

Thermowells are pressure-tight receptacles that extend the life of a temperature sensor in environments where the sensor is not chemically compatible with the process media or the sensor does not have the mechanical strength to withstand the process flow or pressure. Thermowells also facilitate removing, changing, checking or replacing sensors without draining the process system. The use of standardized thermowells throughout a plant permits easy relocation of sensors.

In designing a system using thermowells, a number of factors must be considered:

### Material of Construction

Thermowell material must be chemically compatible with the process system and the temperature sensor. In most cases, thermowell selection is based on the corrosive conditions in the well environment. Sometimes the selection may be based solely on the mechanical strength needed to withstand operating pressure and process flow. Often a combination of factors must be considered. In addition to selecting the proper base material, coatings may be used to improve a thermowell's resistance to abrasion or the chemical process.

The thermowell wall must be thin enough to minimize sensor error caused by thermal conduction and slow sensor response, but thick enough to withstand collapse from process pressure, erosion from abrasive media and bending from the process flow.

Spring-load mounting styles are recommended to ensure positive contact to maximize thermal transfer and minimize sensor vibration within a thermowell.

### Insertion Length

The insertion length or "U" length is the distance from the end of the well to the underside of the thermowell thread or other connection device. For maximum accuracy, this length must be long enough to permit the temperature sensor to be fully immersed in the media to be measured and minimize sensor error caused by thermal conduction, but short enough to

withstand damage caused by process flow vibration. As a general rule of thumb, the thermowell should extend into the process a minimum of 10 times the sensor diameter or, in the case of RTDs, 10 times the sensor diameter plus one inch. This should extend the sensor into the process between 1/3 and 1/2 the diameter of the process pipe. The insertion length must also take into consideration any dead length required to pass through walls, pipe fittings and insulation.



### Velocity

The most common cause of well failure is the vibrational effect caused by fluid forming a turbulent wake as it flows past the well. This turbulence has a definite vibration frequency based on the diameter of the well and the velocity of the fluid. The well must have sufficient stiffness to ensure that the wake frequency will never equal the natural frequency of the well. If the natural frequency of the well coincides with the wake frequency, the well will potentially vibrate to destruction. To be in compliance with the ASME Performance Test Code, the thermowell should have a natural frequency a minimum of 125% of the wake frequency.

Tapered shank wells (heavy duty – Type H) have a higher strength-to-weight ratio with a resultant higher natural resonant frequency than the equivalent length straight shank well. Tapered shank wells are preferred for operation at higher fluid velocities.

### Process Connection

Conax Buffalo Technologies provides standardized wells in most of the common connection types, including threaded, flanged and socket weld types with standard bore sizes. Threaded wells are available in materials that can be readily welded. Flanged wells are manufactured by welding a bar stock well to the specified flange style. Double-welded construction reduces crevice corrosion and stress problems by ensuring that no open joints are exposed inside or outside the installation.

### Standard Manufacturing Practices

Conax Buffalo thermowells are constructed to the following tolerances/descriptions:

Item	Tolerance/Description
Lengths	±1/16" on lengths 12" or less ±1/8" on lengths over 12"
O.D. Tolerances	±0.015
Bore I.D.	+0.005 -0.003
End Thickness	1/4" ±1/16"
Concentricity of Bore to O.D.	±10% of minimum wall thickness
Wetted Surfaces Finish	16-32 Ra is standard. Special finishes are available on request.
Process Connection Thread	In compliance with ANSI B1.20.1-92. Thread specifications vary with the process connection size.
Instrument Connection	1/2-14 NPT standard, 1/2-14 NPSM optional*
End of Wells	Break corners, no burrs
Lagging Extension	Hex on threaded wells (or wrench flats where applicable)
Stamping	Type of material standard; customer name and heat or tag number if required.
Flanges	Made in accordance with ANSI B16.5. Raised face is serrated 125/250 RMS STD
Welding	Full penetration welds are standard on 300 lb. and up

\* Pending availability, NPSM instrument connection may be substituted for NPT.

### Thermowell Catalog Descriptions

The following format is used when ordering thermowells. When ordering a thermowell by itself, the initials "TW" precede the description. When ordering a thermowell as part of an assembly, the thermowell description immediately follows the mounting style designation, replacing the sensor active length.

Socket-weld thermowells can be easily installed by merely welding the thermowell into a mating socket.

### Bore Size

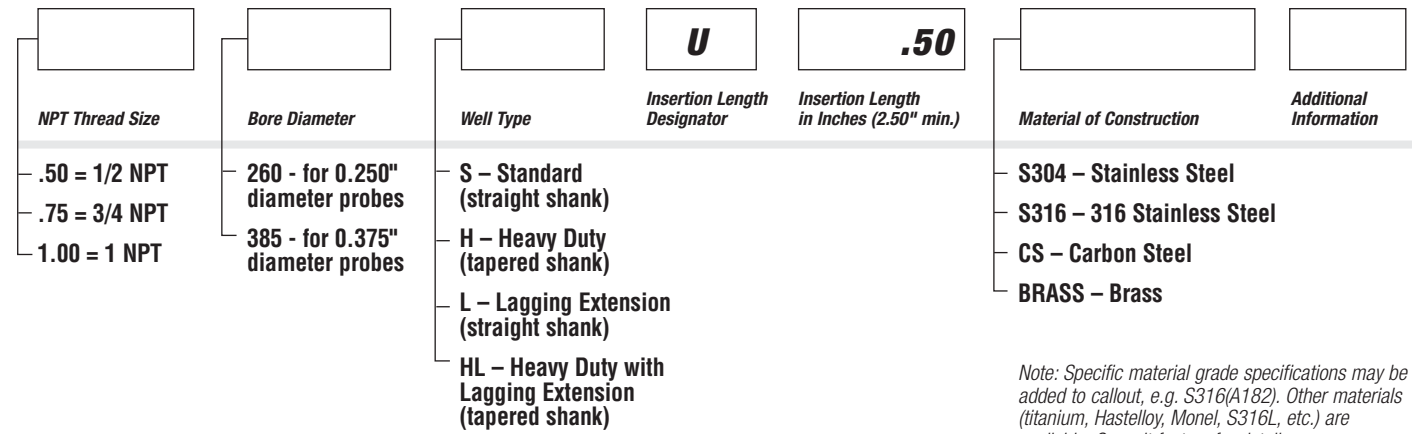
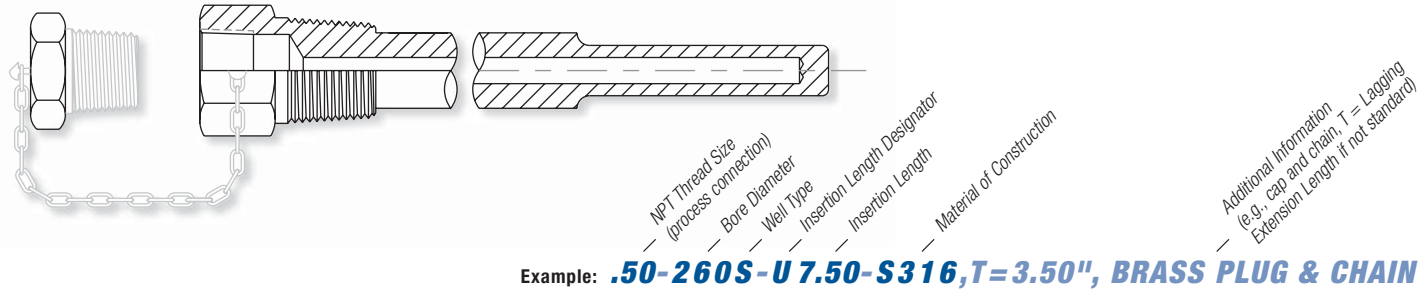
Selection of a standard bore size throughout the plant permits the use of several types of temperature measuring instruments in the same wells. Conax standard bore sizes fit most commonly used temperature sensing devices. Most applications use 0.260" or 0.385" diameter bores. This number represents the inside diameter of the well, expressed in thousandths of an inch.

#### Thermowell:

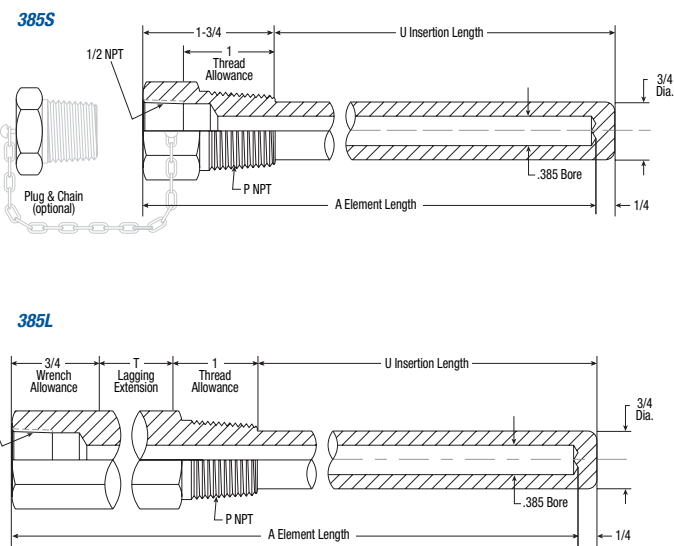
**TW, .50-260S-U5.00-S316**

#### Assembly:

**E-SS25-U-T5AL(CSLW)-.50-260S-U5.00-S316**

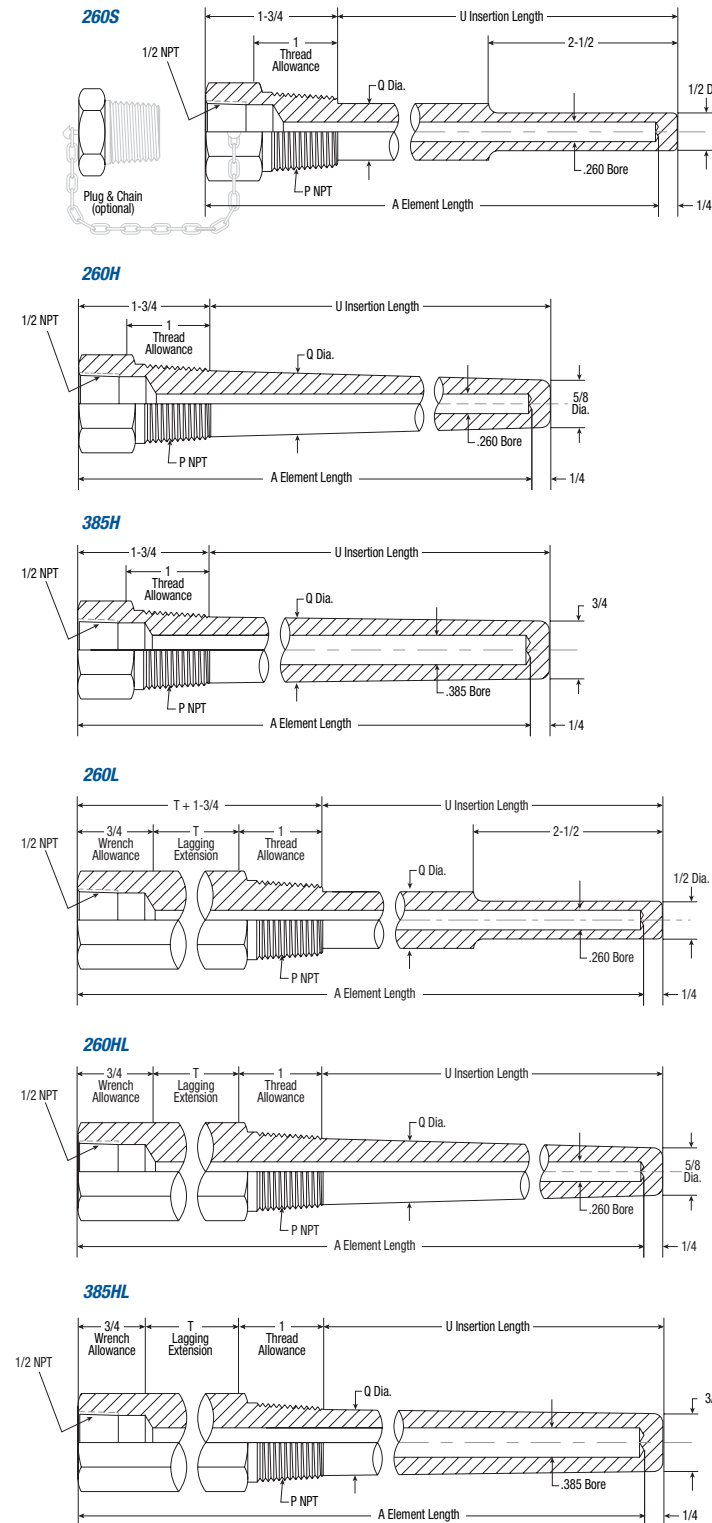


## Ordering Information



External Thread P	Type Number	Lag. Ext. T	Elem. Length A	Insert Length U
3/4 NPT	385S	U 2-1/2	4	2-1/2
		U 4-1/2	6	4-1/2
		U 7-1/2	9	7-1/2
		U 10-1/2	12	10-1/2
		U 13-1/2	15	13-1/2
		U 16-1/2	18	16-1/2
1 NPT	385S	U 2-1/2	4	2-1/2
		U 4-1/2	6	4-1/2
		U 7-1/2	9	7-1/2
		U 10-1/2	12	10-1/2
		U 13-1/2	15	13-1/2
		U 16-1/2	18	16-1/2
3/4 NPT	385L	U 2-1/2	2	2-1/2
		U 4-1/2	3	4-1/2
		U 7-1/2	3	7-1/2
		U 10-1/2	3	10-1/2
		U 13-1/2	3	13-1/2
		U 19-1/2	3	19-1/2
1 NPT	385L	U 2-1/2	2	2-1/2
		U 4-1/2	3	4-1/2
		U 7-1/2	3	7-1/2
		U 10-1/2	3	10-1/2
		U 13-1/2	3	13-1/2
		U 19-1/2	3	19-1/2

## Ordering Information



External Thread P	Type Number	Lag. Ext. T	Elem. Length A	Insert Length U	Shank Diameter Q
1/2 NPT	260S	U 2-1/2	4	2-1/2	-
		U 4-1/2	6	4-1/2	5/8
		U 7-1/2	9	7-1/2	5/8
		U 10-1/2	12	10-1/2	5/8
		U 13-1/2	15	13-1/2	5/8
		U 16-1/2	18	16-1/2	5/8
3/4 NPT	260S	U 2-1/2	4	2-1/2	-
		U 4-1/2	6	4-1/2	3/4
		U 7-1/2	9	7-1/2	3/4
		U 10-1/2	12	10-1/2	3/4
		U 13-1/2	15	13-1/2	3/4
		U 16-1/2	18	16-1/2	3/4
	260H 385H	U 2-1/2	4	2-1/2	7/8
		U 4-1/2	6	4-1/2	7/8
		U 7-1/2	9	7-1/2	7/8
		U 10-1/2	12	10-1/2	7/8
		U 13-1/2	15	13-1/2	7/8
		U 16-1/2	18	16-1/2	7/8
1 NPT	260S	U 2-1/2	4	2-1/2	7/8
		U 4-1/2	6	4-1/2	7/8
		U 7-1/2	9	7-1/2	7/8
		U 10-1/2	12	10-1/2	7/8
		U 13-1/2	15	13-1/2	7/8
		U 16-1/2	18	16-1/2	7/8
	260H 385H	U 2-1/2	4	2-1/2	1-1/16
		U 4-1/2	6	4-1/2	1-1/16
		U 7-1/2	9	7-1/2	1-1/16
		U 10-1/2	12	10-1/2	1-1/16
		U 13-1/2	15	13-1/2	1-1/16
		U 16-1/2	18	16-1/2	1-1/16
1/2 NPT	260L	U 2-1/2	2	6	2-1/2
		U 4-1/2	3	9	4-1/2
		U 7-1/2	3	12	7-1/2
		U 10-1/2	3	15	10-1/2
		U 13-1/2	3	18	13-1/2
		U 19-1/2	3	24	19-1/2
3/4 NPT	260L	U 2-1/2	2	6	2-1/2
		U 4-1/2	3	9	4-1/2
		U 7-1/2	3	12	7-1/2
		U 10-1/2	3	15	10-1/2
		U 13-1/2	3	18	13-1/2
		U 19-1/2	3	24	19-1/2
1 NPT	260L	U 2-1/2	2	6	2-1/2
		U 4-1/2	3	9	4-1/2
		U 7-1/2	3	12	7-1/2
		U 10-1/2	3	15	10-1/2
		U 13-1/2	3	18	13-1/2
		U 19-1/2	3	24	19-1/2
3/4 NPT	260HL 385HL	U 2-1/2	2	6	2-1/2
		U 4-1/2	3	9	4-1/2
		U 7-1/2	3	12	7-1/2
		U 10-1/2	3	15	10-1/2
		U 13-1/2	3	18	13-1/2
		U 19-1/2	3	24	19-1/2
	260HL 385HL	U 2-1/2	2	6	2-1/2
		U 4-1/2	3	9	4-1/2
		U 7-1/2	3	12	7-1/2
		U 10-1/2	3	15	10-1/2
		U 13-1/2	3	18	13-1/2
		U 19-1/2	3	24	19-1/2



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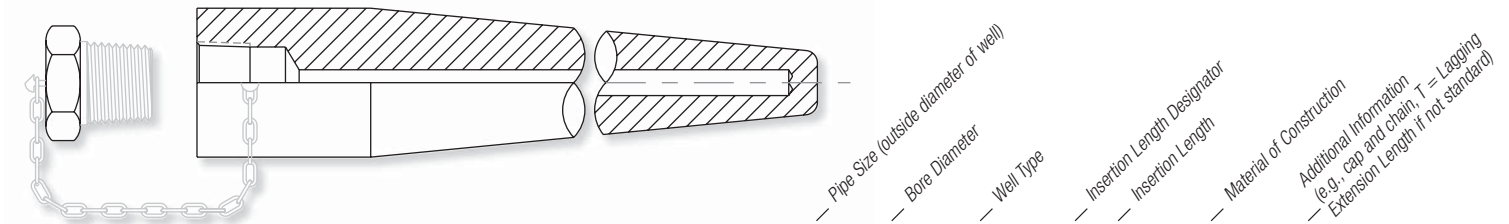
# Threaded Thermowells

# Weld-In Thermowells

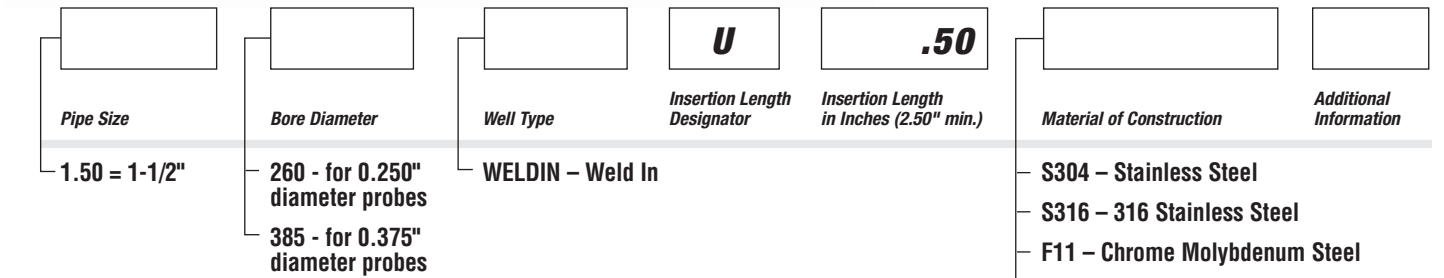
## Ordering Information

Well Type	Material	MAXIMUM FLUID VELOCITY – feet per second*								PRESSURE - TEMPERATURE RATING						
		Insertion Length - U								Temperature - °F						
		2-1/2	4-1/2	7-1/2	10-1/2	13-1/2	16-1/2	19-1/2	22-1/2	70°	200°	400°	600°	800°	1000°	1200°
3/4-260H 3/4-260HL	Brass	305 (97.5)	93.8 (54.1)	33.9	17.1	10.5	7.0	5.0	3.7	5300	4750	1100	–	–	–	–
	Carbon Steel	386 (175)	180 (97.2)	65.3 (59.3)	33.0	20.1	13.4	9.6	7.1	5950	5750	5450	5250	4000	1750	–
	A.I.S.I. 304	440 (243)	197 (135)	71.2	36.0	22.0	14.7	10.5	7.8	7800	7050	6400	6150	6000	5190	1875
	A.I.S.I. 316	440 (243)	197 (135)	71.2	36.0	22.0	14.7	10.5	7.8	7800	7800	7250	7100	6950	5800	2720
	Monel	354 (195)	155 (108)	56.1	28.4	17.3	11.6	7.5	5.6	7450	6850	6150	6100	5940	1750	–
1-260H 1-260HL	Brass	354 (161)	108 (89.5)	39.4	19.8	12.2	8.1	5.8	4.3	5300	4750	1100	–	–	–	–
	Carbon Steel	448 (289)	209 (161)	75.7	38.4	23.3	15.5	11.1	8.2	5950	5750	5450	5250	4000	1750	–
	A.I.S.I. 304	490 (403)	228 (225)	82.5	41.8	25.5	17.1	12.2	9.1	7800	7050	6400	6150	6000	5190	1875
	A.I.S.I. 316	490 (403)	228 (225)	82.5	41.8	25.5	17.1	12.2	9.1	7800	7800	7250	7100	6950	5800	2720
	Monel	410 (322)	179 (178)	65.1	33.0	20.1	13.5	8.7	6.5	7450	6850	6150	6100	5940	1750	–
3/4-385H 3/4-385HL	Brass	276 (127)	124 (79)	44.0	22.0	13.0	8.0	6.0	4.0	5000	4200	1000	–	–	–	–
	Carbon Steel	352 (228)	191 (114)	68.9	35.0	21.0	14.0	10.0	7.5	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	415 (299)	203 (154)	73.2	37.3	22.5	15.0	11.0	8.0	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	415 (299)	203 (154)	73.2	37.3	22.5	15.0	11.0	8.0	7000	7000	6400	6200	6100	5100	2500
	Monel	340 (195)	172 (134)	62.0	31.0	19.0	12.8	8.0	6.0	6500	6000	5400	5300	5200	1500	–
1-385H 1-385HL	Brass	321 (150)	129 (83.5)	46.8	23.6	14.5	9.6	6.9	5.1	5000	4200	1000	–	–	–	–
	Carbon Steel	410 (270)	249 (150)	90.3	45.6	27.8	18.5	13.2	9.8	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	483 (350)	272 (208)	97.3	49.7	30.4	20.3	14.5	10.7	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	483 (350)	272 (208)	97.3	49.7	30.4	20.3	14.5	10.7	7000	7000	6400	6200	6100	5100	2500
	Monel	396 (306)	214 (167)	77.5	39.2	23.8	16.0	10.3	7.7	6500	6000	5400	5300	5200	1500	–
3/4-385S 3/4-385L 1-385S 1-385L	Brass	290 (145)	150 (80)	54.1 (49)	27.6	16.7	11.1	8.0	6.0	5000	4200	1000	–	–	–	–
	Carbon Steel	326 (260)	192 (144)	69.5	35.4	20.5	14.3	10.3	7.7	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	349 (360)	199	71.9	36.6	21.2	14.8	10.7	8.0	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	349 (360)	199	71.9	36.6	21.2	14.8	10.7	8.0	7000	7000	6400	6200	6100	5100	2500
	Monel	316 (320)	189 (178)	68.1	34.8	20.8	14.0	10.0	7.5	6500	6000	5400	5300	5200	1500	–
1/2-260L 1/2-260S	Brass	207 (59.3)	75.5 (32.2)	27.3 (19.7)	13.9	8.4	5.6	4.1	3.0	5000	4200	1000	–	–	–	–
	Carbon Steel	290 (106)	105 (59)	38.2 (36.3)	19.4	11.8	7.8	5.7	4.2	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	300 (148)	109 (82.2)	39.5	20.1	12.2	8.1	5.9	4.4	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	300 (148)	109 (82.2)	39.5	20.1	12.2	8.1	5.9	4.4	7000	7000	6400	6200	6100	5100	2500
	Monel	261 (118)	95 (65.5)	34.4	17.5	10.5	7.1	5.2	3.8	6500	6000	5400	5300	5200	1500	–
3/4-260S 3/4-260L	Brass	207 (59.3)	89.1 (39.8)	32.2 (23.9)	16.4	9.9	6.6	4.8	3.6	5000	4200	1000	–	–	–	–
	Carbon Steel	290 (106)	123 (71.2)	44.9 (42.7)	22.8	13.8	9.3	6.7	4.9	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	300 (148)	128 (99.3)	46.4	23.6	14.3	9.6	6.9	5.1	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	300 (148)	128 (99.3)	46.4	23.6	14.3	9.6	6.9	5.1	7000	7000	6400	6200	6100	5100	2500
	Monel	261 (118)	112 (79.8)	40.6	20.7	12.4	8.3	6.1	4.5	6500	6000	5400	5300	5200	1500	–
1-260S 1-260L	Brass	207 (59.3)	102 (47.6)	37.0 (28)	18.8	11.4	7.6	5.5	4.1	5000	4200	1000	–	–	–	–
	Carbon Steel	290 (106)	143 (84.3)	51.6 (50.6)	26.2	15.9	10.6	7.6	5.7	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	300 (148)	148 (117)	53.5	27.2	16.5	11.0	7.9	5.9	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	300 (148)	148 (117)	53.5	27.2	16.5	11.0	7.9	5.9	7000	7000	6400	6200	6100	5100	2500
	Monel	261 (118)	128 (93.3)	46.7	23.7	14.4	9.5	6.9	5.1	6500	6000	5400	5300	5200	1500	–

\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids.

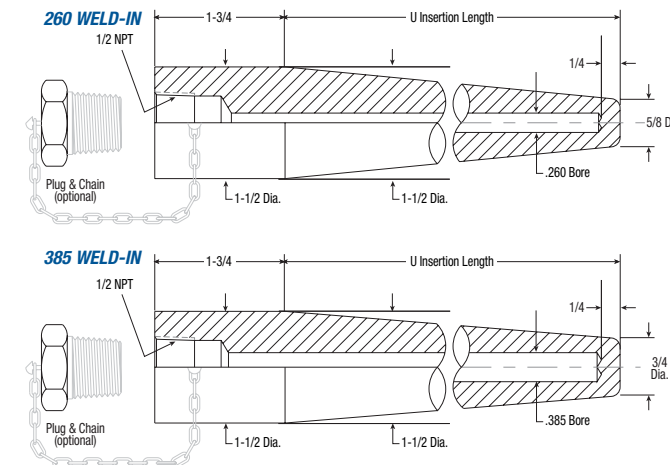


Example: **1.50-260WELDIN-U 7.50-S316,T=3.50"**



Note: Specific material grade specifications may be added to callout, e.g. S316(A182). Other materials (titanium, Hastelloy, Monel, S316L, etc.) are available. Consult factory for details.

## Ordering Information



Thread Size	Type Number	Elem. Length A	Insert Length U	Bore Diameter B	
1-1/2	260 WELDIN	U 2-1/2	4	2-1/2	0.260
		U 4-1/2	6	4-1/2	
		U 7-1/2	9	7-1/2	
		U 10-1/2	12	10-1/2	
		U 13-1/2	15	13-1/2	
		U 16-1/2	18	16-1/2	
1-1/2	385 WELDIN	U 2-1/2	4	2-1/2	0.385
		U 4-1/2	6	4-1/2	
		U 7-1/2	9	7-1/2	
		U 10-1/2	12	10-1/2	
		U 13-1/2	15	13-1/2	
		U 16-1/2	18	16-1/2	

Well Type	Material	MAXIMUM FLUID VELOCITY – feet per second*								PRESSURE - TEMPERATURE RATING						
		Insertion Length - U								Temperature - °F						
		2-1/2	4-1/2	7-1/2	10-1/2	13-1/2	16-1/2	19-1/2	22-1/2	70°	200°	400°	600°	800°	1000°	1200°
1-1/2-260 WELDIN	Carbon Steel	493 (306)	220 (170)	79.4	40.5	24.5	16.4	11.7	8.8	5950	5750	5450	5250	4000	1750	–
	A.I.S.I. 304	539 (443)	233.5 (231)	84.0	42.8	25.9	17.3	12.4	9.3	7800	7050	6400	6150	6000	5190	1875
	A.I.S.I. 316	539 (443)	233.5 (231)	84.0	42.8	25.9	17.3	12.4	9.3	7800	7800	7250	7100	6950	5800	2720
	F-11	549 (451)	237 (235)	85.5	43.0	26.4	17.6	12.6	9.5	7350	7350	7350	7350	7350	2898	504
	F-22	549 (451)	237 (235)	85.5	43.0	26.4	17.6	12.6	9.5	7224	7224	7224	7224	7098	3192	546
1-1/2-385 WELDIN	Carbon Steel	451 (286)	269 (159)	96.9	49.0	29.9	20.0	14.0	10.7	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	531 (385)	285 (220)	102	52.0	31.6	21.2	15.0	11.4	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	531 (385)	285 (220)	102	52.0	31.6	21.2	15.0	11.4	7000	7000	6400	6200	6100	5100	2500
	F-11	542 (392)	290 (224)	104	53.2	32.0	21.5	15.4	11.6	6562	6562	6562	6562	6562	2587	450
	F-22	542 (392)	290 (224)	104	53.2	32.0	21.5	15.4	11.6	6450	6450	6450	6450	6337	2850	487

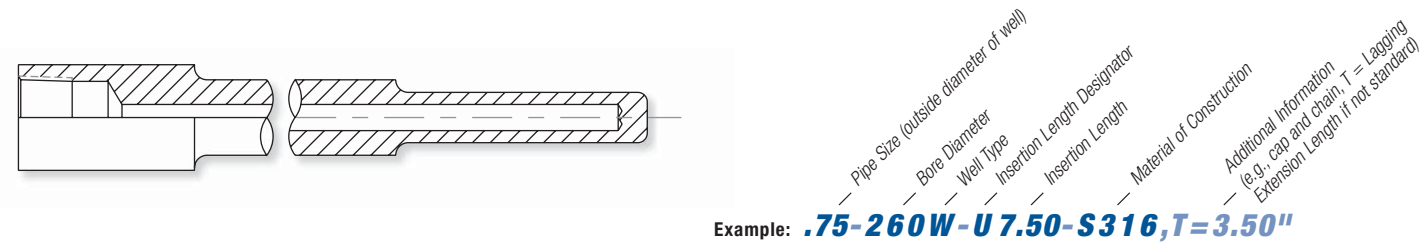
\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids.



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Example: **.75-260W-U 7.50-S316,T=3.50"**

Pipe Size	Bore Diameter	Well Type	Insertion Length Designator	Insertion Length in Inches (2.50" min.)	Material of Construction	Additional Information
.75 (1.050" OD) 1.00 (1.315" OD)	260 - for 0.250" diameter probes 385 - for 0.375" diameter probes	W – Socket Weld (straight shank) WH – Heavy Duty Socket Weld (tapered shank) WL – Socket Weld with Lagging Extension (straight shank) WHL – Heavy Duty Socket Weld with Lagging Extension	U	.50	S304 – Stainless Steel S316 – 316 Stainless Steel F11 – Chrome Molybdenum Steel F22 – Chrome Molybdenum Steel F91 – Chrome Molybdenum Steel CS – Carbon Steel	

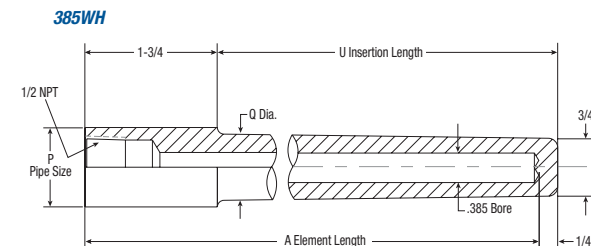
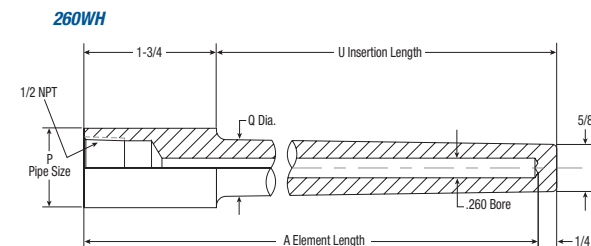
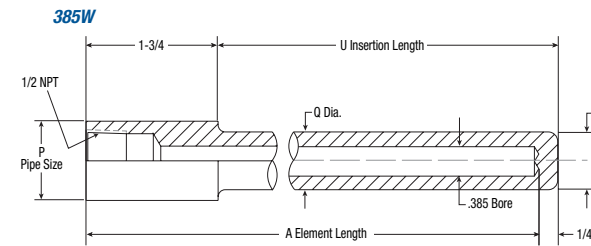
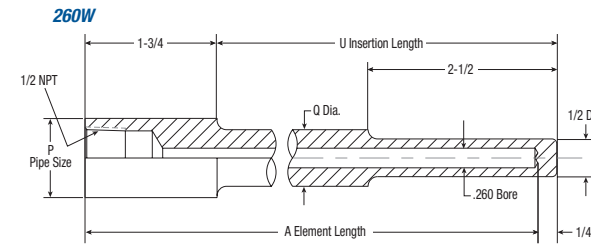
Note: Specific material grade specifications may be added to callout, e.g. S316(A182). Other materials (titanium, Hastelloy, Monel, S316L, etc.) are available. Consult factory for details.

## Ordering Information

Well Type	Material	MAXIMUM FLUID VELOCITY – feet per second*								PRESSURE - TEMPERATURE RATING						
		Insertion Length - U								Temperature - °F						
		2-1/2	4-1/2	7-1/2	10-1/2	13-1/2	16-1/2	19-1/2	22-1/2	70°	200°	400°	600°	800°	1000°	1200°
3/4-260WH	Carbon Steel	386 (175)	180 (97.2)	65.3 (59.3)	33.0	20.1	13.4	9.6	7.1	5950	5750	5450	5250	4000	1750	–
	A.I.S.I. 304	440 (243)	197 (135)	71.2	36.0	22.0	14.7	10.5	7.8	7800	7050	6400	6150	6000	5190	1875
1-260WH	Carbon Steel	448 (289)	209 (161)	75.7	38.4	23.3	15.5	11.1	8.2	5950	5750	5450	5250	4000	1750	–
	A.I.S.I. 304	490 (403)	228 (225)	82.5	41.8	25.5	17.1	12.2	9.1	7800	7050	6400	6150	6000	5190	1875
3/4-385WH	Carbon Steel	352 (228)	191 (114)	69.0	35.0	21.0	14.0	10.0	7.5	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	415 (299)	203 (154)	73.2	37.3	22.5	15.0	11.0	8.0	7000	6200	5600	5400	5200	4500	1650
1-385WH	Carbon Steel	410 (270)	249 (150)	90.3	45.6	27.8	18.5	13.2	9.8	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	483 (350)	272 (208)	97.3	49.7	30.4	20.3	14.5	10.7	7000	6200	5600	5400	5200	4500	1650
3/4-260W	Carbon Steel	290 (106)	123 (71.2)	44.9 (42.7)	22.8	13.8	9.3	–	4.9	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	300 (148)	128 (99.3)	46.4	23.6	14.3	9.6	–	5.1	7000	6200	5600	5400	5200	4500	1650
1-260W	Carbon Steel	290 (106)	143 (84.3)	51.6 (50.6)	26.2	15.9	10.6	–	5.7	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	300 (148)	148 (117)	53.5	27.2	16.5	11.0	–	5.9	7000	6200	5600	5400	5200	4500	1650
3/4-385W	Carbon Steel	426 (260)	192 (144)	69.5	35.4	20.5	14.6	–	7.7	5200	5000	4800	4600	3500	1500	–
	A.I.S.I. 304	449 (360)	199	71.9	36.6	21.2	14.8	–	8.0	7000	6200	5600	5400	5200	4500	1650
1-385W	A.I.S.I. 316	449 (360)	199	71.9	36.6	21.2	14.8	–	8.0	7000	6200	5600	5400	5200	4500	1650

\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids.

## Ordering Information



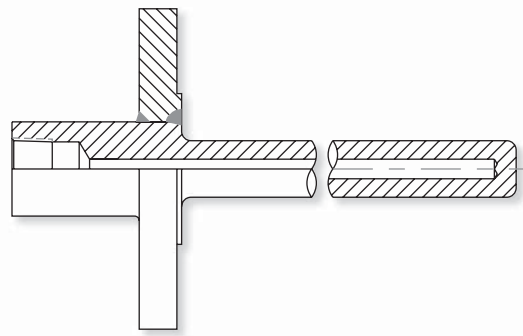
Pipe Size P	Type Number	Elem. Length A	Insert Length U	Shank Diameter Q	
3/4" Nominal (1.050 diameter)	260W 385W	U 2-1/2	4	2-1/2	–
		U 4-1/2	6	4-1/2	3/4
		U 7-1/2	9	7-1/2	3/4
		U 10-1/2	12	10-1/2	3/4
		U 13-1/2	15	13-1/2	3/4
		U 16-1/2	18	16-1/2	3/4
1" Nominal (1.315 diameter)	260W 385W	U 2-1/2	4	2-1/2	–
		U 4-1/2	6	4-1/2	7/8
		U 7-1/2	9	7-1/2	7/8
		U 10-1/2	12	10-1/2	7/8
		U 13-1/2	15	13-1/2	7/8
		U 16-1/2	18	16-1/2	7/8
3/4" Nominal (1.050 diameter)	260WH 385WH	U 2-1/2	4	2-1/2	7/8
		U 4-1/2	6	4-1/2	7/8
		U 7-1/2	9	7-1/2	7/8
		U 10-1/2	12	10-1/2	7/8
		U 13-1/2	15	13-1/2	7/8
		U 16-1/2	18	16-1/2	7/8
1" Nominal (1.315 diameter)	260WH 385WH	U 2-1/2	4	2-1/2	1
		U 4-1/2	6	4-1/2	1
		U 7-1/2	9	7-1/2	1
		U 10-1/2	12	10-1/2	1
		U 13-1/2	15	13-1/2	1
		U 16-1/2	18	16-1/2	1



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Example: **260F-U 22.50-RF39(S304)-S316,T=3.50"**

Labels for the example: Bore Diameter (260), Flange Type (U), Insertion Length Designator (22.50), Insertion Length (22.50), Flange Designator (RF), Flange Class (39), Flange Pipe Size (S304), Flange Material of Construction (S316), Well Material of Construction (T=3.50), Additional Information.

Bore Diameter	Flange Well Type	Ins. Length Designator	Insertion Length (2.50" min.)	Flange Designator	Flange Class	Flange Pipe Size	Flange Material of Construction	Well Material of Construction	Additional Information
260 - for 0.250" diameter probes	F - ANSI Flange (straight shank)	U	.50	RF	1 = 150 lb.	4 = .50"	S304 - Stainless Steel		
385 - for 0.375" diameter probes	FH - Heavy Duty Flange (tapered shank)				2 = 300 lb.	5 = .75"	S316 - 316 Stainless Steel		
	FL - Flange with Lagging Extension (straight shank)				3 = 600 lb.	6 = 1.00"	CS - Carbon Steel		
	FHL - Heavy Duty Flange with Lagging Extension (tapered shank)				4 = 900 lb.	8 = 1.50"			
					5 = 1500 lb.	9 = 2.00"			
					6 = 2500 lb.	16 = 8.00"			

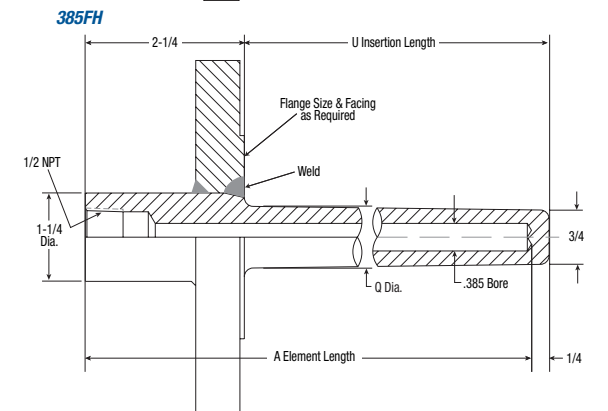
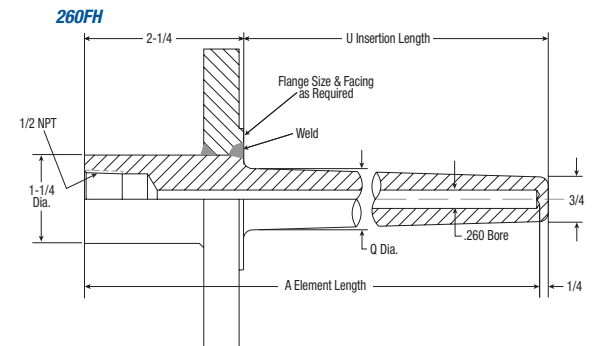
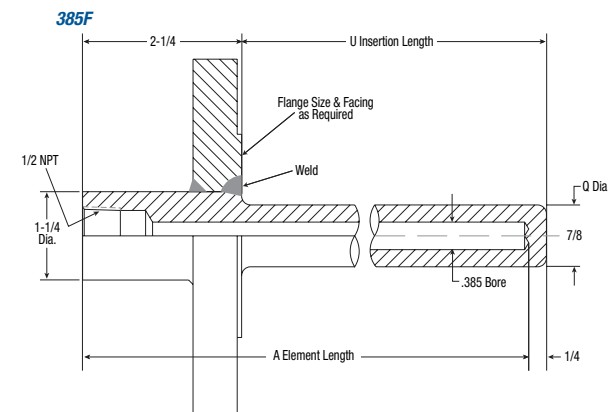
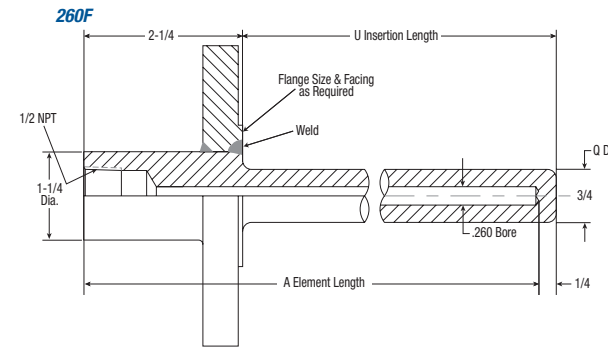
Note: Specific material grade specifications may be added to callout, e.g. S316(A182). Other materials (titanium, Hastelloy, Monel, S316L, etc.) are available. Consult factory for details.

## Ordering Information

Well Type	Material	MAXIMUM FLUID VELOCITY - feet per second*							MAXIMUM PRESSURE - TEMPERATURE RATING						
		Insertion Length - U							Temperature - °F						
		2	4	7	10	13	16	22	70°	200°	400°	600°	800°	1000°	1125°
260F	Carbon Steel	404 (129)	184 (71.2)	67.0 (42.7)	34.0	20.6	13.7	7.4	Up to 2500#						
	A.I.S.I. 304	430 (179)	192 (99.3)	69.7 (59.6)	35.4	21.5	14.3	7.7	Up to 2500#						
	A.I.S.I. 316	430 (179)	192 (99.3)	69.7 (59.6)	35.4	21.5	14.3	7.7	Up to 2500#						
	Monel	350 (143)	168 (79.8)	61.0 (47.7)	31.0	18.8	12.5	3.7	Up to 2500#						
385F	Carbon Steel	410 (152)	248 (84.3)	91.3 (50.6)	45.7	27.6	18.5	10.0	Up to 2500#						
	A.I.S.I. 304	444 (211)	258 (117)	95.2 (70.3)	47.6	28.8	19.3	10.4	Up to 2500#						
	A.I.S.I. 316	444 (211)	258 (117)	95.2 (70.3)	47.6	28.8	19.3	10.4	Up to 2500#						
	Monel	338 (168)	226 (93.3)	83.3 (56.0)	41.6	25.2	16.9	9.1	Up to 2500#						
260FH	Carbon Steel	603 (273)	227 (125)	74.0 (67.0)	36.0	21.0	14.0	7.5	Up to 2500#						
	A.I.S.I. 304	687 (379)	249 (170)	81.0	39.8	23.6	15.5	8.2	Up to 2500#						
	A.I.S.I. 316	687 (379)	249 (170)	81.0	39.8	23.6	15.5	8.2	Up to 2500#						
	Monel	553 (304)	196 (136)	64.0	31.0	18.0	12.0	6.0	Up to 2500#						
385FH	Carbon Steel	550 (356)	241 (144)	78.9	38.0	22.8	15.0	7.9	Up to 2500#						
	A.I.S.I. 304	648 (467)	257 (194)	83.8	41.0	24.0	16.0	8.4	Up to 2500#						
	A.I.S.I. 316	648 (467)	257 (194)	83.8	41.0	24.0	16.0	8.4	Up to 2500#						
	Monel	531 (398)	217 (169)	71.0	34.8	20.6	13.0	7.0	Up to 2500#						

\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids. Flange dimensions meet ANSI B16.5 standard.

## Ordering Information



Type Number	Elem. Length A	Insert Length U	Shank Diameter Q	Bore Diameter B	
260F	U 2	4	2	3/4	0.260
	U 4	6	4	3/4	
	U 7	9	7	3/4	
	U 10	12	10	3/4	
	U 13	15	13	3/4	
	U 16	18	16	3/4	
385F	U 2	4	2	7/8	0.385
	U 4	6	4	7/8	
	U 7	9	7	7/8	
	U 10	12	10	7/8	
	U 13	15	13	7/8	
	U 16	18	16	7/8	
260FH	U 2	4	2	7/8	0.260
	U 4	6	4	7/8	
	U 7	9	7	7/8	
	U 10	12	10	7/8	
	U 13	15	13	7/8	
	U 16	18	16	7/8	
385FH	U 2	4	2	7/8	0.385
	U 4	6	4	7/8	
	U 7	9	7	7/8	
	U 10	12	10	7/8	
	U 13	15	13	7/8	
	U 16	18	16	7/8	

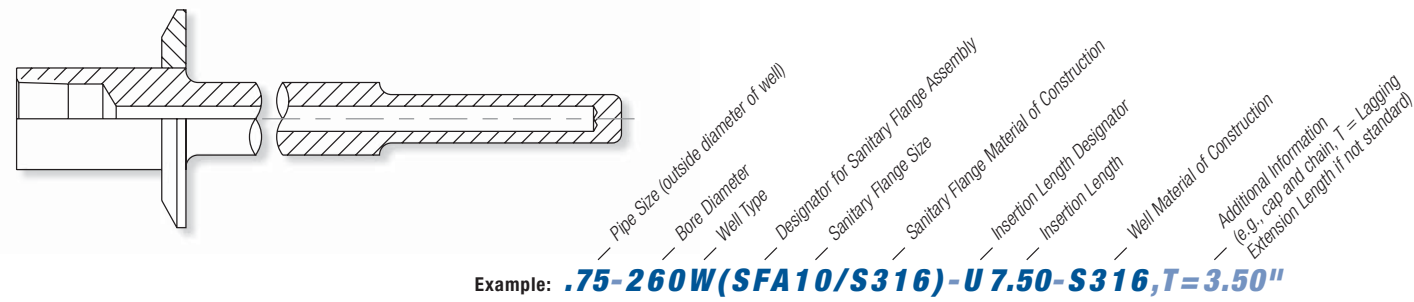


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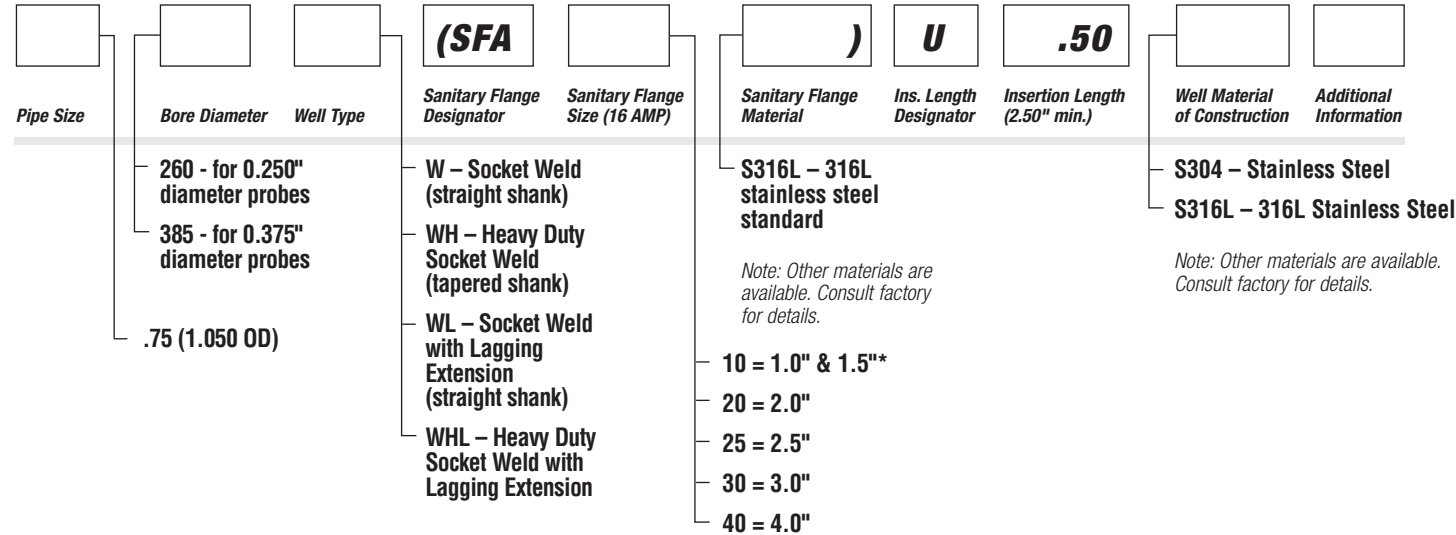


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# Sanitary Flange Thermowells

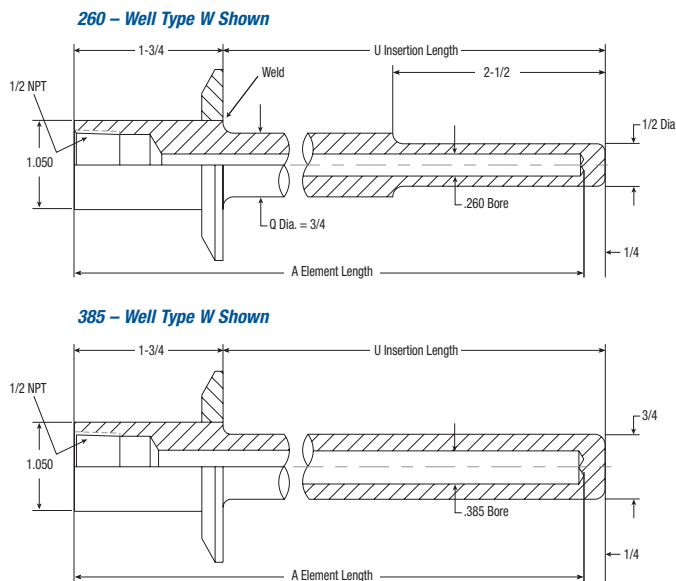


Example: **.75-260W(SFA10/S316)-U7.50-S316,T=3.50"**



\*Note: SFA10 available for .75 pipe size only.

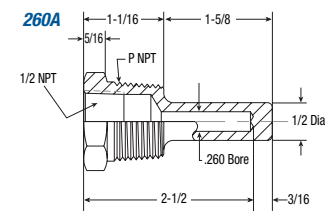
## Ordering Information



Type Number	Elem. Length A	Insert Length U	Shank Diameter Q	
260 Sanitary	U 2-1/2	4	2-1/2	-
	U 4-1/2	6	4-1/2	3/4
	U 7-1/2	9	7-1/2	3/4
	U 10-1/2	12	10-1/2	3/4
	U 13-1/2	15	13-1/2	3/4
	U 16-1/2	18	16-1/2	3/4
385 Sanitary	U 2-1/2	4	2-1/2	3/4
	U 4-1/2	6	4-1/2	3/4
	U 7-1/2	9	7-1/2	3/4
	U 10-1/2	12	10-1/2	3/4
	U 13-1/2	15	13-1/2	3/4
	U 16-1/2	18	16-1/2	3/4

# Limited Space Thermowells

## Ordering Information

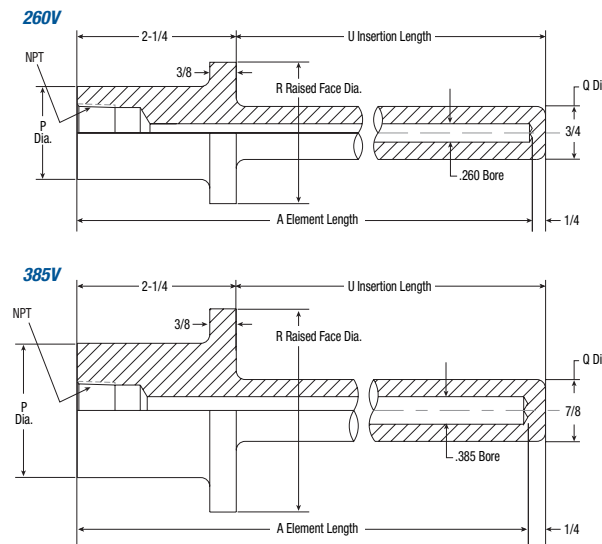


External Thread P	Type Number	Well Type	Material	MAXIMUM FLUID VELOCITY feet per second* Insertion Length - U	PRESSURE - TEMPERATURE RATING Temperature - °F							
					1-5/8	70°	200°	400°	600°	800°	1000°	1200°
3/4 NPT	3/4-260A-U1-5/8	3/4-260A	Brass	207 (59.3)	5000	4200	1000	-	-	-	-	-
			Carbon Steel	290 (106)	5200	5000	4800	4600	3500	1500	-	
			A.I.S.I. 304	300 (148)	7000	6200	5600	5400	5200	4500	1650	
			A.I.S.I. 316	300 (148)	7000	7000	6400	6200	6100	5100	2500	
1 NPT	1-260A-U1-5/8	1-260A	Monel	261 (118)	6500	6000	5400	5300	5200	1500	-	
			Brass	207 (59.3)	5000	4200	1000	-	-	-	-	
			Carbon Steel	290 (106)	5200	5000	4800	4600	3500	1500	-	
			A.I.S.I. 304	300 (148)	7000	6200	5600	5400	5200	4500	1650	
			A.I.S.I. 316	300 (148)	7000	7000	6400	6200	6100	5100	2500	
			Monel	261 (118)	6500	6000	5400	5300	5200	1500	-	

\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids.

# Van Stone Thermowells

## Ordering Information



Type Number	Elem. Length A	Insert Length U	Shank Dia. Q	Bore Dia. B
260V	U 2	4	3/4	0.260
	U 4	6	3/4	
	U 7	9	3/4	
	U 10	12	3/4	
	U 13	15	3/4	
	U 16	18	3/4	
385V	U 2	4	7/8	0.385
	U 4	6	7/8	
	U 7	9	7/8	
	U 10	12	7/8	
	U 13	15	7/8	
	U 16	18	7/8	

Well Type	Material	MAXIMUM FLUID VELOCITY - feet per second*							MAXIMUM PRESSURE - TEMPERATURE RATING						
		Insertion Length - U							Temperature - °F						
		2	4	7	10	13	16	22	70°	200°	400°	600°	800°	1000°	1125°
260V	Carbon Steel	404 (129)	184 (71.2)	67.0 (42.7)	34.0	20.6	13.7	7.4	5200	5000	4800	4600	3500	1500	-
	A.I.S.I. 304	430 (179)	192 (99.3)	69.7 (59.6)	35.4	21.5	14.3	7.7	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	430 (179)	192 (99.3)	69.7 (59.6)	35.4	21.5	14.3	7.7	7000	7000	6400	6200	6100	5100	2500
	Monel	350 (143)	168 (79.8)	61.0 (47.7)	31.0	18.8	12.5	3.7	6500	6000	5400	5300	5200	1500	-
385V	Carbon Steel	410 (152)	248 (84.3)	91.3 (50.6)	45.7	27.6	18.5	10.0	5200	5000	4800	4600	3500	1500	-
	A.I.S.I. 304	444 (211)	258 (117)	95.2 (70.3)	47.6	28.8	19.3	10.4	7000	6200	5600	5400	5200	4500	1650
	A.I.S.I. 316	444 (211)	258 (117)	95.2 (70.3)	47.6	28.8	19.3	10.4	7000	7000	6400	6200	6100	5100	2500
	Monel	338 (168)	226 (93.3)	83.3 (56.0)	41.6	25.2	16.9	9.1	6500	6000	5400	5300	5200	1500	-

\* Maximum velocity rating is based on operating temperatures of 1000° F for wells made of carbon steel, 304SST and 316SST; 350° F for wells made of brass; and 900° F for wells made of Monel. Slightly higher velocity is possible at lower temperatures. In these tables, single numbers represent the safe values 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. In these cases, the values in parentheses represent safe values for water flow, and the unbracketed values may be used for steam, air, gas and similar density fluids.



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Conax Buffalo offers protection tubes in a variety of types and materials. Protection tubes are intended for use in applications where the tube will not be exposed to high pressure or fluid velocities. Pipewells, made from Schedule 40, 80 or 160 pipe, are the most commonly used form of protection tube. Mounting is generally achieved through a flange or threaded bushing welded to the pipe.

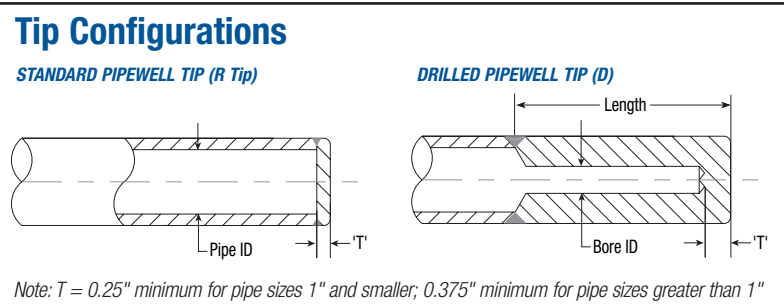
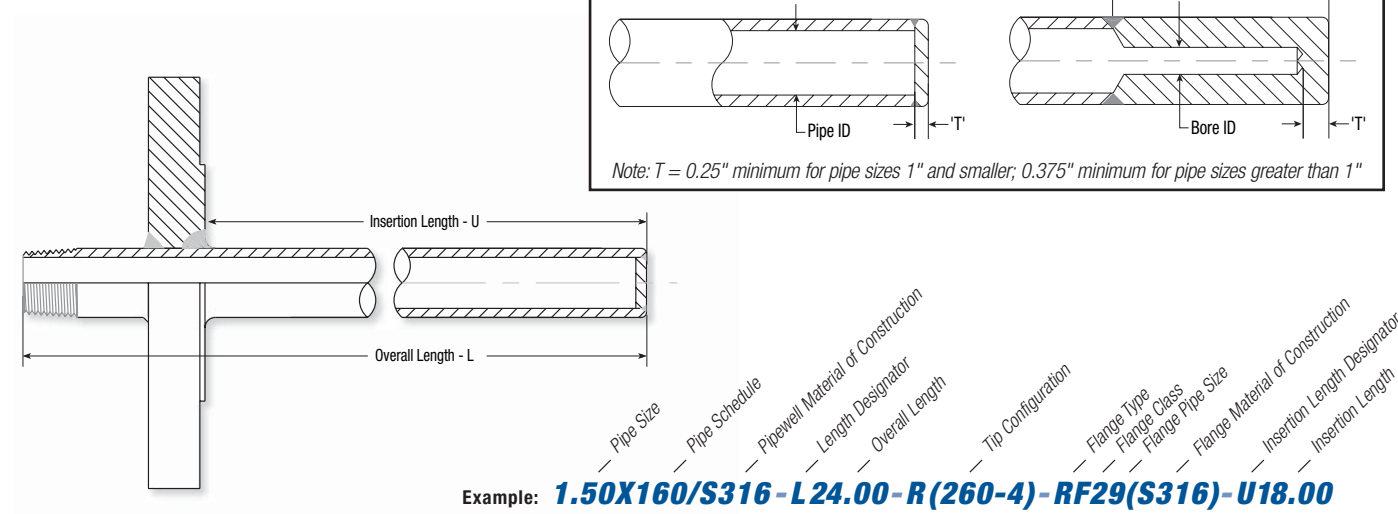
## Pipewell Catalog Description

The following format is used when ordering pipewells. When ordering a pipewell by itself, the initials "PW" precede the description. When ordering a pipewell as part of an assembly, the pipewell description immediately follows the mounting style designation, replacing the sensor active length.

**Pipewell:** *PW, .50X40/S316-L24.00-R*

**Assembly:** *E-SS25-U-T5AL(CSLWC)-.50X40/S316-L24.00-R*

## Pipewell with Mounting Flange



Example: **1.50X160/S316-L24.00-R(260-4)-RF29(S316)-U18.00**

Pipe Size	Pipe Schedule	Pipewell Material of Construction	Length Designator	Overall Length in Inches	Tip Config.	Flange Type	Flange Class	Flange Pipe Size	Flange Material of Construction	Ins. Length Designator	Insertion Length in Inches
.50 = .840" OD	40	S304 - Stainless Steel	L	.00	R = Round*	1 = 150 lb.	4 = .50"		S304 - Stainless Steel	U	.00
.75 = 1.050" OD	80	S316 - 316 Stainless Steel			D = Drilled Bar Stock	2 = 300 lb.	5 = .75"		S316 - 316 Stainless Steel		
1.00 = 1.315" OD	160	CS - Carbon Steel					6 = 1.00"		CS - Carbon Steel		
1.50 = 1.900" OD							8 = 1.50"				
2.00 = 2.375" OD							9 = 2.00"				
							16 = 8.00"				

*Note: Other materials are available. Consult factory for details.*

Example: D (260-3)

ID of Bore (thousandths of an inch)

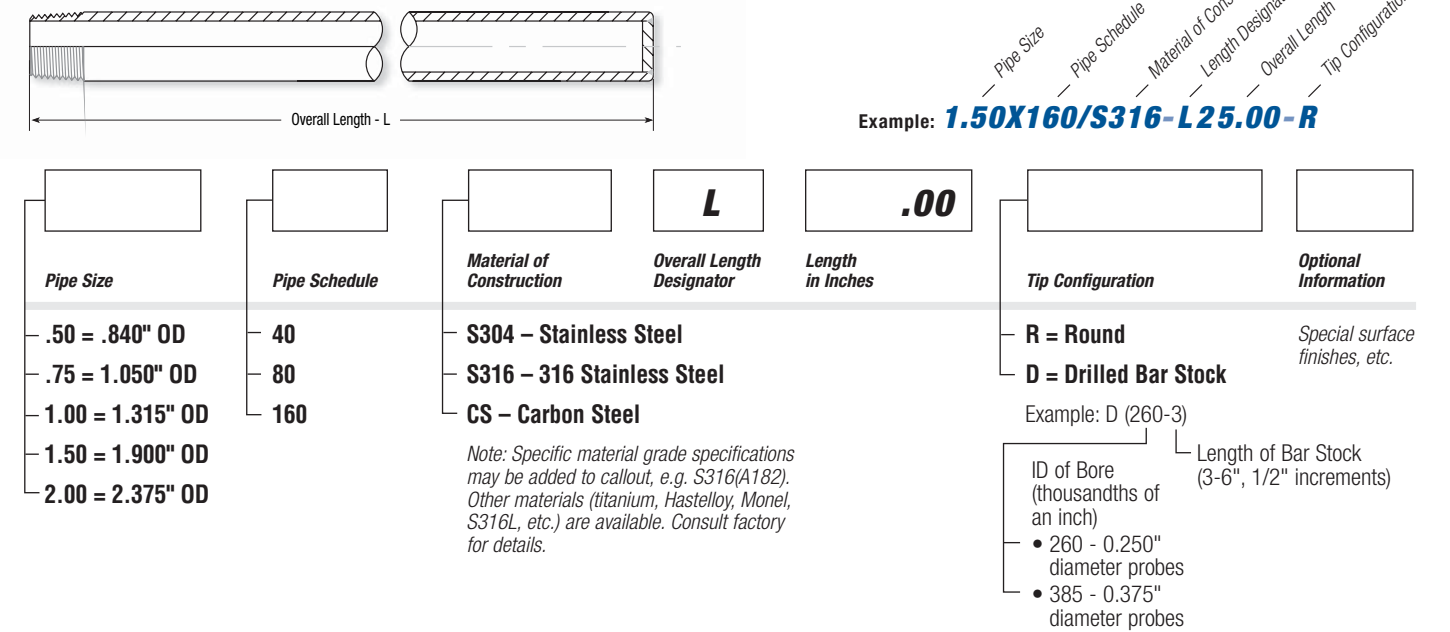
- 260 - 0.250" diameter probes
- 385 - 0.375" diameter probes

Length of Bar Stock (3-6", 1/2" increments)

\*Full radius tip configuration may be substituted.

*Note: Specific material grade specifications may be added to callout, e.g. S316(A182). Other materials (titanium, Hastelloy, Monel, S316L, etc.) are available. Consult factory for details.*

## Pipewell Only



## Pipewell with Mounting Plug

