

Thermowells / Protection Tubes

Series: **GTW / GPT**

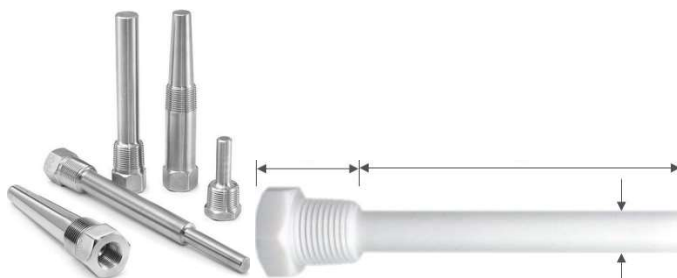
Srl	Products	Models
1	Bar Stock Drilled Threaded Thermowell	GTW-BT
2	Bar Stock Drilled Weldable Thermowell	GTW-BW
3	Bar Stock Drilled Vanstone Thermowell	GTW-BV
4	Bar Stock Drilled Flanged Thermowell	GTW-BF
5	Bar Stock Drilled Flanged High Velocity Collar Thermowell	GTW-BFC
6	Bar Stock Drilled Flanged High Velocity SpiralWell Thermowell	GTW-BFS
7	Bar Stock Drilled Sanitary (Hygiene) Thermowell	GTW-BSF
8	Pipe Fabricated Flanged (Protection Tube) Thermowell	GTW-FF
9	Pipe Fabricated Threaded (Protection Tube) Thermowell	GTW-FT
10	Pipe Fabricated Weldable (Protection Tube) Thermowell	GTW-FW
11	Special Service Built-Up High Temperature Thermowell	GTW-BU
12	Special Service Protection for Thermowell (Sleeve/Lining/Coating)	GTW-SP

Note: Part of our development programs, product specifications, photos, drawings, dimensions and other information provided in catalogue/website may change without any notice.

General Specifications:

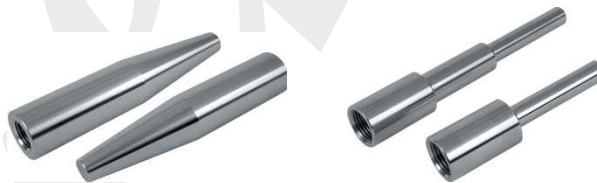
1) Bar Stock Drilled Threaded Thermowell specifications:

Model	: GTW-BT
Construction Type (CT)	: Single piece drilled, Multiple pieces drilled & welded together
Shank Profile (SP)	: Straight, Tapered fully, Tapered end, Stepped end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Tip Dia (TD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)



2) Bar Stock Drilled Weldable Thermowell specifications:

Model	: GTW-BW
Construction Type (CT)	: Single piece drilled, Multiple pieces drilled & welded together
Shank Profile (SP)	: Straight, Tapered fully, Tapered end, Stepped end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Tip Dia (TD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Socket Weld-In, Direct Weld-In (Specify socket or weldin area ID or Select code from Bar Dia (BD) above)



3) Bar Stock Drilled Vanstone (typical Shell design) Thermowell specifications:

Model	: GTW-BV
Construction Type (CT)	: Single piece drilled
Shank Profile (SP)	: Tapered fully, Tapered end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, Alloys, Duplex SS, Super Duplex SS, SS dual certified
Bar Dia/Size (BD)	: 48mm, 60mm
Root Dia (RD)	: 30mm
Tip Dia (TD)	: 14mm, 16mm, 19mm
Internal/Bore Dia (ID)	: 7mm, 8mm stepped to 6.6mm X 120mm long tip
Tip Thickness (TT)	: 5mm
Tapered Tip Length (IL1)	: 240mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: 1/2" NPT (F)

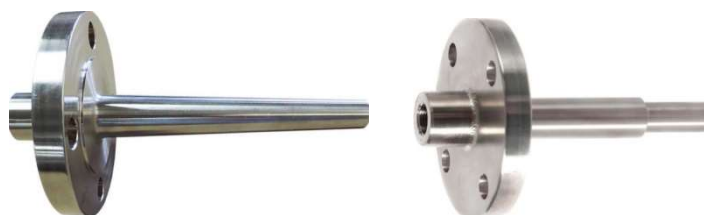
Process Connection (PC)	: Size	: 1½", 2"
	Rating	: 150#, 300#, 600#, 900#, 1500#, 2500# (Type: LJF)
	Material	: Select from well material (WM) above or specify (Above loose flange provided on request only)
Collar Dia (CD)	: 73mm, 92mm	
Collar Thickness (CT)	: 15mm, 20mm	

Note: IL+collar thickness (CT)=Standard "L" = 230mm/255mm/305mm/355mm/405mm/455mm. ASME PTC 19.3 TW2016 does not include any thermowells with stepped internal bores (version S38.1130/A/B, S38.1140/A/B) and excludes thermowells with a surface rougher than Ra 0.81 µm (32 µin) from the scope of the standard. Furthermore, straight stem shapes with conical tip are not defined in the standard. For these reasons, the calculation results in accordance with ASME PTC 19.3 TW2016 of Shell standard S38.113 and S38.114 thermowells, which are roughened to Ra 6 µm (Rz 25 ... 40) in the tip area or have a stepped bore, are only informative in character. Flange standard: ASME B16.5 Stock finish, AARH 125 ... 250, Ra in µm 3.2 ... 6.3. Service : Recommended for Oil and gas, petrochemical industry, For high process loads.



4) Bar Stock Drilled Flanged Thermowell specifications:

Model	: GTW-BF
Construction Type (CT)	: Single piece drilled, Multiple pieces drilled & welded together
Shank Profile (SP)	: Straight, Tapered fully, Tapered end, Stepped end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Tip Dia (TD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 1", 1½", 2", 3" Rating : 150#, 300#, 600#, 900#, 1500#, 2500# Type : RF, FF, SORF, SOFF, RTJ, LT, LG, ST, SG Material : Select from well material (WM) above or specify



5) Bar Stock Drilled Flanged Thermowell with "High Velocity Collar" specifications:

Model	: GTW-BFC
Construction Type (CT)	: Single piece drilled
Shank Profile (SP)	: Straight Shank (Collar welded), Tapered end Shank (Collar welded), Straight Shank (Collar Integral w/o weld), Tapered end Shank (Collar Integral w/o weld)
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: Specify in MM
Tip Dia (TD)	: Specify in MM
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Length Below Collar (IL1)	: Specify in MM
Velocity Collar Dia (CD)	: Specify in MM
Velocity Collar Thickness (CT)	: Specify in MM
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 1", 1½", 2", 3" Rating : 150#, 300#, 600#, 900#, 1500#, 2500# Type : RF, FF, SORF, SOFF, RTJ, LT, LG, ST, SG Material : Select from well material (WM) above or specify (Specify socket ID for socket weld-in type process connection, if required)

Note: 1/2"(12.7mm) Thick, 4point support collar, Collar OD = Nozzle ID (-)1mm. Collar welded on Thermowell "IL1", ensure to positioned 1" above Nozzle bottom. Please provide exact Nozzle ID and Length. Also provide Flow rate (m/s), Density of medium (kg/m³), Temperature (°C), Pressure bar (psi), Dynamic viscosity (mm²/s) to perform WFC as per ASME PTC 19.3 TW2016



6) Bar Stock Drilled Flanged Thermowell with High Velocity "SpiralWell" specifications:

Model	: GTW-BFS
Construction Type (CT)	: Single piece drilled
Shank Profile (SP)	: Straight, Tapered Fully
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: Specify in MM
Tip Dia (TD)	: Specify in MM
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL

Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 1", 1½", 2", 3" Rating : 150#, 300#, 600#, 900#, 1500#, 2500# Type : RF, FF, SORF, SOFF, RTJ, LT, LG, ST, SG Material : Select from well material (WM) above or specify (Specify socket ID for socket weld-in type process connection, if required)

Note: Please provide exact Nozzle ID and Length. Also provide Flow rate (m/s), Density of medium (kg/m³), Temperature (°C), Pressure bar (psi), Dynamic viscosity (mm²/s) to perform WFC as per ASME PTC 19.3 TW2016. The "SpiralWell" design can be on Solid Bar Stock machined Thermowell with Flange, Threaded connection or Vanstone or Socket weld design.



7) Bar Stock Drilled Sanitary (Hygiene) Thermowell specifications:

Model	: GTW-BSF
Construction Type (CT)	: Single piece drilled, Multiple pieces drilled & welded together
Profile (SP)	: Straight, Tapered fully, Tapered end
Well Material (WM)	: SS304, SS304L, SS316, SS316L
Bar Dia/Size (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm
Root Dia (RD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Tip Dia (TD)	: 12mm, 14mm, 16mm, 18mm, 21mm, 22mm
Internal/Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Try Clamp/Clover, IDF/ISS Union, SMS Union, Sanitary Flange. Size : Specify Material : SS304, SS304L, SS316, SS316L

Note: For reference, some of the available sizes are 3/4" Clamp for 0.984" Flange OD Flange OD for 1/2" or 3/4" Tube OD / 1.5" Clamp for 1.984" Flange OD for 1" or 1.5" Tube OD / 2" Clamp for 2.516" Flange OD for 2" Tube OD / 2.5" Clamp for 3.047" Flange OD for 2.5" Tube OD / 3" Clamp for 3.579" Flange OD for 3" Tube OD / 4" Clamp for 4.682" Flange OD for 4" Tube OD / 4" Clamp for 4.682" Flange OD for 4" Tube OD.



8) Pipe Fabricated Flanged (Protection Tube) Thermowell specifications:

Model	: GTW-FF
Construction Type (CT)	: Pipe up to hot end, Bar stock hot end
Shank Profile (SP)	: Straight, Tapered hot end, Stepped hot end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm, Not applicable
Pipe Dia/Size (PD)	: 1/4"(13.7mm), 3/8"(17.1mm), 1/2"(21.3mm), 3/4"(26.6mm), 1"(33.4mm)
Pipe Schedule (PS)	: Sch40, Sch60, Sch160, Not applicable
Pipe Bore Size (BS)	: As per pipe size & schedule
Bar Stock Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm, Not applicable
Tip Dia (TD)	: 13.7mm, 17.1mm, 21.3mm, 26.7mm, 33.4mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 1", 1½", 2" Rating : 150#, 300#, 600# Type : RF, FF, SORF, SOFF Material : Select from well material (WM) above or specify



9) Pipe Fabricated Threaded (Protection Tube) Thermowell specifications:

Model	: GTW-FT
Construction Type (CT)	: Pipe up to hot end, Bar stock hot end
Shank Profile (SP)	: Straight, Tapered hot end, Stepped hot end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm, Not applicable
Pipe Dia/Size (PD)	: 1/4"(13.7mm), 3/8"(17.1mm), 1/2"(21.3mm), 3/4"(26.6mm), 1"(33.4mm)
Pipe Schedule (PS)	: Sch40, Sch60, Sch160, Not applicable
Pipe Bore Size (BS)	: As per pipe size & schedule
Bar Stock Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm, Not applicable
Tip Dia (TD)	: 13.7mm, 17.1mm, 21.3mm, 26.7mm, 33.4mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM

Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Size : 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)



10) Pipe Fabricated Weldable (Protection Tube) Thermowell specifications:

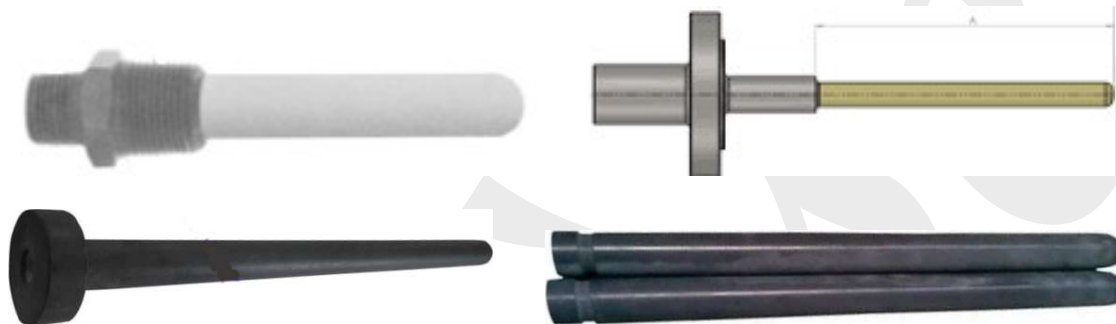
Model	: GTW-FW
Construction Type (CT)	: Pipe up to hot end, Bar stock hot end
Shank Profile (SP)	: Straight, Tapered hot end, Stepped hot end
Well Material (WM)	: SS, Inconel, Incoloy, Titanium, Monel, Nickel, Hastalloy, Haynes, Hexoloy, Kanthal, CS, CI, Alloys, Phosphor Bronze, Aluminium, Black Steel, Brass, Duplex SS, Super Duplex SS, SS dual certified, SS Urea grade
Bar Dia (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm, Not applicable
Pipe Dia/Size (PD)	: 1/4"(13.7mm), 3/8"(17.1mm), 1/2"(21.3mm), 3/4"(26.6mm), 1"(33.4mm)
Pipe Schedule (PS)	: Sch40, Sch60, Sch160, Not applicable
Pipe Bore Size (BS)	: As per pipe size & schedule
Bar Stock Bore Dia (ID)	: 4mm, 7mm, 9mm, 11mm, 13mm, Not applicable
Tip Dia (TD)	: 13.7mm, 17.1mm, 21.3mm, 26.7mm, 33.4mm
Tip Thickness (TT)	: 4mm, 5mm, 6mm
Tapered Tip Length (IL1)	: 100mm, 150mm, Not applicable
or	
Stepped Tip Length (IL1)	: 100mm, 150mm, Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Socketweld, Direct WeldIn (Specify socket or weldin area ID or Select code from Bar dia/Size (BD))



11) Special Service Built-Up High Temperature Thermowell specifications:

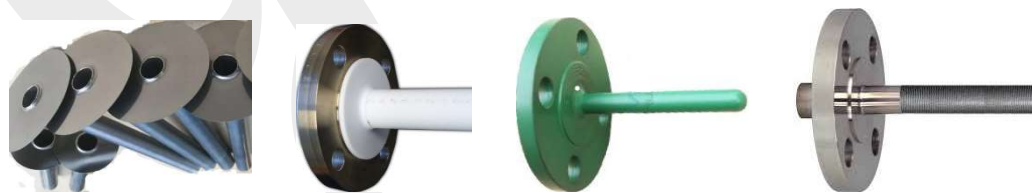
Model	: GTW-BU
Construction Type (CT)	: Single Tube, Double Tube
Shank Profile (SP)	: Straight, Stepped hot end
Outer Tube Material (OTM)	: Ceramic/KER610 (Mullite/Pythagoras), Ceramic/KER710 (Recrystallized Alumina), Tungsten Carbide (Solid Sintered), Silicon Carbide Recrystallized (Carborundum) (SiC), Silicon Nitride Si3N4 Ceramic (Syalon 101), Cermet (Metal Ceramic) grade LT1, Stellite Gr.6 solid tip, Zirconia Ceramic (ZrO2), Graphite
Inner Tube Material (ITM)	: Select code from above outer tube material (OTM), Not applicable, Specify
Bar Dia (BD)	: 28mm, 30mm, 32mm, 34mm, 36mm, Not applicable
Holding Tube Dia/Size (HD)	: 17.1mm OD (3/8"Sch.), 21.3mm OD (1/2" Sch.), 26.6mm OD (3/4" Sch.), 33.4mm OD (1" Sch.), 42.1mm OD (1 1/4" Sch.), 48.2mm OD (1 1/2" Sch.), 48.2mm OD (1 1/2" Sch.), Not Applicable
Holding Tube/bar Material (HM)	: SS316, SS310, SS(HRS)446, Inconel-600, Incoloy-800

Outer Tube Size (OTD)	: 6x4mm, 8x5mm, 10x6mm, 12x8mm, 15x10mm, 20x15mm, 24x8mm, 16x7mm, 19x9mm, 20x9mm, 20x10mm, 25x14mm
Inner Tube Size (ITD)	: Select from outer tube size (OTD), Not applicable
Insertion Length (IL)	: Specify in MM
Extension Length (EL)	: Specify in MM
Total Length (TL)	: IL+EL
Holding Tube/Bar Length (HL)	: 100mm, 150mm
Instrument Connection (IC)	: Size : 1/4", 3/8", 1/2", 3/4", 1", M18x1.5, M20x1.5 Type : NPT, NPSM, BSP, BSPT (Male or Female)
Process Connection (PC)	: Threaded (adjustable), Threaded (fixed), Flanged (adjustable), Flanged (welded) (Provide flange/thread specifications)



12) Special Service Protection for Thermowell specifications:

Model	: GTW-SP
Construction Type (CT)	: Sleeve, Lining, Coating (Hard Facing)
TW Shank Profile (SP)	: Straight, Tapered fully, Tapered end, Stepped end
Special Material (SM)	: Sleeve : Tantalum(Ta), Titanium(Ti), Nickel®200, Monel®400, Monel®500, Hastelloy®B2, Hastelloy®C276 Coating : Zirconium Oxide, Tungsten Carbide, Stellite6, Alloy, Aluminum oxide (Al2O3), TMT601 Lining: PTFE, PFA, PVDF(Kynar®)
Thickness on Radius (TR)	: 0.1143mm (0.0045"), 0.4mm, 0.5mm, 1mm, 1.5mm, 2mm
Root Dia before apply (RDB)	: Specify in MM
Tip Dia before apply (TDB)	: Specify in MM
Root Dia after apply (RDA)	: Specify in MM
Tip Dia after apply (TDA)	: Specify in MM
Length (L)	: Specify in MM
Collar Dia (CD)	: Specify Flange RF dia in MM, Not applicable



Note:- Material, length, dia, instrument/process connections other than above, IBR, NACE, O2 cleaning, Radiography/X-ray for weld joints and or for bore concentricity, Single piece bar stock TW wake frequency calculation (WFC) offered on request. Refer "optional items list" or "accessories catalogue" for more details. Single piece bar stock drilled up to 600mm is standard length. Above 600mm to 2000mm is also available in single piece bar stock construction, but commercially not recommended)