

Sensors for Industrial Processes



- For use in industrial ovens, furnaces and kilns
- For use in heat treat and forging furnaces, bright annealing, ceramics and glass furnaces and salt baths

Some common types of sensors for industrial processes include types B, R, S, J, K, E & T thermocouples and industry standard PT-100 RTDs. We have several styles available. See our Sensor Product Guide for the complete selection.

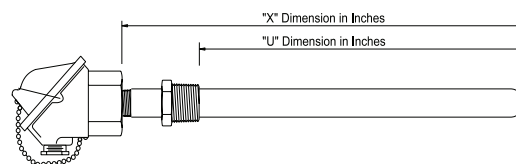
Industrial Thermocouples with Metal Protection Tubes

These assemblies feature eight gauge wire elements, ceramic insulation and cast aluminum general purpose heads. Protection tubes are schedule 40 pipe, spun down and welded at the tip. Inconel is a high temperature alloy commonly used with type K elements. 304 S.S. is a quality stainless steel usually used with type J elements. Tubes are 1/2" NPT schedule 40 with 3/4" NPT mounting threads. Protection tubes are stocked in six inch increments from 12" to 48".

Ideal for

- for use in industrial ovens, furnaces and kilns
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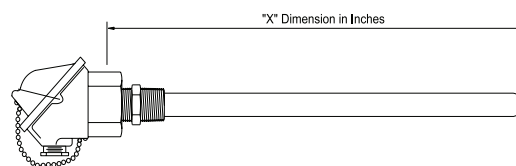
Base metal thermocouples are used in severe and demanding environments. Noble metal thermocouples provide accuracy and extended life in high temperature applications.



Model	Element	"X" Dimension	"U" Dimension	Head	Mounting	Protection Tube
K08I-163XX-000-F-UU	Type K, single end	Specify (6" increments)	Specify (whole inches)	Aluminum	3/4" welded bushing	Inconel 601, 1/2" NPT
J08I-193XX-000-F-UU	Type J, single end	Specify (6" increments)	Specify (whole inches)	Aluminum	3/4" welded bushing	304 S.S., 1/2" NPT

Straight Industrial Thermocouples with Ceramic Protection Tubes

Ceramic protects the element at temperatures that are too high for metal tubes. Economical mullite is a porcelain that is suitable for protecting base metal thermocouples up to 2300°F. Alumina is used to protect platinum based elements where mullite or metal tubes would contaminate the element. Tubes are 11/16" O.D. with



3/4" NPT mounting threads. Protection tubes are stocked in six inch increments from 12" to 36".

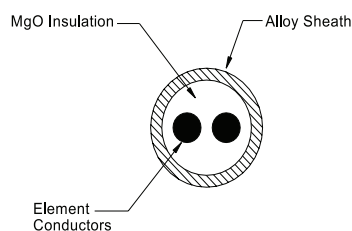
Model	Element	"X" Dimension	Head	Mounting	Protection Tube
K14I-243XX-000-7-00	Type K, single end	Specify (6" increments)	Aluminum	Double ended bushing	Mullite, 11/16" OD
B24I-303XX-000-7-00	Type B, single end	Specify (6" increments)	Aluminum	Double ended bushing	Alumina, 11/16" OD
R24I-303XX-000-7-00	Type R, single end	Specify (6" increments)	Aluminum	Double ended bushing	Alumina, 11/16" OD
S24I-303XX-000-7-00	Type S, single end	Specify (6" increments)	Aluminum	Double ended bushing	Alumina, 11/16" OD

BARCOPAC™ Magnesium Oxide Insulated Thermocouples

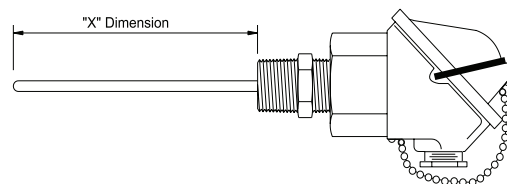
Thermocouples with Magnesium Oxide insulation are recommended where the thermocouple is immersed in liquid, high moisture, corrosive gasses or high pressures. MgO insulated thermocouples provide superior performance in small diameter packages. The assemblies have an alloy outer jacket surrounding the element conductors. The remainder of the internal volume is filled with tightly compacted Magnesium Oxide.

MgO is a ceramic with excellent thermal transfer characteristics. It also compacts well. All MgO thermocouples can be bent on a radius of twice the sheath diameter. The tightly sealed assemblies protect the element from contact with the process atmosphere, thus providing longer life than an unprotected element.

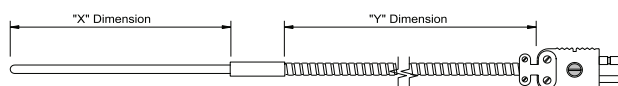
The thermocouples on this page represent a small portion of our full offering. See our Sensor Product Guide for the complete selection.



Thermocouples without Extensions



Thermocouples with Flexible Leadwire Extensions



Ordering codes

Type	Element	Sheath	Diameter	Junction	Flex Lead Material	X Dimension	Y Dimension	Mounted Fittings	Termination
M									

Type	
M	MGO insulated

Element	
1	Type J
2	Type K
3	Type E, (304 SS Only)
4	Type T, (304 SS Only)

Sheath	
1	304 SS
2	Inconel-600
3	316 SS

Diameter	
3	.063 inch
4	.125 inch
5	.188 inch
6	.250 inch

Junction	
1	Single, grounded
2	Single, ungrounded

Flex Lead Material	
0	None, no flexible lead
1	Fiberglass insulation
2	Fiberglass with armor
3	Fiberglass with SS overbraid

X Dimension	
Rigid length in whole inches (use 3 digits) see table below	

Y Dimension	
Flexible length in whole inches (use 3 digits)	

TABLE 1				
Sheath O.D.	J	K	E	T
.063	180	100	90	200
.125	700	430	555	330
.188	1600	877	722	1750
.250	3181	1934	1521	3885

Ungrounded single element TC's have limitations on rigid length.

Mounting Fittings	
0	None
4	1/4 inch NPT brass compression fitting
5	1/4 inch NPT stainless steel compression fitting
7	Double-ended bushing (specify 1/4 inch, 1/2 inch, 3/4 inch or 1 inch NPT)

Termination	
00	Stripped leads
01	Spade lugs
03	6 Quick disconnect plugs
04	Quick disconnect plug and jack
07	Jack
08	General purpose cast iron head
09	General purpose aluminum head
10	Weatherproof cast iron head
22	Explosion proof head
27	Weatherproof aluminum head