

Standard Thermowells for Industrial Applications



Velocity Ratings of Wells

Well failures, in most cases, are not due to the effects of pressure and temperature. The calculations necessary to provide adequate strength under given conditions are familiar enough to permit proper choice of wall thickness and material.

Less familiar, and more dangerous, are the vibrational effects to which wells are subjected. Fluid, flowing by the well, forms a turbulent wake (called the Von Karman Trail) which has a definite frequency based on the diameter of the well and the velocity of the fluid. It is important that the well has sufficient stiffness so that the wake frequency will never equal the natural frequency of the well itself. If the natural frequency of the well were to coincide with the wake frequency, the well would vibrate to destruction and break off in the piping.

On the following pages, a recommended velocity rating can be found for every standard well length and material cataloged. To reduce the complexity of presenting this information, the ratings are based on operating temperatures of 1000°F for wells made of Carbon Steel (C-1018), ANSI 304, and ANSI 316. Values for Brass wells are based on 350°F operation. Limits for Monel are based on 900°F service. Slightly higher velocity is possible at lower temperatures.

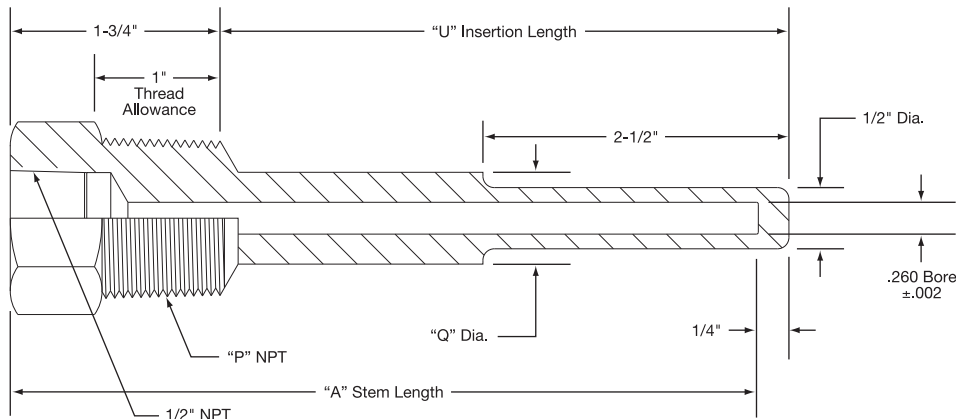
Where single values appear in the velocity tables, these may be considered safe for water, steam, air or gas. In the shorter insertion lengths, consideration is given to the velocity pressure effect of water flowing at higher velocities. The values in parentheses, therefore, represent safe values for water flow, while the unbracketed value may be used for steam, air, gas and fluids of similar density.

It should be pointed out that the values given are extremely conservative, and intended primarily as a guide. Wells are also safe if the resonant frequency is well below the wake frequency or if the fluid velocity is constantly fluctuating through the critical velocity point. Nevertheless, if the installation is not hampered by the use of a sufficiently stiff well, we recommend the values should not be exceeded.

If you have operating conditions requiring special well designs, our engineering staff is available to assist you. Consult Tempco with your requirements.

Series 10 Straight Shank with .260 Bore for 1/4" Diameter Elements

Standard Duty Threaded



Ordering Information

Complete the Part Number by filling in the box with the number designating the material.

- 1** = Steel
- 2** = Brass
- 3** = 316 Stainless Steel
- 4** = 304 Stainless Steel
- 5** = Monel

Standard Sizes

Part Number	External Thread "P"	Stem Length "A" (in)	Insertion Length "U" (in)	Shank Diameter "Q" (in)
TWL1011	1/2" NPT	4	2 1/2	—
TWL1012		6	4 1/2	3/8
TWL1013		9	7 1/2	5/8
TWL1014		12	10 1/2	5/8
TWL1015		15	13 1/2	5/8
TWL1016		18	16 1/2	5/8
TWL1018		24	22 1/2	5/8
TWL1021	3/4" NPT	4	2 1/2	—
TWL1022		6	4 1/2	3/4
TWL1023		9	7 1/2	3/4
TWL1024		12	10 1/2	3/4
TWL1025		15	13 1/2	3/4
TWL1026		18	16 1/2	3/4
TWL1028		24	22 1/2	3/4
TWL1031	1" NPT	4	2 1/2	—
TWL1032		6	4 1/2	7/8
TWL1033		9	7 1/2	7/8
TWL1034		12	10 1/2	7/8
TWL1035		15	13 1/2	7/8
TWL1036		18	16 1/2	7/8
TWL1037		24	22 1/2	7/8
TWL1038		24	22 1/2	7/8

Maximum Fluid Velocity, Feet Per Second

(See Velocity Ratings on page 14-76)

Well Type	Material	Insertion Length — "U" (in)							
		2 1/2	4 1/2	7 1/2	10 1/2	13 1/2	16 1/2	19 1/2	22 1/2
1/2" Series 10 and 15	Brass	207 (59.3)	75.5 (32.2)	27.3 (19.7)	13.9	8.4	5.6	4.1	3.0
	Carbon Steel	290 (106)	105 (59)	38.2 (36.3)	19.4	11.8	7.8	5.7	4.2
	A.I.S.I. 304 & 316	300 (148)	109 (82.2)	39.5	20.1	12.2	8.1	5.9	4.4
	Monel	261 (118)	95 (65.5)	34.4	17.5	10.5	7.1	5.2	3.8
3/4" Series 10 and 15	Brass	207 (59.3)	89.1 (39.8)	32.2 (23.9)	16.4	9.9	6.6	4.8	3.6
	Carbon Steel	290 (106)	123 (71.2)	44.9 (42.7)	22.8	13.8	9.3	6.7	4.9
	A.I.S.I. 304 & 316	300 (148)	128 (99.3)	46.4	23.6	14.3	9.6	6.9	5.1
	Monel	261 (118)	112 (79.8)	40.6	20.7	12.4	8.3	6.1	4.5
1" Series 10 and 15	Brass	207 (59.3)	102 (47.6)	37.0 (28)	18.8	11.4	7.6	5.5	4.1
	Carbon Steel	290 (106)	143 (84.3)	51.6 (50.6)	26.2	15.9	10.6	7.6	5.7
	A.I.S.I. 304 & 316	300 (148)	148 (117)	53.5	27.2	16.5	11.0	7.9	5.9
	Monel	261 (118)	128 (93.3)	46.7	23.7	14.4	9.5	6.9	5.1



Note: Where single values appear in table, thermowell may be considered safe for water, steam, air or gas. The values in parentheses in the shorter insertion lengths represent safe values for water flow, taking into consideration the velocity pressure effect of water flowing at higher velocities.

* See Page 14-78 for Maximum Pressure — Temperature Ratings *

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

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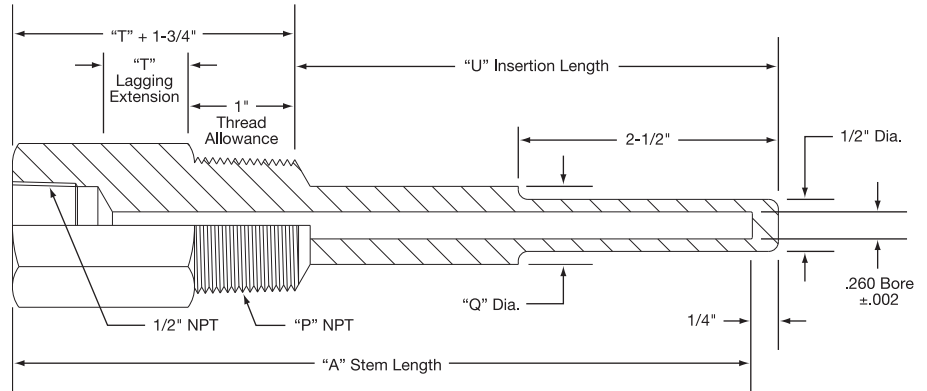
Series 15 Straight Shank — Lagging Extension Type with .260" Bore for 1/4" Diameter Elements Standard Duty Threaded



Ordering Information

Complete the Part Number by filling in the box with the number designating the material.

- 1** = Steel
- 2** = Brass
- 3** = 316 Stainless Steel
- 4** = 304 Stainless Steel
- 5** = Monel



Standard Sizes

Part Number	External Thread "P"	Stem Length "A" (in)	Insertion Length "U" (in)	Lag Extension "T" (in)	Shank Diameter "Q" (in)
TWL1511 <input type="checkbox"/>	1/2" NPT	6	2 1/2	2	—
TWL1512 <input type="checkbox"/>		9	4 1/2	3	5/8
TWL1513 <input type="checkbox"/>		12	7 1/2	3	5/8
TWL1514 <input type="checkbox"/>		15	10 1/2	3	5/8
TWL1515 <input type="checkbox"/>		18	13 1/2	3	5/8
TWL1517 <input type="checkbox"/>		24	19 1/2	3	5/8
TWL1521 <input type="checkbox"/>	3/4" NPT	6	2 1/2	2	—
TWL1522 <input type="checkbox"/>		9	4 1/2	3	3/4
TWL1523 <input type="checkbox"/>		12	7 1/2	3	3/4
TWL1524 <input type="checkbox"/>		15	10 1/2	3	3/4
TWL1525 <input type="checkbox"/>		18	13 1/2	3	3/4
TWL1527 <input type="checkbox"/>		24	19 1/2	3	3/4
TWL1531 <input type="checkbox"/>	1" NPT	6	2 1/2	3	—
TWL1532 <input type="checkbox"/>		9	4 1/2	3	7/8
TWL1533 <input type="checkbox"/>		12	7 1/2	3	7/8
TWL1534 <input type="checkbox"/>		15	10 1/2	3	7/8
TWL1535 <input type="checkbox"/>		18	13 1/2	3	7/8
TWL1537 <input type="checkbox"/>		24	19 1/2	3	7/8

Pressure — Temperature Rating (lbs. per square inch)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
Brass	5000	4222	1000	—	—	—	—
Carbon Steel	5200	5000	4800	4600	3500	1500	—
A.I.S.I. 304	7000	6200	5600	5400	5200	4500	1650
A.I.S.I. 316	7000	7000	6400	6200	6100	5100	2500
Monel	6500	6000	5400	5300	5200	1500	—

See Page 14-77 for Maximum Fluid Velocity, Feet Per Second

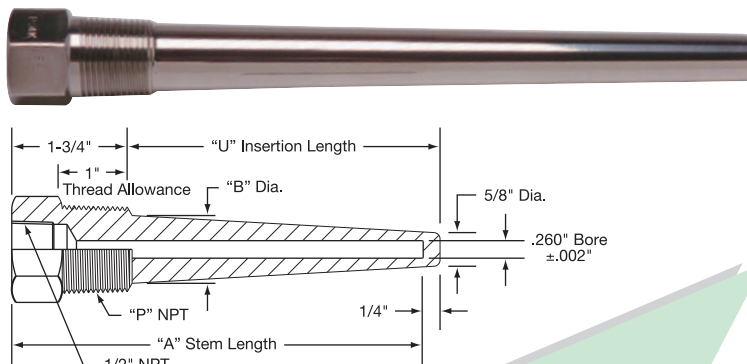
⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Series 20 Tapered Shank with .260" Bore for 1/4" Diameter Elements

Heavy Duty Threaded

Series 20 Standard Sizes

Part Number	External Thread "P"	Element Length "A" (in)	Insertion Length "U" (in)	Shank Diameter "B" (in)
TWL2021	3/4" NPT	4	2 1/2	—
TWL2022		6	4 1/2	7/8
TWL2023		9	7 1/2	7/8
TWL2024		12	10 1/2	7/8
TWL2025		15	13 1/2	7/8
TWL2026		18	16 1/2	7/8
TWL2028	24	22 1/2	7/8	
TWL2031	1" NPT	4	2 1/2	—
TWL2032		6	4 1/2	1 1/16
TWL2033		9	7 1/2	1 1/16
TWL2034		12	10 1/2	1 1/16
TWL2035		15	13 1/2	1 1/16
TWL2036		18	16 1/2	1 1/16
TWL2038	24	22 1/2	1 1/16	



Thermowells are available in the following materials: Steel, Brass, 316 Stainless Steel, 304 Stainless Steel and Monel.

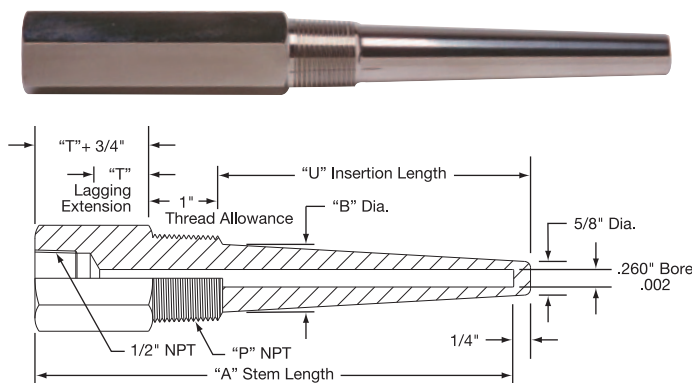
For Ordering Information See Page 14-78

Series 25 Tapered Shank-Lagging Extension Type with .260" Bore for 1/4" Diameter Elements

Heavy Duty Threaded

Series 25 Standard Sizes

Part Number	External Thread "P"	Lagging Extension "T" (in)	Stem Length "A" (in)	Insert Length "U" (in)	Shank Diameter "B" (in)
TWL2521	3/4" NPT	2	6	2 1/2	—
TWL2522		3	9	4 1/2	7/8
TWL2523		3	12	7 1/2	7/8
TWL2524		3	15	10 1/2	7/8
TWL2525		3	18	13 1/2	7/8
TWL2527		3	24	19 1/2	7/8
TWL2531	1" NPT	2	6	2 1/2	—
TWL2532		3	9	4 1/2	1 1/16
TWL2533		3	12	7 1/2	1 1/16
TWL2534		3	15	10 1/2	1 1/16
TWL2535		3	18	13 1/2	1 1/16
TWL2537		3	24	19 1/2	1 1/16



Maximum Fluid Velocity Feet Per Second (See Velocity Ratings on page 14-76)

Well Type	Material	Insertion Length — "U" (in)							
		2 1/2	4 1/2	7 1/2	10 1/2	13 1/2	16 1/2	19 1/2	22 1/2
3/4" Series 20 and 25	Brass	305 (97.5)	93.8 (54.1)	33.9	17.1	10.5	7.0	5.0	3.7
	Carbon Steel	386 (175)	180 (97.2)	65.3 (58.3)	33.0	20.1	13.4	9.6	7.1
	A.I.S.I. 304 & 316	440 (243)	197 (135)	71.2	36.0	22.0	14.7	10.5	7.8
	Monel	354 (195)	155 (108)	56.1	28.4	17.3	11.6	7.5	5.6
1" Series 20 and 25	Brass	354 (161)	108 (89.5)	39.4	19.8	12.2	8.1	5.8	4.3
	Carbon Steel	448 (289)	209 (161)	75.7	38.4	23.3	15.5	11.1	8.2
	A.I.S.I. 304 & 316	490 (403)	228 (225)	82.5	41.8	25.5	17.1	12.2	9.1
	Monel	410 (322)	179 (178)	65.1	33.0	20.1	13.5	8.7	6.5



Note: Where single values appear in table, thermowell may be considered safe for water, steam, air or gas. The values in parentheses in the shorter insertion lengths represent safe values for water flow, taking into consideration the velocity pressure effect of water flowing at higher velocities.

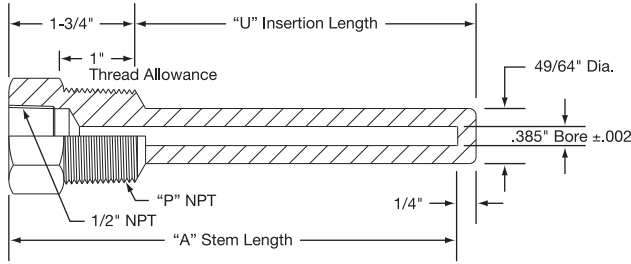
Pressure — Temperature Rating (lbs. per square inch)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
Brass	5300	4750	1100	—	—	—	—
Carbon Steel	5950	5750	5450	5250	4000	1750	—
A.I.S.I. 304	7800	7050	6400	6150	6000	5190	1875
A.I.S.I. 316	7800	7800	7250	7100	6950	5800	2720
Monel	7450	6850	6150	6100	5940	1750	—

Thermowells

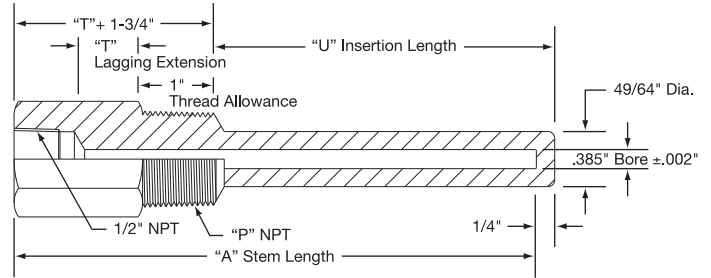
Series 30 Straight Shank with .385" Bore for 3/8" Diameter Elements

Standard Duty Threaded



Series 35 Straight Shank — Lagging Extension Type with .385" Bore for 3/8" Diameter Elements

Standard Duty Threaded



Series 30 Standard Sizes

Part Number	External Thread "P"	Stem Length "A" (in)	Insertion Length "U" (in)
TWL3021	3/4" NPT	4	2 1/2
TWL3022		6	4 1/2
TWL3023		9	7 1/2
TWL3024		12	10 1/2
TWL3025		15	13 1/2
TWL3026		18	16 1/2
TWL3028		24	22 1/2
TWL3031	1" NPT	4	2 1/2
TWL3032		6	4 1/2
TWL3033		9	7 1/2
TWL3034		12	10 1/2
TWL3035		15	13 1/2
TWL3036		18	16 1/2
TWL3038		24	22 1/2

Series 35 Standard Sizes

Part Number	External Thread "P"	Lagging Extension "T" (in)	Stem Length "A" (in)	Insert Length "U" (in)
TWL3521	3/4" NPT	2	6	2 1/2
TWL3522		3	9	4 1/2
TWL3523		3	12	7 1/2
TWL3524		3	15	10 1/2
TWL3525		3	18	13 1/2
TWL3527		3	24	19 1/2
TWL3531		1" NPT	2	6
TWL3532	3		9	4 1/2
TWL3533	3		12	7 1/2
TWL3534	3		15	10 1/2
TWL3535	3		18	13 1/2
TWL3537	3		24	19 1/2

Thermowells are available in the following materials:
Steel, Brass, 316 Stainless Steel, 304 Stainless Steel and Monel.

For Ordering Information See Page 14-78

Pressure — Temperature Rating (lbs. per square inch)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
Brass	5000	4222	1000	—	—	—	—
Carbon Steel	5200	5000	4800	4600	3500	1500	—
A.I.S.I. 304	7000	6200	5600	5400	5200	4500	1650
A.I.S.I. 316	7000	7000	6400	6200	6100	5100	2500
Monel	6500	6000	5400	5300	5200	1500	—

Maximum Fluid Velocity Feet Per Second

(See Velocity Ratings on page 14-76)

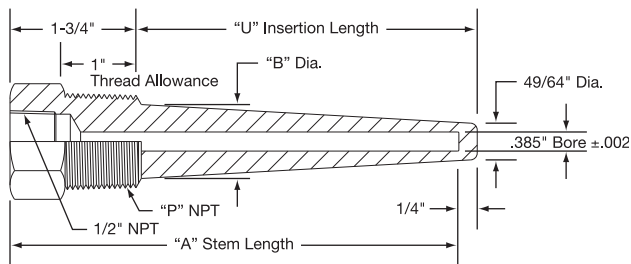
Material	Insertion Length — "U" (in)							
	2 1/2	4 1/2	7 1/2	10 1/2	13 1/2	16 1/2	19 1/2	22 1/2
Brass	290 (145)	150 (80)	54.1 (48)	27.6	16.7	11.1	8.0	6.0
Carbon Steel	326 (260)	192 (144)	69.5	35.4	20.5	14.3	10.3	7.7
A.I.S.I. 304 & 316	349 (360)	199	71.9	36.6	21.2	14.8	10.7	8.0
Monel	316 (320)	189 (178)	68.1	34.8	20.8	14.0	10.0	7.5



Note: Where single values appear in table, thermowell may be considered safe for water, steam, air or gas. The values in parentheses in the shorter insertion lengths represent safe values for water flow, taking into consideration the velocity pressure effect of water flowing at higher velocities.

Series 40 Tapered Shank with .385" Bore for 3/8" Diameter Elements

Heavy Duty Threaded

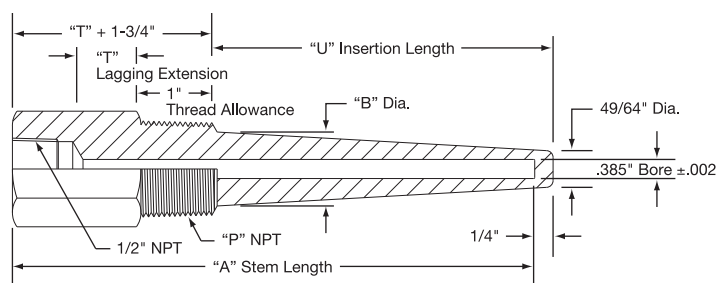


Series 40 Standard Sizes

Part Number	External Thread "P"	Stem Length "A" (in)	Insertion Length "U" (in)	Shank Diameter "B" (in)
TWL4021	3/4" NPT	4	2 1/2	7/8
TWL4022		6	4 1/2	7/8
TWL4023		9	7 1/2	7/8
TWL4024		12	10 1/2	7/8
TWL4025		15	13 1/2	7/8
TWL4026		18	16 1/2	7/8
TWL4028		24	22 1/2	7/8
TWL4031	1" NPT	4	2 1/2	1 1/16
TWL4032		6	4 1/2	1 1/16
TWL4033		9	7 1/2	1 1/16
TWL4034		12	10 1/2	1 1/16
TWL4035		15	13 1/2	1 1/16
TWL4036		18	16 1/2	1 1/16
TWL4038		24	22 1/2	1 1/16

Series 45 Tapered Shank — Lagging Extension Type with .385" Bore for a 3/8" Diameter Element

Heavy Duty Threaded



Series 45 Standard Sizes

Part Number	External Thread "P"	Lag. Exten. "T" (in)	Stem Length "A" (in)	Insert Length "U" (in)	Shank Diameter "B" (in)
TWL4521	3/4" NPT	2	6	2 1/2	7/8
TWL4522		3	9	4 1/2	7/8
TWL4523		3	12	7 1/2	7/8
TWL4524		3	15	10 1/2	7/8
TWL4525		3	18	13 1/2	7/8
TWL4527		3	24	19 1/2	7/8
TWL4531		1" NPT	2	6	2 1/2
TWL4532	3		9	4 1/2	1 1/16
TWL4533	3		12	7 1/2	1 1/16
TWL4534	3		15	10 1/2	1 1/16
TWL4535	3		18	13 1/2	1 1/16
TWL4537	3		24	19 1/2	1 1/16

Thermowells are available in the following materials: Steel, Brass, 316 Stainless Steel, 304 Stainless Steel and Monel.

For Ordering Information See Page 14-78

Pressure — Temperature Rating (lbs. per square inch)

Material	Temperature						
	70°F	200°F	400°F	600°F	800°F	1000°F	1200°F
Brass	5000	4222	1000	—	—	—	—
Carbon Steel	5200	5000	4800	4600	3500	1500	—
A.I.S.I. 304	7000	6200	5600	5400	5200	4500	1650
A.I.S.I. 316	7000	7000	6400	6200	6100	5100	2500
Monel	6500	6000	5400	5300	5200	1500	—

Maximum Fluid Velocity Feet Per Second

(See Velocity Ratings on page 14-76)

Well Type	Material	Insertion Length — "U" (in)							
		2 1/2	4 1/2	7 1/2	10 1/2	13 1/2	16 1/2	19 1/2	22 1/2
3/4" Series 40 and 45	Brass	276 (127)	124 (79)	44.0	22.0	13.0	8.0	6.0	4.0
	Carbon Steel	352 (228)	191 (114)	68.9	35.0	21.0	14.0	10.0	7.5
	A.I.S.I. 304 & 316	415 (299)	203 (154)	73.2	37.3	22.5	15.0	11.0	8.0
	Monel	340 (255)	172 (134)	62.0	31.0	19.0	12.8	8.0	6.0
1" Series 40 and 45	Brass	321 (150)	129 (83.5)	46.8	23.6	14.5	9.6	6.9	5.1
	Carbon Steel	410 (270)	249 (150)	90.3	45.6	27.8	18.5	13.2	9.8
	A.I.S.I. 304 & 316	483 (350)	272 (208)	97.3	49.7	30.4	20.3	14.5	10.7
	Monel	396 (306)	214 (167)	77.5	39.2	23.8	16.0	10.3	7.7



Note: Where single values appear in table, thermowell may be considered safe for water, steam, air or gas. The values in parentheses in the shorter insertion lengths represent safe values for water flow, taking into consideration the velocity pressure effect of water flowing at higher velocities.

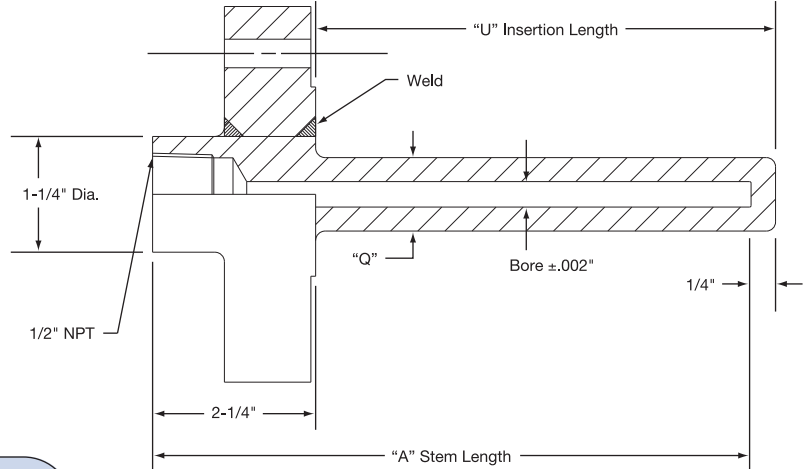
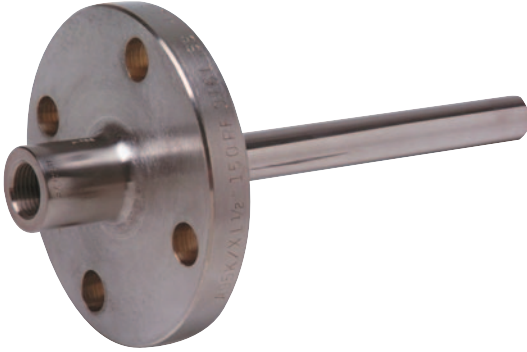
Temperature Sensing



Thermowells

Series 50 (.260" Bore) & Series 55 (.385" Bore) for 1/4" and 3/8" Diameter Elements

Flanged



Standard Sizes

"U" (in)	"A" (in)	Part Number			
		1" Flange		1 1/2" Flange	
		.260 Bore Q = 3/4"	.385 Bore Q = 7/8"	.260 Bore Q = 3/4"	.385 Bore Q = 7/8"
2	4	TWL5021	TWL5521	TWL5028	TWL5528
4	6	TWL5022	TWL5522	TWL5029	TWL5529
7	9	TWL5023	TWL5523	TWL5030	TWL5530
10	12	TWL5024	TWL5524	TWL5031	TWL5531
13	15	TWL5025	TWL5525	TWL5032	TWL5532
16	18	TWL5026	TWL5526	TWL5033	TWL5533
22	24	TWL5027	TWL5527	TWL5034	TWL5534

• Flanges are 150-lb. Raised Face. Other Facings and Pressure Ranges are available.

Ordering Information

Complete the Part Number by filling in the box with the number designating the material.

- 1 = Steel**
- 2 = Brass**
- 3 = 316 Stainless Steel**
- 4 = 304 Stainless Steel**
- 5 = Monel**

Maximum Fluid Velocity Feet Per Second

(See Velocity Ratings on page 14-76)

Well Type	Material	Insertion Length — "U" (in)						
		2	4	7	10	13	16	22
Series 50 and 60	Carbon Steel	404 (129)	184 (71.2)	67.0 (42.7)	34.0	20.6	13.7	7.4
	A.I.S.I. 304 & 316	430 (179)	192 (99.3)	69.7 (59.6)	35.4	21.5	14.3	7.7
	Monel	350 (143)	168 (79.8)	61 (47.7)	31.0	18.8	12.5	6.7
Series 55 and 65	Carbon Steel	410 (152)	248 (84.3)	91.3 (50.6)	45.7	27.6	18.5	10.0
	A.I.S.I. 304 & 316	444 (211)	258 (117)	95.2 (70.3)	47.6	28.8	19.3	10.4
	Monel	338 (168)	226 (93.3)	83.3 (56.0)	41.6	25.2	16.9	9.1



Note: Where single values appear in table, thermowell may be considered safe for water, steam, air or gas. The values in parentheses in the shorter insertion lengths represent safe values for water flow, taking into consideration the velocity pressure effect of water flowing at higher velocities.

Maximum Flange Pressure — Temperature Rating

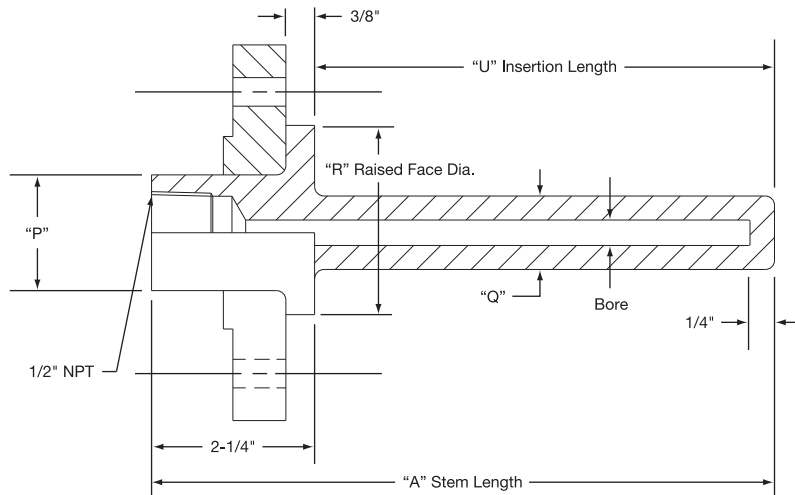
(lbs. per square inch)

Material	Temperature °F			
	0°	800°	1000°	1125°
Carbon Steel	2500	2500	—	—
A.I.S.I. 304	2500	2500	2500	—
A.I.S.I. 316	2500	2500	2500	2500
Monel	2500	2500	—	—

WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Series 60 (.260" Bore) & Series 65 (.385" Bore) for 1/4" and 3/8" Elements

Van Stone



Standard Sizes

"U" (in)	"A" (in)	Part Number			
		1" Flange R = 2", P = 1.315"		1 1/2" Flange R = 2 7/8", P = 1.900"	
		.260 Bore Q = 3/4"	.385 Bore Q = 7/8"	.260 Bore Q = 3/4"	.385 Bore Q = 7/8"
2	4	TWL6021	TWL6521	TWL6028	TWL6528
4	6	TWL6022	TWL6522	TWL6029	TWL6529
7	9	TWL6023	TWL6523	TWL6030	TWL6530
10	12	TWL6024	TWL6524	TWL6031	TWL6531
13	15	TWL6025	TWL6525	TWL6032	TWL6532
16	18	TWL6026	TWL6526	TWL6033	TWL6533
22	24	TWL6027	TWL6527	TWL6034	TWL6534

• Catalog Part Numbers fit 1" and 1-1/2" Lap Joint Flanges

Ordering Information

Complete the Part Number by filling in the box with the number designating the material.

- 1** = Steel
- 2** = Brass
- 3** = 316 Stainless Steel
- 4** = 304 Stainless Steel
- 5** = Monel

⚠ WARNING: Cancer and Reproductive Harm - www.P65Warnings.ca.gov.

Thermowell Corrosive Service Guide

Corrodent	Temp. °F	Conc. %	Recommended Material
Acetic Acid	212	All	Monel
Acetic Anhydride	300		Nickel
Acetone	212	All	304 SS
Acetylene	400		304 SS
Alcohols	212	All	304 SS
Alum (Potassium or Sodium)	300	All	Hast. C
Aluminum Chloride	212	All	Hast. B
Aluminum Sulfate	212	All	316 SS
Ammonia, Dry	212	All	304 SS, 316 SS
Ammonium Chloride	300	50%	Monel
Ammonium Hydroxide (Ammonia, Aqua)	212	All	304 SS, 316 SS
Ammonium Nitrate	300	All	304 SS
Ammonium Sulfate	212	All	316 SS
Amyl Acetate	300	All	304 SS
Aniline	75		Monel
Asphalt	250		304 SS
Atmosphere, (Industrial and Marine)			304 SS
Barium Compounds	See Calcium		
Beer	70		304 SS
Benzene (Benzol)	212		Steel
Benzoic Acid	212	All	316 SS
Bleaching Powder	70	15%	Monel
Borax	212	All	Brass
Bordeaux Mixture	200		304 SS
Boric Acid	400	All	316 SS
Bromine	125	Dry	Monel
Butane	400	All	Steel
Butyl Alcohol	See Alcohols		
Butyric Acid	212		Hast. C
Calcium Bisulphite	75	All	Hast. C
Calcium Chloride	212	All	Hast. C
Calcium Hydroxide	300	20%	Hast. C
Calcium Hypochlorite	See Bleaching Powder		
Carbolic Acid	See Phenol		
Carbon Dioxide, Dry	800	All	Brass
Carbon Disulfide	200		304 SS
Carbon Tetrachloride	125	All	Monel
Carbonated Beverages	212		304 SS
Carbonated Water	212	All	304 SS
Chloracetic Acid	212	All	Monel
Chlorine, Dry	100		Monel
Chlorine, Moist	100	All	Monel
Chloroform, Dry	212		Monel
Chromic Acid	300	All	Hast. C
Cider	300	All	304 SS
Citric Acid	212	All	Hast. C
Copper (10) Chloride	212	All	Hast. C
Copper (10) Nitrate	300	All	316 SS
Copper (10) Sulfate	300	All	316 SS
Copper Plating Solution (Acid)	75		304 SS
Copper Plating Solution (Cyanide)	180		304 SS
Corn Oil	200		304 SS
Creosote	200	All	304 SS
Crude Oil	300		Monel
Ethanol	See Alcohols		
Ethyl Acetate	See Lacquer Thinner		
Ethyl Chloride, Dry	500		Steel
Ethylene Glycol (Uninhibited)	212	All	304 SS
Ethylene Oxide	75		Steel
Fatty Acids	500	All	316 SS
Ferric Chloride	75	All	Hast. C
Ferric Sulfate	300	All	304 SS
Formaldehyde	212	40%	316 SS
Formic Acid	300	All	316 SS
Fluorine, Anhydrous	100		304 SS
Freon	300		Steel
Furfural	450		316 SS
Gasoline	300		Steel
Glucose	300		304 SS
Glue ph 6-8	300	All	304 SS
Glycerine	212	All	Brass
Hydrobromic Acid	212	All	Hast. C

Corrodent	Temp. °F	Conc. %	Recommended Material
Hydrochloric Acid (37-38%)	225	All	Hast. B
Hydrocyanic Acid	212	All	304 SS
Hydrofluogilicic Acid	212	40%	Monel
Hydrofluoric Acid	212	60%	Monel
Hydrogen Chloride, Dry	500		304 SS
Hydrogen Fluoride, Dry	175		Steel
Hydrogen Peroxide	125	10-100%	304 SS
Kerosene	300	All	Steel
Lacquers & Thinners	300	All	304 SS
Lactic Acid	300	All	316 SS
Lime	212	All	316 SS
Linseed Oil	75		Steel
Magnesium Chloride	212	50%	Nickel
Magnesium Hydroxide (or Oxide)	75	All	304 SS
Magnesium Sulfate	212	40%	304 SS
Mercuric Chloride	75	10%	Hast. C
Mercury	700	100%	Steel
Methyl Chloride, Dry	75		Steel
Methylene Chloride	212	All	304 SS
Milk, fresh or sour	180		304 SS
Molasses	See Glucose		
Natural Gas	70		304 SS
Nitric Acid	75	All	304 SS
Nitric Acid	110	All	316 SS
Oleic Acid	See Fatty Acids		
Oxalic Acid	212	All	Monel
Oxygen	75	All	Steel
Palmitic Acid	See Fatty Acids		
Phenol	212	All	316 SS
Phosphoric Acid	212	All	316 SS
Photographic Bleaching	100	All	304 SS
Potassium Compounds	See Sodium Compounds		
Propane	300		Steel
Rosin	700	100%	316 SS
Salt or Brine	See Sodium Chloride		
Sea Water	75		Monel
Soap & Detergents	212	All	304 SS
Sodium Bicarbonate	212	20%	316 SS
Sodium Bisulfate	212	20%	304 SS
Sodium Bisulfite	212	20%	304 SS
Sodium Carbonate	212	40%	316 SS
Sodium Chloride	300	30%	Monel
Sodium Chromate	212	All	316 SS
Sodium Cyanide	212	All	304 SS
Sodium Hydroxide	212	30%	316 SS
Sodium Hypochlorite	75	10%	Hast. C
Sodium Nitrate	212	40%	304 SS
Sodium Nitrite	75	20%	316 SS
Sodium Phosphate	212	10%	Steel
Sodium Silicate	212	10%	Steel
Sodium Sulfate	212	30%	316 SS
Sodium Sulfide	212	10%	316 SS
Sodium Sulfite	212	30%	304 SS
Sodium Thiosulfate	212	All	304 SS
Steam			304 SS
Stearic Acid	See Fatty Acids		
Sugar Solutions	See Glucose		
Sulfur	500		304 SS
Sulfur Chloride	75	Dry	316 SS
Sulfur Dioxide	500	Dry	316 SS
Sulfur Trioxide	500	Dry	316 SS
Sulfuric Acid	212	10%	316 SS
Sulfuric Acid	212	10-90%	Hast. B
Sulfuric Acid	212	90-100%	Hast. B
Sulfuric Acid, Fuming	175		Carp. 20
Sulfurous Acid	75	20%	316 SS
Tannic Acid	75	40%	Hast. B
Titanium Tetrachloride	75	All	316 SS
Toluene	75		Steel
Trichloroacetic Acid	75	All	Hast. B
Trichlorethylene	300	Dry	Monel
Turpentine	75		316 SS
Varnish	150		Steel
Zinc Chloride	212	All	Hast. B
Zinc Sulfate	212	All	316 SS

This information is given as a guide only. Final material selection should be made by the user based on their knowledge of the application.