



# Technical Brief

TEMPERATURE

## What is a Thermowell?

A thermowell is essentially a thick walled metal tube installed in process equipment that surrounds a bimetal thermometer, RTD or thermocouple probe and protects it from detrimental forces such as excessive pressure, fluid flow or corrosive substances. Thermowells also act to separate the measurement device from the system.

## Why use a Thermowell?

- **Durability** – Thermometers and probes are typically not robust enough to stand up to extreme pressure, erosion and corrosive materials. Thermowells add a substantial layer of protection from all of these forces.
- **Isolation** – Using a thermowell creates a boundary between the process and the sensing device. This will allow the sensing device to be removed without the need to open the system, meaning a simple probe replacement doesn't require a shutdown to drain the system.

## Types of Thermowells

Threaded	Most common applications, provides threads for both the process equipment and the thermometer/sensor
Flanged	Bolts to the process equipment through the flange
Sanitary	Attaches to process equipment through standard 3-A sanitary fittings
Weld-In	Permanently installed by welding into the process equipment

## Other Considerations

Thermowells are very configurable. It's usually best to consider the thermowell fit to the process equipment, then configure the thermometer or probe assembly to the thermowell.

One thing to keep in mind is that when using a thermowell, the response time will be slower, because the change in temperature needs to be transferred through the wall of the thermowell to the sensor probe. The best practice is to ensure there is no air gap between the well and probe. This can be done by configuring so the tip of the sensor is lightly touching the bottom of the well as well as application of thermally conductive grease.

For more information see the following Tech Briefs:

[Thermowell Considerations](#)

[Matching a Thermometer to a Thermowell](#)



Threaded



Flanged



Sanitary



**Tel-Tru Manufacturing Company**

408 St. Paul Street, Rochester, NY 14605

Phone: 800.232.5335 • 585.232.1440 • Fax: 585.232.3857 • E-mail: [info@teltru.com](mailto:info@teltru.com) • Web: [www.teltru.com](http://www.teltru.com)

TB223

©2023