

## Thermocouples

### General Applications

Over 90 years of manufacturing, research and design makes Watlow a world class supplier of temperature measurement products. We have designed and manufactured millions of thermocouples for industrial and commercial equipment. People involved in critical process control of food, plastics and metal rely on our sensors.

We are ready to meet your sensing needs with our extensive offering of thermocouples. However, if the variations listed in this catalog are unable to satisfy your requirements, Watlow can custom manufacture sensors to your exacting specifications. Contact your Watlow representative for details.

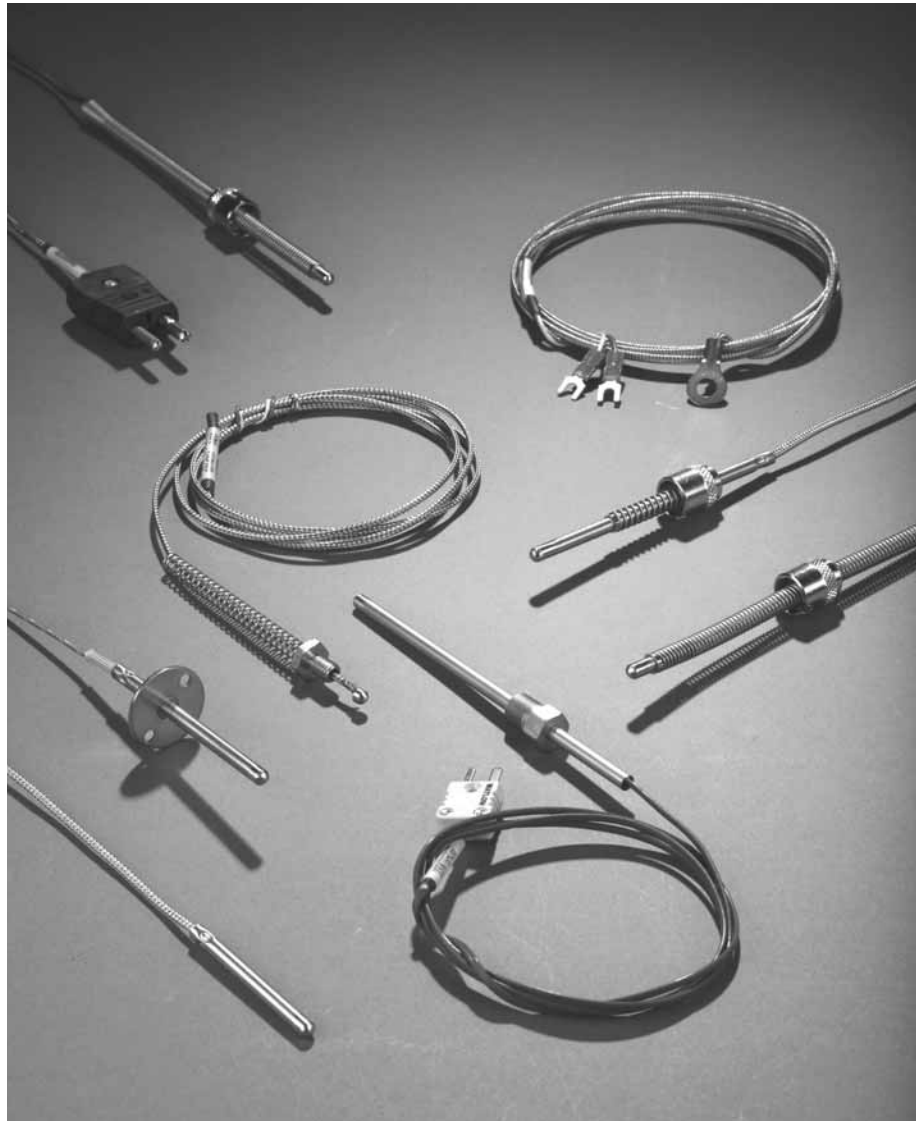
#### Performance Capabilities

- Fiberglass insulated thermocouples are capable of temperatures up to 480°C (900°F) for continuous operation.

#### Features and Benefits

##### “Custom-tailored” standard products including:

- 32 standard sheath lengths
- Lead lengths from six to 360 inches
- Stainless steel braid or hose protection
- J, K, T and E calibrations
- Grounded, ungrounded and exposed junctions
- Flat and drill point
- Epoxy sealed cold ends
- Adjustable depths
- Flexible extensions
- Washers, nozzles and clamp bands
- Custom diameters
- PFA coated and stainless steel sheaths
- Straight, 45° bend or 90° bend
- Locking bayonet caps in standard, 12 mm and 15 mm



#### Custom manufactured thermocouples

- Units designed and built to your specifications

#### Applications

- Plastic injection molding machinery
- Food processing equipment
- Deicing
- Plating baths
- Industrial processing
- Medical equipment
- Pipe tracing control
- Industrial heat treating

- Packaging equipment
- Liquid temperature measurement
- Refrigerator temperature control
- Oven temperature control

# Thermocouples

## General Applications

### Construction and Tolerances

#### Construction

Thermocouples feature flexible SERV-RITE® wire insulated with woven fiberglass or high temperature engineered resins. For added protection against abrasion, products can be provided with stainless steel wire braid and flexible armor. ASTM E 230 color-coding identifies standard catalog

thermocouple types (see reference chart on inside back cover).

The addition of a metal sheath over the thermocouple provides rigidity for accurate placement and added protection of the sensing junction. Mounting options include springs, ring terminals, specialized bolts, pipe style clamps and shims.

#### How to Order

- Determine style of thermocouple required
- Complete the eleven digit part number as determined by the following parameters:
  - Construction
  - Diameter
  - Calibration
  - Lead protection
  - Junction
  - Sheath length
  - Lead length
  - Terminations/options

**Note:** All eleven spaces must be filled in.

#### Availability

**Rapid Ship** sensors are available for same or next day shipment.

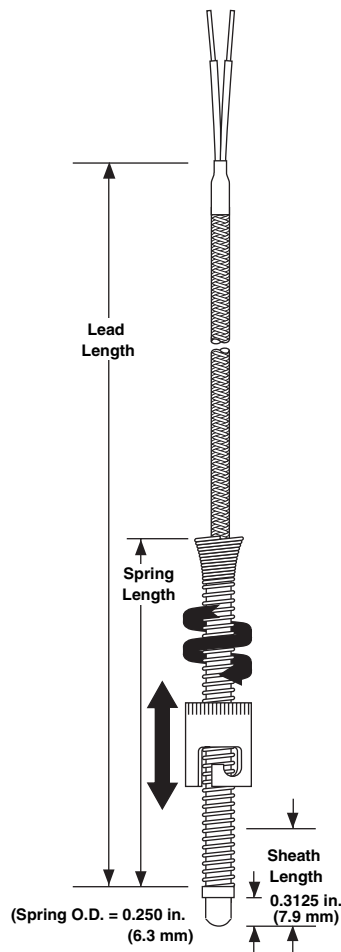
**Preferred** sensor options are available for shipment in approximately three days.

For **custom built** products consult factory for approximate shipment time.

# Thermocouples

## General Applications

### Adjustable Spring Style



Adjustable spring style thermocouple fits a large range of hole depths. Bends to any angle, eliminating the requirement to stock numerous styles.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge stranded fiberglass lead with stainless steel overbraided and grounded junction.

Calibration	Spring Length in. (mm)	Lead Length in. (mm)	Termination	
			Split Leads	Standard Connector
J	6 (152)	24 (610)	10DJSGB024A	10DJSGB024D
		48 (1219)	10DJSGB048A	10DJSGB048D
		72 (1829)	10DJSGB072A	10DJSGB072D
	12 (305)	96 (2438)	10DJSGB096A	10DJSGB096D
		24 (610)	11DJSGB024A	11DJSGB024D
		48 (1219)	11DJSGB048A	11DJSGB048D
		72 (1829)	11DJSGB072A	11DJSGB072D
		96 (2438)	11DJSGB096A	11DJSGB096D

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

**D** **B**

**1-2. Construction Style**

- 10 = Standard cap - 6 inch spring**
- 11 = Standard cap - 12 inch spring**
- 14 = 12 mm cap - 6 inch spring
- 15 = 15 mm cap - 6 inch spring
- 16 = 12 mm cap - 12 inch spring
- 17 = 15 mm cap - 12 inch spring

**3. Sheath Diameter (inch), 316 SS**

D = 3/16

**4. Calibration**

- J = Type J**      T = Type T
- K = Type K**      E = Type E

**5. Lead Protection**

- F = Fiberglass (24 gauge stranded)
- S = Fiberglass with stainless steel overbraided (24 gauge stranded)**
- P = Fiberglass (20 gauge stranded)
- B = Fiberglass with stainless steel overbraided (20 gauge stranded)**
- T = PFA (24 gauge stranded)
- U = PFA with stainless steel overbraided (24 gauge stranded)
- V = PFA (20 gauge stranded)
- W = PFA with stainless steel overbraided (20 gauge stranded)

**6. Junction**

- F = Grounded, flat tip
- G = Grounded, round tip**
- D = Grounded, drill point
- R = Ungrounded, flat tip
- U = Ungrounded, round tip**
- P = Ungrounded, drill point
- H = Grounded, round tip, dual element
- S = Ungrounded, round tip, dual element

**7. Sheath Length (inch)**

B = 1

**8-10. Lead Length (whole inches)**

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

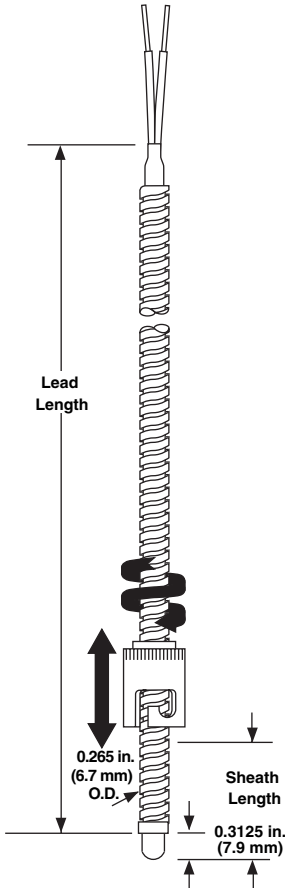
**11. Terminations/Options**

- A = Standard, 2 1/2 inch split leads**
- B = 2 1/2 inch split leads with #6 spade lugs
- C = 2 1/2 inch split leads with #6 spade lugs and BX connector
- D = Standard male plug, quick disconnect**
- E = Standard female jack, quick disconnect
- F = Miniature male plug, quick disconnect
- G = Miniature female jack, quick disconnect
- H = 1/4 inch push-on connector

# Thermocouples

## General Applications

### Adjustable Armor Style



Adjustable armor thermocouple fits a large range of hole depths. Bends to any angle, eliminating the requirement to stock numerous styles. Stainless steel hose offers additional lead protection in demanding applications.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge stranded fiberglass lead with stainless steel armor and grounded junction.

Calibration	Lead Length in. (mm)	Termination	
		Split Leads	Standard Connector
J	48 (1219)	12DJHGB048A	12DJHGB048D
	60 (1524)	12DJHGB060A	12DJHGB060D
	72 (1829)	12DJHGB072A	12DJHGB072D
	96 (2438)	12DJHGB096A	12DJHGB096D
	120 (3048)	12DJHGB120A	12DJHGB120D

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

1 2 D B

**1-2. Construction Style** —————

12 = Adjustable armor thermocouple, standard cap

**3. Sheath Diameter (inch), 316 SS** —————

D =  $\frac{3}{16}$

**4. Calibration** —————

**J = Type J**

**K = Type K**

T = Type T

E = Type E

**5. Lead Protection** —————

**H = Fiberglass with stainless steel hose (24 gauge stranded)**

**C = Fiberglass with stainless steel hose (20 gauge stranded)**

K = PFA with stainless steel hose (24 gauge stranded)

Y = PFA with stainless steel hose (20 gauge stranded)

**6. Junction** —————

F = Grounded, flat tip

**G = Grounded, round tip**

D = Grounded, drill point

**U = Ungrounded, round tip**

P = Ungrounded, drill point

R = Ungrounded, flat tip

H = Grounded, round tip, dual element

S = Ungrounded, round tip, dual element

**7. Sheath Length (inch)** —————

B = 1

**8-10. Lead Length (inches)** —————

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** —————

**A = Standard, 2 1/2 inch split leads**

B = 2 1/2 inch split leads with #6 spade lugs

C = 2 1/2 inch split leads with #6 spade lugs and BX connector

**D = Standard male plug, quick disconnect**

E = Standard female jack, quick disconnect

F = Miniature male plug, quick disconnect

G = Miniature female jack, quick disconnect

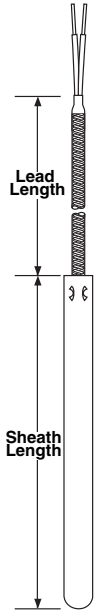
H = 1/4 inch push-on connector

# Thermocouples

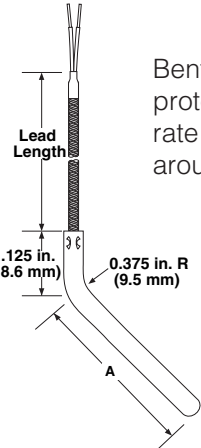
## General Applications

### Rigid Sheath

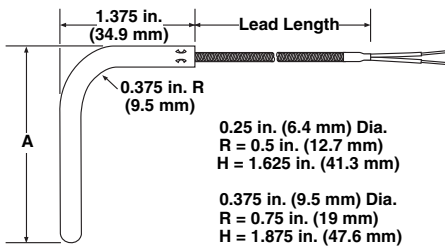
**1/8 and 3/16 inch Diameter**



Rigid sheath provides protection and accurate placement through bulkheads or platens. Use with a compression fitting for water tight immersion application.



Bent rigid tube offers protection and accurate lead placement around machinery.



\*Not available with 1/8 inch diameter sheath.

Metric sizes available for made-to-order units, consult factory. Minimum order quantity may apply.

### Rapid Ship Sensors

Rapid Ship sensors come with 3/16 inch diameter sheath, 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and split lead termination.

Calibration	Sheath Length in. (mm)	Lead Length in. (mm)	Part Number
J	1 (25)	48 (1219)	20DJSGB048A
		96 (2438)	20DJSGB096A
	2 (51)	48 (1219)	20DJSGD048A
		96 (2438)	20DJSGD096A
	4 (102)	48 (1219)	20DJSGH048A
		96 (2438)	20DJSGH096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

#### 1-2. Construction Style

**20 = Plain sheath, straight**

21 = Plain sheath, 45° bend

22 = Plain sheath, 90° bend

#### 3. Sheath Diameter (inch), 316 SS

**C = 1/8** S = 1/8 epoxy sealed 149°C (300°F)

**D = 3/16** T = 3/16 epoxy sealed 149°C (300°F)

#### 4. Calibration

**J = Type J** T = Type T

**K = Type K** E = Type E

#### 5. Lead Protection

**F = Fiberglass (24 gauge stranded)**

**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**

H = Fiberglass with stainless steel hose (24 gauge stranded)

\*P = Fiberglass (20 gauge stranded)

\*B = Fiberglass with stainless steel overbraid (20 gauge stranded)

\*C = Fiberglass with stainless steel hose (20 gauge stranded)

O = Plug or jack termination on sheath fiberglass (24 gauge stranded)

**T = PFA (24 gauge stranded)**

U = PFA with stainless steel overbraid (24 gauge stranded)

K = PFA with stainless steel hose (24 gauge stranded)

\*V = PFA (20 gauge stranded)

\*W = PFA with stainless steel overbraid (20 gauge stranded)

\*Y = PFA with stainless steel hose (20 gauge stranded)

#### 6. Junction

F = Grounded, flat tip P = Ungrounded, drill point

**G = Grounded, round tip** E = Exposed

D = Grounded, drill point \*H = Grounded, round tip, dual element

R = Ungrounded, flat tip \*S = Ungrounded, round tip, dual element

**U = Ungrounded, round tip**

#### 7. Sheath Length (inches)

A = 1/2 **D = 2** G = 3 1/2 K = 5 N = 6 1/2 R = 8 U = 9 1/2 Z = 12

**B = 1** E = 2 1/2 **H = 4** L = 5 1/2 P = 7 S = 8 1/2 W = 10

**C = 1 1/2 F = 3** J = 4 1/2 M = 6 Q = 7 1/2 T = 9 Y = 11

#### 8-10. Lead Length (inches)

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

#### 11. Terminations/Options

**A = Standard, 2 1/2 inch split leads**

**B = 2 1/2 inch split leads with #6 spade lugs**

C = 2 1/2 inch split leads with #6 spade lugs and BX connector

**D = Standard male plug, quick disconnect**

E = Standard female jack, quick disconnect

**F = Miniature male plug, quick disconnect**

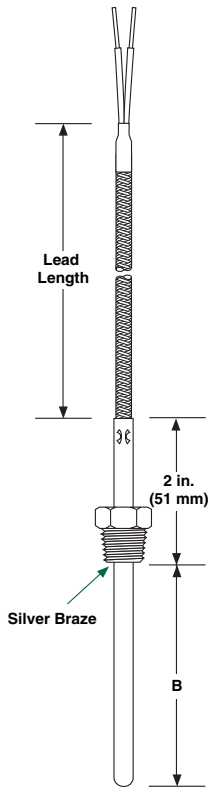
G = Miniature female jack, quick disconnect

H = 1/4 inch push-on connector

# Thermocouples

## General Applications

### Rigid Sheath with Threaded Fitting 1/8 and 3/16 inch Diameter



Rigid sheath with threaded fitting provides accurate placement in process applications.

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
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**1-2. Construction Style**  
**23 = Straight sheath with 1/8" NPT SS fitting**  
 24 = Straight sheath with 1/2" NPT SS fitting

**3. Sheath Diameter (inch), 316 SS**  
**C = 1/8** S = 1/8 epoxy sealed 149°C (300°F)  
**D = 3/16** T = 3/16 epoxy sealed 149°C (300°F)

**4. Calibration**  
**J = Type J** T = Type T  
**K = Type K** E = Type E

**5. Lead Protection**  
**F = Fiberglass (24 gauge stranded)**  
**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**  
 H = Fiberglass with stainless steel hose (24 gauge stranded)  
 \*P = Fiberglass (20 gauge stranded)  
 \*B = Fiberglass with stainless steel overbraid (20 gauge stranded)  
 \*C = Fiberglass with stainless steel hose (20 gauge stranded)  
**T = PFA (24 gauge stranded)**  
 U = PFA with stainless steel overbraid (24 gauge stranded)  
 K = PFA with stainless steel hose (24 gauge stranded)  
 \*V = PFA (20 gauge stranded)  
 \*W = PFA with stainless steel overbraid (20 gauge stranded)  
 \*Y = PFA with stainless steel hose (20 gauge stranded)

**6. Junction**  
 F = Grounded, flat tip  
**G = Grounded, round tip**  
 D = Grounded, drill point  
 R = Ungrounded, flat tip  
**U = Ungrounded, round tip**  
 P = Ungrounded, drill point  
 E = Exposed  
 \*H = Grounded, round tip, dual element  
 \*S = Ungrounded, round tip, dual element

**7. "B" Dimension (inches)**  
 A = 1/2 **D = 2** G = 3 1/2 K = 5 N = 6 1/2 R = 8 U = 9 1/2 Z = 12  
 B = 1 E = 2 1/2 **H = 4** L = 5 1/2 P = 7 S = 8 1/2 W = 10  
 C = 1 1/2 **F = 3** J = 4 1/2 **M = 6** Q = 7 1/2 T = 9 Y = 11

**8-10. Lead Length (inches)**  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
 Available lengths: 006 to 360, over 360 consult factory

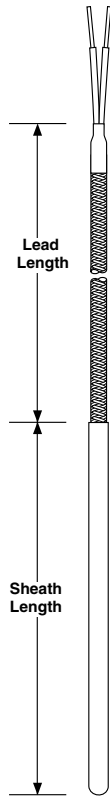
**11. Terminations/Options**  
**A = Standard, 2 1/2 inch split leads**  
 B = 2 1/2 inch split leads with #6 spade lugs  
 C = 2 1/2 inch split leads with #6 spade lugs and BX connector  
**D = Standard male plug, quick disconnect**  
 E = Standard female jack, quick disconnect  
**F = Miniature male plug, quick disconnect**  
 G = Miniature female jack, quick disconnect  
 H = 1/4 inch push-on connector

\*Not available with 1/8 inch diameter sheath.

Metric sizes available for made-to-order units, consult factory. Minimum order quantity may apply.

# Thermocouples

## General Applications PFA Encapsulated Style



**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
	6	5									

**1-2. Construction Style** —  
65 = PFA coated sheath

**3. Diameter (inch) under covering** —  
C = 1/8 epoxy seal 149°C (300°F)  
**D = 3/16 epoxy seal 149°C (300°F)**  
E = 1/4 epoxy seal 149°C (300°F)

**4. Calibration** —  
**J = Type J**      T = Type T  
K = Type K      E = Type E

**5. Lead protection** —  
T = PFA (24 gauge stranded)  
**\*R = PFA (20 gauge stranded)**

**6. Junction** —  
**U = Ungrounded, round tip**  
**G = Grounded, round tip**

**7. Sheath Length (inches)** —  
B = 1      J = 4 1/2      R = 8  
C = 1 1/2      K = 5      S = 8 1/2  
D = 2      L = 5 1/2      T = 9  
E = 2 1/2      **M = 6**      U = 9 1/2  
**F = 3**      N = 6 1/2      W = 10  
G = 3 1/2      P = 7      Y = 11  
**H = 4**      Q = 7 1/2      Z = 12

**8-10. Lead Length (inches)** —  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** —  
**A = Standard, 2 1/2 inch split leads**  
B = 2 1/2 inch split leads with #6 spade lugs  
C = 2 1/2 inch split leads with #6 spade lugs and BX connector  
**D = Standard male plug, quick disconnect**  
E = Standard female jack, quick disconnect  
F = Miniature male plug, quick disconnect  
G = Miniature female jack, quick disconnect  
H = 1/4 inch push-on connector

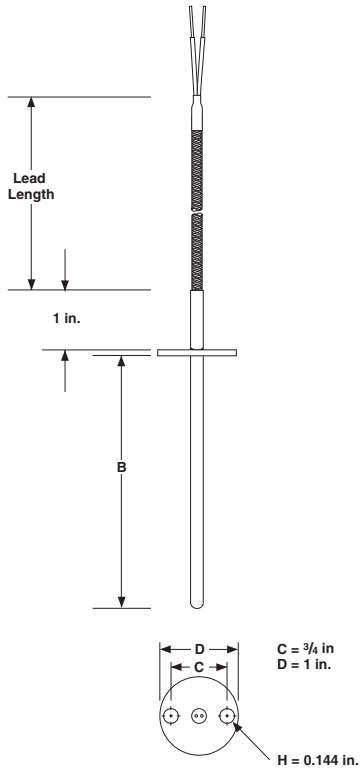
The rigid sheath is covered with a 0.010 inch (25 mm) wall of PFA for corrosion resistance in acid environments. An epoxy seal improves moisture resistance of sensor and provides a barrier for migrating fumes in corrosive applications.

\*Not available in 1/8 inch diameter.

# Thermocouples

## General Applications

### Flange Style



The flanged thermocouple allows rapid assembly and low profile when going through bulkheads.

\*Not available with 1/8 inch diameter sheath.

**Metric sizes available for made-to-order units, consult factory. Minimum order quantity may apply.**

### Rapid Ship Sensors

Rapid Ship sensors come with 3/16 inch diameter sheath, 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	"B" Dimension		Lead Length		Part Number
	in.	(mm)	in.	(mm)	
J	2	(51)	48	(1219)	25DJSGD048A
			96	(2438)	25DJSGD096A
	4	(102)	48	(1219)	25DJSGH048A
			96	(2438)	25DJSGH096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11



#### 1-2. Construction Style

25 = Thermocouple with flange

#### 3. Sheath Diameter (inch), 316 SS

C = 1/8 S = 1/8 epoxy sealed 149°C (300°F)

**D = 3/16** T = 3/16 epoxy sealed 149°C (300°F)

#### 4. Calibration

**J = Type J** T = Type T

**K = Type K** E = Type E

#### 5. Lead Protection

**F = Fiberglass (24 gauge stranded)**

**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**

H = Fiberglass with stainless steel hose (24 gauge stranded)

\*P = Fiberglass (20 gauge stranded)

\*B = Fiberglass with stainless steel overbraid (20 gauge stranded)

\*C = Fiberglass with stainless steel hose (20 gauge stranded)

T = PFA (24 gauge stranded)

U = PFA with stainless steel overbraid (24 gauge stranded)

K = PFA with stainless steel hose (24 gauge stranded)

\*V = PFA (20 gauge stranded)

\*W = PFA with stainless steel overbraid (20 gauge stranded)

\*Y = PFA with stainless steel hose (20 gauge stranded)

#### 6. Junction

F = Grounded, flat tip

P = Ungrounded, drill point

**G = Grounded, round tip**

E = Exposed

D = Grounded, drill point

\*H = Grounded, round tip, dual element

R = Ungrounded, flat tip

\*S = Ungrounded, round tip, dual element

**U = Ungrounded, round tip**

#### 7. "B" Dimension (inches)

**D = 2** **H = 4** M = 6 R = 8 W = 10

E = 2 1/2 J = 4 1/2 N = 6 1/2 S = 8 1/2 Y = 11

**F = 3** K = 5 P = 7 T = 9 Z = 12

G = 3 1/2 L = 5 1/2 Q = 7 1/2 U = 9 1/2

#### 8-10. Lead Length (inches)

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

#### 11. Terminations/Options

**A = Standard, 2 1/2 inch split leads**

**B = 2 1/2 inch split leads with #6 spade lugs**

C = 2 1/2 inch split leads with #6 spade lugs and BX connector

**D = Standard male plug, quick disconnect**

E = Standard female jack, quick disconnect

**F = Miniature male plug, quick disconnect**

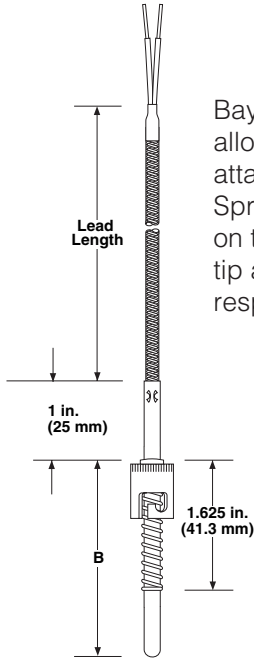
G = Miniature female jack, quick disconnect

H = 1/4 inch push-on connector

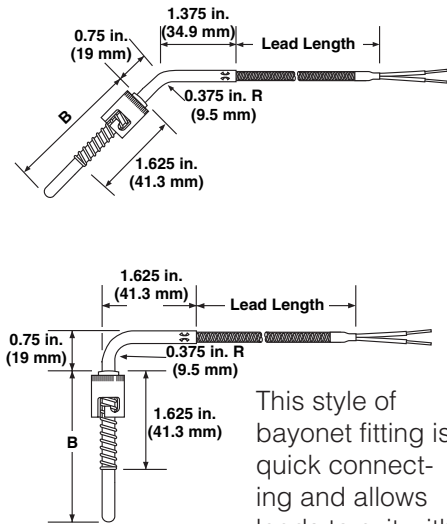
# Thermocouples

## General Applications

### Rigid Sheath Fixed Bayonet Style



Bayonet fittings allow rapid attachment. Spring pressure on the junction tip assures fast response time.



This style of bayonet fitting is quick connecting and allows leads to exit with a protective sheath.

① Reference page 29 to calculate "B" dimension.

\*Not available with 1/8 inch diameter sheath.

**Metric sizes available for made-to-order units, consult factory. Minimum order quantity may apply.**

### Rapid Ship Sensors

Rapid Ship sensors come with 3/16 inch diameter sheath, 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	"B" Dimension		Lead Length		Part Number
	in.	(mm)	in.	(mm)	
J	2	(51)	48	(1219)	30DJSGD048A
			96	(2438)	30DJSGD096A
	3	(76)	48	(1219)	30DJSGF048A
			96	(2438)	30DJSGF096A
4	(102)	48	(1219)	30DJSGH048A	
		96	(2438)	30DJSGH096A	

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

#### 1-2. Construction Style

**30 = Bayonet cap with spring, straight**

31 = Bayonet cap with spring, 45° bend

32 = Bayonet cap with spring, 90° bend

#### 3. Sheath Diameter (inch), 316 SS

C = 1/8 S = 1/8 epoxy sealed 149°C (300°F)

D = 3/16 T = 3/16 epoxy sealed 149°C (300°F)

#### 4. Calibration

J = Type J T = Type T

K = Type K E = Type E

#### 5. Lead Protection

F = Fiberglass (24 gauge stranded)

**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**

**H = Fiberglass with stainless steel hose (24 gauge stranded)**

\*P = Fiberglass (20 gauge stranded)

**\*B = Fiberglass with stainless steel overbraid (20 gauge stranded)**

**\*C = Fiberglass with stainless steel hose (20 gauge stranded)**

O = Plug or jack termination on sheath fiberglass (24 gauge stranded)

T = PFA (24 gauge stranded)

U = PFA with stainless steel overbraid (24 gauge stranded)

K = PFA with stainless steel hose (24 gauge stranded)

\*V = PFA (20 gauge stranded)

\*W = PFA with stainless steel overbraid (20 gauge stranded)

\*Y = PFA with stainless steel hose (20 gauge stranded)

#### 6. Junction

F = Grounded, flat tip P = Ungrounded, drill point

**G = Grounded, round tip** E = Exposed

D = Grounded, drill point \*H = Grounded, round tip, dual element

R = Ungrounded, flat tip \*S = Ungrounded, round tip, dual element

#### U = Ungrounded, round tip

#### 7. "B" Dimension<sup>①</sup> (inches)

D = 2 G = 3 1/2 K = 5 N = 6 1/2 R = 8 U = 9 1/2 Z = 12

E = 2 1/2 H = 4 L = 5 1/2 P = 7 S = 8 1/2 W = 10

F = 3 J = 4 1/2 M = 6 Q = 7 1/2 T = 9 Y = 11

#### 8-10. Lead Length (inches)

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

#### 11. Terminations/Options

**A = Standard, 2 1/2 inch split leads**

B = 2 1/2 inch split leads with #6 spade lugs

C = 2 1/2 inch split leads with #6 spade lugs and BX connector

**D = Standard male plug, quick disconnect**

E = Standard female jack, quick disconnect

F = Miniature male plug, quick disconnect

G = Miniature female jack, quick disconnect

H = 1/4 inch push-on connector

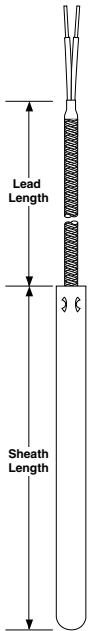
R = Double slotted 12 mm bayonet cap, split end leads

S = Double slotted 15 mm bayonet cap, split end leads

# Thermocouples

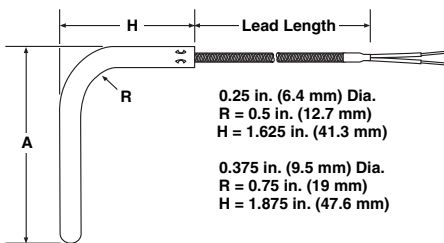
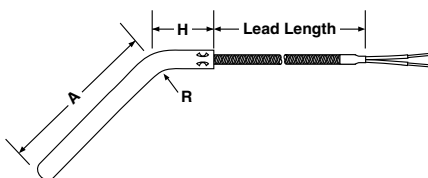
## General Applications

### Large Diameter Rigid Sheath Style 1/4 and 3/8 inch Diameter



Rigid sheath provides protection and accurate placement through bulkheads or platens. Use with a compression fitting for water tight immersion application.

Bent rigid tube offers protection and accurate lead placement around machinery.



Metric sizes available for made-to-order units, consult factory. Minimum order quantity may apply.

### Rapid Ship Sensors

Rapid Ship sensors come with 1/4 inch diameter sheath, 20 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	Sheath Length		Lead Length		Part Number
	in.	(mm)	in.	(mm)	
J	4	(102)	48	(1219)	40EJBGD048A
			96	(2438)	40EJBGD096A
	6	(152)	48	(1219)	40EJBGF048A
			96	(2438)	40EJBGF096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

#### 1-2. Construction Style

- 40 = Plain sheath, straight, large, diameter**
- 41 = Plain (45°) large diameter
- 42 = Plain (90°) large diameter

#### 3. Sheath Diameter (inch), 316 SS

- E = 1/4** U = 1/4 epoxy sealed 149°C (300°F)
- G = 3/8** V = 3/8 epoxy sealed 149°C (300°F)

#### 4. Calibration

- J = Type J** T = Type T
- K = Type K** E = Type E

#### 5. Lead Protection

- F = Fiberglass (24 gauge stranded)
- S = Fiberglass with stainless steel overbraid (24 gauge stranded)
- H = Fiberglass with stainless steel hose (24 gauge stranded)
- P = Fiberglass (20 gauge stranded)**
- B = Fiberglass with stainless steel overbraid (20 gauge stranded)**
- C = Fiberglass with stainless steel hose (20 gauge stranded)
- T = PFA (24 gauge stranded)
- U = PFA with stainless steel overbraid (24 gauge stranded)
- K = PFA with stainless steel hose (24 gauge stranded)
- V = PFA (20 gauge stranded)
- W = PFA with stainless steel overbraid (20 gauge stranded)
- Y = PFA with stainless steel hose (20 gauge stranded)

#### 6. Junction

- F = Grounded, flat tip
- G = Grounded, round tip**
- R = Ungrounded, flat tip
- U = Ungrounded, round tip**
- E = Exposed
- H = Grounded, round tip, dual element
- S = Ungrounded, round tip, dual element

#### 7. Sheath Length (inches)

- A = 1 D = 4 G = 7 K = 10 N = 13 R = 16 U = 19 Z = 24
- B = 2** E = 5 H = 8 L = 11 P = 14 S = 17 W = 20
- C = 3** F = 6 J = 9 M = 12 Q = 15 T = 18 Y = 22

#### 8-10. Lead Length (inches)

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**

Available lengths: 006 to 360, over 360 consult factory

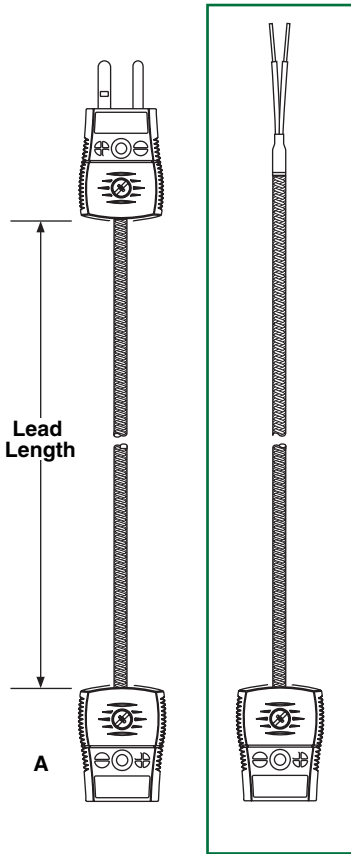
#### 11. Terminations/Options

- A = Standard, 2 1/2 inch split leads**
- B = 2 1/2 inch split leads with #6 spade lugs
- C = 2 1/2 inch split leads with #6 spade lugs and BX connector
- D = Standard male plug, quick disconnect**
- E = Standard female jack, quick disconnect
- F = Miniature male plug, quick disconnect
- G = Miniature female jack, quick disconnect
- H = 1/4 inch push-on connector

# Thermocouples

## General Applications

### Flexible Extensions



Flexible extensions allow the disconnecting of thermocouples from a system without disturbing the remaining wiring.

### Rapid Ship Sensors

Rapid Ship sensors come with standard female connector and a split lead termination.

Calibration	Lead Protection	Lead Length in. (mm)	Part Number
J	Fiberglass with SS overbraid	48 (1219)	60XJBXE048A
		96 (2438)	60XJBXE096A
	Fiberglass with SS hose	48 (1219)	60XJCXE048A
		96 (2438)	60XJCXE096A
K	Fiberglass with SS overbraid	48 (1219)	60XKBXE048A
		96 (2438)	60XKBXE096A
	Fiberglass with SS hose	48 (1219)	60XKCXE048A
		96 (2438)	60XKCXE096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11  
6 0 X X

**1-2. Construction Style** \_\_\_\_\_  
60 = Flexible extension

**3. Diameter** \_\_\_\_\_  
X = Not applicable

**4. Calibration** \_\_\_\_\_  
J = Type J      T = Type T  
K = Type K      E = Type E

**5. Lead Protection** \_\_\_\_\_  
F = Fiberglass (24 gauge stranded)  
S = Fiberglass with stainless steel overbraid (24 gauge stranded)  
P = Fiberglass (20 gauge stranded)  
**B = Fiberglass with stainless steel overbraid (20 gauge stranded)**  
**C = Fiberglass with stainless steel hose (20 gauge stranded)**  
T = PFA (24 gauge stranded)  
U = PFA with stainless steel overbraid (24 gauge stranded)  
K = PFA with stainless steel hose (24 gauge stranded)  
**V = PFA (20 gauge stranded)**  
W = PFA with stainless steel overbraid (20 gauge stranded)  
Y = PFA with stainless steel hose (20 gauge stranded)

**6. Junction** \_\_\_\_\_  
X = Not applicable

**7. Termination "A"** \_\_\_\_\_  
**A = Standard, 2 ½ inch split leads**  
B = 2 ½ inch split leads with spade lugs  
C = 2 ½ inch split leads with spade lugs and BX Connector  
**D = Standard male plug, quick disconnect**  
**E = Standard female jack, quick disconnect**  
\*F = Miniature male plug, quick disconnect  
\*G = Miniature female jack, quick disconnect  
H = ¼ inch push-on connector

**8-10. Lead Length (inches)** \_\_\_\_\_  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
Available lengths: 006 to 360, over 360 consult factory

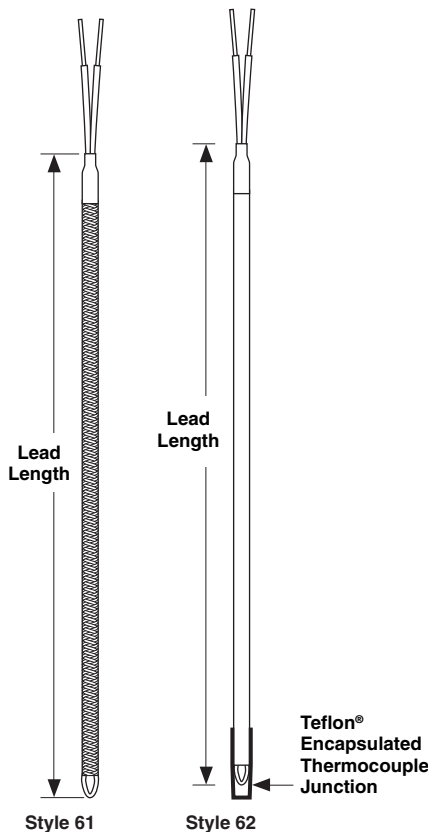
**11. Termination "B"** \_\_\_\_\_  
**A = Standard, 2 ½ inch split leads**  
B = 2 ½ inch split leads with #6 spade lugs  
C = 2 ½ inch split leads with #6 spade lugs and BX connector  
**D = Standard male plug, quick disconnect**  
**E = Standard female jack, quick disconnect**  
F = Miniature male plug, quick disconnect  
G = Miniature female jack, quick disconnect  
H = ¼ inch push-on connector

\* Not available with SS hose.

# Thermocouples

## General Applications

### Insulated Wire Thermocouple Style 61 and Style 62



### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge solid FEP insulated lead and a split lead termination.

Calibration	Lead Protection	Lead Length		Part Number
		in.	(mm)	
K	Extruded FEP	48	(1219)	61XKTEX048A
		96	(2438)	61XKTEX096A
T	Extruded FEP	48	(1219)	61XTTEX048A
		96	(2438)	61XTTEX096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

X E X

**1-2. Construction Style** —————

**61 = SERIES 61**  
\*62 = SERIES 62

**3. Diameter** —————

X = Not applicable

**4. Calibration** —————

J = Type J  
**K = Type K**  
**T = Type T**

**5. Lead Protection** —————

P = Fiberglass (20 gauge solid)  
B = Fiberglass with stainless steel overbraid (20 gauge solid)  
J = Extruded FEP (20 gauge solid)  
F = Fiberglass (24 gauge solid)  
S = Fiberglass with stainless steel overbraid (24 gauge solid)  
**T = Extruded FEP (24 gauge solid)**

**6. Junction** —————

E = Exposed

**7. Exter X** —————

**8-10. Lead Length (inches)** —————

**048 and 096**  
Available lengths: 006 to 600, over 600 consult factory

**11. Terminations/Options** —————

**A = Standard, 2 ½ inch split leads**  
B = 2 ½ inch split leads with spade lugs  
D = Standard male plug, quick disconnect  
E = Standard female jack, quick disconnect  
**F = Miniature male plug, quick disconnect**  
G = Miniature female jack, quick disconnect  
H = ¼ inch push-on connector

\* Only available with wire (lead protection) options J or T (5th digit).

Constructed with SERV-RITE® insulated thermocouple Styles 61 and 62 are economical and versatile thermocouples with the option of an exposed or protected measuring junction. Style 61 has an exposed junction and is suitable for most general purpose applications, such as measuring air, gas and surface temperatures. Style 62 has an encapsulated measuring junction that is ideal for corrosive fluids and gases

such as sulfuric acid, hydrofluoric acid, strong mineral acids and oils.

Styles 61 and 62 are available with fiberglass insulated lead wire (SERIES 304 construction), with continuous temperature ratings of 480°C (900°F). Or, order it with FEP insulated lead wire (SERIES 507), rated to 200°C (400°F) continuous temperature.

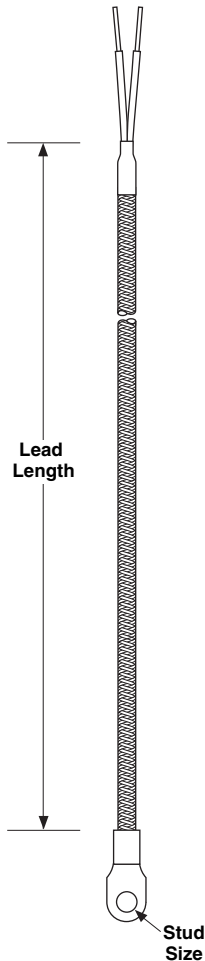
For additional mechanical strength and abrasion resistance, a stainless steel overbraid is available.

Teflon® is a registered trademark of E. I. du Pont de Nemours & Company

# Thermocouples

## General Applications

### Ring Terminal Style



The nickel terminal can be placed beneath existing screws or bolts to permit surface temperature measurement.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	Stud Size	Lead Length in. (mm)	Part Number
J	No. 10	48 (1219)	70XJSGC048A
		96 (2438)	70XJSGC096A
	¼	48 (1219)	70XJSGD048A
		96 (2438)	70XJSGD096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

**7 0 X**

**1-2. Construction Style** —————

70 = Ring terminal thermocouple

**3. Diameter** —————

X = Not applicable

**4. Calibration** —————

**J = Type J**      T = Type T  
**K = Type K**      E = Type E

**5. Lead Protection** —————

**F = Fiberglass (24 gauge stranded)**  
**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**  
P = Fiberglass (20 gauge stranded)  
**B = Fiberglass with stainless steel overbraid (20 gauge stranded)**  
T = PFA (24 gauge stranded)  
U = PFA with stainless steel overbraid (24 gauge stranded)  
V = PFA (20 gauge stranded)  
W = PFA with stainless steel overbraid (20 gauge stranded)

**6. Junction** —————

**G = Grounded**  
\*U = Ungrounded

**7. Stud Size—Hole Diameter (inches)** —————

**\*A = No. 6**                      0.144  
**\*B = No. 8**                      0.169  
**\*C = No. 10**                    0.196  
**D = ¼**                              0.266  
E = ⅜                                0.390

**8-10. Lead Length (inches)** —————

**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** —————

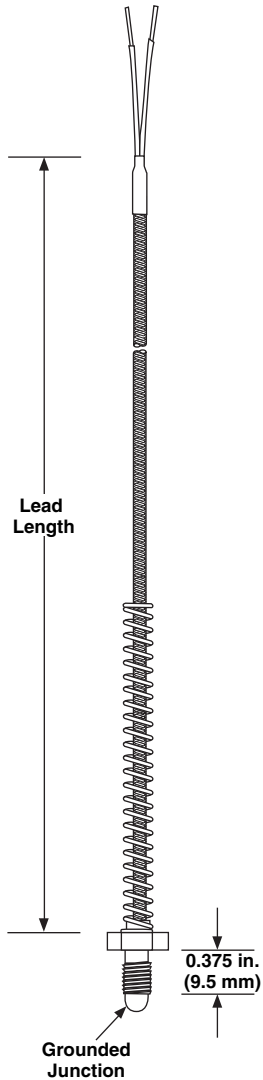
**A = Standard, 2 ½ inch split leads**  
**B = 2 ½ inch split leads with #6 spade lugs**  
C = 2 ½ inch split leads with #6 spade lugs and BX connector  
**D = Standard male plug, quick disconnect**  
E = Standard female jack, quick disconnect  
**F = Miniature male plug, quick disconnect**  
G = Miniature female jack, quick disconnect  
H = ¼ inch push-on connector

\* Only available with 24 gauge wire.

# Thermocouples

## General Applications

### Nozzle Style



The nozzle thermocouple has a short installation depth and a low profile thus allowing control of thin sections of platens.

\* Only available with 24 gauge wire.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

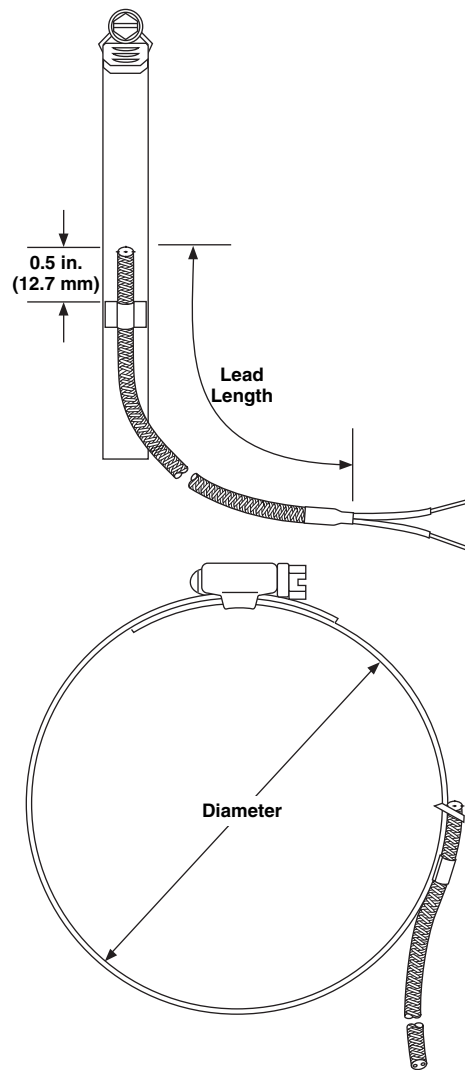
Calibration	Bolt Size	Lead Length in. (mm)	Part Number
J	¼ in. x 28 UNF	48 (1219)	71XJSGA048A
		96 (2438)	71XJSGA096A
	M6 x 1	48 (1219)	71XJSGM048A
		96 (2438)	71XJSGM096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
	<b>7</b>	<b>1</b>	<b>X</b>			<b>G</b>					
<b>1-2. Construction Style</b>	71 = Nozzle thermocouple										
<b>3. Diameter</b>	X = Not applicable										
<b>4. Calibration</b>	<b>J = Type J</b> T = Type T <b>K = Type K</b> E = Type E										
<b>5. Lead Protection</b>	<b>F = Fiberglass (24 gauge stranded)</b> <b>S = Fiberglass with stainless steel overbraid (24 gauge stranded)</b> P = Fiberglass (20 gauge stranded) <b>B = Fiberglass with stainless steel overbraid (20 gauge stranded)</b> T = PFA (24 gauge stranded) U = PFA with stainless steel overbraid (24 gauge stranded) V = PFA (20 gauge stranded) W = PFA with stainless steel overbraid (20 gauge stranded)										
<b>6. Junction</b>	G = Grounded										
<b>7. 304 SS, Bolt size</b>	<b>A = ¼ inch x 28 UNF, ⅜ inch thread depth</b> B = 8-32 thread * C = 10-32 thread * <b>M = M6 x 1</b>										
<b>8-10. Lead Length (inches)</b>	<b>012, 024, 036, 040, 048, 060, 072, 079, 096 and 120</b> Available lengths: 006 to 360, over 360 consult factory										
<b>11. Terminations/Options</b>	<b>A = Standard, 2 ½ inch split leads</b> B = 2 ½ inch split leads with #6 spade lugs C = 2 ½ inch split leads with #6 spade lugs and BX connector <b>D = Standard male plug, quick disconnect</b> E = Standard female jack, quick disconnect F = Miniature male plug, quick disconnect G = Miniature female jack, quick disconnect H = ¼ inch push-on connector										

# Thermocouples

## General Applications Pipe Clamp Style



The stainless steel clamp allows temperature measurement without drilling or tapping. Ideal for measuring pipe temperatures.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge stranded fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	Clamp Size	Lead Length		Part Number
		in.	(mm)	
J	1/8 to 1 1/4	48	(1219)	72XJSGA048A
		96	(2438)	72XJSGA096A
	1 1/4 to 2 1/4	48	(1219)	72XJSGB048A
		96	(2438)	72XJSGB096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

1 2 3 4 5 6 7 8 9 10 11

7 2 X G

**1-2. Construction Style** \_\_\_\_\_  
72 = Pipe clamp thermocouple

**3. Diameter** \_\_\_\_\_  
X = Not applicable

**4. Calibration** \_\_\_\_\_  
**J = Type J**      T = Type T  
**K = Type K**      E = Type E

**5. Lead Protection** \_\_\_\_\_  
**S = Fiberglass with stainless steel overbraid (24 gauge stranded)**  
**B = Fiberglass with stainless steel overbraid (20 gauge stranded)**  
U = PFA with stainless steel overbraid (24 gauge stranded)  
W = PFA with stainless steel overbraid (20 gauge stranded)

**6. Junction** \_\_\_\_\_  
G = Grounded

**7. Clamp Band Diameter Range (inches)** \_\_\_\_\_  
**A = 1/8 to 1 1/4**      E = 4 1/4 to 5  
**B = 1 1/4 to 2 1/4**      F = 5 to 6  
C = 2 1/4 to 3 1/4      G = 6 to 7  
D = 3 1/4 to 4 1/4

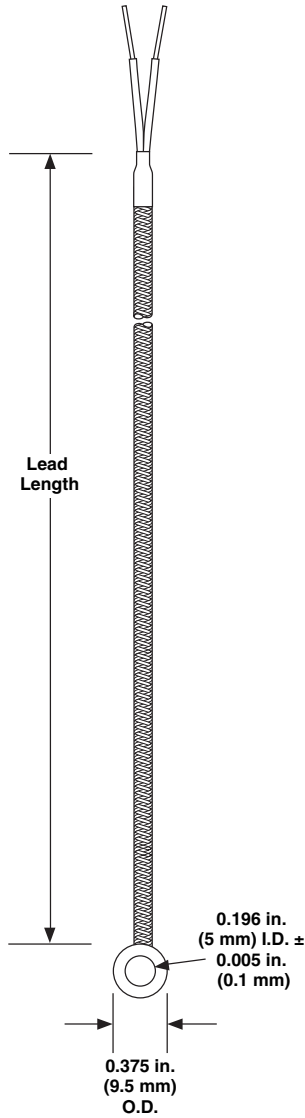
**8-10. Lead Length (inches)** \_\_\_\_\_  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** \_\_\_\_\_  
**A = Standard, 2 1/2 inch split leads**  
B = 2 1/2 inch split leads with #6 spade lugs  
C = 2 1/2 inch split leads with #6 spade lugs and BX connector  
**D = Standard male plug, quick disconnect**  
E = Standard female jack, quick disconnect  
F = Miniature male plug, quick disconnect  
G = Miniature female jack, quick disconnect  
H = 1/4 inch push-on connector

# Thermocouples

## General Applications

### Grommet Style



Extremely low profile of the stainless steel grommet provides fast response time.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge solid fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	Lead Length		Part Number
	in.	(mm)	
J	48	(1219)	73XJFGA048A
	96	(2438)	73XJFGA096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
	<b>7</b>	<b>3</b>	<b>X</b>			<b>G</b>	<b>A</b>				

**1-2. Construction Style** \_\_\_\_\_  
 73 = Grommet thermocouple

**3. Diameter** \_\_\_\_\_  
 X = Not applicable

**4. Calibration** \_\_\_\_\_  
**J = Type J**      T = Type T  
**K = Type K**      E = Type E

**5. Lead Protection** \_\_\_\_\_  
**F = Fiberglass (24 gauge solid)**  
 T = PFA (24 gauge solid)

**6. Junction** \_\_\_\_\_  
 G = Grounded

**7. Grommet Size (inch)** \_\_\_\_\_  
 A = 0.195 inch I.D. x 0.375 inch O.D. x 0.035 inch thick

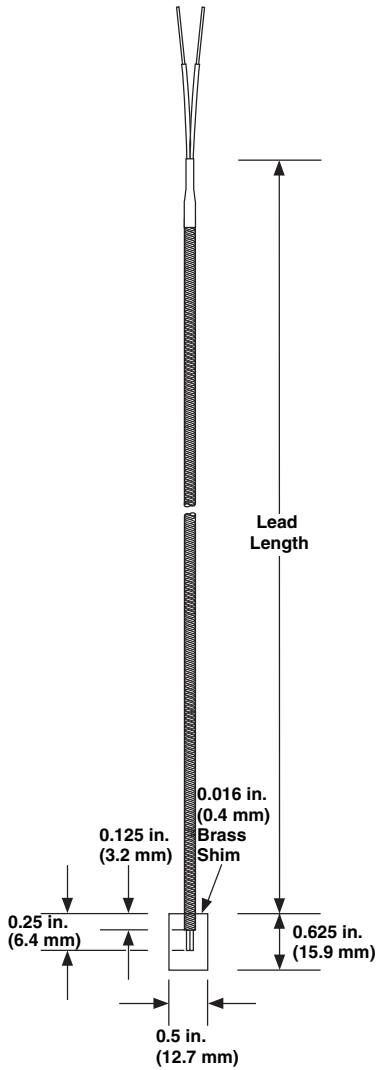
**8-10. Lead Length (inches)** \_\_\_\_\_  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
 Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** \_\_\_\_\_  
**A = Standard, 2 ½ inch split leads**  
 B = 2 ½ inch split leads with #6 spade lugs  
 C = 2 ½ inch split leads with #6 spade lugs and BX connector  
 D = Standard male plug, quick disconnect  
 E = Standard female jack, quick disconnect  
 F = Miniature male plug, quick disconnect  
 G = Miniature female jack, quick disconnect  
 H = ¼ inch push-on connector

# Thermocouples

## General Applications

### Brass Shim Style



**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
	7	4	X			G	A				

**1-2. Construction Style** \_\_\_\_\_  
 74 = Shim stock thermocouple

**3. Diameter** \_\_\_\_\_  
 X = Not applicable

**4. Calibration** \_\_\_\_\_  
**J = Type J**  
**K = Type K**  
 T = Type T  
 E = Type E

**5 Lead Protection** \_\_\_\_\_  
**F = Fiberglass (24 gauge solid)**  
 T = PFA (24 gauge solid)

**6. Junction** \_\_\_\_\_  
 G = Grounded

**7. Shim Size (inch)** \_\_\_\_\_  
 A = 1/2 inch x 3/8 inch x 0.016 inch, brass

**8-10. Lead Length (inches)** \_\_\_\_\_  
**012, 024, 036, 040, 048, 060, 072, 079, 096 and 120**  
 Available lengths: 006 to 360, over 360 consult factory

**11. Terminations/Options** \_\_\_\_\_  
**A = Standard, 2 1/2 inch split leads**  
 B = 2 1/2 inch split leads with #6 spade lugs  
 C = 2 1/2 inch split leads with #6 spade lugs and BX connector  
 D = Standard male plug, quick disconnect  
 E = Standard female jack, quick disconnect  
 F = Miniature male plug, quick disconnect  
 G = Miniature female jack, quick disconnect  
 H = 1/4 inch push-on connector

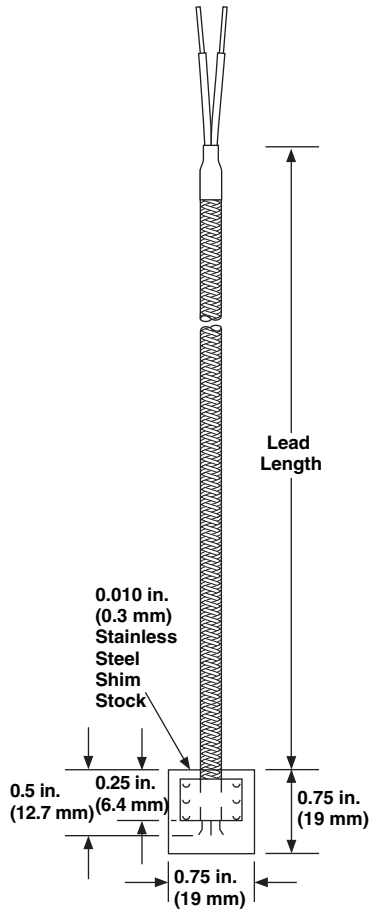
The shim stock thermocouple has low profile and can be placed between components for measurement of surface temperature.

Available in other shim dimensions. Contact your Watlow sales representative for details.

# Thermocouples

## General Applications

### Stainless Steel Shim Style



The shim stock thermocouple has low profile and can be placed between components for measurement of surface temperature.

Available in other shim dimensions. Contact your Watlow sales representative for details.

### Rapid Ship Sensors

Rapid Ship sensors come with 24 gauge solid fiberglass lead with stainless steel overbraid, grounded junction and a split lead termination.

Calibration	Lead Length		Part Number
	in.	(mm)	
J	48	(1219)	75XJSGA048A
	96	(2438)	75XJSGA096A

**Custom Ordering Information**—Items in **Bolded Green Type** are preferred with shorter lead times.

	1	2	3	4	5	6	7	8	9	10	11
	<b>7</b>	<b>5</b>	<b>X</b>			<b>G</b>	<b>A</b>				
<b>1-2. Construction Style</b>	75 = Stainless steel shim stock thermocouple										
<b>3. Diameter</b>	X = Not applicable										
<b>4. Calibration</b>	<b>J = Type J</b> <b>K = Type K</b> T = Type T E = Type E										
<b>5. Lead Protection</b>	F = Fiberglass (24 gauge stranded) <b>S = Fiberglass with stainless steel overbraid (24 gauge stranded)</b> T = PFA (24 gauge stranded) U = PFA with stainless steel overbraid (24 gauge stranded)										
<b>6. Junction</b>	G = Grounded										
<b>7. Shim Size (inch)</b>	A = 3/8 inch x 3/8 inch x 0.010 inch, 304 stainless steel										
<b>8-10. Lead Length (inches)</b>	<b>012, 024, 036, 040, 048, 060, 072, 079, 096 and 120</b> Available lengths: 006 to 360, over 360 consult factory										
<b>11. Terminations/Options</b>	<b>A = Standard, 2 1/2 inch split leads</b> B = 2 1/2 inch split leads with #6 spade lugs C = 2 1/2 inch split leads with #6 spade lugs and BX connector <b>D = Standard male plug, quick disconnect</b> E = Standard female jack, quick disconnect F = Miniature male plug, quick disconnect G = Miniature female jack, quick disconnect H = 1/4 inch push-on connector										

# Thermocouples

## General Applications Kapton® Bracket Style

The Kapton® thermocouple, when used with the aluminum bracket, has been designed primarily to measure roller temperature. By putting a light pressure on the roller, the Kapton® thermocouple measures roller surface temperature without using slip rings. This type of set-up greatly reduces lag time and eliminates the cost of slip rings and their associated maintenance problems.

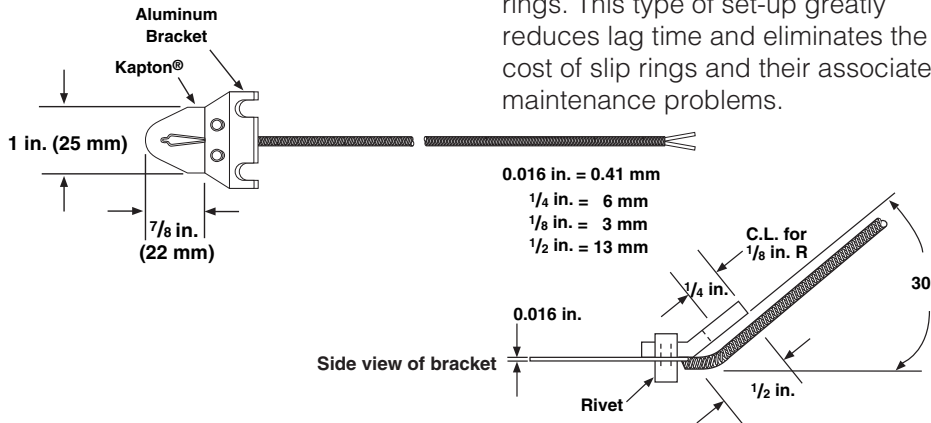
It can also be used to measure conveyor belt temperatures or any other moving part by riding gently on the part surface.

- Continuous use at 200°C (400°F), 260°C (500°F) for limited periods
- Low mass
- Fast response
- Totally insulated construction
- Available in Type J or K

### Kapton® Thermocouple with Bracket

Rapid Ship sensors with 30 gauge solid thermocouple wire, with fiberglass insulation and split lead termination.

Calibration	Lead Length in. (cm)	Part No.
J	48 (122)	<b>OKJ30B4A</b>
	96 (244)	OKJ30B4B
K	48 (122)	<b>OKK30B4A</b>
	96 (244)	OKK30B4B



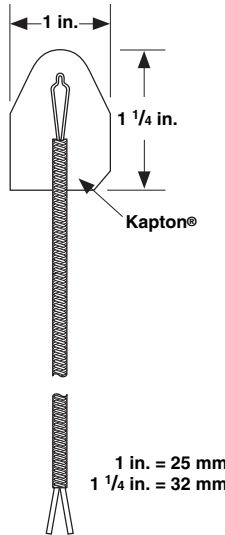
## Low Profile Kapton® Peel and Stick Style

## Low Profile Kapton® Thermocouple (without Bracket)

When used without the bracket it can be placed between heated parts for accurate temperature measurement. At the thermocouple junction, the overall thickness is only 0.016 in. (0.4 mm), so that it does not interfere with fit or thermo conductivity.

Rapid Ship sensors with 30 gauge solid thermocouple wire, with fiberglass insulation and split lead termination.

Calibration	Lead Length in. (cm)	Part No.
J	48 (122)	<b>OKJ30B2A</b>
	96 (244)	OKJ30B2B
K	48 (122)	<b>OKK30B1A</b>
	96 (244)	OKK30B1B



## Kapton® Peel and Stick

This sensor needs no bracket and no special mounting. Simply peel away the backing and this self-adhesive film will bond to almost any surface. Temperature ratings for continuous use is 200°C (400°F).

Rapid Ship sensors with 30 gauge solid thermocouple wire, with fiberglass insulation and split lead termination.

Calibration	Lead Length in. (cm)	Part No.
J	48 (122)	<b>OKJ30B11A</b>
	96 (244)	<b>OKJ30B11B</b>
K	48 (122)	<b>OKK30B10A</b>
	96 (244)	<b>OKK30B10B</b>
T	48 (122)	OKK30B12A
	96 (244)	OKK30B12B

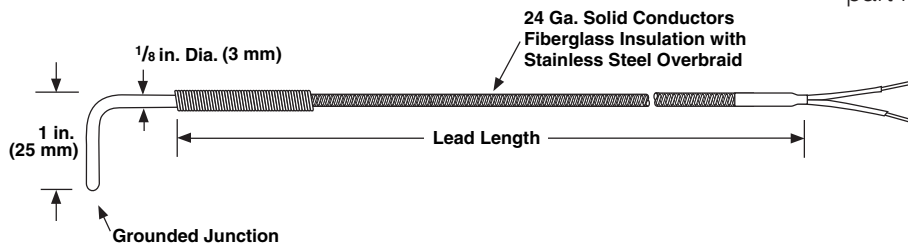
## Newbury Nozzle Style

A direct replacement for OEM Type J nozzle thermocouples held in place with a set screw. The sheath is 1/8 inch diameter with a 90 degree bend and a spring strain relief.

## Ordering Information

With 48 inch metal braided leads part no. **125J2A23D**

With 60 inch metal braided leads part no. **125J2A23E**



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