

Thermocouples

Base Metal

Watlow offers two basic types of base metal thermocouples with protection tubes: bare and ceramic insulated elements. Many variations of each type are available to meet your application needs.

Performance Capabilities

- 2300°F (1260°C) maximum temperature

Features and Benefits

Insulated wire thermocouples

- Suitable for most general purpose applications

Bare and ceramic insulated elements

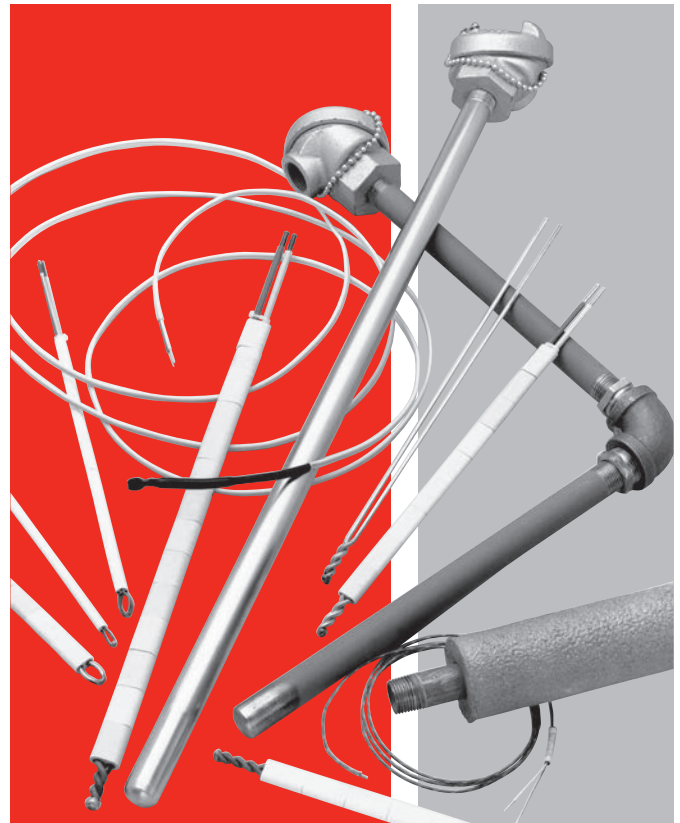
- Available in ASTM E 230 Types K and J can be twisted or butt welded
- Choices include straight or angle types, two- or four-hole insulators and single or dual element

Protected thermocouples

- Supplied complete with head, block and protection tube
- Several styles available

Typical Applications

- Metal processing such as aluminum, zinc, brass (with appropriate protection tube)
- Chemical
- Petrochemical
- Industrial storage tanks



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Bare Elements

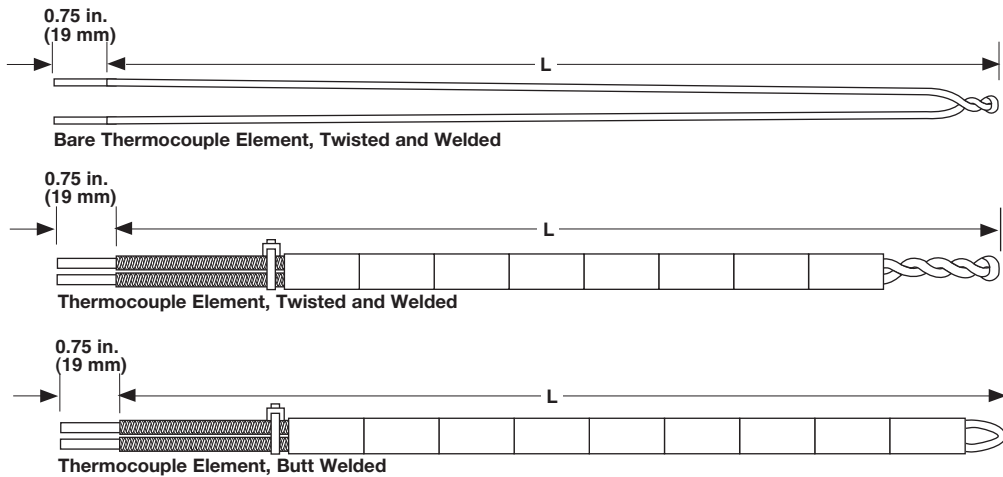
To order, specify: Part number-length

Example: 1402-36 or 1432-BW-24

Straight Elements with Two-Hole Insulators

To order, specify: Part number-length

Example: 1409-48 or 1436-BW-18



Part Number				AWG Gauge	Insulator Part No.	Length (in.)
Type K		Type J				
Twisted and Welded	Butt Welded	Twisted and Welded	Butt Welded			
1402	1432-BW	—	—	8	BARE	12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72
1403	1433-BW	—	—	11	BARE	
1404	1434-BW	1503	1576-BW	14	BARE	
1409	1436-BW	1507	1578-BW	8	301	
1410	1437-BW	—	—	11	304	
1411	1438-BW	1509	1579-BW	14	304	
1412	1439-BW	1510	1580-BW	20	328	

Note: For special limits, add -SP to part number, example (1409-12-SP)

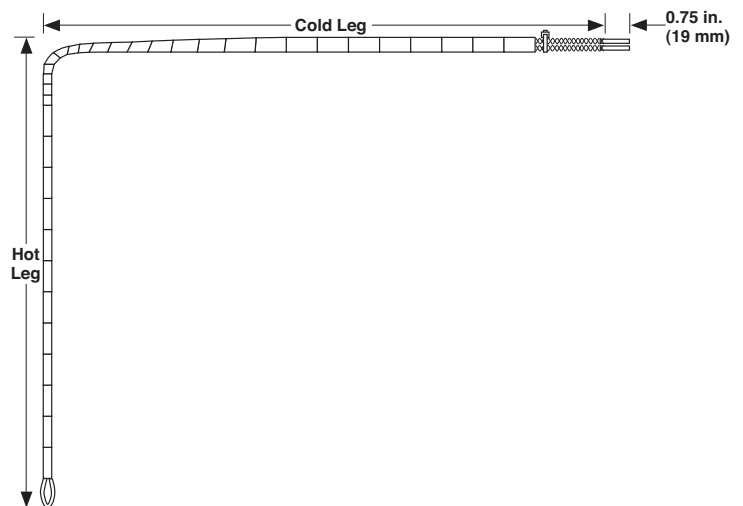
Angle Type with Two-Hole Insulators

To order, specify: Part number-cold leg length-hot leg length

Example: 1440-BW-12-24

Part Number		Insulator Part No. Hot and Cold Sections*	Hot Leg Length (in.)
Type K			
Butt Welded	AWG Gauge		
1440-BW	8	301	24, 30, 36, 42, 48, 54, 60

Note: For special limits, add -SP to part number, example (1440-BW-12-24-SP)



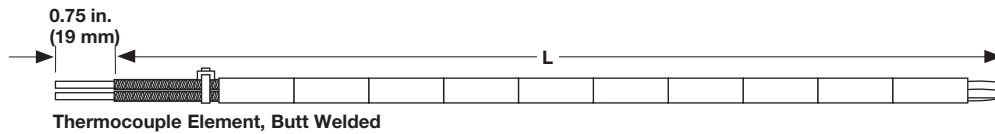
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Dual Elements with Four-Hole Insulators

To order, specify: Part number-length

Example: 1442-BW-36



Part Number (Butt Welded Only)		AWG Gauge	Insulator Part No.	Length
Type K	Type J			
1442-BW	1584-BW	14	360	12, 18, 24, 30, 36, 42, 48
1443-BW	1585-BW	20	378	54, 60, 66, 72

Note: For special limits, add -SP to part number, example (1442-BW-12-SP)

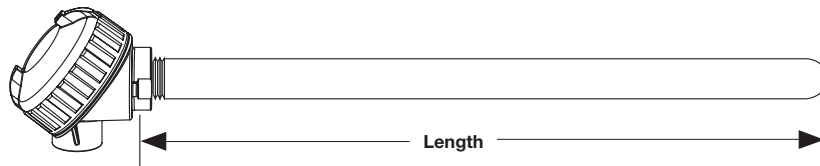
Standard Thermocouple with Protection Tubes

Straight Type

To order, specify: Part number-length

Example: 1409-1308-24

Metal Tube



Part Number		AWG Gauge	Protection Tube		Pipe Diameter in.	Construction	Cast Iron Head	Length in.
Type K	Type J		Material	NPT Size in.				
1409-1395	1507-1395	8	Alloy 601	1/2	0.840	Seamless	70900203	12, 18, 24, 30, 36, 42, 48, 54, 60
1409-1396	1507-1396	8	Alloy 601	3/4	1.050	Seamless	70900202	
1409-1341	1507-1341	8	304 SS	1/2	0.840	Welded	70900203	
1409-1342	1507-1342	8	304 SS	3/4	1.050	Welded	70900202	
1409-1307	1507-1307	8	446 SS	1/2	0.840	Seamless	70900203	
1409-1308	1507-1308	8	446 SS	3/4	1.050	Seamless	70900202	
1409-1309	1507-1309	8	446 SS	1	1.315	Seamless	70900201	

Note: For special limits, add -SP to part number, example (1409-1395-12-SP)

Thermocouples

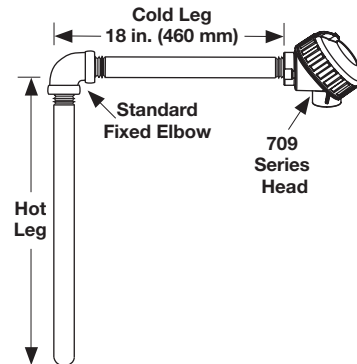
Base Metal

Standard Thermocouple with Protection Tubes

90 Degree Angle Type

To order, specify: Part number- cold leg length, hot leg length.
Standard cold leg length is 18 inches.

Example: 1414-1395-18-24



Part Number		AWG Gauge	Protection Tube		Construction	Cast Iron Head	Length in.
Type K	Type J		Material	NPT Size in.			
1414-1307-18	1517-1307-18	8	446 SS	1/2	Seamless	70900203	12, 18, 24, 30, 36
1414-1328-18	1517-1328-18	8	Black steel	1	Welded	70900201	
1414-1395-18	1517-1395-18	8	Alloy 601	1/2	Seamless	70900203	
1415-1307-18	1518-1307-18	14	446 SS	1/2	Seamless	70900203	
1415-1326-18	1518-1326-18	14	Black steel	1/2	Welded	70900203	
1415-1328-18	1518-1328-18	14	Black steel	1	Welded	70900201	
1415-1395-18	1518-1395-18	14	Alloy 601	1/2	Seamless	70900203	

Pipe Diameters

1/2 in. NPT = 0.840

3/4 in. NPT = 1.050

1 in. NPT = 1.315

Note: For special limits, add -SP to part number, example (1414-1395-18-24-SP)