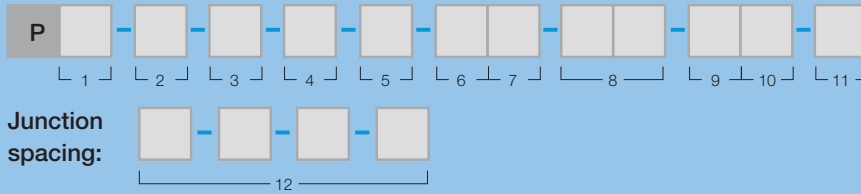
Typical profile thermocouple and control spike assemblies

To order standard designs, please specify the model number according to the following specifications. Please contact us for assistance with custom configurations.

Profile thermocouples

Standard precious metal profile thermocouple

Ordering code no:



Legend:

1 Junctions code:	E = Exposed	R = Recessed	W = Wedge Tip
2 Number of junctions			
3 Ceramic diameter code:	1 = 125"	4 = 093"	7 = 180"/.250" 4 bore
	2 = 156"	5 = 062"	8 = 216" 6 bore
	3 = 187"	6 = 070"/.120" Oval	9 = 250" 8 bore
4 Active length code:	inches		
5 Calibration code:	S = Pt vs Pt 10 Rh R = Pt vs Pt 13 Rh	B = Pt 6 Rh vs Pt 30 Rh P = Platinel®	K = Alumel®
6 Sheath material:	Q = Quartz	S = Sandblasted Quartz	N = None
7 Sheath diameter:	A = 8x12/8x10mm	C = 8x12mm	E = 4x6mm
	B = 6x8mm	D = 8x10mm	F = 5x7mm
			G = 10x12mm
8 Wire diameter:	20 = .020"	17 = .017"	H = L-shape
9 Termination code:	refer to codes at right		
10 Lead length	inches (when necessary)		
11 Extension	inches (when necessary)		
12 Spacing of junctions	inches		

Note: Once codes and dimensions are filled in, then BASF will customize drawing according to specifications.

Example: PR-2-3-9-K-QF-17-P/O-8-6-3 represents a profile thermocouple with two recessed junctions spaced 3" apart, .187" ceramic diameter, 9 inches of active length with Alumel calibration. Quartz sheath diameter is 5 x 7 mm with .017 gauge wire. Termination is a standard size fixed connector tri-junction. Lead length is 8" with a 6" extension.

Junction codes for profile thermocouples and control spikes:



CODE E Exposed – provides maximum response characteristics for any set of circumstances



CODE R Recessed

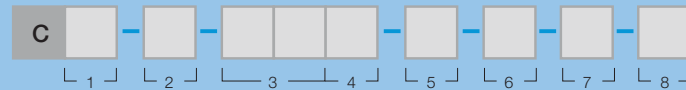


CODE W Wedged

Control spikes

Standard precious metal control spike configuration

Ordering code no:



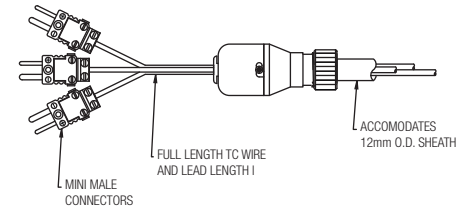
Legend:

1 Number of junctions			
2 Junctions code:	E = Exposed	R = Recessed	W = Wedge Tip
3 Wire diameter:	20 = .020"	17 = .017"	
4 Calibration code:	S = Pt vs Pt 10 Rh R = Pt vs Pt 13 Rh	B = Pt 6 Rh vs Pt 30 Rh P = Platinel®	K = Alumel®
5 Ceramic diameter code:	1 = 125"	4 = 093"	7 = 180"/.250" 4 bore
	2 = 156"	5 = 062"	
	3 = 187"	6 = 070"/.120" Oval	
6 Active length code:	inches		
7 Lead length	inches (when necessary)		
8 Termination code:	B = Bare wire	P = Plug	

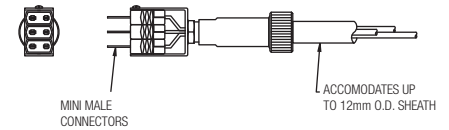
Note: Once codes and dimensions are filled in, then BASF will customize drawing according to specifications.

Example: C1-E-20R-1-5-8-P represents a single junction exposed control spike of .125" ceramic diameter with 5 inches of active length and 8 inch leads. The calibration is type R with .020" wire diameter and Plug termination.

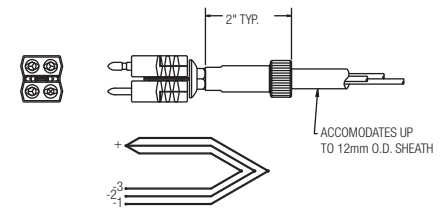
Profile thermocouple termination codes:



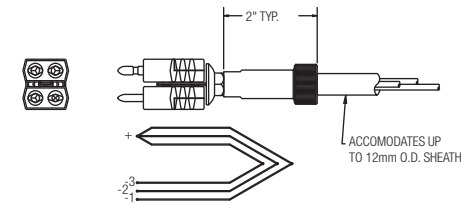
CODE XL/I Multi-junction profile – for use with up to six elements. Available with an ISA K T/C mounted in the transition to monitor overheating



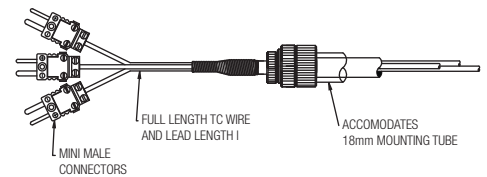
CODE PM/I Fixed mini connector tri-junction



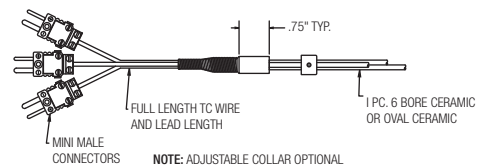
CODE P/O Standard size fixed connector tri-junction



CODE C/I Tri-junction with strain relief. Available with an ISA K T/C mounted in the transition to monitor overheating – add "K" to code (CK/I) if applicable.



CODE PA/I Furnace adapter



CODE B/I Flex-sleeve tri-junction with no sheath – shaft collar optional

Precious metals expertise

Metals – particularly those in the platinum group – are critical components of many products made by BASF such as contact thermocouples. Ensuring that those raw materials are where they need to be, when they need to be there, in the form they need to be and at the lowest possible cost is what BASF's Materials Services group is all about. Given our unique understanding of market fundamentals, such as current and future supply, technology changes and market risks, we help ensure that BASF and our customers have a cost-effective, reliable supply of the raw materials they need.

A fundamental understanding of precious metal and precious metal technologies is also critical. The experience of our research and development group in precious metal and precious metal technologies is unmatched. From Fibro® platinum to Platinel® thermocouple wire we have led the industry with breakthrough innovations. No one knows more about precious metals. We are the precious metal experts.

About us

BASF's Catalysts division is the world's leading supplier of environmental and process catalysts. The group offers exceptional expertise in the development of technologies that protect the air we breathe, produce the fuels that power our world and ensure efficient production of a wide variety of chemicals, plastics and other products, including advanced battery materials. By leveraging our industry-leading R&D platforms, passion for innovation and deep knowledge of precious and base metals, BASF's Catalysts division develops unique, proprietary solutions that drive customer success.

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