



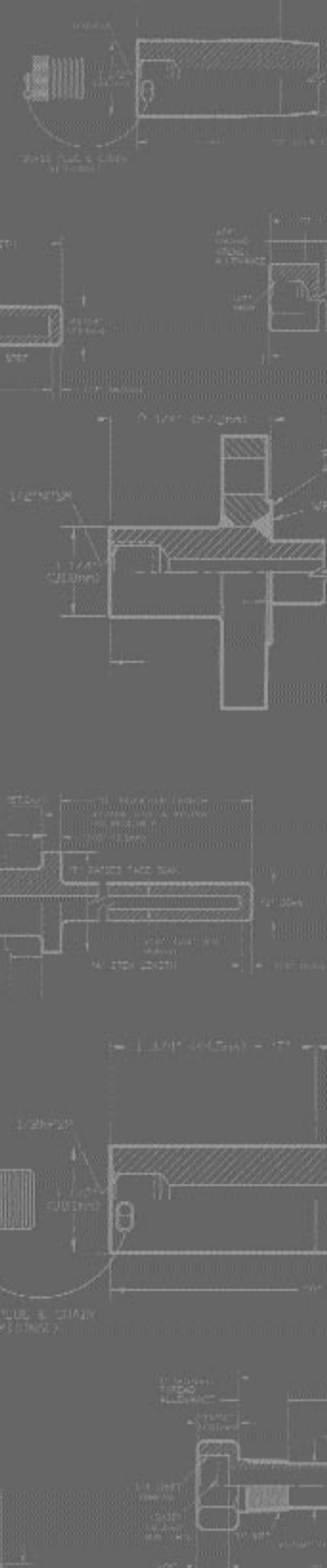
# TEL-TRU MANUFACTURING COMPANY THERMOWELLS



*World-Class Thermometers*

*Since  
1916*

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## TABLE OF CONTENTS

PAGE

<b>SELECTION OF THERMOWELLS</b>	i
<b>VELOCITY RATINGS OF THERMOWELLS</b>	ii
<b>STANDARD MANUFACTURING TOLERANCES</b>	ii
<b>MATERIAL SELECTION GUIDE</b>	iii
<b>STANDARD THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TW - General Use	1
Model 260TWE - General Use with Lagging Extension	1
<b>HEAVY DUTY THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TWH - Heavy Duty	2
Model 260TWEH - Heavy Duty with Lagging Extension	2
<b>STANDARD THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TW - General Use	3
Model 385TWE - General Use with Lagging Extension	3
<b>HEAVY DUTY THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TWH - Heavy Duty	4
Model 385TWEH - Heavy Duty with Lagging Extension	4
<b>LIMITED SPACE THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TWA - Limited Space	5
<b>GENERAL PURPOSE TEST THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TWT - Test	5
<b>STANDARD THREADED THERMOWELLS FOR INDUSTRIAL GLASS THERMOMETERS</b>	
Model GW - Glass Industrial	6
Model GWE - Glass Industrial with Lagging Extension	6
<b>FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWF - Flanged	7
Model 385TWF - Flanged	7
<b>HEAVY DUTY FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWFH - Heavy Duty Flanged	8
Model 385TWFH - Heavy Duty Flanged	8
<b>SOCKET WELD THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWW - Socket Weld	9
Model 385TWW - Socket Weld	9
<b>WELD-IN THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWI - Weld-In	10
Model 385TWI - Weld-In	10
<b>VAN STONE THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWW - Van Stone	11
Model 385TWW - Van Stone	11
<b>SANITARY THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWS - Sanitary	12
Model 385TWS - Sanitary	12
<b>TANTALUM JACKETS</b>	12
<b>PROTECTING TUBES</b>	12
<b>THERMOWELL ADAPTER SET</b>	iv
<b>THERMOWELL OPTIONS</b>	iv

## TABLE OF CONTENTS

PAGE

<b>SELECTION OF THERMOWELLS</b>	i
<b>VELOCITY RATINGS OF THERMOWELLS</b>	ii
<b>STANDARD MANUFACTURING TOLERANCES</b>	ii
<b>MATERIAL SELECTION GUIDE</b>	iii
<b>STANDARD THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TW - General Use	1
Model 260TWE - General Use with Lagging Extension	1
<b>HEAVY DUTY THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TWH - Heavy Duty	2
Model 260TWHE - Heavy Duty with Lagging Extension	2
<b>STANDARD THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TW - General Use	3
Model 385TWE - General Use with Lagging Extension	3
<b>HEAVY DUTY THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TWH - Heavy Duty	4
Model 385TWHE - Heavy Duty with Lagging Extension	4
<b>LIMITED SPACE THERMOWELLS FOR 1/4" DIAMETER ELEMENTS</b>	
Model 260TWA - Limited Space	5
<b>GENERAL PURPOSE TEST THERMOWELLS FOR 3/8" DIAMETER ELEMENTS</b>	
Model 385TWT - Test	5
<b>STANDARD THREADED THERMOWELLS FOR INDUSTRIAL GLASS THERMOMETERS</b>	
Model GW - Glass Industrial	6
Model GWE - Glass Industrial with Lagging Extension	6
<b>FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWF - Flanged	7
Model 385TWF - Flanged	7
<b>HEAVY DUTY FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWFH - Heavy Duty Flanged	8
Model 385TWFH - Heavy Duty Flanged	8
<b>SOCKET WELD THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWW - Socket Weld	9
Model 385TWW - Socket Weld	9
<b>WELD-IN THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWI - Weld-In	10
Model 385TWI - Weld-In	10
<b>VAN STONE THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWW - Van Stone	11
Model 385TWW - Van Stone	11
<b>SANITARY THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS</b>	
Model 260TWS - Sanitary	12
Model 385TWS - Sanitary	12
<b>TANTALUM JACKETS</b>	12
<b>PROTECTING TUBES</b>	12
<b>THERMOWELL ADAPTER SET</b>	iv
<b>THERMOWELL OPTIONS</b>	iv

## MATERIAL

### The Longevity Factor

#### Corrosion Resistance:

- Recommended materials for various services are given in the material selection guide in this catalog.
- A high mirror polish may be given to all stainless and monel wells to provide maximum corrosion resistance.

#### Strength:

The standard materials listed for each well series will cover most requirements. A stock of special materials is carried at all times to ensure fast delivery on wells to be made of special grades of:

- Stainless steel
- Chrome-molybdenum steel
- Naval brass
- Hastelloy B or C
- Nickel
- Titanium

Consult the pressure-temperature ratings given for each well type (see <http://www.teltru.com>). For example, a stainless steel well may be required for high pressure water service where otherwise a brass well would be satisfactory from a corrosion standpoint.

## CONNECTION

### The Installation Factor

Standard thermowell connections shown in this catalog are threaded, flanged (A.S.A. and Van Stone), and socket weld types with standard bore sizes.

#### Threaded Wells:

- Made in readily welded or brazed materials.
- Important for installations requiring seal welding or brazing.
- The pipe thread provides the mechanical strength, the weld merely seals.

#### Flanged Wells:

##### (other than Van Stone type)

- Consists of a bar stock well which is solidly welded to a top quality flange.
- Standard construction uses a primary "J" groove weld and a bevel groove secondary weld.
- Both welds are machined to produce a clean fillet.
- This double welded construction eliminates possibility of crevice corrosion since no open joints are exposed from either inside or outside the installation.

#### Socket Weld Wells:

- Simple to install - merely welded into place.
- These wells fit A.S.A. standard socket weld couplings or flanges. The resulting installation is clean and tight.

## INSERTION LENGTH

### The Accuracy Factor

- The insertion length is the distance from the end of the well to the underside of the thread, or other connection means, (also known as "U" dimension).
- For best accuracy, this length should be long enough to permit the entire temperature sensitive part of the thermometer bulb to project into the medium being measured.
- Contact the manufacturer of the element for minimum sensitive bulb length.
- Be sure that dead length, i.e., that length required to pass thru walls, pipe fittings, etc., is taken into account when choosing the necessary well insertion length.

## BORE SIZE

### The Interchange-ability Factor

- Almost any installation uses several types of temperature measuring instruments.
- The selection of a standard bore diameter can produce extreme flexibility within the plant
- The same well can accommodate either thermocouples, resistance thermometers, Bimetal thermometers, or test thermometers.

The bore size of wells shown in this catalog cover the most commonly used temperature sensing elements as follows:

#### .260 Diameter Bore:

- Bimetal Thermometers (1/4" Stem)
- Thermocouples - (#20 Gauge)
- Liquid-in-glass Test Thermometers (unarmored)
- Other elements having .252 maximum diameter

#### .385 Diameter Bore:

- Bimetal Thermometers (3/8" Stem)
- Gas Actuated Thermometers (3/8" Bulb)
- Thermocouples - (#14 Gauge)
- Liquid-in-glass Test Thermometers (armored)
- Other elements having .377 maximum diameter

## TAPERED OR STRAIGHT SHANK

### The Velocity Rating Factor

- Tapered shank wells provide greater stiffness for the same sensitivity.
- The higher strength to weight ratio gives these wells higher natural frequency than for equivalent length straight shank wells, thus permitting operation at higher fluid velocity.
- Refer to "Velocity Ratings of Wells".

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See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

## VELOCITY RATINGS OF THERMOWELLS

Well failures, in most cases, are not due to the effect 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 have 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.

A recommended maximum velocity rating can be found on the Tel-Tru Web site (<http://www.teltru.com>) for every standard well length and material cataloged.

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 given not be exceeded.

If you have operating conditions requiring special well designs, values can be calculated upon request for specific applications.

## STANDARD MANUFACTURING TOLERANCES

### THERMOWELLS MEET OR EXCEED SAMA SPECIFICATIONS:

#### LENGTHS:

- $\pm 1/16$ " on lengths 12" or less
- $\pm 1/8$ " on lengths 12" or over

Wells 30" overall length and longer:

- Solid bored type will be drilled thru end, plugged, and heliarc welded
- Built-up design must be specified beyond 42-1/4" overall length

#### OD TOLERANCES:

- Fractional:  $\pm .015$
- Decimal:  $\pm .005$  on .000 place  
 $\pm .01$  on .00 place

#### BORE ID:

- + .005
- - .003

#### END THICKNESS:

- Gun Drill Bottom
- 1/4" to bottom  $\pm 1/16$ "
- 3/16" min. end thickness

#### CONCENTRICITY OF BORE TO OD

- $\pm 10\%$  of min. wall thickness

#### WETTED SURFACES FINISH:

- Standard finish 60-100 Ra
- 16-32 Ra available
- 4-10 Ra mirror polish available

#### RADIUS UNDER THREADS AND FLANGES:

- 1/8" is standard,  $\pm 1/16$ "
- 1/16" on Van Stone type

#### MALE THREADS: (NPT)

- $\pm 1$  turn on thread gage

#### FEMALE THREADS:

- 1/2" NPSM standard
- 1/2" NPT available upon request
- Go gage to 5/8" depth of thread
- No go gage 2 turns max

#### END OF WELLS:

- Break corners
- No Burrs

#### LAGGING EXT.

- On Screwed Wells
- Left as Hex stock (not turned)
- Exception: When Hex is not available in special materials

#### STAMPING:

- Stamped onto Hex or round facing open end of well
- Material code identification
- Tag numbers

#### FLANGED WELLS

- Made in accordance with ANSI B16.5
- Raised Face is serrated 125 Ra
- Smooth Face must be specified on order if needed

#### FRONT " J "

- Groove welds are 1/4" wide by 1/4" deep
- Welds are machined, leaving 1/8" radius
- Rear welds are 1/8" wide by 1/8" deep "V"
- Welds are machined, leaving 1/4 radius
- Full penetration welds are available upon request and must be specified

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# MATERIAL SELECTION GUIDE

Corrodent	Temp. °F.	Conc. %	Recom. Material	Corrodent	Temp. °F.	Conc. %	Recom. Material	Corrodent	Temp. °F.	Conc. %	Recom. Material
Acetic Acid	212	All	Monel	Copper Plating	180		304 SS	Palmitic Acid	<i>See Fatty Acids</i>		
Acetic Anhydride	300		Nickel	Solution (Cyanide)				Phenol	212	All	316 SS
Acetone	212	All	304 SS	Corn Oil	200		304 SS	Phosphoric Acid	212	All	316 SS
Acetylene	400		304 SS	Creosote	200	All	304 SS	Photographic	100	All	304 SS
Alcohols	212	All	304 SS	Crude Oil	300		Monel	Bleaching			
Alum. (Potassium or Sodium)	300	All	Hast. C	Ethanol	<i>See Alcohols</i>			Potassium	<i>See Sodium Compound</i>		
Aluminum Chloride	212	All	Hast. B	Ethyl Acetate	<i>See Lacquer Thinner</i>			Compounds			
Aluminum Sulfate	212	All	316 SS	Ethyl Chloride, Dry	500		Steel	Propane	300		Steel
Ammonia, Dry	212	All	304/316 SS	Ethylene Glycol	212	All	304 SS	Rosin	700	100%	316 SS
Ammonium Chloride	300	50%	Monel	(Uninhibited)				Sea Water	75		Monel
Ammonium Hydroxide	212	All	304/316 SS	Ethylene Oxide	75		Steel	Soap & Detergents	212	All	304 SS
(Ammonia, Aqua)				Fatty Acids	500	All	316 SS	Sodium Bicarbonate	212	20%	316 SS
Ammonium Nitrate	300	All	304 SS	Ferric Chloride	75	All	Hast. C	Sodium Bisulphate	212	20%	304 SS
Ammonium Sulfate	212	All	316 SS	Ferric Sulfate	300	All	304 SS	Sodium Bisulphite	212	20%	304 SS
Amyl Acetate	300	All	304 SS	Fluorine, Anhydrous	100		304 SS	Sodium Carbinatate	212	40%	316 SS
Aniline	25		Monel	Formaldehyde	212	40%	316 SS	Sodium Chloride	300	30%	Monel
Asphalt	250		304 SS	Formic Acid	300	All	316 SS	Sodium Chromate	212	All	316 SS
Atmosphere			304 SS	Freon	300		Steel	Salt or Brine	<i>See Sodium Chloride</i>		
(Industrial and Marine)				Furfural	450		316 SS	Sodium Cyanide	212	All	304 SS
Barium Compounds	<i>See Calcium</i>			Gasoline	300		Steel	Sodium Hydroxide	212	30%	316 SS
Beer	70		304 SS	Glucose	300		304 SS	Sodium Hypochlorite	75	10%	Hast. C
Benzene (Benzol)	212		Steel	Glue pH 6-8	300	All	304 SS	Sodium Nitrate	212	40%	304 SS
Benzoic Acid	212	All	316 SS	Glycerine	212	All	Brass	Sodium Nitrite	75	20%	316 SS
Bleaching Powder	70	15%	Monel	Hydrobromic Acid	212	All	Hast. C	Sodium Phosphate	212	10%	Steel
Borax	212	All	Brass	Hydrochloric Acid	225	All	Hast. B	Sodium Silicate	212	10%	Steel
Bordeaux Mixture	200		304 SS	(37-38%)				Sodium Sulfate	212	30%	304 SS
Boric Acid	400	All	316 SS	Hydrocyanic Acid	212	All	304 SS	Sodium Sulfide	212	30%	316 SS
Bromine	125	Dry	Monel	Hydrofluogilicic Acid	212	40%	Monel	Sodium Sulfite	212	10%	316 SS
Butane	400	All	Steel	Hydrofluoric Acid	212	60%	Monel	Sodium Thiosulfate	212	All	304 SS
Butyl Alcohol	<i>See Alcohols</i>			Hydrogen Chloride	500		304 SS	Steam			304 SS
Butyric Acid	212		Hast. C	Dry				Stearic Acid	<i>See Fatty Acids</i>		
Calcium Bisulphite	75	All	Hast. C	Hydrogen Fluoride	175		Steel	Sugar Solution	<i>See Glucose</i>		
Calcium Chloride	212	All	Hast. C	Dry				Sulphur	500		304 SS
Calcium Hydroxide	300	20%	Hast. C	Hydrogen Peroxide	125	10-100%	304 SS	Sulphur Chloride	75	Dry	316 SS
Calcium Hypochlorite	<i>See Bleaching Powder</i>			Kerosene	300	All	Steel	Sulphur Dioxide	500	Dry	316 SS
Carbolic Acid	<i>See Phenol</i>			Lacquers & Thinners	300	All	304 SS	Sulphur Trioxide	500	Dry	316 SS
Carbon Dioxide, Dry	800	All	Brass	Lactic Acid	300	All	316 SS	Sulfuric Acid	212	10%	316 SS
Carbonated	212		304 SS	Lime	212	All	316 SS	Sulfuric Acid	212	10-90%	Hast. B
Beverages				Linseed Oil	75		Steel	Sulfuric Acid	212	90-100%	Hast. B
Carbonated Water	212	All	304 SS	Magnesium Chloride	212	50%	Nickel	Sulfuric Acid Fuming	175		Carp. 20
Carbon Disulphide	200		304 SS	Magnesium	75	All	304 SS	Sulfurous Acid	75	20%	316 SS
Carbon Tetrachloride	125	All	Monel	Hydroxide (or Oxide)				Tannic Acid	75	40%	Hast. B
Chlorine, Dry	100		Monel	Magnesium Sulfate	212	40%	304 SS	Titanium	75	All	316 SS
Chlorine, Moist	100	All	Monel	Mercuric Chloride	75	10%	Hast. C	Tetrachloride			
Chloracetic Acid	212	All	Monel	Mercury	700	100%	Steel	Toluene	75		Steel
Chloroform, Dry	212		Monel	Methyl Chloride, Dry	75		Steel	Trichloroacetic Acid	75	All	Hast. B
Chromic Acid	300	All	Hast. C	Methylene Chloride	212	All	304 SS	Trichlorethylene	300	Dry	Monel
Cider	300	All	304 SS	Milk, fresh or sour	180		304 SS	Turpentine	75		316 SS
Citric Acid	212	All	Hast. C	Molasses	<i>See Glucose</i>			Varnish	150		Steel
Copper (10) Chloride	212	All	Hast. C	Natural Gas	70		304 SS	Zinc Chloride	212	All	Hast. B
Copper (10) Nitrite	300	All	316 SS	Nitric Acid	75	All	304 SS	Zinc Sulfate	212	All	316 SS
Copper (10) Sulfate	300	All	316 SS	Nitric Acid	300	All	316 SS				
Copper Plating	75		304 SS	Oxygen	75	All	Steel				
Solution (Acid)				Oleic Acid	<i>See Fatty Acids</i>						
				Oxalic Acid	212	All	Monel				

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See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# STANDARD THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS

## APPLICATION:

Standard length, 1/4" stem diameter, bimetal thermometers; #20 gauge thermocouple elements; unarmored liquid-in-glass test thermometers; other temperature sensing elements having 0.252" maximum diameter.

Standard thermowell is stepped to 1/2" OD except 2-1/2" insertion. Please specify if straight shank is required.

## PROCESS CONNECTION SIZE:

1/2", 3/4", and 1" NPT are standard. Other thread sizes available upon request.

## MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

## CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

**Note: On wells with 1/2" NPT process connection, the 1" thread allowance and 3/4" wrench allowance dimensions are reversed to accommodate the 1/2" NPSM female thread.**

## TO ORDER PLEASE SPECIFY:

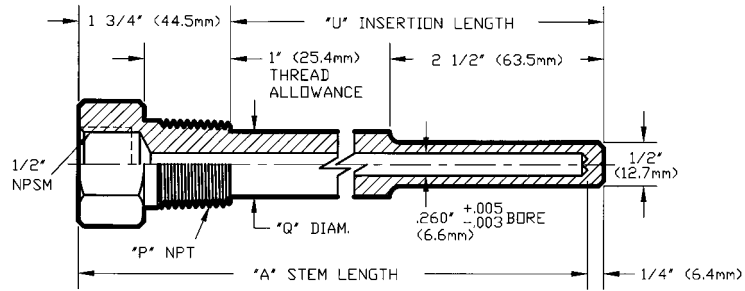
- Model
- Material
- Process Connection
- "U" - Insertion Length and "A" - Stem Length
- Options as required

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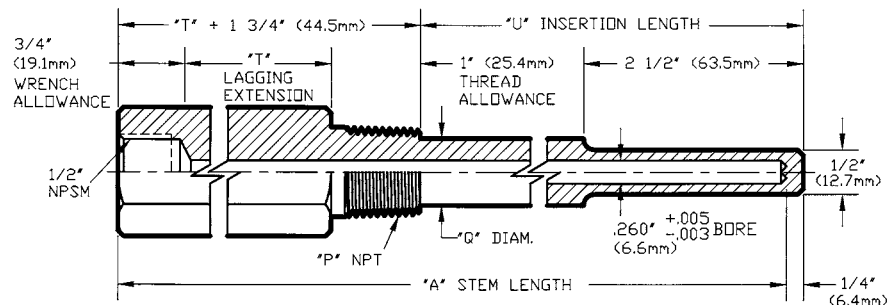
## Model 260TW - General Use



.260" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	SHANK DIAMETER Q
260TW	4"	1/2"	2-1/2"	N/A
	6"		4-1/2"	5/8"
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
24"	22-1/2"			
260TW	4"	3/4"	2-1/2"	N/A
	6"		4-1/2"	3/4"
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
24"	22-1/2"			
260TW	4"	1"	2-1/2"	N/A
	6"		4-1/2"	7/8"
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
24"	22-1/2"			

## Model 260TWE - General Use with Lagging Extension



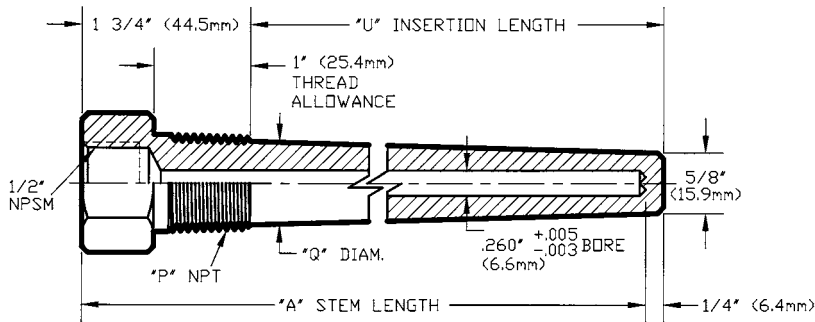
.260" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	LAGGING EXTENSION T	SHANK DIAMETER Q
260TWE	6"	1/2"	2-1/2"	2"	N/A
	9"		4-1/2"	3"	5/8"
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	
260TWE	6"	3/4"	2-1/2"	2"	
	9"		4-1/2"	3"	3/4"
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	
260TWE	6"	1"	2-1/2"	2"	
	9"		4-1/2"	3"	7/8"
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	

**Note: Additional lagging extensions available upon request.**

# HEAVY DUTY THREADED THERMOWELLS FOR 1/4" DIAMETER ELEMENTS

## Model 260TWH - Heavy Duty



.260" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	SHANK DIAMETER Q
260TWH	4"	3/4"	2-1/2"	7/8"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
24"	22-1/2"			
260TWH	4"	1"	2-1/2"	1-1/16"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
24"	22-1/2"			

### APPLICATION:

Standard length, 1/4" stem diameter, bimetal thermometers; #20 gauge thermocouple elements; unarmored liquid-in-glass test thermometers; other temperature sensing elements having 0.252" maximum diameter.

### PROCESS CONNECTION SIZE:

3/4" and 1" NPT are standard. Other thread sizes available upon request.

### MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

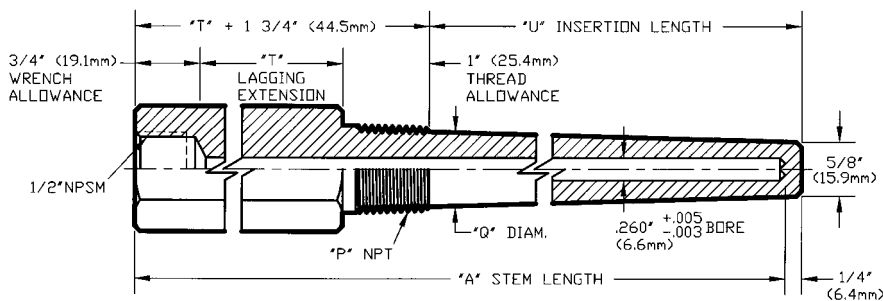
### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

### TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length and "A" - Stem Length
- Options as required

## Model 260TWHE - Heavy Duty with Lagging Extension



.260" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	LAGGING EXTENSION T	SHANK DIAMETER Q
260TWHE	6"	3/4"	2-1/2"	2"	7/8"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	
260TWHE	6"	1"	2-1/2"	2"	1-1/16"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	

Note: Additional lagging extensions available upon request.

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See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.



# STANDARD THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS

## APPLICATION:

Standard length, 3/8" stem diameter, bimetal thermometers; #14 gauge thermocouple elements; unarmored liquid-in-glass test thermometers; other temperature sensing elements having 0.377" maximum diameter.

## PROCESS CONNECTION SIZE:

3/4" and 1" NPT are standard. Other thread sizes available upon request.

## MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

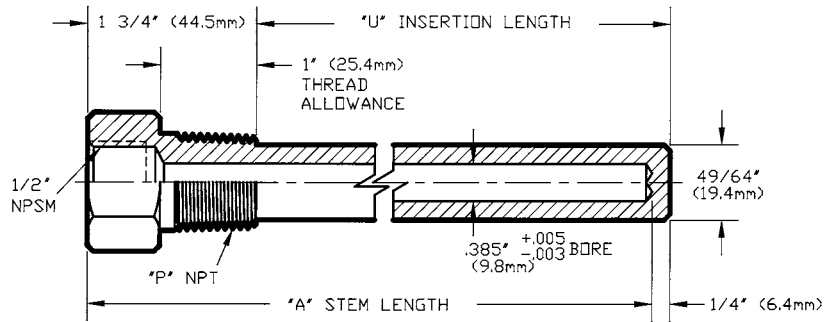
## CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

## TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length and
- "A" - Stem Length
- Options as required

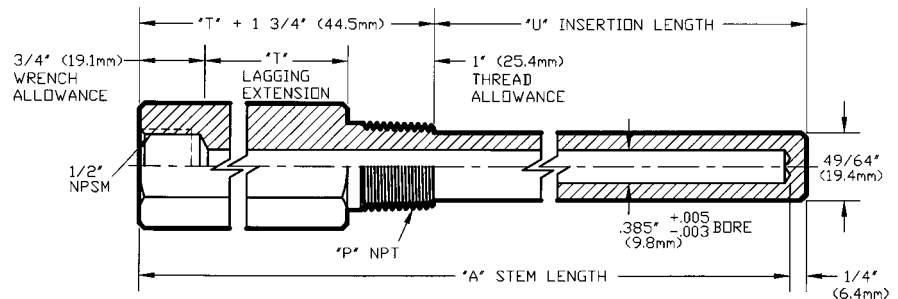
## Model 385TW - General Use



.385" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	SHANK DIAMETER Q
385TW	4"	3/4"	2-1/2"	49/64"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
385TW	4"	1"	2-1/2"	49/64"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
	24"	22-1/2"		

## Model 385TWE - General Use with Lagging Extension



.385" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	LAGGING EXTENSION T	SHANK DIAMETER Q
385TWE	6"	3/4"	2-1/2"	2"	49/64"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	
385TWE	6"	1"	2-1/2"	2"	49/64"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	

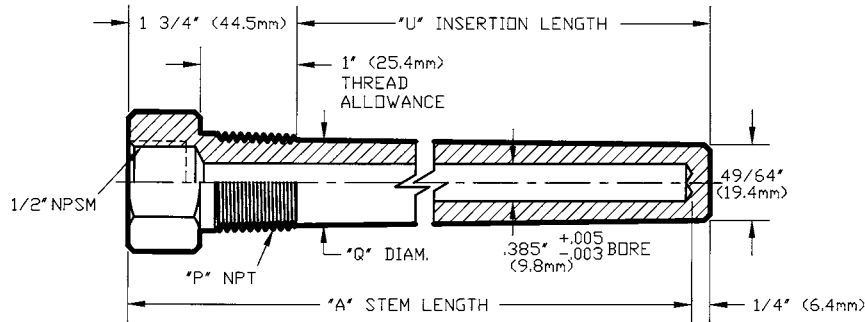
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1-800-232-5335

See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# HEAVY DUTY THREADED THERMOWELLS FOR 3/8" DIAMETER ELEMENTS

## Model 385TWH - Heavy Duty



.385" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	SHANK DIAMETER Q
385TWH	4"	3/4"	2-1/2"	7/8"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	
385TWH	4"	1"	2-1/2"	1-1/16"
	6"		4-1/2"	
	9"		7-1/2"	
	12"		10-1/2"	
	15"		13-1/2"	
	18"		16-1/2"	

### APPLICATION:

Standard length, 3/8" stem diameter, bimetal thermometers; #14 gauge thermocouple elements; unarmored liquid-in-glass test thermometers; other temperature sensing elements having 0.377" maximum diameter.

### PROCESS CONNECTION SIZE:

3/4" and 1" NPT are standard. Other thread sizes available upon request.

### MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

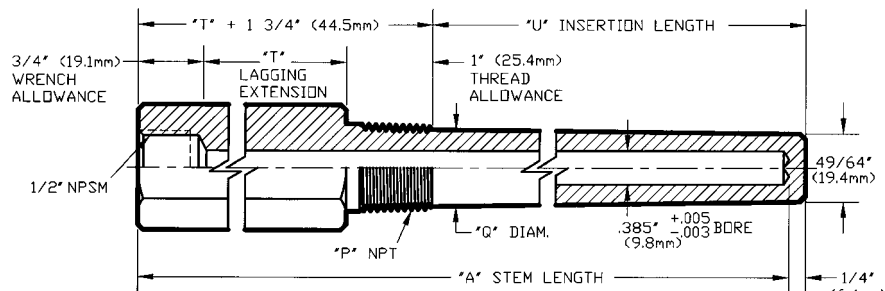
### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

### TO ORDER PLEASE SPECIFY

- Model
- Material
- Process Connection
- "U" - Insertion Length and "A" - Stem Length
- Options as required

## Model 385TWHE - Heavy Duty with Lagging Extension



.385" Bore

MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	LAGGING EXTENSION T	SHANK DIAMETER Q
385 TWHE	6"	3/4"	2-1/2"	2"	7/8"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	
385 TWHE	6"	1"	2-1/2"	2"	1-1/16"
	9"		4-1/2"	3"	
	12"		7-1/2"	3"	
	15"		10-1/2"	3"	
	18"		13-1/2"	3"	
	24"		19-1/2"	3"	

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1-800-232-5335

See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

## LIMITED SPACE THERMOWELLS FOR 1/4" DIAMETER ELEMENTS

### APPLICATION:

Used where short insertion length is necessary such as in short legs of tees, etc. This thermowell also fits the 2-1/2" stem length of a bimetal thermometer with a 1/4" stem diameter.

### PROCESS CONNECTION SIZE:

1/2", 3/4" and 1" NPT are standard. Other thread sizes available upon request.

### MATERIALS:

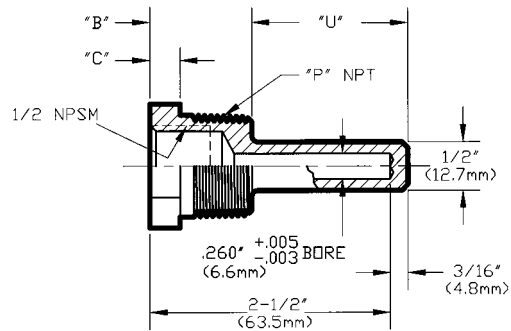
Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel.

### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

**Note: On wells with 1/2" process connection, the "U" dimension becomes 1" to accommodate the 1/2" NPSM female thread.**

### Model 260TWA - Limited Space



MODEL	STEM LENGTH A	PROCESS CONNECTION P	INSERTION LENGTH U	B	C
260TWA	2-1/2"	1/2"	1"	1-11/16"	15/16"
		3/4"	1-5/8"	1-1/16"	5/16"
		1"	1-5/8"	1-1/16"	5/16"

## GENERAL PURPOSE TEST THERMOWELLS FOR 3/8" DIAMETER ELEMENTS

### APPLICATION:

For bimetal thermometers, armored liquid-in-glass test thermometers; #14 gauge test thermocouples.

### PROCESS CONNECTION SIZE:

1/2" NPT external thread is standard. Other thread sizes available upon request.

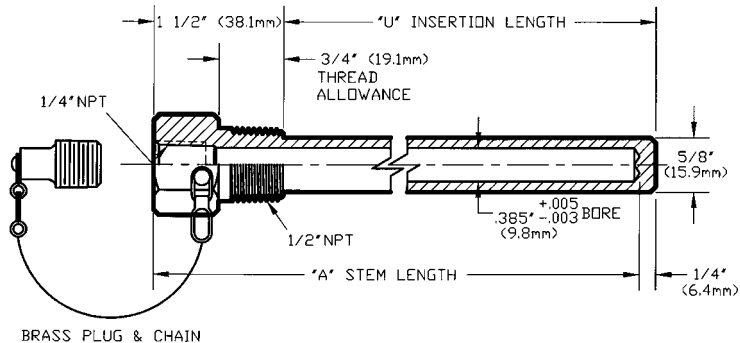
### MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel.

### CAP & CHAIN:

Brass captive plug and chain is furnished on all thermowells as standard. Other materials available.

### Model 385TWT - TEST



### DIMENSIONS - SERIES 385A

MODEL	INSERTION LENGTH U	STEM LENGTH A
385TWT	2"	3-1/4"
385TWT	4"	5-1/4"
385TWT	6"	7-1/4"
385TWT	8"	9-1/4"
385TWT	10"	11-1/4"
385TWT	12"	13-1/4"

### TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length and
- "A" - Stem Length
- Options as required

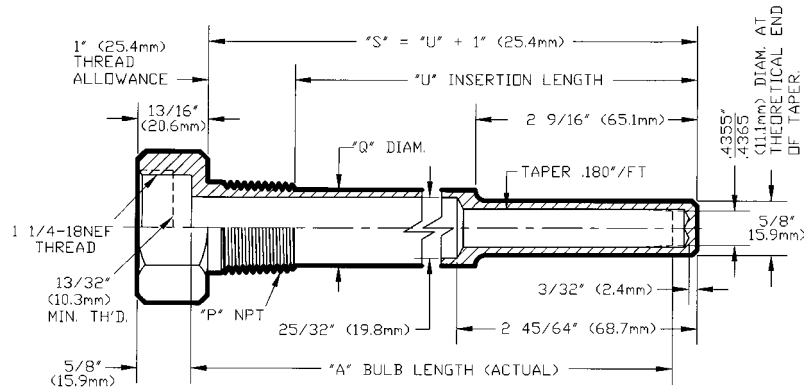
TEL-TRU MANUFACTURING CO.

1-800-232-5335

See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

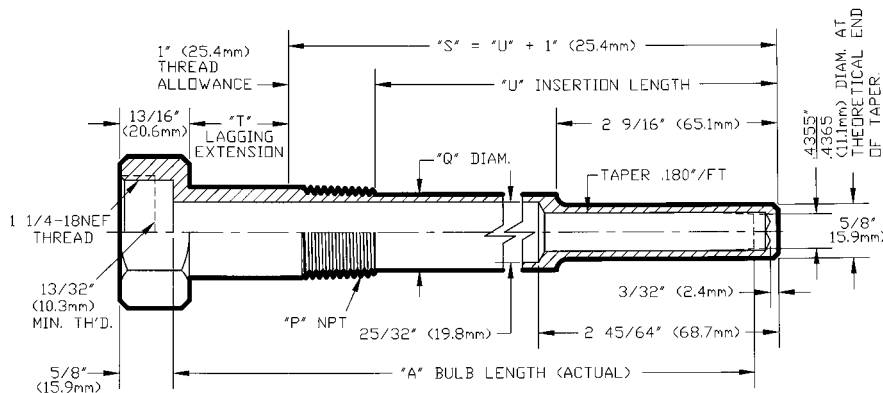
# STANDARD THREADED THERMOWELLS FOR INDUSTRIAL GLASS THERMOMETERS

## Model GW - Glass Industrial



EXT. TH'D P	MODEL	NOM. SOCKET LENGTH	BULB LENGTH A	INSERT. LENGTH U	SHANK DIA. Q
3/4" NPT	GW0012	3-1/2"	3-5/8"	2-9/16"	—
	GW0022	6"	6-1/8"	5-1/16"	7/8"
	GW0032	8"	8-1/8"	7-1/16"	7/8"
	GW0052	9"	9-1/8"	8-1/16"	7/8"
	GW0042	12"	12-1/8"	11-1/16"	7/8"
1" NPT	GW0013	3-1/2"	3-5/8"	2-9/16"	—
	GW0023	6"	6-1/8"	5-1/16"	1"
	GW0033	8"	8-1/8"	7-1/16"	1"
	GW0053	9"	9-1/8"	8-1/16"	1"
	GW0043	12"	12-1/8"	11-1/16"	1"

## Model GWE - Glass Industrial with Lagging Extension



EXT. TH'D P	MODEL	NOM. SOCKET LENGTH	LAGGING EXT LENGTH T	BULB LENGTH A	INSERT. LENGTH U	SHANK DIA. Q
3/4" NPT	GWE022	6"	2-1/2"	6-1/8"	2-9/16"	—
	GWE032	8"	3"	8-1/8"	4-1/16"	7/8"
	GWE052	9"	3"	9-1/8"	5-1/16"	7/8"
	GWE042	12"	3"	12-1/8"	8-1/16"	7/8"
1" NPT	GWE023	6"	2-1/2"	6-1/8"	2-9/16"	—
	GWE033	8"	3"	8-1/8"	4-1/16"	1"
	GWE053	9"	3"	9-1/8"	5-1/16"	7/8"
	GWE043	12"	3"	12-1/8"	8-1/16"	1"

### APPLICATION:

Fits liquid-in-glass thermometers made to SAMA standards. Tapered bore is made 0.008" oversize to eliminate possibility of thermometer bulb expanding into the thermowell thus preventing removal. Also meets Federal GG-T-321C standards.

### PROCESS CONNECTION SIZE:

3/4" and 1" NPT are standard. Other thread sizes available upon request.

### MATERIALS:

Brass (ASTM B-16); Carbon Steel (C-1018); 304SS; 316SS; Monel. Other materials are available upon request.

### ADDITIONAL DESIGNS:

Other designs of thermowells to fit this class of thermometer are available including socket weld, heavy duty, and flanged types.

### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

### TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length
- Nominal Bulb Length
- Options as required

TEL-TRU MANUFACTURING CO.

1-800-232-5335

See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

## FLANGE SIZES:

1" and 1-1/2" flanges in all facings and pressure ratings are standard. Other sizes are available on application. Machined to meet ANSI B-16.5. Traceable to mill test reports.

## MATERIALS:

Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

## WELDING:

Primary weld is "J" groove type; secondary weld is 45° bevel groove. Welding is performed by certified welders using inert gas shielded arc.

## CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

## LAGGING EXTENSION:

Specify model TWFE. Add lagging extension length to 2-1/4" head dimension.

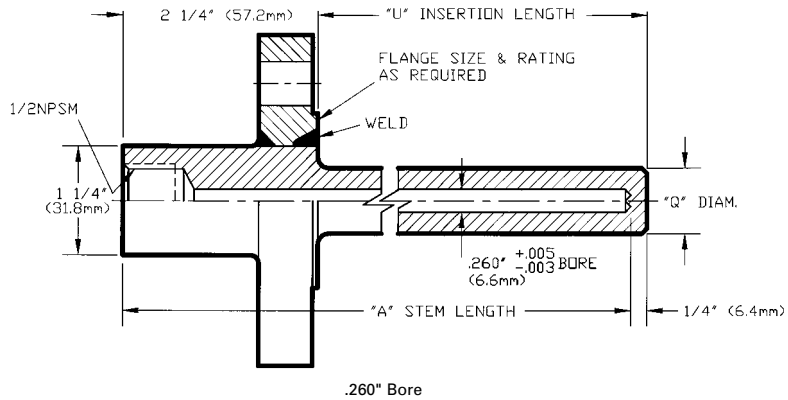
## TO ORDER PLEASE SPECIFY:

- Model
- Material - Thermowell  
Material - Flange (if different)
- Flange Size
- Pressure Rating
- Flange Type - Raised Face, Flat Face, or Ring Type Joint
- "U" - Insertion Length and  
"A" - Stem Length
- Options as required

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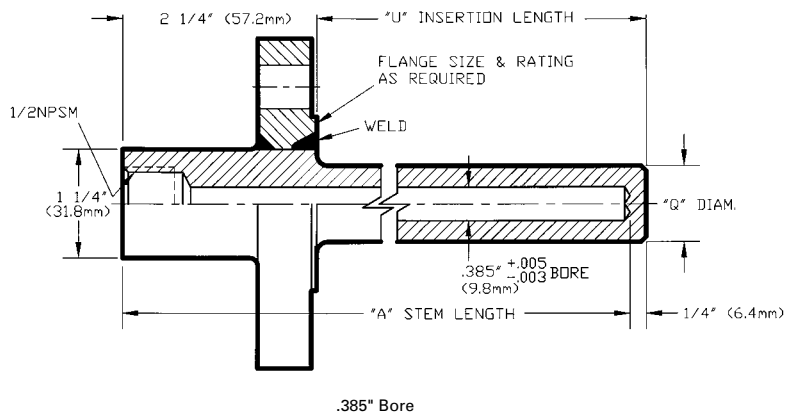
See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

## Model 260TWF - Flanged



MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	BORE DIAMETER B
260 TWF	4"	2"	3/4"	.260"
260 TWF	6"	4"		
260 TWF	9"	7"		
260 TWF	12"	10"		
260 TWF	15"	13"		
260 TWF	18"	16"		
260 TWF	24"	22"		

## Model 385TWF - Flanged



MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	BORE DIAMETER B
385 TWF	4"	2"	7/8"	.385"
385 TWF	6"	4"		
385 TWF	9"	7"		
385 TWF	12"	10"		
385 TWF	15"	13"		
385 TWF	18"	16"		
385 TWF	24"	22"		

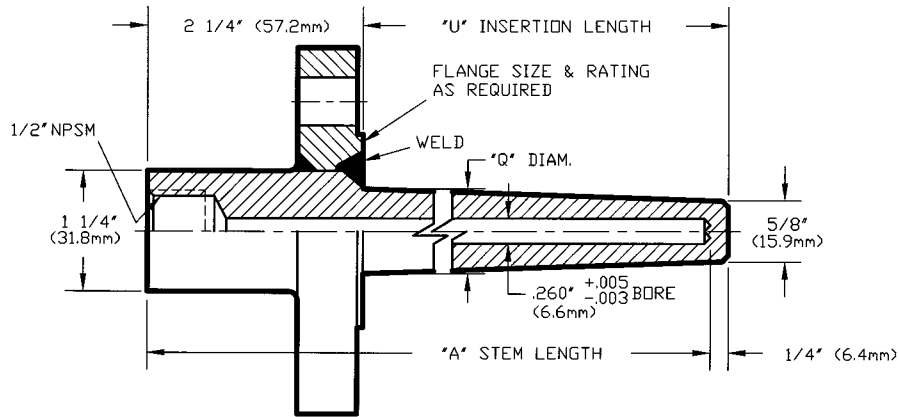
## Flange Configurations Available

NOMINAL PIPE SIZE	PRESSURE RATING	FLANGE TYPE
1" 1-1/2" 2"	150#	Raised Face Flat Face Ring Joint
	300#	
	600#	
	900#	
	1500# 2500#	

Other flange sizes available.

# HEAVY DUTY FLANGED THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

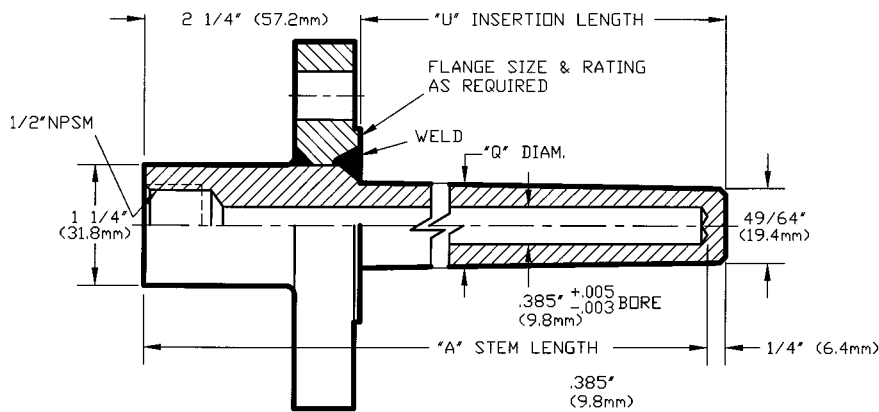
## Model 260TWFH - Heavy Duty Flanged



.260" Bore

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	BORE DIAMETER B
260TWFH	4"	2"	7/8"	.260"
260TWFH	6"	4"		
260TWFH	9"	7"		
260TWFH	12"	10"		
260TWFH	15"	13"		
260TWFH	18"	16"		
260TWFH	24"	22"		

## Model 385TWFH - Heavy Duty Flanged



.385" Bore

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	BORE DIAMETER B
385TWFH	4"	2"	7/8"	.385"
385TWFH	6"	4"		
385TWFH	9"	7"		
385TWFH	12"	10"		
385TWFH	15"	13"		
385TWFH	18"	16"		
385TWFH	24"	22"		

### FLANGE SIZES:

1" and 1-1/2" flanges in all facings and pressure ratings are standard. Other sizes are available on application. Machined to meet ANSI B-16.5. Traceable to mill test reports.

### MATERIALS:

Carbon Steel (C-1018); 304SS; 316SS; Monel. Other special materials available upon request.

### WELDING:

Primary weld is "J" groove type; secondary weld is 45° bevel groove. Welding is performed by certified welders using inert gas shielded arc.

### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

### LAGGING EXTENSION:

Specify model TWFHE. Add lagging extension length to 2-1/4" head dimension.

### TO ORDER PLEASE SPECIFY:

- Model
- Material - Thermowell
- Material - Flange (if different)
- Flange Size
- Pressure Rating
- Flange Type - Raised Face, Flat Face, or Ring Type Joint
- "U" - Insertion Length and "A" - Stem Length
- Options as required

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See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.



# SOCKET WELD THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

**PROCESS CONNECTION SIZE:**

3/4" or 1" nominal pipe size welding shoulder fits ASA welding fittings, flanges, etc. Thermowells for larger pipe size fittings are available upon request.

**MATERIALS:**

Carbon Steel (C-1018); 304SS; 316SS. Other materials available upon request.

**CAP & CHAIN:**

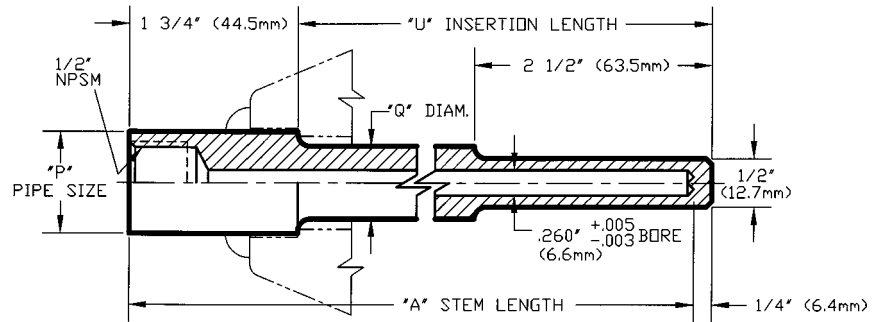
Available upon request for keeping thermowell bore clean when not in use. (Not shown)

**TO ORDER PLEASE SPECIFY:**

- Model
- Material
- Process Connection
- "U" - Insertion Length and "A" - Stem Length
- Options as required

*Note: Tapered socket wells are available upon request. Specify as TWWH.*

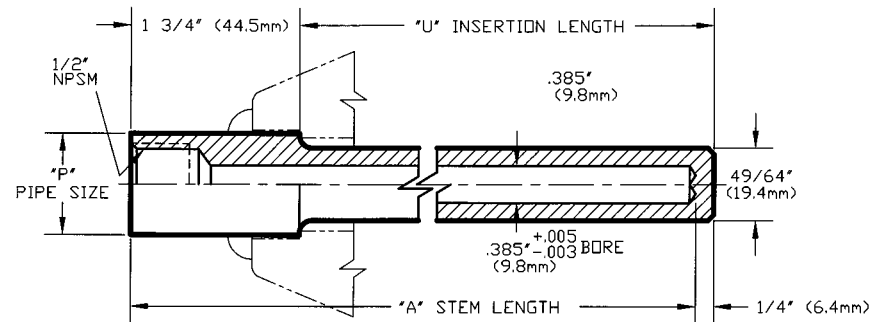
**Model 260TWW - Socket Weld**



.260" Bore

MODEL	STEM LENGTH A	INSERT. LENGTH U	PIPE SIZE P	SHANK DIAMETER Q
3/4" - 260TWW	4"	2-1/2"	1.050"	3/4"
	6"	4-1/2"		
	9"	7-1/2"		
	12"	10-1/2"		
	15"	13-1/2"		
	18"	16-1/2"		
1" - 260TWW	4"	2-1/2"	1.315"	7/8"
	6"	4-1/2"		
	9"	7-1/2"		
	12"	10-1/2"		
	15"	13-1/2"		
	18"	16-1/2"		
24"	22-1/2"			

**Model 385TWW - Socket Weld**



.385" Bore

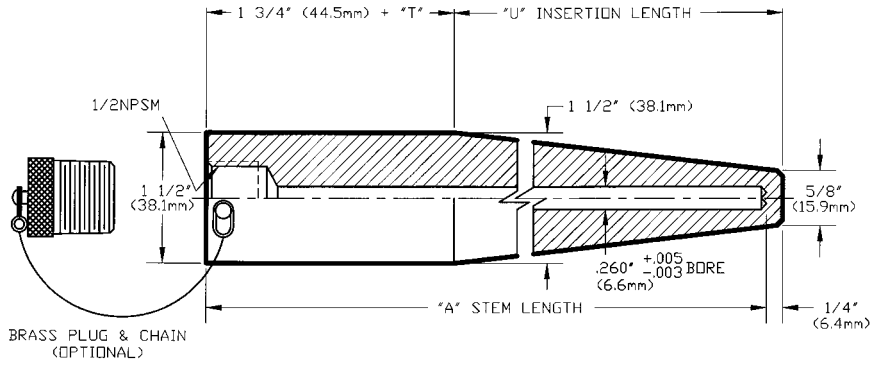
MODEL	STEM LENGTH A	INSERT. LENGTH U	PIPE SIZE P	SHANK DIAMETER Q
3/4" - 385TWW	4"	2-1/2"	1.050"	49/64"
	6"	4-1/2"		
	9"	7-1/2"		
	12"	10-1/2"		
	15"	13-1/2"		
	18"	16-1/2"		
1" - 385TWW	.4"	2-1/2"	1.315"	49/64"
	6"	4-1/2"		
	9"	7-1/2"		
	12"	10-1/2"		
	15"	13-1/2"		
	18"	16-1/2"		
24"	22-1/2"			

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1-800-232-5335

See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# WELD-IN THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

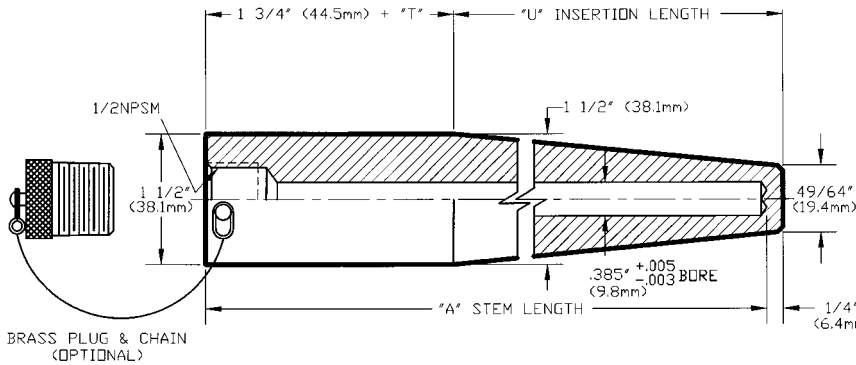
## Model 260TWI - Weld-In



.260" Bore

MODEL	DIAMETER	STEM LENGTH A	INSERTION LENGTH U
260TWI	1-1/2"	4"	2-1/2"
		6"	4-1/2"
		9"	7-1/2"
		12"	10-1/2"
		15"	13-1/2"
		18"	16-1/2"
		24"	22-1/2"

## Model 385TWI - Weld-In



.385" Bore

MODEL	DIAMETER	STEM LENGTH A	INSERTION LENGTH U
385TWI	1-1/2"	4"	2-1/2"
		6"	4-1/2"
		9"	7-1/2"
		12"	10-1/2"
		15"	13-1/2"
		18"	16-1/2"
		24"	22-1/2"

### APPLICATION:

For welding directly into piping.

### MATERIALS:

Carbon Steel (C-1018); 304SS; 316SS; Chrome Moly (F-11 or F-22 as specified). Other materials available upon request.

### CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use.

### LAGGING EXTENSION:

Specify by adding to "T" dimension to 1-3/4" head dimension.

### TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length and "A" - Stem Length
- Options as required

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See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# VAN STONE THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

## PROCESS CONNECTION SIZE:

Standard thermowells fit 1" and 1-1/2" lap joint flanges. Other sizes available.

## MATERIALS:

Carbon Steel (C-1018); 304SS; 316SS; Monel are standard. Other materials available.

## BACKING FLANGE:

When desired a carbon steel lap joint flange can be supplied with Van Stone thermowells. When ordering please specify flange size and pressure rating.

## CAP & CHAIN:

Available upon request for keeping thermowell bore clean when not in use. (Not shown)

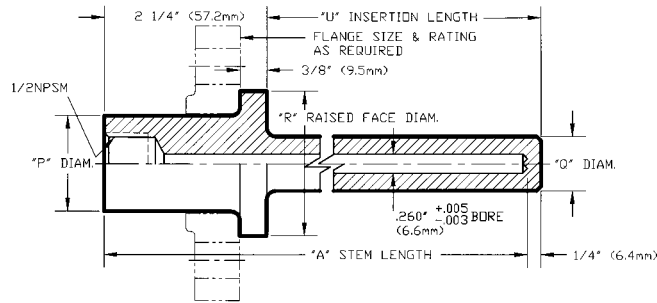
## HEAVY DUTY:

Tapered designs are also available.

## TO ORDER PLEASE SPECIFY:

- Model
- Material
- "U" - Insertion Length and "A" - Stem Length
- Options as required

## Model 260TWW - Van Stone

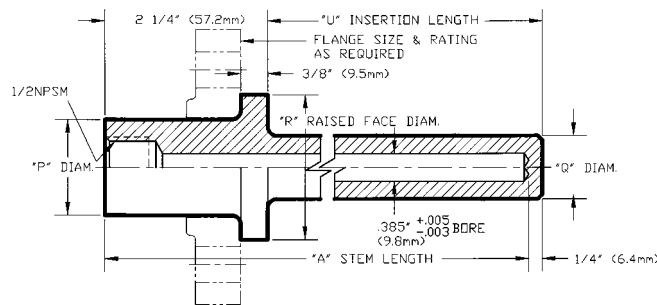


.260" Bore

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	PIPE SIZE P	RAISED FACE DIMENSION R
1" - 260TWW	4"	2"	3/4"	1.315"	2"
1" - 260TWW	6"	4"			
1" - 260TWW	9"	7"			
1" - 260TWW	12"	10"			
1" - 260TWW	15"	13"			
1" - 260TWW	18"	16"			
1" - 260TWW	24"	22"			

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	PIPE SIZE P	RAISED FACE DIMENSION R
1-1/2" - 260TWW	4"	2"	3/4"	1.900"	2-7/8"
1-1/2" - 260TWW	6"	4"			
1-1/2" - 260TWW	9"	7"			
1-1/2" - 260TWW	12"	10"			
1-1/2" - 260TWW	15"	13"			
1-1/2" - 260TWW	18"	16"			
1-1/2" - 260TWW	24"	22"			

## Model 385TWW - Van Stone



.385" Bore

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	PIPE SIZE P	RAISED FACE DIMENSION R
1" - 385TWW	4"	2"	7/8"	1.315"	2"
1" - 385TWW	6"	4"			
1" - 385TWW	9"	7"			
1" - 385TWW	12"	10"			
1" - 385TWW	15"	13"			
1" - 385TWW	18"	16"			
1" - 385TWW	24"	22"			

MODEL	STEM LENGTH A	INSERTION LENGTH U	SHANK DIAMETER Q	PIPE SIZE P	RAISED FACE DIMENSION R
1-1/2" - 385TWW	4"	2"	7/8"	1.900"	2-7/8"
1-1/2" - 385TWW	6"	4"			
1-1/2" - 385TWW	9"	7"			
1-1/2" - 385TWW	12"	10"			
1-1/2" - 385TWW	15"	13"			
1-1/2" - 385TWW	18"	16"			
1-1/2" - 385TWW	24"	22"			

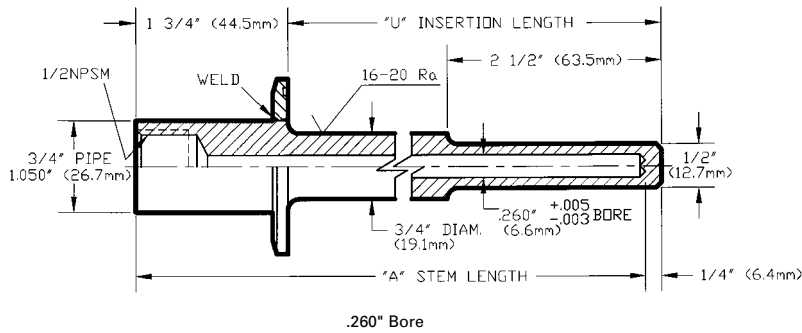
TEL-TRU MANUFACTURING CO.

1-800-232-5335

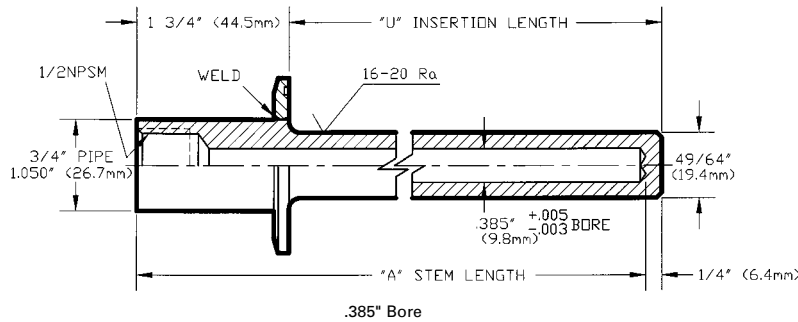
See <http://www.teltru.com> for technical data on pressure and temperature ratings and maximum fluid velocity.

# SANITARY THERMOWELLS FOR 1/4" AND 3/8" DIAMETER ELEMENTS

## Model 260TWS - Sanitary



## Model 385TWS - Sanitary



### APPLICATION:

Dairy, food processing, pharmaceutical and other sanitary requirements.

### PROCESS CONNECTION SIZE:

Available with 1" to 1-1/2", 2", 2-1/2", 3", and 4".

Tri-Clamp® end caps. Other designs available upon request.

### MATERIALS:

304SS or 316SS. Other materials are available upon request.

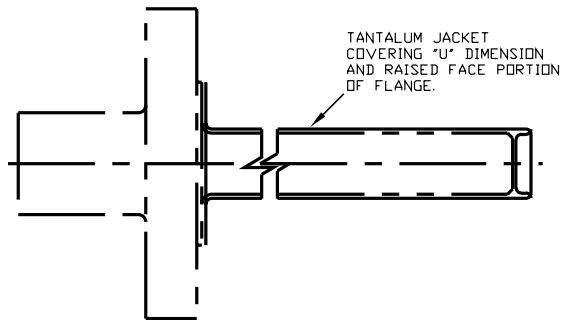
### FINISH:

16-20 Ra polish standard. Special finishes available upon request.

### TO ORDER PLEASE SPECIFY:

- Model
- Material
- Process Connection
- "U" - Insertion Length and
- "A" - Stem Length
- Options as required

## TANTALUM JACKETS



### STANDARD THICKNESS OF JACKETS:

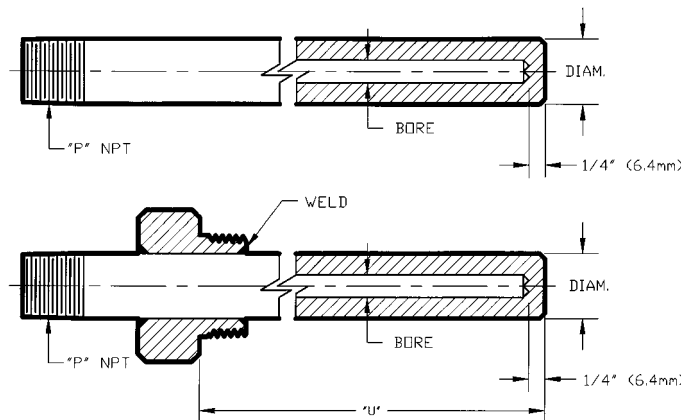
0.015" on "U" Dimension

0.015" on Raised Face and End Cap

0.030" thick jackets are available upon request. Jackets available with 1/2", 3/4", or 7/8" inside dimensions.

Titanium and zirconium jackets available.

## PROTECTING TUBES



Available with various I.D.'s, O.D.'s, and materials to suit your application.

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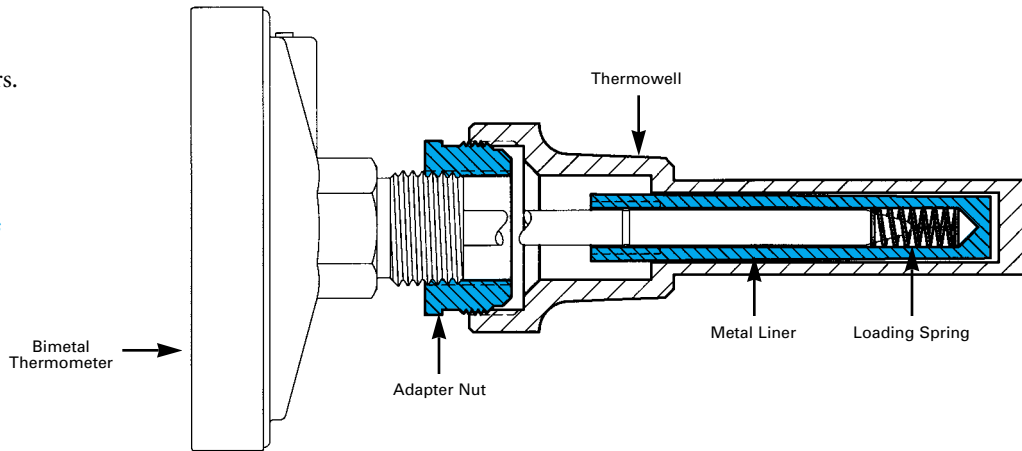
## THERMOWELL ADAPTER SET

### APPLICATION:

The AS-86 Adapter Set was designed as a simple means of converting existing Industrial Glass Thermometer Wells for use with Bimetal Thermometers.

*Note: Adapter set also available for use with Gas Actuated Thermometers.*

### Model AS-86



## THERMOWELL OPTIONS

### THREAD SIZES - INTERNAL

- 1/2" NPT
- 1/2" BSPP
- 1/4" NPT

### THREAD SIZES - EXTERNAL

- BSPP
- BSPT

### PROCEDURES

- Stamping Tag Numbers
- Special Lagging Length
- Full Penetration Welds
- Screwed and Back Welded Flanges

### CAP AND CHAIN

- Brass
- 304 SS
- 316 SS

### HEAT TREATING, ANNEALING AND CLEANING

- NACE Heat Treat
- Stress Relieving/Solution Annealing Process
- Passivate
- Oxygen Cleaning

**Other options and materials available upon request.**

### FINISHING AND COATING

- Smooth Face on Flange 125 Ra
- Special Wetted Surface Finishes
- 16-32 Ra
- 4-10 Ra
- 3A Sanitary Approval Stamp
- Electropolished
- Teflon Coating
- Tantalum Jacket
- Titanium Jacket

### TESTING AND DOCUMENTATION

- Dye Penetrant Test
- Hydrostatic Test 2 - 5 Minutes
- Hydrostatic Test 10 - 15 Minutes
- Ultrasonic Test - End Thickness
- Magnetic Particle Test
- X-ray Test
- Cross Check Chemical Analysis
- Cross Check Physical Analysis
- Certified Material Test Report (per ASTM)
- Murdock Stress Calculations
- Certified Dimensional Drawings

### MATERIALS AVAILABLE

#### Most Typically Used:

- Carbon Steel C-1018
- Brass
- 304 SS
- 316 SS

#### Also Available:

- Aluminum
- Naval Brass
- Carbon Steel A-105
- Carpenter 20
- Duplex 2205
- Hastelloy B
- Hastelloy C
- Incoloy 800
- Inconel 600
- Kynar
- Monel
- Nickel
- Tantalum
- Teflon
- Titanium
- 304 SS ELC
- 309 SS
- 310 SS
- 316 SS ELC
- 321 SS
- 347 SS
- 446 SS

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