

Thermowell with flange

PEK361



Applications

- For Oil, Gas and Petrochemical industry
- For On / Off Shore and plant construction
- For high process loads
- For high chemical demands

Special features

- Heavy-duty design
- Coating for corrosive or abrasive process loads
- Possible thermowell forms: tapered, straight, stepped
- Flexible design modifiers accommodate many processes requirements

Benefits

- Increases the life cycle of the measurement insert through protection against process influence.
- Possible measurement insert exchange under process conditions.
- Mechanical stability against pressure and flow

Description

Temperature sensors are rarely inserted directly into an industrial process. They are installed into a thermowell to isolate them from the potentially damaging process conditions of flow-induced stresses, high pressure, and corrosive chemical effects.

The thermowell is the process wetted component of the temperature assembly. Each thermowell is an important component of any temperature measuring point. It is used to separate the process from the surrounding area, thus protecting the environment and operating personnel and keeps aggressive media, high pressures and flow rates from the temperature sensor itself and thereby enables the thermometer to be exchanged during operation.

Based on the almost limitless application possibilities, there are a large number of variants, such as thermowell designs or materials. The type of process connection and the basic method of manufacture are important design differentiation criteria. A basic differentiation can be made between threaded and weld-in thermowells and those with flange connections.

Thermowells are manufactured from bar stock. The PEK361 series of thermowells with flange connection are suitable for use with numerous electrical and mechanical thermometers from Pars Electronic Kish.

Due to the heavy-duty design, these design thermowells are the first choice for use in the chemical and petrochemical industries and in plant construction.

Specifications

Basic information	
Thermowell form	<ul style="list-style-type: none"> ■ Tapered ■ Straight ■ Stepped
Material (wetted Part)	<ul style="list-style-type: none"> ■ Stainless steel 304/304L ■ Stainless steel 316/316L
Process connection	
Type of process connection	<ul style="list-style-type: none"> ■ Flange ■ Thread
Connection to thermometer	<ul style="list-style-type: none"> ■ ½ NPT female thread ■ G ½ female thread ■ M20 x 1.5 ■ Other dimensions on request
Operating conditions	
Max. process temperature, process pressure	Depending on: <ul style="list-style-type: none"> ■ Thermowell design <ul style="list-style-type: none"> - Dimensions - Material - Coating - Flange pressure rating ■ Process conditions <ul style="list-style-type: none"> - Flow rate - Density of medium
Wake frequency calculation	Recommended in critical applications as a Pars Electronic Kish engineering service

Basic selection guide

Selecting the proper thermowell for an application is an important activity as it impacts plant safety and measurement efficiency.

Thermowells are considered a wetted part; they physically become part of the pressure retaining system.

The four major factors to consider when selecting a thermowell for an application are described below :

- **Thermowell lengthguide**

There is no standard formula to determine thermowell immersion length. However, there are a few common practices that the process industry follows along with good engineering judgment. Ideally the thermowell tip should be located near the centerline in turbulent flow conditions because this represents the most accurate process temperature.

The IPS guideline is at least one-third the way into the pipe for any measurement. To ensure optimal performance, a general guideline for maximum immersion length into a pipe is between 8 the thermowell root diameter for liquids and 15 the thermowell root diameter for air or gas.

- **Mounting configuration**

Consider how the thermowell is mounted on the pipe or tank. The process designer typically specifies what mating connection will be used and the thermowell selected should match that connection. Temperature, pressure, and material are usually taken into consideration to ensure the process connection will be adequate for the application. Welded, threaded, flanged, and Van Stone are standard mounting configuration options.

- **Thermowell stem profile**

Factors to be considered when selecting a stem style include the process pressure, required response speed of the measurement, drag force of the fluid flow on the well, and the wake frequency. The stem is the part of a thermowell inserted into the process piping or vessel. Straight, stepped and tapered stem styles are available. Each profile has its advantages depending on the need and situation.

- **Thermowell material**

PEK361 Thermowells are supplied in most materials required for industrial applications. Standard materials are 316/316L Stainless Steel, 304/304L Stainless Steel, and A105 Carbon Steel.



Dimension

- D. Well Diameter
- H. Head length
- M. Male Threaded Process Connection
- T. Extension
- U. Immersion length

