

Thermowells

General

Thermowells are provided to protect the basic sensor from mechanical damage and corrosion. An extremely sturdy design may increase the life of the sensor but may lead to a poor response. Similarly, a delicate design will have poor life but will improve the response time. Therefore, a proper balance needs to be struck.

For given process parameters, *General* can arrive at an optimum Thermowell design considering aspects such as temperature, pressure, fluid velocity and corrosion. Such designs will conform to ASTM PTC 19.3.

The Thermowell material can be brass, SS304, SS316, SS316L, SS310, Inconel® 600, Incoloy® 800, Monel®, Hastelloy® depending upon the process parameters and type of fluid. For proper selection of Thermowell material, expert advice is available from our design department.



Various Types of Thermowells

- ❑ **Bar Stock Threaded (BT)**
(Process threads NPT, BSP or Metric)
- ❑ **Bar Stock Flanged (BF)**
(Flanges as per ANSI, BS, IS or DIN)
- ❑ **Bar Stock Weld In (BW)**
- ❑ **Fabricated Threaded (FT)**
- ❑ **Fabricated Flanged (FF)**
- ❑ **Fabricated Weld In (FW)**
- ❑ **Van Stone Type (TW-V)**
- ❑ **Sleeved (Lined) (BF-S)**

Barstock Thermowell is normally offered up to an insertion length of 600mm. Fabricated Thermowells are recommended above 600mm. If required, insertion length can be determined by performing wake frequency calculations, in accordance with PTC 19.3. Based on the Wake frequency calculation, if required a velocity Collar can be provided on the Thermowell to reduce the unsupported length of Thermowell. Further, in order to avoid the mismatching between Collar OD and Nozzle ID at Site during installation, suitable matching Nozzle with Flange also can be supplied along with Thermowell.

Welding (TIG welding process) of the Thermowell is performed by professional and approved welders following practice laid down in the ASME code and weld joints can be tested up to 600 kg/ cm².

Bore concentricity within 10% of wall thickness can be checked by radiography or ultrasonic method. Special material tests such as ultrasonic test for flaw detection are also available. For steam/ feed water service, an IBR certificate in form IIIC can be issued.

Routine Tests:	Type Tests:
<ul style="list-style-type: none"> ■ Chemical Analysis ■ Dimensional ■ Hydro Test ■ Dye Penetration ■ Bore Concentricity ■ Physical ■ Microstructure ■ Post Weld H/T (if specified) 	<ul style="list-style-type: none"> ■ NACE Compliance ■ Radiography ■ Ultrasonic ■ Physical Testing



