

Thermowell

Rev E
2021/09/05



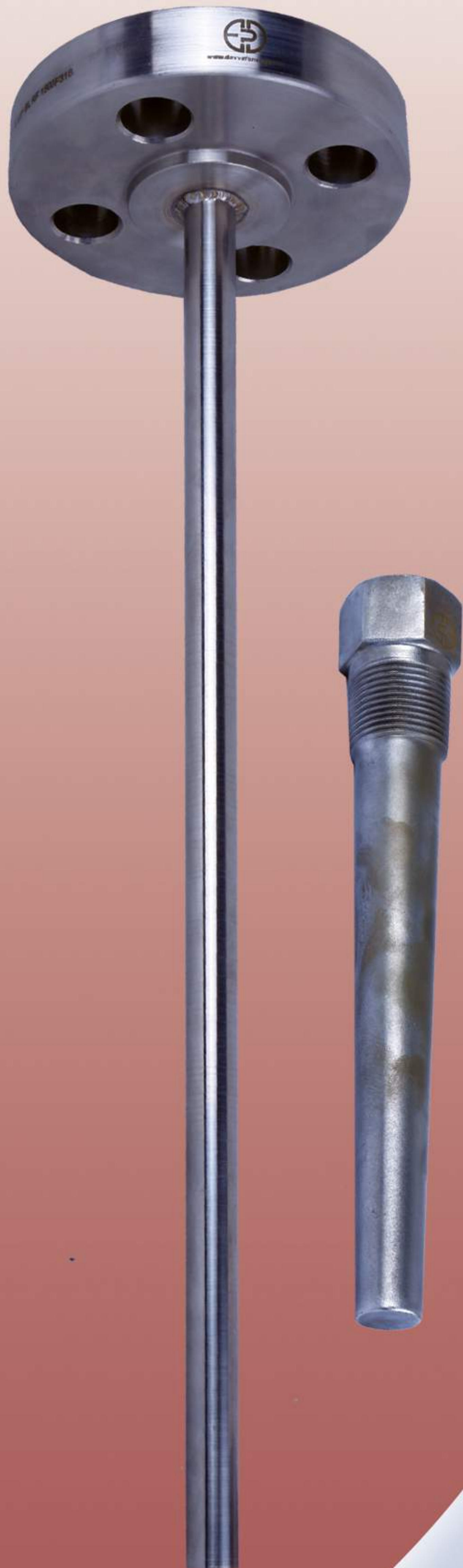
If there is a will, there is a way...

Thermowell

Introduction To Thermowells

Threaded Thermowells for Thermocouple and RTD Sensors.

Our range of thermowell pockets can be supplied in a wide choice of lengths, diameters and sheath materials with different process connections and flanges to different sizes to suit almost any application. Thermowells are useful for processes which require the sensing device to be inserted and removed regularly, without the need for disrupting the process itself. Thermowells are also excellent for protecting sensors against attack from chemicals or harmful atmospheres. The units can be custom built to suit virtually any application, in either a welded construction or made from solid bar, dependant on the requirement. We provide our flanged Thermowells with forged flanges according to ANSI B16.5 limitations & Q.C Recommendations.



Thermowell Design

Styles (Threaded & Flanged)

Threaded

TN

Machined from solid Thermowell with male and female threaded connections. Tapered or parallel sheath available.



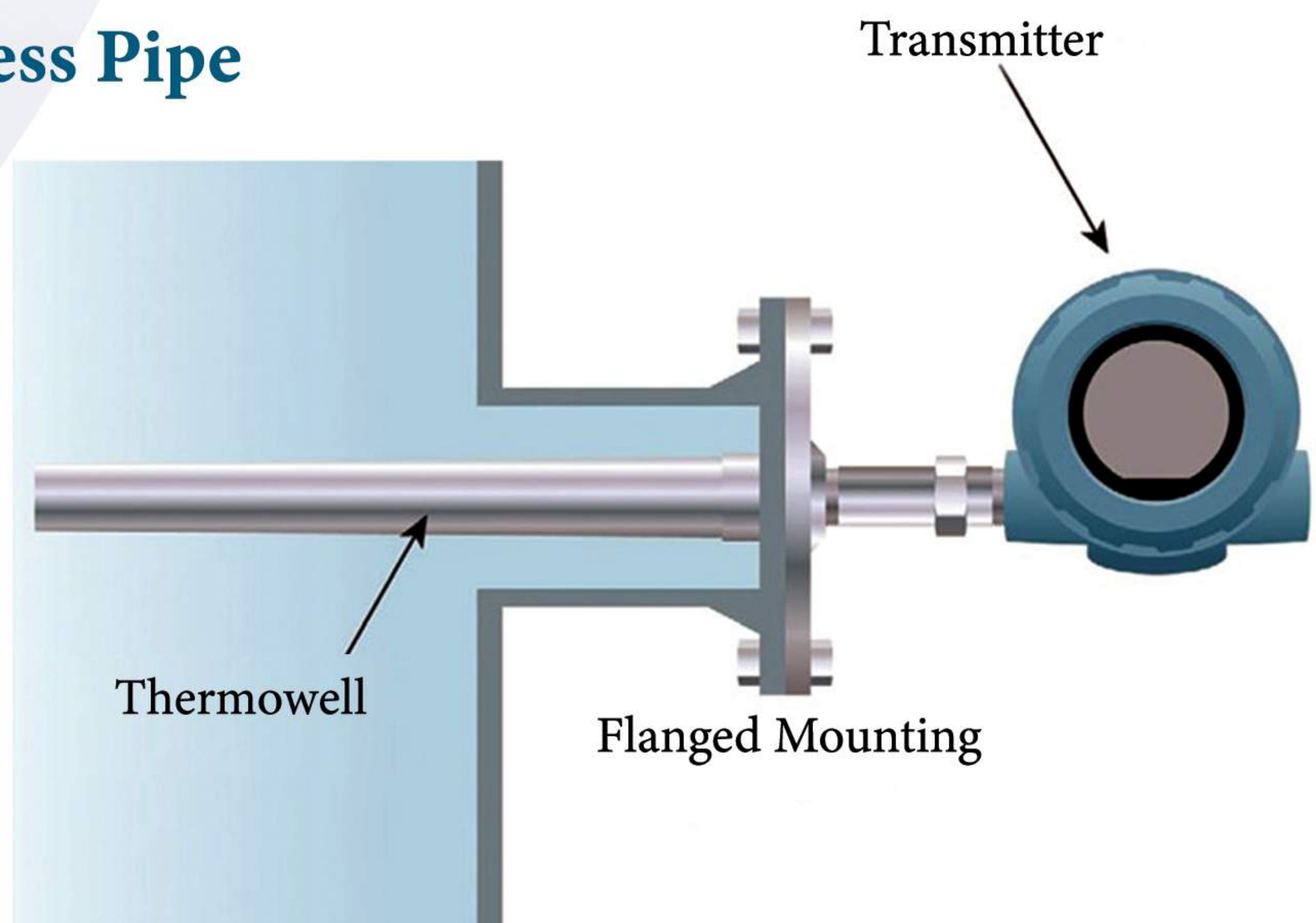
Flanged

TF

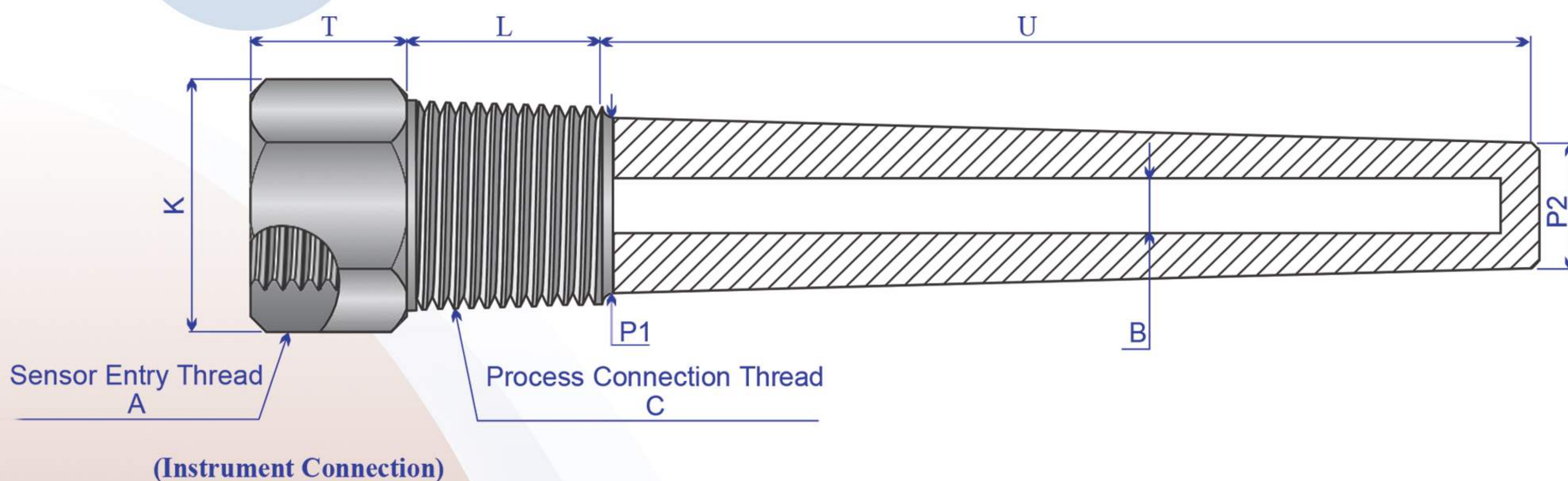
Welded flange onto a welded end fabricated Thermowell with female threaded connection. Parallel sheath.



Process Pipe



Threaded (Model TN)



SYMBOL Dimention

A	Sensor Entry Thread
B	Thermowell Bore Diameter
U	Inserting Length
T	Hex Length
K	Hex Size
L	Process Connection Length
P1	Root Diameter
P2	Tip DiameTER

We construct our Thermowell in according to ASME PTC 19.3

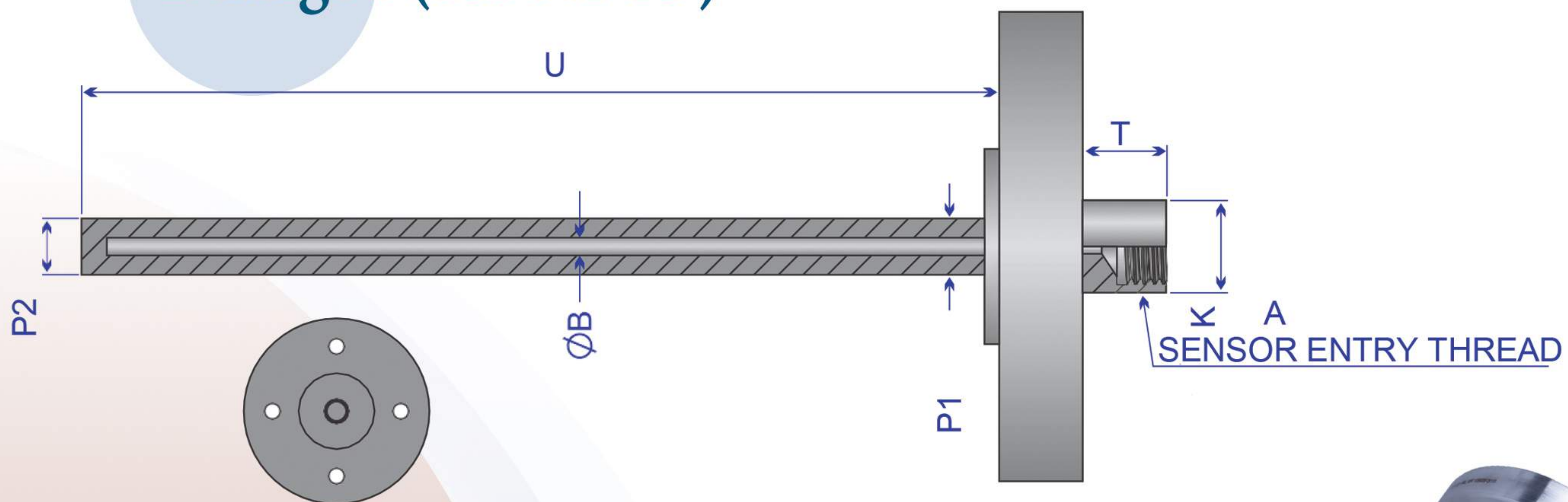


How To Pick Threaded Thermowell

Item	Description Thermowell Cap				
Model	TN (Threaded Model)				
Thermowell Cap	S	W	(S for Solid bar Stock and W for welded)		
Sheath Material	SS310	SS304	SS316L	SS321	Inconel600
Sensor Entry Thread (A)	1/4 NPT		1/2 NPT		
Process Connection Thread (C)	1/2 NPT		3/4NPT	1"NPT	
Insertion Length (U)	XX mm (Drawing)				
Thermowell Bore diameter (B)	XX mm (Drawing) (Standard thickness 6.4 mm)				
Hex Length (T)	XX mm (Drawing) (Standard Size is 20 mm)				
Process Connection Length (L)	XX mm (Drawing) (Standard Size is 20 mm)				
Hex Size (K)	XX mm (Drawing) (Standard Size are 27 & 32 mm)				
Root diameter (P1)	XX mm (Drawing)				
Tip diameter (P2)	XX mm (Drawing)				
Quantity Required	X				

Order Code	Model (Table 1)	Thermowell Cap	Bar Material	Sensor Entry Thread (A)	Process Connection Thread (C)	Insertion Length (U)	Thermowell Bore diameter (B)	Hex Length (T)	Process Connection Length (L)	Hex Size (K)	Root diameter (P1)	Tip diameter (P2)
	TN	S or W	Table 2	For Example 1/2 in	Table 3 Only TN	Drawing	Drawing	Drawing	Drawing Only For TN Series	Drawing	Drawing	Drawing

Flanged (Model TF)



We construct our Thermowell in according to ASME PTC 19.3

SYMBOL Dimention

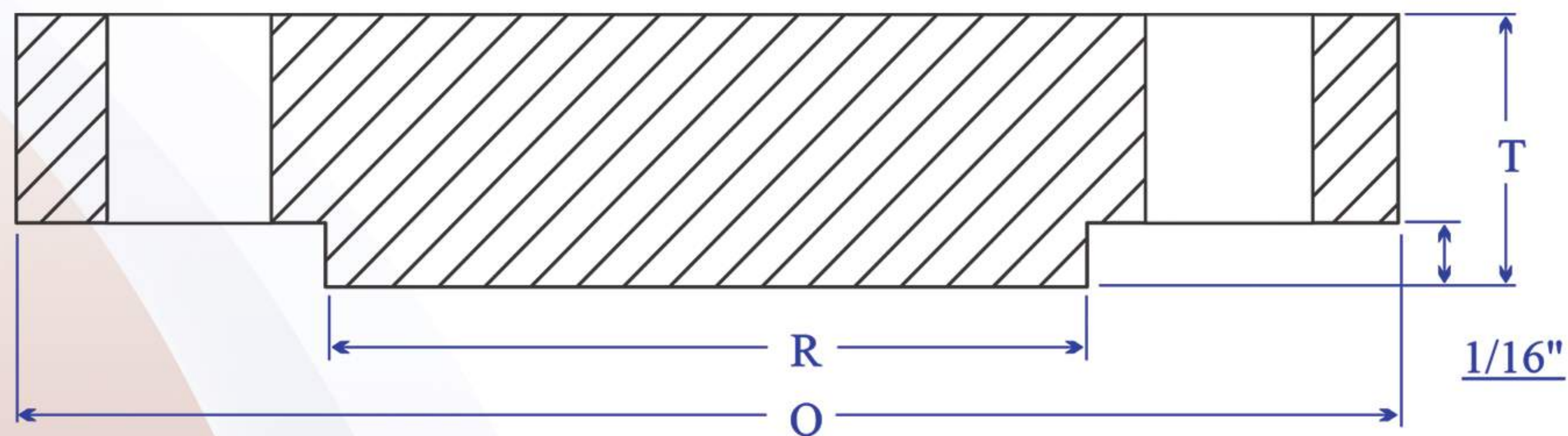
A	Sensor Entry Thread
B	Thermowell Bore Diameter
U	Inserting Length
T	Sensor EntryLength
K	Sensor EntryDiameter
P1	Root Diameter
P2	Tip Diameter

How To Pick Threaded Thermowell

Item	Description Thermowell Cap
Model	TF (Flanged Model)
Thermowell Cap	S W (S for Solid bar Stock and W for welded)
Flange size & class	(For Example 1-300, The First Number For Flanged Diameter, The Second Number For Class)
Flange Material	SS310 SS304 SS316L SS321 Inconel600 (Table2)
Sheath Material	SS310 SS304 SS316L SS321 Inconel600 (Table2)
Sensor Entry Thread (A)	1/2 NPT 3/4 NPT
Insertion Length (U)	XX mm (Drawing)
Thermowell Bore diameter (B)	XX mm (Drawing) (Standard thickness 6.4 mm)
Hex Length (T)	XX mm (Drawing) (Standard Size is 20 mm)
Hex diameter (K)	XX mm (Drawing) (Standard Size are 27 & 32 mm)
Root diameter (P1)	XX mm (Drawing)
Tip diameter (P2)	XX mm (Drawing)
Quantity Required	X

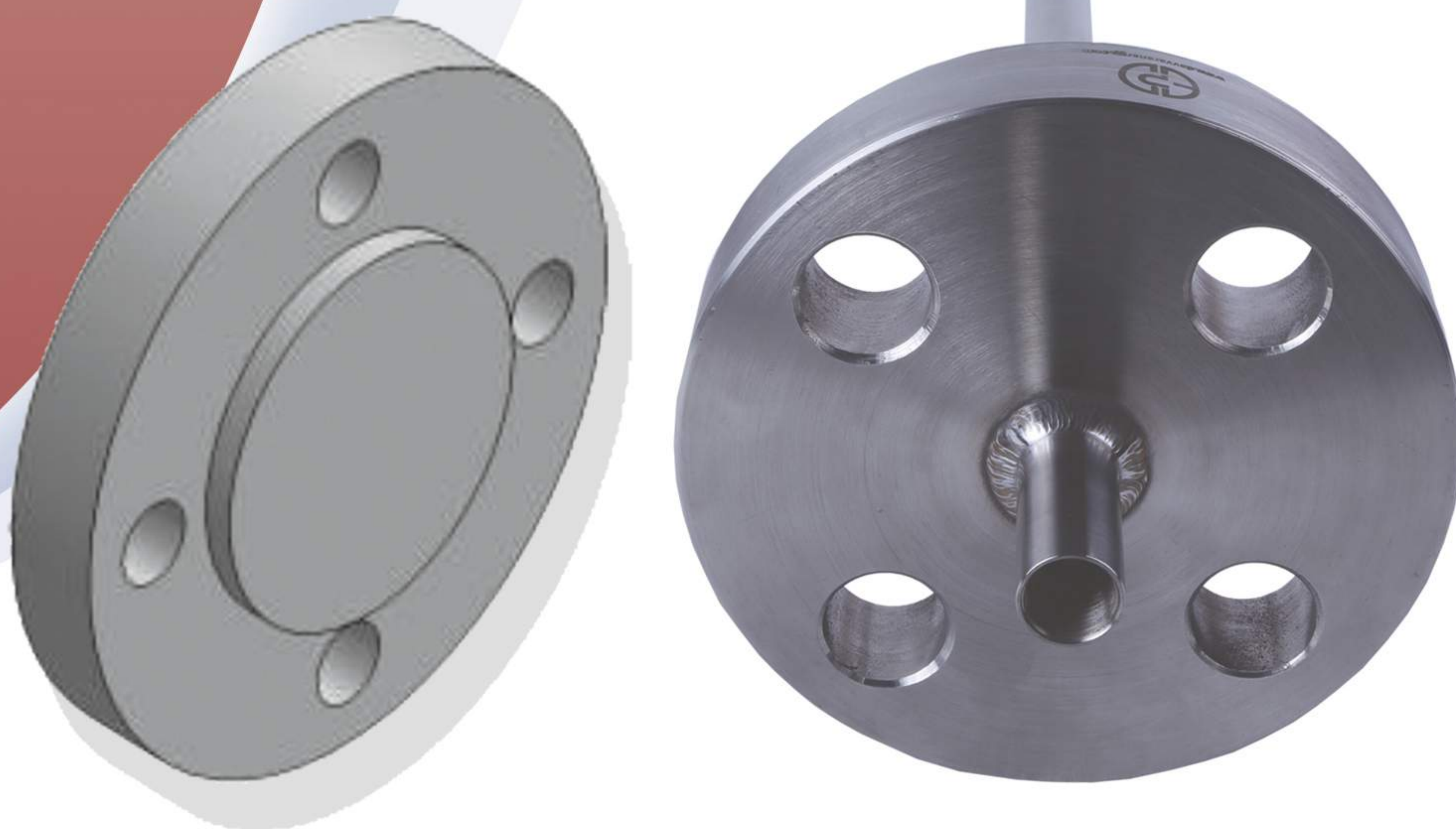
Order Code	Model (Table 1)	Thermowell Cap Not1	Flange size & class	Flange Material	Sheath Material	Sensor Entry Thread (A)	Insertion Length (U)	Thermowell Bore diameter (B)	Hex Length (T)	Hex diameter (K)	Root diameter (P1)	Tip diameter (P2)
	TF	S or W	1"-300	Table2	Table 2	For Example ½ in	Drawing	Drawing	Drawing Note3	Drawing	Drawing	Drawing

ANSI B16.5 Class 300 Flange's Dimensions



Blind

Nom. Pipe Size	O	T	R	No. & Dia. of Holes	Bolt Circle Dia.
1/2	3.75	0.56	1.38	4-0.62	2.62
3/4	4.62	0.62	1.69	4-0.75	3.25
1	4.88	0.69	2.00	4-0.75	3.50
1-1/4	5.25	0.75	2.50	4-0.75	3.88
1-1/2	6.12	0.81	2.88	4-0.88	4.50
2	6.50	0.88	3.62	8-0.75	5.00
2-1/2	7.50	1.00	4.12	8-0.88	5.88
3	8.25	1.12	5.00	8-0.88	6.62
3-1/2	9.00	1.19	5.50	8-0.88	7.25
4	10.00	1.25	6.19	8-0.88	7.88
5	11.00	1.38	7.31	8-0.88	9.25
6	12.50	1.44	8.50	12-0.88	10.62
8	15.00	1.62	10.62	12-1.00	13.00



Thermowell Sheath Materials

	Material Specifications	Operational Properties	Max. Temp
304	Grade 304 Stainless Steel WN : 1.4304	Good Corrosion Resistance about Water	700 °C
321	Grade 321 Stainless Steel WN : 1.4321	Heat Resisting	900 °C
316 L	Grade 316L Stainless Steel WN : 1.4404	Very good corrosion resistance high ductility.	800 °C
310	Grade 310 Stainless Steel WN : 1.4845	Good high temperature corrosion resistance and suitable for use in Sulphur bearing atmospheres. high oxidation resistance.	1100 °C
600	Inconel 600 WN : 2.4816	Used in severely corrosive atmospheres to elevated temperatures. good resistance to oxidation.	1100 °C
800	Incoloy 800 Iron/Nickel/Chromium alloy WN: 1.4876	Used in severely corrosive atmospheres to elevated temperatures. good resistance to oxidation and carburisation. Resistant to sulphur bearing atmospheres.	1100 °C
825	Incoloy 825 WN: 2.4858	Highly resistant to corrosion and oxidising conditions. useful when used in acidic environments.	1250 °C
900	Ceramic Alumina	Highly resistant to high temperature.	1600°C
950	Silicon Carbide	Good resistant to temperatures and higher chemical corrosion resistance than ceramic .	1400°C

It is possible to produce Thermowells with anti-corrosion coatings such as Stelite.

Table2: Sheath Materials



ETRO DAVVAR ENERGY

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www.davvarenergy.com



info@davvarenergy.com



+98 21 66578268



+98 21 66578375



Unit 13,4th Floor, 431 Building, Azadi Street, Tehran, Iran

