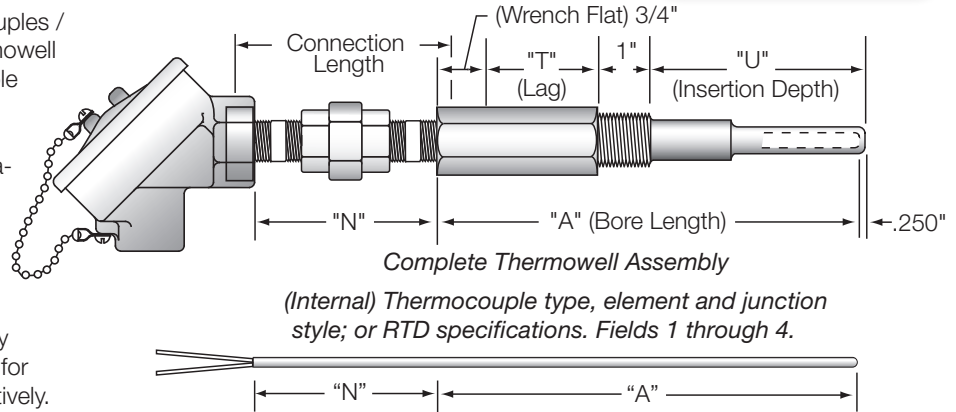


Thermowell Assemblies

Thermowells provide protection for thermocouples / RTDs in pressure vessels and pipelines. A thermowell permits checking and replacing the thermocouple without draining the vessel or pipeline.

Thermowells are available in a variety of materials, sizes and styles. Thermowell specifications are generally determined by the corrosion conditions of the well environment and also include the strength, temperature and pressure requirements.

The selection of a standard bore diameter (0.260" or 0.385") can produce extreme flexibility within the plant, providing a maximum diameter for the sensing element of 0.252" or 0.377" respectively.



Determine the internal thermocouple type, element and junction style; or RTD specifications by making the selections in Fields 1 through 4. Select only the options available within the MgO, Ceramic or RTD section below. (Fields 2 through 4 should all be from the same section.)

Code	Type
K	Type K
J	Type J
E	Type E
T	Type T
R	RTD Only

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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MgO Insulated Thermowells

Use only this row for MgO (MI) Insulated Elements

MgO FIELD 2	Code	Diameter
5	0.188"	
6	0.250"	

MgO FIELD 3	Code	Mgo Sheath Material
1	304 SS	
2	Inconel 600	
3	316 SS	

MgO FIELD 4	Code	Elements	Junction
W	Single	Grounded	
Y	Single	Ungrounded	
V	Dual	Grounded	
Z	Dual	Isolated	

Ceramic Insulated Thermowells

Use only this row for Ceramic Insulated Elements. (For wells with 0.385" bore only)

CERAMIC FIELDS 2, 3	Code	Ga.	Limits
	14	14	Standard
	15	14	Special
	20	20	Standard
	21	20	Special

Type	Max Temperature Rating	
	14 Ga.	20 Ga.
K	1093°C (2000°F)	982°C (1800°F)
J	593°C (1100°F)	482°C (900°F)
E	649°C (1200°F)	538°C (1000°F)
T	260°C (500°F)	200°C (400°F)

CERAMIC FIELD 4	Code	Elements	Style	Junction
W	Single	Twisted	Grounded	
2	Single	Twisted	Ungrounded	
3	Single	Butt Welded	Grounded	
4	Single	Butt Welded	Ungrounded	
5	Dual	Common	Ungrounded	
6	Dual	Butt Welded	Isolated	
V	Dual	Twisted	Grounded	

RTD Thermowells

Use only this row for RTD Elements

RTD FIELD 2	Code	RTD Element
5	.00391 Ω/Ω/°C with RTD Bulb	
7	.00385 Ω/Ω/°C with RTD Thin Film Element	

RTD FIELD 3	Code	Insulation	Temp. Rating	Accuracy
1	Teflon	500°F	.25%	
2	Teflon	500°F	.10%	
3	Fiberglass	932°F	.25%	
4	Fiberglass	932°F	.10%	

RTD FIELD 4	Code	Elements	Wires
1	Single	3	
2	Dual	3	
5	Single	4	

Element Only

Use this row for the Element only. No thermowell. Use Element Selections for Fields 1 through 4 from above.

Skip all options on page 2.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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Fields 7, 8, 9	Element Length for Element Only
Enter actual whole inches using two digits "020" with the third digit representing a half inch increment in field 9 by entering a "5". For no fraction enter a "0". Example: 020 = 2", 025 = 2.5", 100 = 10", 105 = 10.5"	
Use the dimensions of the existing thermowell to calculate the element length by adding A + N. See page T - 2 for the appropriate calculations.	

FIELDS 14, 15	Code	Cold End Termination
00	None	
90	Element with SS double-ended bushing	
91	Element with spring loaded SS double-ended bushing	
96	Element with spring loaded and terminal block	
97	Element Only	

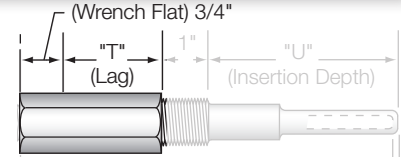
Thermowell Assemblies

Determine the Thermowell Style in Field 5. Threaded, Socket Weld or Flanged. Note the Bore Size columns.

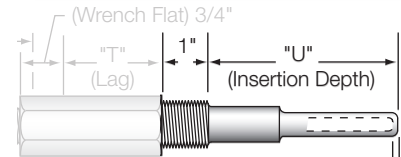
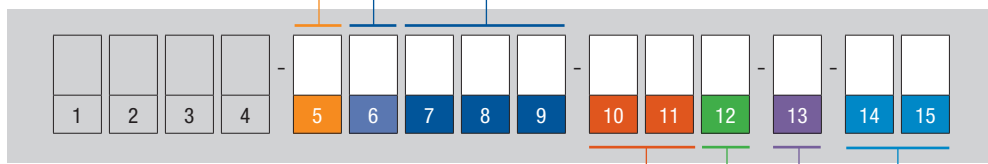
Additional Lag Dimension permits clearance for insulation or other material surrounding the pipe or process vessel.

Thermowell Type	Code	Thermowell Style	0.385" Bore maximum sensing element diameter of 0.377"		0.260" Bore maximum sensing element diameter of 0.252"	
			Code	Thermowell Style	Code	Thermowell Style
	A	Tapered Shank	M	Tapered Shank		
	B	Straight Shank	N	Straight Shank		
	E	Straight Shank, Reduced Tip	R	Straight Shank, Reduced Tip		
			P	Straight Shank, Reduced Tip		
	D	Straight Shank	Q	Straight Shank		
	F	Straight Shank - Vanstone	S	Straight Shank - Vanstone		
			T	Tapered Shank		
			U	Straight Shank, Reduced Tip		

Field 6	Code	LAG (Dimension "T")
	0	Enter "0" for basic 3/4" wrench allowance
	T	Enter Lag Dimension "T" in whole inches up to 8" NOTE: For lengths over 8" specify 9 and add 9 = "Length" on order.



Insertion Length (Dimension "U")
Enter actual whole inches using two digits "020" with the third digit representing a half inch increment in field 9 by entering a "5". For no fraction enter a "0".
Example: 020 = 2", 025 = 2.5", 100 = 10", 105 = 10.5"

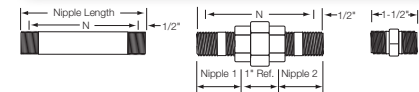


Field 10, 11	Material & Mounting Code					(Field 5) Thermowell Type
	304 SS	316 SS	C-1018	Brass	Size	
	AL	BL	CL	UL	1/2" NPT	Threaded
	AA	BA	CA	UA	3/4" NPT	Threaded or Socket Weld
	AB	BB	CB	UB	1" NPT	Threaded
	AC	BC	CC	UC	1-1/4" NPT	Threaded
	AD	BD	CD		1"	150# Flange
	AE	BE	CE		1-1/2"	
	AF	BF	CF		1-1/2"	300# Flange
	AG	BG	CG		1-1/2"	600# Flange
	AH	BH	CH	UH	1"	Vanstone Flange
	AJ	BJ	CJ	UJ	1-1/2"	
	AK	BK	CK	UK	2"	Flange

Field 12	Code	Options
	0	None
	1	Brass Plug & Chain
	2	304 SS Plug & Chain
	3	Internal Hydrostatic Test
	4	Dye Penetration Test
	5	Full Penetration Weld
	6	Material Certification
	7	Stress Relief
	9	Two or more of the above listed options.

Field 13	Code	Head to Well Connection
	0	None, Thermowell or Element Only.
	A	4" Black Steel Nipple
	B	Same as above but specify length
	C	4" Stainless Steel Nipple
	D	Same as above but specify length
	E	4" Black Steel Nipples & Union
	F	Same as above but specify length
	J	4" Galvanized Steel Nipples & Union
	K	Same as above but specify length
	L	1/2" NPT Double-Ended Bushing

Fields 14, 15	Code	Cold End Termination
	00	None
	10	Weatherproof Cast Iron, Non-Spring Loaded (Replaces Code 08)
	22	Explosion Proof, Aluminum, Non-Spring Loaded
	25	Weatherproof Cast Iron, Spring Loaded (Replaces Code 23)
	26	Explosion Proof, Aluminum, Spring Loaded
	27	Weatherproof, Aluminum, Non-Spring Loaded (Replaces Code 09)
	28	Weatherproof, Aluminum, Spring Loaded (Replaces Code 24)
	32	Weatherproof, Aluminum Head with Transmitter *Must specify the range of the sensor on the order. (i.e., 0°F - 800°F)
	34	316 Stainless Steel, Weatherproof
	35	316 Stainless Steel, Explosion Proof



Thermowell Style	Determine "A"	Connector Codes	Determine "N"
A, B, E, M, N, P, R	A = U + T + 1-1/2"	A, C, E, J (Field 13)	N = 3"
D, Q, F, S, T, U	A = U + T + 2"	B, D (Field 13)	N = Nipple length less 1"
	Use the dimensions of the existing thermowell to calculate the element length by adding A + N	F, K (Field 13)	N = Combined length of nipples 1 & 2
		O, L, G, H (Field 13)	N is not compatible

THERMOWELL ONLY
Use "TH00" for Fields 1 through 4 and select the options for Fields 5 through 12.
Use "0" for Fields 13, 14 & 15.

T H 0 0 - 0 0 0

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15