

Thermowells

Thermowells

Threaded, Flanged, Sanitary, Socket, Weld, Weld-in

- **Process Type Thermowells**
- **Used on Bimetal Thermometers**
- **Used on Gas Actuated Thermometers**



Thermowells for temperature instruments are recommended for all process systems where pressure, velocity or viscous, abrasive and corrosive materials are present individually or in combination. A properly selected thermowell protects the temperature instrument from possible damage resulting from these process variables. Furthermore, a thermowell permits removal of the temperature instrument for replacement, repair or testing without affecting the process media or the system.

Standard Features

- **Process Connections:** Threaded, flanged, sanitary, socket, weld, weld-in
- **Instrument Connection:** ½" NPSM standard (National Pipe Standard Mechanical; A straight pipe thread for mechanical joints)
- **Shank Configurations:** Reduced, straight, tapered
- **Bore Diameter:** .260", .385"
- **Materials:** Brass, AISI 304, AISI 316
- **Surface Finish:** Brass: 60-100 Ra; AISI 304 & AISI 316: 60-100 Ra sanitary (AISI 304 & AISI 316): 16-20 Ra

Datasheets: [TW.FL](#), [TW.SC](#), [TW.SW](#), [TW.TH](#), [TW.VS](#), [TW.WI](#)

Thermowell Terminology

Process Connection: External means to connect thermowell to process piping system. Wells can be threaded, bolted (to matching flange), clamped or welded in place.

Instrument Connection: Internal threads to connect temperature instrument to thermowell.

"U" Dimension: Length of well inserted into the piping system. Measured from the base of the process connection to the end tip of well.

"T" Dimension: Also called lagging extension. Extends length between the instrument and process connections to accommodate vessel or piping insulation. Standard length is 3" (2" for a well with a 2½" "U" dimension).

"S" Dimension: Instrument insertion length into well.

Bore Diameter: Dimension of internal bore to match the diameter of the instrument stem/bulb inserted into the well. The .260" and .385" bore sizes fit instrument stem/bulb diameters of ¼" and ⅜" respectively. Bore length equals "S" dimension.

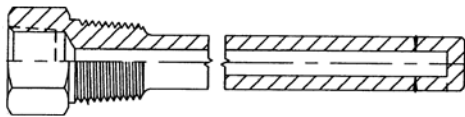
Root Diameter: Diameter of well shank below process connection. This dimension varies with process connection and/or shank design.

Tip Diameter: Diameter of well shank at the end tip of well. This dimension may vary with process connection and/or shank design.

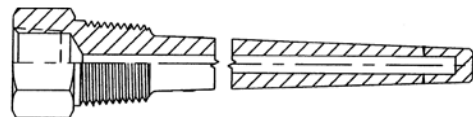
Reduced Shank: Also called reduced tip. The shank O.D. is reduced over the last 2½" of the "U" dimension from the standard root diameter to a ½" O.D. The stepped shank is available with a .260" bore size only.

Straight Shank: Shank O.D. is the same from the root diameter to the tip diameter. The straight shank is generally used with a .385" bore size but a .260" bore size is available.

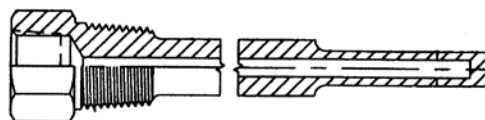
Tapered Shank: Shank O.D. is gradually reduced from the root diameter to the tip diameter. Available with a .260" or .385" bore size. The tapered shank is recommended for heavy duty applications characterized by high vibration, pressure, temperature and/or velocity.



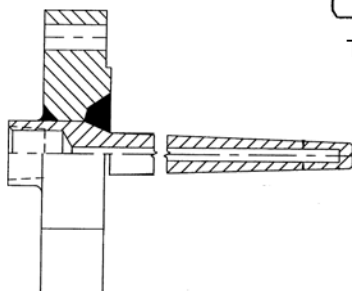
Threaded Straight Configuration



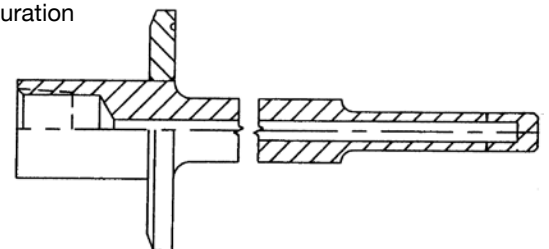
Threaded Tapered Configuration



Threaded Reduced (Stepped) Configuration



Flanged Tapered Configuration



Sanitary Reduced Configuration

Thermowells

For Bimetal Thermometers & Gas Actuated Thermometers

CODING EXAMPLES

Type	Part Number	Process Connection	Bore/Type	Lag	Shank Design	"U" Dim.	Material	Rating	Facing
Threaded	75-TH2R-045-CC	¾" NPT	.260/threaded	None	Stepped	4½"	304SS		
Threaded	75-TH2LT-055-SS-T5	¾" NPT	.260/threaded	5" Lag	Tapered shank	5½"	316SS		
Flanged	15-FL2T-070-SS-150RF	1½" flanged	.260/flanged	None	Tapered shank	7"	316SS	150#	RF
Sanitary	10-SC2R-045-SS	1" sanitary	.260/sanitary	None	Stepped shank	4½"	316SS		
Socket weld	75-SW2R-045-CC	¾" NPT	.260/skt weld	None	Stepped	4½"	304SS		

WIKAI THERMOWELL PRODUCT CODING EXPLANATION

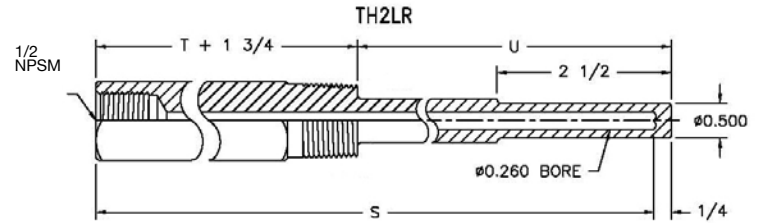
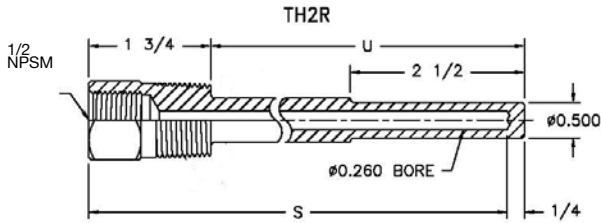
Process Connection	Type / Bore Dia.	Lag	Shank Design	Standard "U" Dimensions (No Lag)		For Stem Length	Standard Material	Cap & Chain
				Type FL	All Other Types			
50 = ½"	TH2 = Threaded/.260	Blank=No lag	R = Reduced	N/A	*015 = 1 ⁵ / ₈ "	2½"	BR=Brass	2= ST.ST.
75 = ¾"	TH3 = Threaded/.385	L=Standard lag	S = Straight	020 = 2"	025 = 2½"	4"	CC=304ss	
10 = 1"	FL2 = Flanged/.260		T = Tapered	040 = 4"	045 = 4½"	6"	SS=316ss	
12 = 1¼"	FL3 = Flanged/.385			070 = 7"	075 = 7½"	9"	CS=Carbon steel	
15 = 1½"	SC2 = Sanitary/.260			100 = 10"	105 = 10½"	12"	MO=Monel	
20 = 2"	SC3 = Sanitary/.385			130 = 13"	135 = 13½"	15"	CP=Carp.20	
	SW2 = Socket weld/.260			160 = 16"	165 = 16½"	18"	IN=Inconel 600	
	SW3 = Socket weld/.385			220 = 22"	225 = 22½"	24"	NI=Nickel	
				Standard "U" with lag ("T")			HB=Hastelloy B	
				Type FL	All Other Types		HC=Hastelloy C	
				020 = 2" (T=2")	025 = 2½" (T=2")	6"	TA=Tantalum	
				040 = 4" (T=3")	045 = 4½" (T=3")	9"	TI=Titanium	
				070 = 7" (T=3")	075 = 7.½" (T=3")	12"	TC= Teflon coated	
				100 = 10" (T=3")	105 = 10½" (T=3")	15"	Other material, consult factory for pricing.	
				130 = 13" (T=3")	135 = 13½" (T=3")	18"		
				190 = 19" (T=3")	195 = 19½" (T=3")	24"		

For Flanged Well, Specify Rating & Facing

Rating	Facing
150#	
300#	FF=Flat Face flange
600#	RF=Raised Face flange
900#	RJ=Ring Joint flange
1500#	

*Note: For ½" NPT process connection the "U" dimension becomes 1" to accommodate ½" NPSM female thread. Order as "010", i.e. 50TH2R010CC.

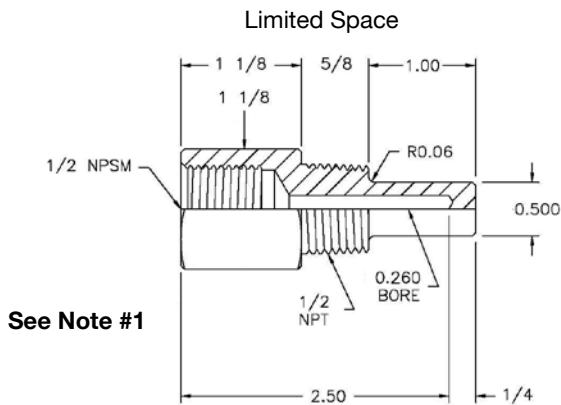
Thermowells TH Threaded Configuration



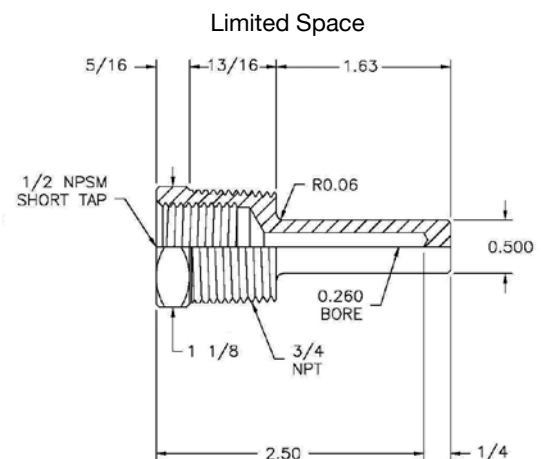
External Thread P	Stem Length S	Insertion Length U	Shank Diameter B
1/2"	4"	2 1/2"	-
	6"	4 1/2"	.625"
	9"	7 1/2"	.625"
	12"	10 1/2"	.625"
	15"	13 1/2"	.625"
	18"	16 1/2"	.625"
3/4"	2 1/2"	1 5/8"	.5"
	4"	2 1/2"	-
	6"	4 1/2"	.75"
	9"	7 1/2"	.75"
	12"	10 1/2"	.75"
	15"	13 1/2"	.75"
1"	18"	16 1/2"	.75"
	24"	22 1/2"	.75"
	2 1/2"	1 5/8"	.5"
	4"	2 1/2"	-
	6"	4 1/2"	.875"
	9"	7 1/2"	.875"

External Thread P	Stem Length S	Insertion Length U	Lag Extension T	Shank Dia. B
1/2"	6"	2 1/2"	2	-
	9"	4 1/2"	3	.625"
	12"	7 1/2"	3	.625"
	15"	10 1/2"	3	.625"
	18"	13 1/2"	3	.625"
	24"	19 1/2"	3	.625"
3/4"	6"	2 1/2"	2	-
	9"	4 1/2"	3	.75"
	12"	7 1/2"	3	.75"
	15"	10 1/2"	3	.75"
	18"	13 1/2"	3	.75"
1"	24"	19 1/2"	3	.75"
	6"	2 1/2"	2	-
	9"	4 1/2"	3	.875"
	12"	7 1/2"	3	.875"
	15"	10 1/2"	3	.875"

Material	Temperature - °F.						
	70°	200°	400°	600°	800°	1000°	1200°
Brass	5000	4200	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	-----



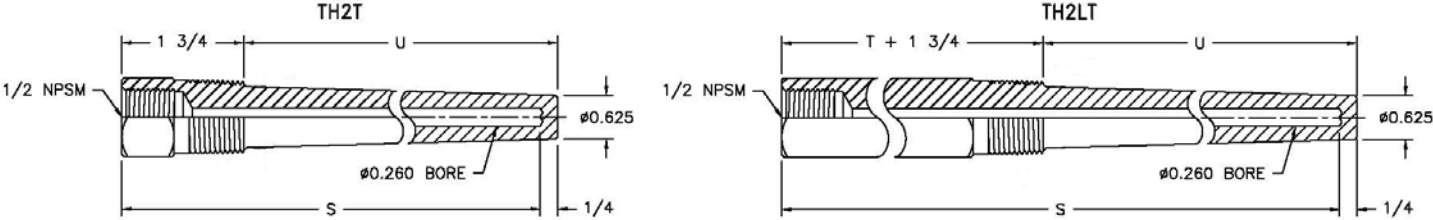
See Note #1



Notes:

- Normal "U" dimension on limited space well is 1 5/8" for 3/4" NPT and 1" NPT process connection. (For 1/2" NPT process connection, "U" dimension becomes 1" to accommodate 1/2" NPSM female thread. Order as "010", i.e. 50TH2R010CC.

Thermowells TH Threaded Configuration

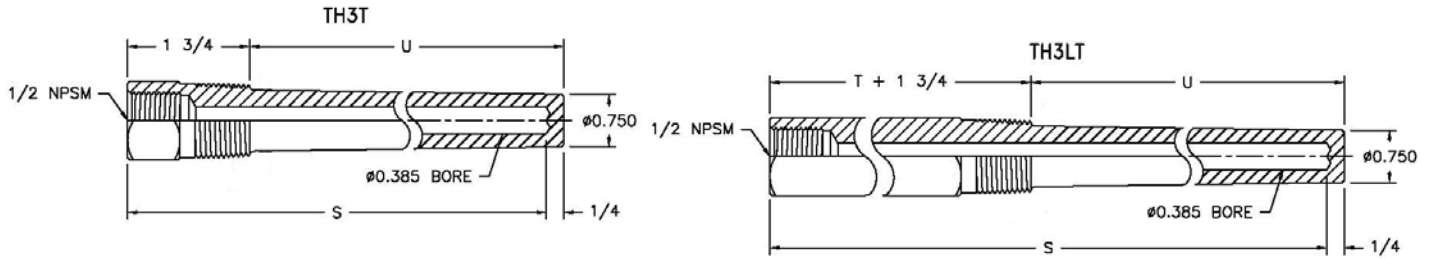


External Thread P	Stem Length S	Insertion Length U	Shank Diameter B
3/4"	4"	2 1/2"	.875"
	6"	4 1/2"	.875"
	9"	7 1/2"	.875"
	12"	10 1/2"	.875"
	15"	13 1/2"	.875"
	18"	16 1/2"	.875"
1"	24"	22 1/2"	.875"
	4"	2 1/2"	1.063"
	6"	4 1/2"	1.063"
	9"	7 1/2"	1.063"
	12"	10 1/2"	1.063"
	15"	13 1/2"	1.063"
18"	16 1/2"	1.063"	
24"	22 1/2"	1.063"	

External Thread P	Stem Length S	Insertion Length U	Lag Extension T	Shank Diameter B
3/4"	6"	2 1/2"	2	.875"
	9"	4 1/2"	3	.875"
	12"	7 1/2"	3	.875"
	15"	10 1/2"	3	.875"
	18"	13 1/2"	3	.875"
	24"	19 1/2"	3	.875"
1"	6"	2 1/2"	2	1.063"
	9"	4 1/2"	3	1.063"
	12"	7 1/2"	3	1.063"
	15"	10 1/2"	3	1.063"
	18"	13 1/2"	3	1.063"
	24"	16 1/2"	3	1.063"

PRESSURE - TEMPERATURE RATING							
Material	Material Temperature - °F.						
	70°	200°	400°	600°	800°	1000°	1200°
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 TH Threaded Configuration

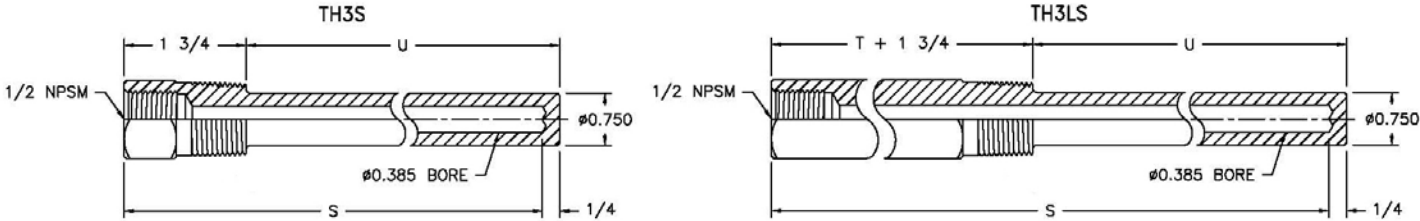


External Thread P	Stem Length S	Insertion Length U	Shank Diameter B
3/4"	4"	2 1/2"	.875"
	6"	4 1/2"	.875"
	9"	7 1/2"	.875"
	12"	10 1/2"	.875"
	15"	13 1/2"	.875"
	18"	16 1/2"	.875"
	24"	22 1/2"	.875"
1"	4"	2 1/2"	1.063"
	6"	4 1/2"	1.063"
	9"	7 1/2"	1.063"
	12"	10 1/2"	1.063"
	15"	13 1/2"	1.063"
	18"	16 1/2"	1.063"
	24"	22 1/2"	1.063"

External Thread P	Stem Length S	Insertion Length U	Lag Extension T	Shank Diameter B
3/4"	6"	2 1/2"	2	.875"
	9"	4 1/2"	3	.875"
	12"	7 1/2"	3	.875"
	15"	10 1/2"	3	.875"
	18"	13 1/2"	3	.875"
	24"	19 1/2"	3	.875"
	1"	6"	2 1/2"	2
9"		4 1/2"	3	1.063"
12"		7 1/2"	3	1.063"
15"		10 1/2"	3	1.063"
18"		13 1/2"	3	1.063"
24"		16 1/2"	3	1.063"

Material Temperature - °F.							
Material	70°	200°	400°	600°	800°	1000°	1200°
Brass	5000	4200	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	-----

Thermowells TH Threaded Configuration



Extended Length P	Stem Length S	Insertion Length U
3/4"	4"	2½"
	6"	4½"
	9"	7½"
	12"	10½"
	15"	13½"
	18"	16½"
1"	24"	22½"
	4"	2½"
	6"	4½"
	9"	7½"
	12"	10½"
	15"	13½"
18"	16½"	
24"	22½"	

Extended Lag P	Stem Length S	Insertion Length U	Lag Extension T
3/4"	6"	2½"	2"
	9"	4½"	3"
	12"	7½"	3"
	15"	10½"	3"
	18"	13½"	3"
	24"	19½"	3"
1"	6"	2½"	2"
	9"	4½"	3"
	12"	7½"	3"
	15"	10½"	3"
	18"	13½"	3"
	24"	19½"	3"

Material	Temperature - °F.						
	70°	200°	400°	600°	800°	1000°	1200°
Brass	5000	4200	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	-----

Thermowells TH Threaded Configuration

Threaded Thermowells - General Use

Models TH2 (.260 bore) stepped (reduced) shank, without lag ONLY

Size	Model	No Lag U DIM	S DIM
1/2" NPT or 3/4" NPT	TH2R	1 5/8	2 1/2
		2 1/2	4
		4 1/2	6
		7 1/2	9
		10 1/2	12
		13 1/2	15
		16 1/2	18
		22 1/2	24

Size	Model	No Lag U DIM	S DIM
1" NPT	TH2R	1 5/8	2 1/2
		2 1/2	4
		4 1/2	6
		7 1/2	9
		10 1/2	12
		13 1/2	15
		16 1/2	18
		22 1/2	24

Threaded Thermowells - Special Configuration

Models TH2 (.260 bore) & TH3 (.385) bore, tapered, stepped (reduced) or straight shank, with or without lag

Size	Model	No Lag U DIM	With Lag		S DIM	
			U DIM	T DIM		
1/2" NPT or 3/4" NPT	TH2R	1 5/8	--	--	2 1/2	
	TH2S	2 1/2	--	--	4	
	TH2LR	4 1/2	2 1/2	2	6	
	TH3S	7 1/2	4 1/2	3	9	
	TH3LS	10 1/2	7 1/2	3	12	
	TH2T	13 1/2	10 1/2	3	15	
	TH2LT	16 1/2	13 1/2	3	18	
	TH3T	22 1/2	19 1/2	3	24	
	TH3LT					
1" NPT	TH2R	1 5/8	--	--	2 1/2	
	TH2S	2 1/2	--	--	4	
	TH2LR	4 1/2	2 1/2	2	6	
	TH3S	7 1/2	4 1/2	3	9	
	TH3LS	10 1/2	7 1/2	3	12	
	TH2T	13 1/2	10 1/2	3	15	
	TH2LT	16 1/2	13 1/2	3	18	
	TH3T	22 1/2	19 1/2	3	24	
	TH3LT					

Threaded Thermowell Factory Stock

Part Number

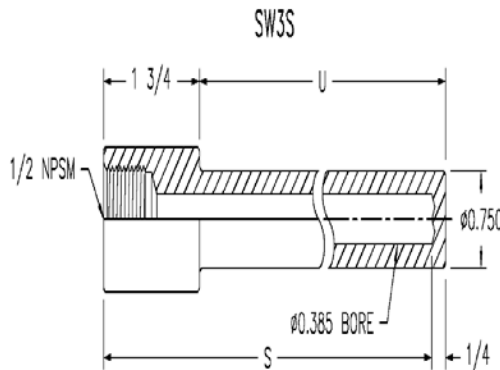
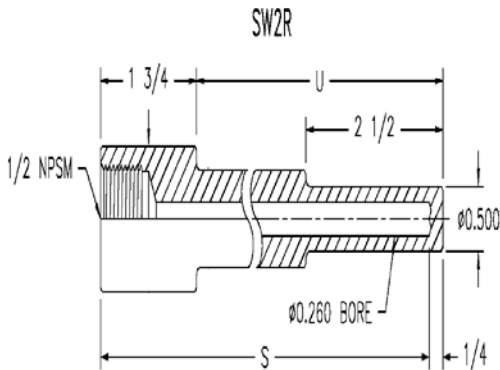
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75TH2R045SS
75TH2T045CC
75TH2T045SS
75TH2LR045SS
75TH2R075CC
75TH2R075SS
50TH2R010BR
50TH2R010CC
50TH2R010SS
50TH2R025BR
50TH2R025CC
50TH2R025SS

Accessories

Description	Part #	Code
Brass cap & chain	N/A	Code 1
SS cap & chain	N/A	Code 2
SS tag wired on	N/A	-
Stamping on well	N/A	-
5.3 oz. tube heat transfer compound	2256045	-
Paper tag	N/A	-

NOTE: Stock items shown in **bold, blue** print.

Thermowells SW Socket/Weld Configuration



Pipe Size P	Stem Length S	Insertion Length U
3/4" 1.050 DIA.	4"	2 1/2"
	6"	4 1/2"
	9"	7 1/2"
	12"	10 1/2"
	15"	13 1/2"
	18"	16 1/2"
1" 1.315 DIA.	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"	

Pipe Size P	Stem Length S	Insertion Length U
3/4" 1.050 DIA.	4"	2 1/2"
	6"	4 1/2"
	9"	7 1/2"
	12"	10 1/2"
	15"	13 1/2"
	18"	16 1/2"
1" 1.315 DIA.	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"	

Material Temperature - °F.							
Material	70°	200°	400°	600°	800°	1000°	1200°
Brass	5000	4200	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	-----

Thermowells SW Socket/Weld Configuration

Socket Weld

Models SW2 (.260 bore) & SW3 (.385 bore), stepped & straight shank, with or without lag

Size	Model	No Lag	With Lag		S	
		U DIM	U DIM	T DIM	DIM	
3/4"		2½	--	--	4	
		SW2R	4½	2½	2	6
		SW2LR	7½	4½	3	9
		SW3S	10½	7½	3	12
		SWLS	13½	10½	3	15
			16½	13½	3	18
			22½	19½	3	24

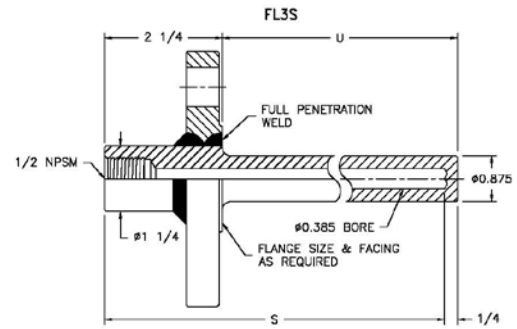
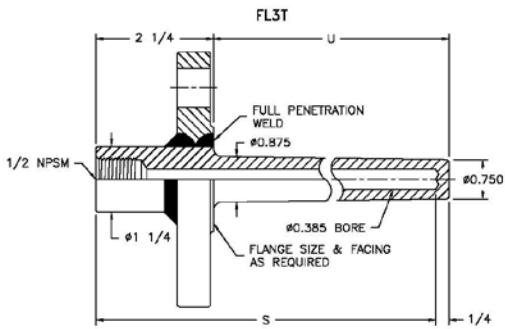
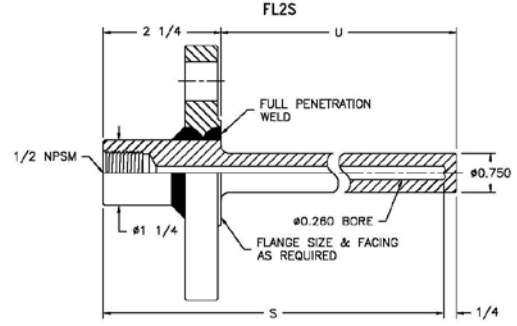
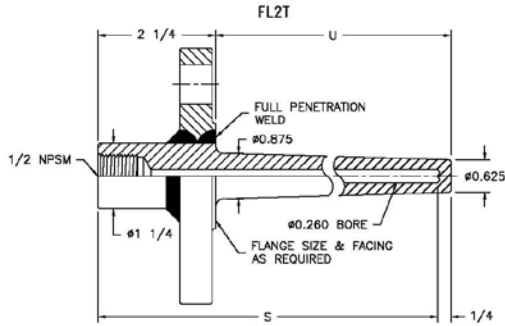
Size	Model	No Lag	With Lag		S	
		U DIM	U DIM	T DIM	DIM	
1"		2½	--	--	4	
		SW2R	4½	2½	2	6
		SW2LR	7½	4½	3	9
		SW3S	10½	7½	3	12
		SWLS	13½	10½	3	15
			16½	13½	3	18
			22½	19½	3	24

Accessories

Description	Part #	Code
SS cap & chain	N/A	Code 2
SS tag wired on	N/A	-
Stamping on well	N/A	-
5.3 oz. tube heat transfer compound	2256045	-
Paper tag	N/A	-

NOTE: These accessories also apply to Type TW.WI.

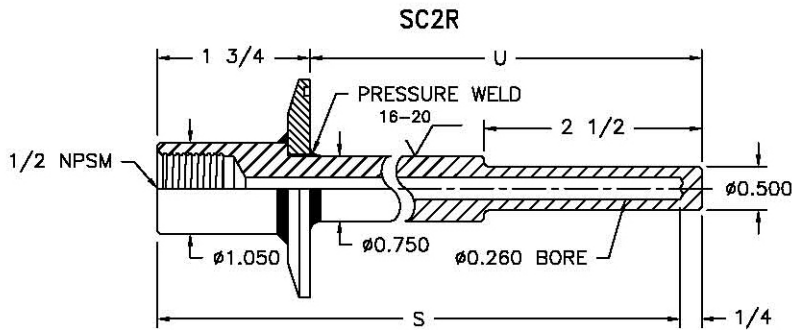
Thermowells FL Flanged Configuration



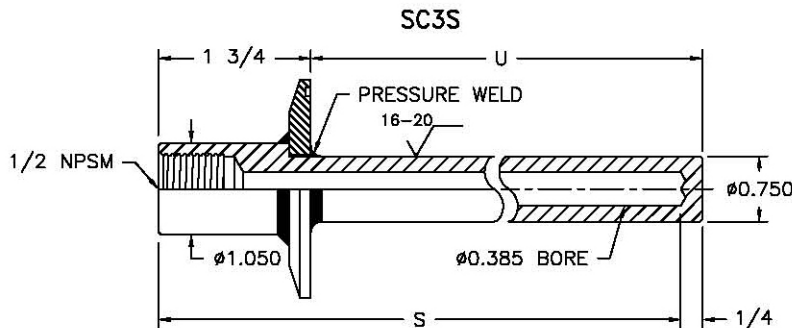
Stem Length	Insertion Length
S	U
4"	2"
6"	4"
9"	7"
12"	10"
15"	13"
18"	16"
24"	22"

Material	MAXIMUM FLANGE PRESSURE - TEMPERATURE RATING LBS. PER SQ. INCH						
	Temperature - °F. (FL2T/FL3T)						
	0°	200°	400°	600°	800°	1000°	1125°
Carbon Ssteel	----	UP ----	TO	-----	2500#		
A.I.S.I. - 304	----	UP ----	TO	-----		2500#	
A.I.S.I. - 316	----	UP ----	TO	-----			2500#
Monel	----	UP ----	TO	-----		2500#	

Thermowells SC Sanitary Configuration



- Meets USDA and 3A Sanitary Standard 74-03.
- Available with 1", 1 1/2", 2", and 3" solid end caps. Special designs available upon request.
- Standard finish AISI 304 and AISI 316, 16-20 Ra.



Note: Minimum stem length is 4"

Thermowells SC Sanitary Configuration

Sanitary

Type SC2 (.260 bore) & SC3 (.385 bore), stepped or straight shank, with or without lag

Size	Model	No Lag	With Lag		S DIM
		U DIM	U DIM	T DIM	
1"	SC2R	--	--	--	--
	SC2LR	2½	--	--	4
1½"	SC3S	4½	2½	2	6
	SC3LS	7½	4½	3	9

Size	Model	No Lag	With Lag		S DIM
		U DIM	U DIM	T DIM	
2"	SC2R	--	--	--	--
	SC2LR	2½	--	--	4
	SC3S	4½	2½	2	6
	SC3LS	7½	4½	3	9

Type SC2 (.260 bore) & SC3 (.385 bore), tapered shank, with or without lag

Size	Model	No Lag	With Lag		S DIM
		U DIM	U DIM	T DIM	
1"	SC2T	--	--	--	--
	SC2LT	2½	--	--	4
1½"	SC3T	4½	2½	2	6
	SC3LT	7½	4½	3	9

Size	Model	No Lag	With Lag		S DIM
		U DIM	U DIM	T DIM	
2"	SC2T	--	--	--	--
	SC2LT	2½	--	--	4
	SC3T	4½	2½	2	6
	SC3LT	7½	4½	3	9

Note: Sanitary thermowells are polished 16-20 RA per 3A Sanitary Standards

Accessories

Description	Part #	Code
Brass cap & chain	N/A	Code 1
SS cap & chain	N/A	Code 2
SS tag wired on	N/A	-
stamping on well	N/A	-
5.3 oz. tube heat transfer compound	2256045	-
Paper tag	N/A	-

Thermowells For Industrial Glass Thermometers

THERMOWELL PRODUCT CODING EXPLANATION

Process Connection	Type / Bore Dia.	Lag	Shank Design	Nominal Bulb Length Type TH5	For Stem Length	Standard Material	Cap & Chain
75 = 3/4" 10 = 1"	TH5 = Threaded .625 min. dia.	Blank=No lag L=Standard lag	R = Stepped	035 = 3 1/2" 060 = 6" 090 = 9"	3 1/2" 6" 9"	BR=Brass CC=304 ss SS=316 ss	1=Brass 2=ST.ST.

WIKA INDUSTRIAL THERMOWELL CODING EXPLANATION

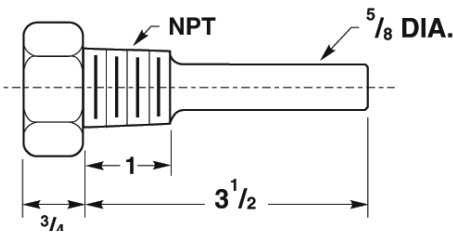
Model TH5 (.625 bore) stepped shank, with or without lag

Size	Model	Lag			"S" DIM	Brass	304 SS	316 SS
		No lag "U" DIM	With lag "U" DIM	"T" DIM				
3/4" or 1"	TH5R	2 9/16"	-----	-----	3 1/2"			
	TH5LR	5 1/16"	2 9/16"	2 1/2"	6"			
		8 1/16"	5 1/16"	3"	9"			
		11 1/16"	8 1/16"	3"	12"			

Threaded Thermowells for Industrial Glass Thermometers- Factory Stock

Part Number
75TH5R035BR
75TH5R060BR
75TH5LR035BR

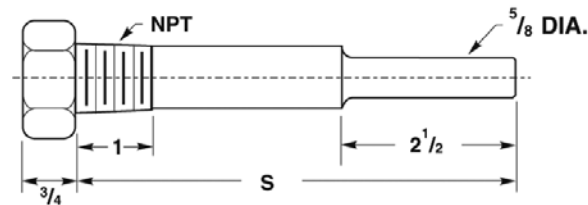
X denotes product availability



Standard Form

Part Number	NPT
75TH5R035BR	3/4"

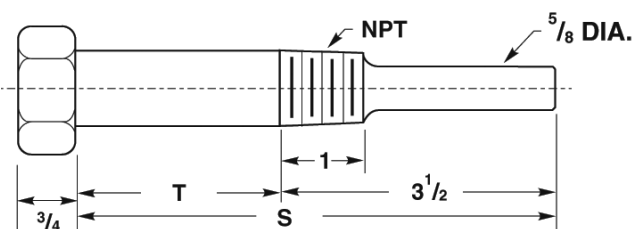
Note: 1" NPT also available



Standard Form

Part Number	S	NPT
75TH5R060BR	6	3/4"
75TH5R090BR	9	3/4"
75TH5R120BR	12	3/4"

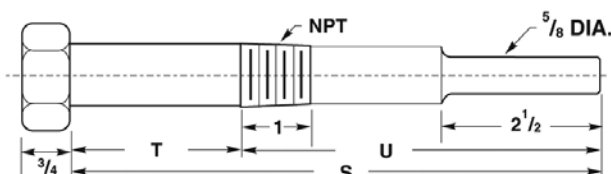
Note: 1" NPT also available



Lagging Extension

Part Number	S	T	NPT
75TH5LR060BR	6	2 1/2"	3/4"

Note: 1" NPT also available



Lagging Extension

Part Number	S	T	U	NPT
75TH5LR090BR	9	3"	8 1/16"	3/4"
75TH5LR120BR	12	3"	5 1/16"	3/4"

Note: 1" NPT also available