

## POZZETTI TERMOMETRICI RICAVATI DA BARRA O DA TUBO THERMOWELLS CONSTRUCTION FROM BARSTOCK OR FROM PIPE



Il pozzetto termometrico è una tasca termicamente conduttibile utilizzata per :

- contenere e protegge il bulbo contro corrosione, abrasione, urti, piegature, rotture, alta temperatura, alta pressione
- permettere di sfilare lo strumento durante l'esercizio senza alcuna fermata.

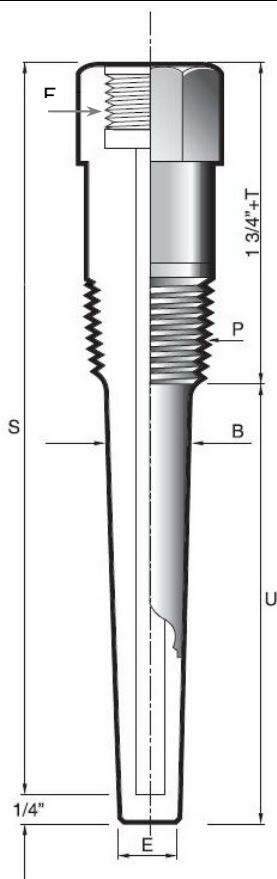
Devono essere scelti considerando alcuni parametri fondamentali come: temperatura, pressione, portata, vibrazioni e corrosione.

**A thermowell is a thermally conductive socket recommended to:**

- protect delicate instrument sensing elements against corrosive effects
- permit instrument interchange or calibration check without disturbing or closing down the process.

**Thermowells are available for high pressures, high temperatures and high velocity applications. Selected on the basis of pressure, temperature, flow, vibration and corrosion service parameters, basic thermowell types include:**

**threaded; socket weld; flanged; full penetration weld; Van Stone**



### DESCRIZIONE

#### F --ATTACCO ALLO STRUMENTO

Solitamente è filettato femmina ed assiale al foro interno; altre connessioni sono disponibili su richiesta.

#### FORO

All'interno del pozzetto di forma cilindrica i diametri standard sono: 1/4" solitamente usato per termometri bimetallici, alcuni termometri a gas, termocoppie e termoresistenze. 3/8" usato per alcuni termometri bimetallici e per tutti i termometri a gas. Altri diametri sono disponibili su richiesta.

#### S-- LUNGHEZZA DI INSERIZIONE DELLO STRUMENTO

Comunemente è indicata con le lettere "S" o "L" e corrisponde alla lunghezza totale del gambo da inserire nel pozzetto, partendo dal filetto del raccordo di attacco dello strumento fino ad arrivare al fondo del gambo.

#### E - CONFIGURAZIONE

E' la forma che può avere la parte inserita nel processo. Può essere del tipo rastremato oppure diritto.

#### T - ESTENSIONE

È indicata con la lettera "T" ed è utilizzata quando esiste una coibentazione su una tubazione o su un serbatoio dove il pozzetto deve essere inserito. E' quella distanza ricavata nel pozzetto tra la fine dell'attacco dello strumento e l'inizio dell'attacco al processo, la sua lunghezza è determinata in base allo spessore della coibentazione (isolamento). Lo standard è di 3" e di 2" quando l'immersione "U" del pozzetto è di 2-1/2". Altre dimensioni sono disponibili a richiesta.

### DESCRIPTION

#### F - THE INSTRUMENT CONNECTION

It is usually a female thread axially aligned with the bore into which the instrument mounting threads or capillary bushing is screwed but other connections can also be supplied.

#### BORE

It is the inside cylindrical diameter of a thermowell. The 1/4" and 3/8" nominal bore are thermowell standard. The 1/4" bore is common to some bimetal thermometers and gauges thermocouples. The 3/8" bore is common to resistance temperature devices, gauges thermocouples and certain bimetal thermometers.

#### S - THE INSTRUMENT INSERTION LENGTH

Commonly called the «S» or the «L» dimension, it is the length from the top of the mounting threads of a thermometer to the end of its stem or from the threads of a union bushing on a fixed extension or a capillary, to the end of the extension.

#### E - SHANK CONFIGURATION

It is the shape of that portion of a thermowell that is inserted into the process. The tapered shank is recommended as opposed to a stepped or straight shank due to the superior strength and vibration resistance.

#### T - LAGGING EXTENSION

Show as «T», it is used when the vessel or pipe into which the thermowell is inserted, is insulated. This is the extra length between the process connection and the instrument connection of a thermowell, which is determined by the insulation thickness. The standard lagging extension is 3" except it is 2" for the thermowells with 2-1/2" «U» dimensions. Other are available on request

**P --ATTACCO AL PROCESSO**

È quella parte del pozzetto che fissa meccanicamente il pozzetto al processo. Può essere di tipo filettato, a saldare, flangiato. Le connessioni filettate standard sono: 1/2", 3/4" oppure 1" Gas o NPT. Le connessioni flangiate standard sono 1", 1 1/2", 2" con rating da 150 a 900 lbs UNI o ANSI. Le connessioni a saldare standard sono per tubazioni da 3/4" e 1". Altre connessioni sono disponibili a richiesta.

**U --IMMERSIONE**

Comunemente indicata con la lettera "U" è quella parte che va dalla fine dell' attacco al processo alla fine del pozzetto e che è inserita nel processo.

**P - THE PROCESS CONNECTION**

It is that portion of the thermowell which provides the mechanical connection with the vessel or pipe. These connections can be integral male thread, prepared surface for welding flanges for mechanical pressure seals, or combinations thereof. Thermowell standard process threads are 1/2", 3/4" and 1" NPT. Standard flanges are raised face or ring joint types, dimensioned to ASA B 16.5; standard flange sizes are 1", 1- 1/2" and 2" with rating from 150 lbs to 900 lbs. Standard socket weld sizes are for 3/4" and 1" nominal pipe. Other size process connections can be provided on request.

**U - THE THERMOWELL INSERTION LENGTH**

It is commonly called the «U» dimension, it is that portion of the shank from the process connection to the tip of the shank which is inserted into the process area.

**MATERIALE E IDENTIFICAZIONE**

Standard AISI 316.

Ogni pozzetto è fornito con:

- Tag – Materiale e dimensione «U» Dimensioni flangia, rating ecc.
- Materiale standard: AISI 316 / 316-Ti / 304 / 321
- Materiale speciale come: Duplex / Monel / Titanio / Nickel / Hastelloy C276 / Hastelloy C4 / Inconel 600 / Incoloy 800 ecc.
- Materiale speciale (cartellate) per il rivestimento delle parti bagnate: Tantalio / PTFE / Hastelloy C276 / Hastelloy C4 / Zirconio.

**MATERIAL AND IDENTIFICATION**

Standard material: AISI 316

Every thermowell is supplied clearly identified with:

- Tag – Material and «U» dimension – Flange size – Rating and material etc.
- Standard materials: AISI 316 / 316-Ti / 304 / 321
- Special materials such as: Duplex / Monel / Titanio / Nickel / Hastelloy C276 / Hastelloy C4 / Inconel 600 / Incoloy 800 ecc.
- Special materials (sheets) for coating wetted parts: Tantalum / PTFE / Hastelloy C276 / Hastelloy C4 / Zirconium.

**DOCUMENTAZIONE E TEST**

- Disegni dimensionali
- Prova idrostatica
- Liquidi penetranti
- Certificati materiali EN10204 3.1.B, 3.1.C
- N° di colata stampigliato su pozzetto e flangia
- Certificato secondo NACE
- Certificato del trattamento termico
- Certificati in accordo alla ASTM A 262-C
- Performance test in accordo alla ASME PTC 19.3-1974
- Procedure di saldatura (W.P.S.)
- Piano di qualità (P.Q.R.)

**DOCUMENTATION AND TEST**

- Construction drawing
- Hydrostatic test pressure
- Dye penetrating test
- Inspection and material certificate according to EN10204 3.1.B, 3.1.C
- Heat number stamped on well and flange
- Certificate according to NACE
- Heat treatment certificate
- HUEY test to ASTM A 262-C
- Performance test to ASME PTC 19.3-1974
- Welding Procedure Specification (W.P.S.)
- Procedure Qualification Record (P.Q.R.)

**MODELLI STANDARD**

- PZT1:** Costruzione da tubo
- PZB1:** Costruzione da barra, rastremato
- PZB3:** Costruzione da barra, dritto
- PZB4:** Costruzione da barra, dritto
- PZT1F:** Costruzione da tubo, con attacco flangiato
- PZB1F:** Costruzione da barra, rastremato attacco al processo flangiato
- PZB3F:** Costruzione da barra, dritto attacco al processo flangiato, parti bagnate cartellate
- PZB4F:** Costruzione da barra, dritto attacco al processo flangiato
- PZB5:** Attacco a saldare, rastremata
- PZB6:** Attacco a saldare, dritta

**STANDARD THERMOWELL**

- PZT1:** From built-up
- PZB1:** From bar stock-tapered
- PZB3:** From bar stock-straight
- PZB4:** From bar stock-stepped shank
- PZT1F:** From built-up flange connection
- PZB1F:** From bar stock-tapered-flange connection
- PZB3F:** From bar stock-straight-flange connection wetted parts protected
- PZB4F:** From bar stock-straight-flange connection
- PZB5:** From barstock, socket weld-tapered
- PZB6:** From barstock, socket weld-stepped shank

**OPZIONI**

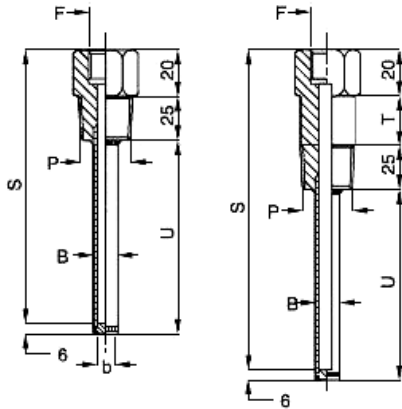
Per un'esecuzione con un attacco flangiato tutte le parti bagnate, se richiesto, possono essere cartellate da materiali speciali quali: PTFE, NICKEL, ZIRCONIO, TITANI, TANTALIO e HALAR, tutto questo per contenere i costi  
Tappo e catenella – Lucidatura a specchio – Sgrassaggio per uso ossigeno – Nipplo di estensione.

**OPTIONALS**

To reduce the price for special material straight shank flanged thermowell wetted parts can be supplied protected by special materials such as PTFE, NICKEL, ZIRCONIUM, TITANIUM, TANTALUM and HALAR  
Plug and chain – U dimension polished – Degreased for oxygen service extension nipples

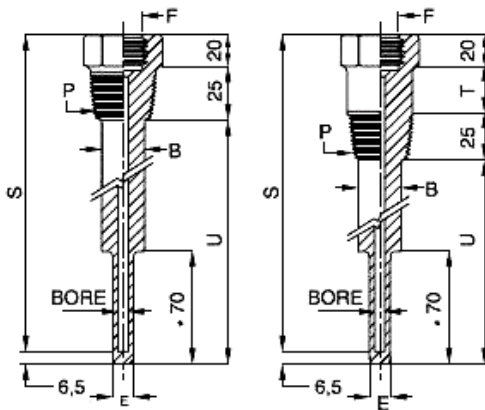
## TIPI E DIMENSIONI – MOUNTING STYLES AND DIMENSIONS

### PZT1



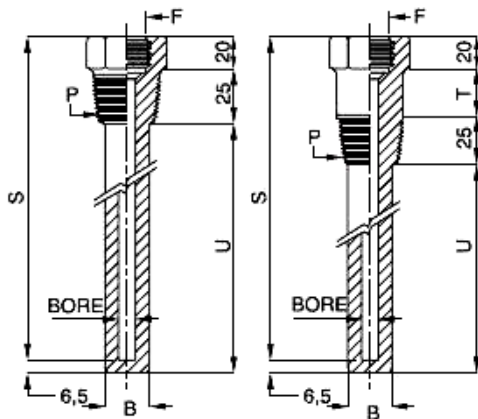
DIMENSIONI STANDARD – STANDARD DIMENSIONS		
Attacco al processo Process connection P	Dimensioni tubo Tube dimensions b x B	Hex
½" NPT	7 x 12	27
	12.2 x 14.4	
¾" NPT	7 x 12	27
	12.2 x 14.4	
¾" NPT	7 x 12	36
	12.2 x 14.4	

### PZB1



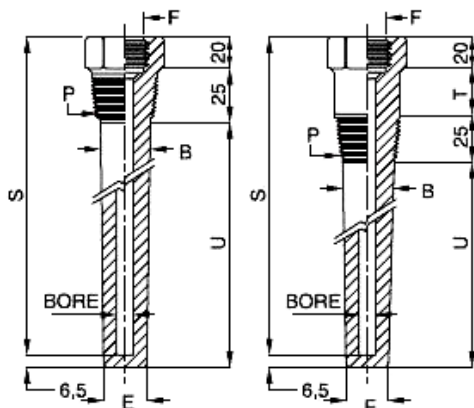
DIMENSIONI STANDARD – STANDARD DIMENSIONS				
Attacco al processo Process connection P	Ø Foro Bore Sizes b	Diametri Diameter		Hex
		B	E	
½" NPT	6.5	16	12.7	27
		19	7	
¾" NPT	6.5	19	12.7	27
		9	15	
1" NPT	6.5	22	12.7	36
		9	15	

### PZB3



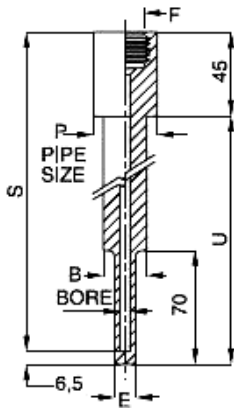
DIMENSIONI STANDARD – STANDARD DIMENSIONS				
Attacco al processo Process connection P	Ø Foro Bore Sizes b	Diametri Diameter B		Hex
		B	E	
½" NPT	6.5	16		27
		19		
¾" NPT	6.5	19		27
		10.5		
1" NPT	6.5	19		36
		10.5		

### PZB4



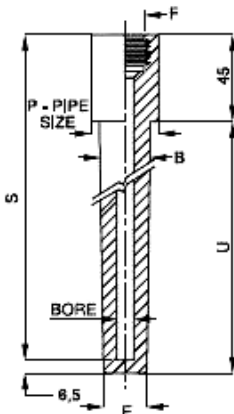
DIMENSIONI STANDARD – STANDARD DIMENSIONS				
Attacco al processo Process connection P	Ø Foro Bore Sizes b	Diametri Diameter		Hex
		B	E	
¾" NPT	6.5	22	16	27
		10.5	19	
1" NPT	6.5	27	16	36
		10.5	19	

**PZB5**



DIMENSIONI STANDARD – STANDARD DIMENSIONS			
Attacco al processo Process connection P	Ø Foro Bore Sizes b	Diametri Diameter	
		B	E
¾" PIPE (Ø 27)	6.5	19	12.7
	9	19	15
1" PIPE (Ø 33)	6.5	22	12.7
	9	22	15

**PZB6**

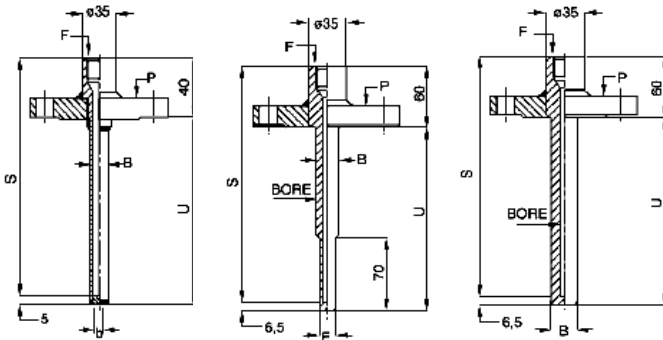


DIMENSIONI STANDARD – STANDARD DIMENSIONS			
Attacco al processo Process connection P	Ø Foro Bore Sizes b	Diametri Diameter	
		B	E
¾" PIPE (Ø 27)	6.5	20	16
	10.5	20	19
1" PIPE (Ø 33)	6.5	25	16
	10.5	25	19

**PZT1F**

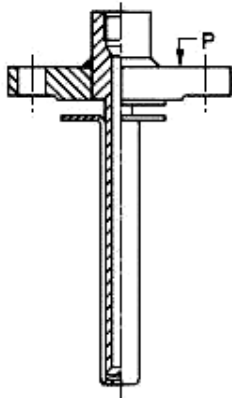
**PZB1F**

**PZB4F**



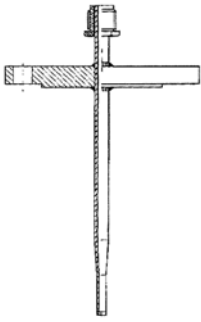
FLANGE STANDARD STANDARD FLANGES Sizes Ratings		DIMENSIONI POZZETTO THERMOWELL DIMENSIONS		
		b	B	E
1" - 1 ½" - 2"	from 150 to 900lbs	Stesse dei pozzetti con attacco al processo filettato Same as threaded thermowells		

**PZB3F**

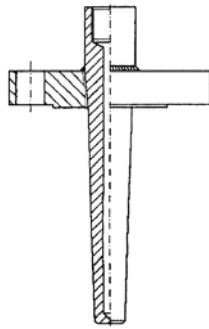


OPZIONI EXTRA Parti bagnate, cartellate da materiali speciali	OPTIONAL EXTRA Wetted part covered by special material

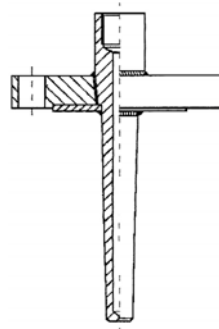
**POZZETTI FLANGIATI – THERMOWELLS FLANGED**



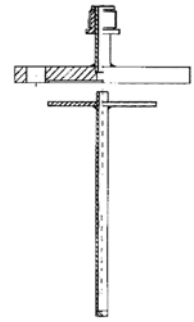
*Built-up*



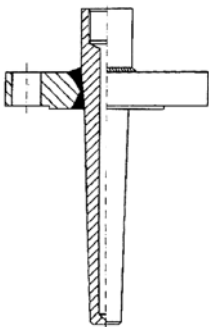
*Barstock standard type*



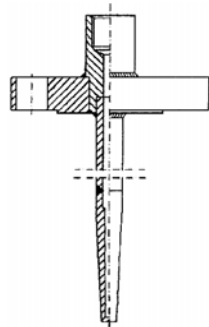
*Barstock with rotating or welded flange. Wetted parts in: Hastelloy C276,C4, Nickel, Titanium*



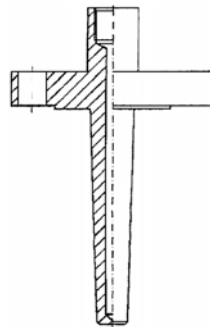
*Two pieces for flange mounting. Wetted parts in: Stainless steel 316, Hastelloy C276,C4, Nickel, Tantalum, Zirconium, Titanium*



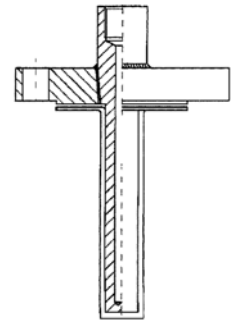
*Full penetration  
Partial full penetration*



*For extremely long immersion length with ip from barstock*



*Forged type one piece without welding*

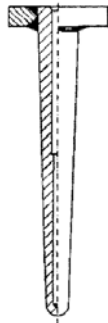


*Barstock Wetted parts covered by: Hastelloy C276,C4, Tantalum, Zirconium, Nickel, Halar, PFTE*

**POZZETTI FILETTATI, A SILDARE, SANITARI, ESECUZIONI A DISEGNO – THERMOWELLS THREADED, SOCKET WELD, SANITARY, CUSTOMER DRAWING**



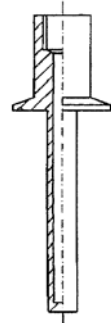
*Weld-in type according to DIN43729 standard*



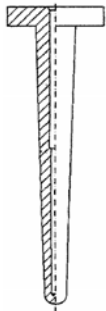
*Barstock type full penetration execution*



*Barstock standard type with or without lagging extension*



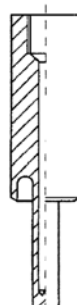
*Sanitary connection*



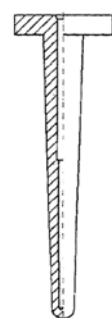
*Barstock type one piece without welding*



*Socket weld type*



*Customer drawing*



*Electro forged execution*