

THERMOCOUPLE Pipe Well Assemblies

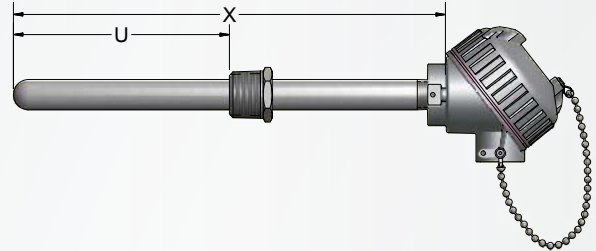
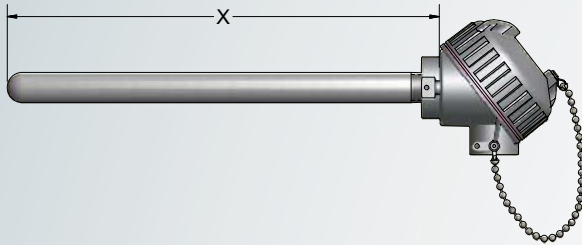
- MgO-insulated thermocouple pipe well assemblies
- Pipe available in a variety of metal alloy materials
- Allows for easy and quick replacement of sensor assemblies
- Cost-effective alternative to machined thermowells where applicable
- Ideal for high temperature, low-pressure and/or low-velocity piping, and vessel applications



Pyromation offers a line of MgO pipe well temperature sensor assemblies that function as a less expensive alternative to thermowell assemblies in low-pressure, low-velocity piping, and vessel applications. In certain applications where longer temperature sensor assemblies are required, pipe well assemblies can be used at lengths where thermowells might not be practical. The MgO thermocouple sheath in these

pipe well assemblies offers an extra shield that delivers excellent corrosion-resistance, protects the element from contamination, and guards against thermocouple drift and oxidation. The MgO-type thermocouple also provides superior stability compared to standard industrial thermocouples in high vibration applications. Pyromation's line includes flanged, welded, and threaded pipe well assemblies in a range of sizes and materials.

WITH SPRING-LOADED OR LOOSE ELEMENTS



**Example
Order
Number:**

1-0 1-1 1-2 1-3 1-4 2-0 3-0 4-0 5-0 6-0 6-1
K 4 8 U M,8VS - 8-75 - 36 - SL - 815R133 - 31, I

1-0 THERMOCOUPLE TYPE

CODE	
SINGLE	DUPLEX
J	JJ
K	KK
E	EE
T	TT
N	NN

1-1 SHEATH DIAMETER

CODE	DESCRIPTION
4	1/4 inch
6	3/8 inch

1-2 SHEATH MATERIAL

CODE	DESCRIPTION
8	316 Stainless steel
3	Alloy 600

1-3 JUNCTION STYLE

CODE	DESCRIPTION
G	Grounded junction
U	Ungrounded junction

1-4 ELEMENT OPTIONS

CODE	DESCRIPTION
M	Special limits of error
8VS	316 Stainless steel vibration spacers (see table on GP11)

2-0 PIPE MATERIAL AND SIZE

CODE	MATERIAL	MAX TEMP	CODE (INCHES)	
			1/2 INCH NPT	3/4 INCH NPT
6	Carbon steel	538 °C [1000 °F]	50	75
8	316 Stainless steel	927 °C [1700 °F]	50	75
5	446 Stainless steel	1093 °C [2000 °F]	50	75
3	Alloy 600	1149 °C [2100 °F]	50	75
7	Alloy 601	1260 °C [2300 °F]	50	75
41	HR 160	1204 °C [2200 °F]	50	75

6-0 HEAD TERMINATIONS AND OPTIONS

CODE	DESCRIPTION
31	Aluminum screw-cover head
34	Cast iron screw-cover head
91	316 L Stainless steel screw-cover head
49	Aluminum flip-top head
71	Cast iron/aluminum explosion-proof head, Group C
72	Aluminum explosion-proof head, Group B
81	316 L Stainless steel explosion-proof head, Group C

6-1 OPTIONS

SB	1/2 inch NPT conduit reducer bushing
I	Stainless steel tag
GS	Ground screw
H	Adjustable steel mounting flange

5-0 OPTIONAL WELDED FITTINGS

CODE		DESCRIPTION
STEEL	316 SS	
6D(U)	8D(U)	3/4 inch NPT welded bushing (50 tubes only)
6E(U)	8E(U)	1 inch NPT welded bushing
6F(U)	8F(U)	1 (1/4) inch NPT welded bushing
6G(U)	8G(U)	1 (1/2) inch NPT welded bushing
6H(U)	8H(U)	2 inch NPT welded bushing
610R1(U)	810R1(U)	1 inch 150# class raised-face flange
615R1(U)	815R1(U)	1 (1/2) inch 150# class raised-face flange
620R1(U)	820R1(U)	2 inch 150# class raised-face flange

Other sizes and materials available - consult factory.

4-0 ELEMENT OPTIONS

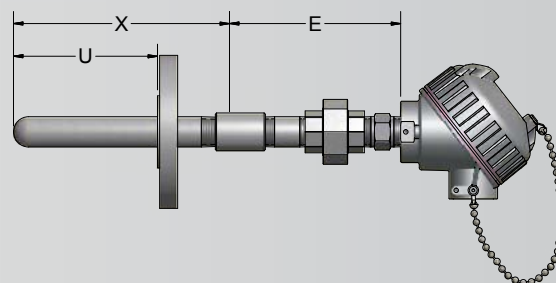
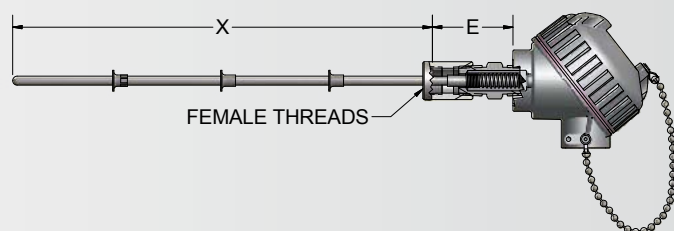
CODE	DESCRIPTION
SL	Spring-loaded element
LE	Loose element

3-0 PROTECTION TUBE

"X" LENGTH

Specify length in one inch increments. 4 inch minimum to 240 inch maximum.

WITH SELF-CONTAINED, SPRING-LOADED ELEMENTS AND OPTIONAL TRANSMITTERS

**Example
Order
Number:**

1-0 1-1 1-2 1-3 1-4 2-0 3-0 4-0 5-0 6-0 7-0 7-1
K 4 8 U M,8VS - 8-75 - 36 - 815R130 - PC - 8PU4 31, I

1-0 THERMOCOUPLE TYPE

CODE	
SINGLE	DUPLEX
J	JJ
K	KK
E	EE
T	TT
N	NN

1-3 JUNCTION STYLE

CODE	DESCRIPTION
G	Grounded junction
U	Ungrounded junction

1-4 ELEMENT OPTIONS

CODE	DESCRIPTION
M	Special limits of error
8VS	316 Stainless steel vibration spacers (see table on GP11)

2-0 PIPE MATERIAL AND SIZE

CODE	MATERIAL	MAX TEMP	CODE (INCHES)	
			1/2 INCH NPT	3/4 INCH NPT
6	Carbon steel	538 °C [1000 °F]	50	75
8	316 Stainless steel	927 °C [1700 °F]	50	75
5	446 Stainless steel	1093 °C [2000 °F]	50	75
3	Alloy 600	1149 °C [2100 °F]	50	75
7	Alloy 601	1260 °C [2300 °F]	50	75
41	HR 160	1204 °C [2200 °F]	50	75
00 ¹	No protection tube	N/A	50	75

¹ Supplied with a female process connection.**3-0 PROTECTION TUBE****"X" LENGTH**

Specify length in one inch increments. 4 inch minimum to 240 inch maximum.

4-0 OPTIONAL WELDED FITTINGS

CODE		DESCRIPTION
STEEL	316 SS	
6D(U)	8D(U)	3/4 inch NPT welded bushing (50 tubes only)
6E(U)	8E(U)	1 inch NPT welded bushing
6F(U)	8F(U)	1 (1/4) inch NPT welded bushing
6G(U)	8G(U)	1 (1/2) inch NPT welded bushing
6H(U)	8H(U)	2 inch NPT welded bushing
610R1(U)	810R1(U)	1 inch 150# class raised-face flange
615R1(U)	815R1(U)	1 (1/2) inch 150# class raised-face flange
620R1(U)	820R1(U)	2 inch 150# class raised-face flange

Other sizes and materials available - consult factory

7-0 HEAD TERMINATIONS AND OPTIONS

CODE	DESCRIPTION
22	3 inch individual leads with terminal pins
31	Aluminum screw-cover head
34	Cast iron screw-cover head
91	316 L Stainless steel screw-cover head
49	Aluminum flip-top head
71	Cast iron/aluminum explosion-proof head, Group C
72	Aluminum explosion-proof head, Group B
81	316 L Stainless steel explosion-proof head, Group C
35T-642A	(4 to 20) mA Isolated HART® field transmitter with general-purpose aluminum housing
75T-642C	(4 to 20) mA Isolated HART® field transmitter with explosion-proof aluminum housing, Group A

7-1 OPTIONS AND TRANSMITTERS

SB	1/2 inch NPT conduit reducer bushing
I	Stainless steel tag
GS	Ground screw
H	Adjustable steel mounting flange
T-441 ¹	(4 to 20) mA Isolated head-mounted transmitter
T-442 ¹	(4 to 20) mA Isolated HART® head-mounted transmitter

¹ Not available with option 71 or 81

See Transmitter section for transmitter ordering information

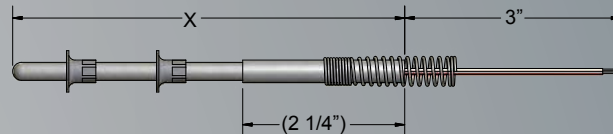
6-0 HEAD MOUNTING FITTINGS

CODE		DESCRIPTION
STEEL	316 SS	
6HN	8HN	1/2 inch X 1/2 inch NPT hex nipple 2 Inch "E" length
6PU ¹	8PU ¹	1/2 inch NPT union/hex nipple (specify "E" length)
6XU ²	8XU ²	1/2 inch NPT explosion-proof union/hex nipple (specify "E" length)

¹ 4 Inch minimum "E" length required, not available with option 71, 72, 81, or 75T² 3 (1/2) Inch minimum "E" length required**5-0 ELEMENT OPTIONS**

CODE	DESCRIPTION
PC	Self-contained spring-loaded element

REPLACEMENT ELEMENTS



**Example
Order
Number:**

1-0 1-1 1-2 1-3 1-4 2-0 3-0 4-0
K 4 8 U M,8VS50 - 36 - PC - 22(06)

1-0 THERMOCOUPLE TYPE

CODE	
SINGLE	DUPLEX
J	JJ
K	KK
E	EE
T	TT
N	NN

1-1 SHEATH DIAMETER

CODE	DESCRIPTION
4	1/4 inch
6 ¹	3/8 inch

¹ Not available with PC option

1-2 SHEATH MATERIAL

CODE	DESCRIPTION
8	316 Stainless steel
3	Alloy 600

1-3 JUNCTION STYLE

CODE	DESCRIPTION
G	Grounded junction
U	Ungrounded junction

1-4 ELEMENT OPTIONS

CODE	DESCRIPTION
M	Special limits of error
8VS50	316 Stainless steel vibration spacers for 1/2 inch schedule 40 pipe
8VS75	316 Stainless steel vibration spacers for 3/4 inch schedule 40 pipe

4-0 SHEATH TERMINATION

CODE	DESCRIPTION
22 ¹	3 inch individual leads with terminal pins
10 ¹	2 inch stripped leads

¹ For longer leads, insert 2 digit length in inches.
Example: 22(06) or 10(04)

3-0 ELEMENT OPTIONS

CODE	DESCRIPTION
SL ¹	Spring-loaded element
PC ¹	Self contained spring-loaded element
LE ²	Loose element

¹ Only available with option 22 sheath termination

² Only available with option 10 sheath termination

2-0 ELEMENT

"X" LENGTH

Specify length in one inch increments. 4 inch minimum to 240 inch maximum.

REPLACEMENT ELEMENT "X" DIMENSION CALCULATIONS

ASSEMBLY TYPE	REPLACEMENT ELEMENT "X" DIMENSION
SL	Assembly "X" length - 1/4 inch
PC	Assembly "X" length + "E" length + 1/2 inch
LE	Same as assembly "X" length

STANDARD VIBRATION SPACER PLACEMENT

ASSEMBLY LENGTH	SPACER SPECIFICATIONS
4 inches to 18 inches	2 spacers equally spaced
> 18 inches to 36 inches	3 spacers equally spaced
> 36 inches	1 additional spacer for each additional 18 inches. All spacers are equally spaced.

// MULTIPLE CONSTRUCTIONS FOR A VARIETY OF APPLICATIONS

Pyromation MgO-insulated pipe well assemblies can be used as a less expensive alternative to thermowell assemblies in a number of low-pressure and high-temperature applications including:

- Furnaces
- Ovens
- Incineration
- Power Generation
- Holding Tanks
- Ducts

Pyromation's Pipe Well Assemblies are available in lengths up to 20 feet with optional vibration spacers and spring-loaded elements.

Standard construction options for Pyromation MgO-insulated thermocouple pipe well assemblies are shown in this brochure; however, custom designs are also available. Contact us to find out how we can provide a solution for your application.



// SPEED, SERVICE, SOLUTIONS...
BEYOND MEASURE®

Operating since 1962, Pyromation is the premier temperature sensor manufacturer in North America. From RTDs and thermocouples to thermowells, connection heads, accessories, and complete assemblies, Pyromation can make the right temperature sensor for your process and deliver it faster than anyone in the industry. A broad product line, industry experience, friendly customer service, and quick delivery make Pyromation the best choice for your temperature measurement applications.

For more information, contact
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