1. Introduction

Clorius temperature sensor PT100 must always be installed in a correct way. Please follow below Important instructions during the installation.

The temperature sensor is used for registration of temperatures in tubes, tanks and piping.

See also **data sheet 4.25.01** Temperature sensors for further information.

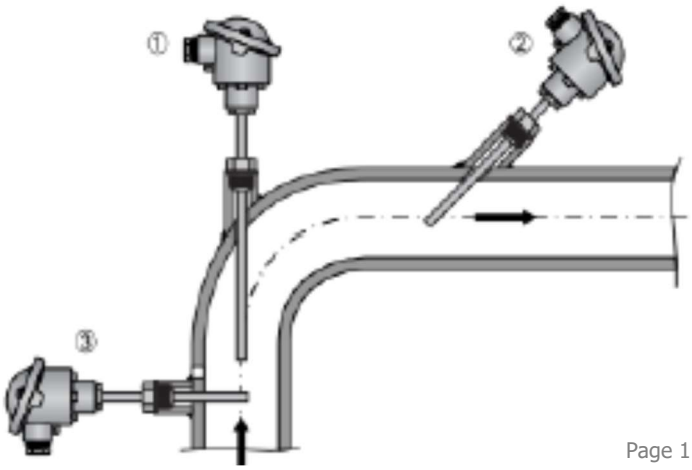
2. General Instruction

- Make sure that the dimensions of the thermowell* (length, diameter, wall thickness, type of tip) comply with there requirements of the measuring point. The mechanical load because of flowing media, vibration and resonances is the focus here. In addition, incorrect dimensions can lead to measurement errors.

- The thermowell is sufficiently resistant to chemically aggressive media (refer to the generally accessible corrosion tables). Otherwise, corrosion may occur, or the medium may penetrate the thermowell. When in doubt, select a thermowell* made from the same material as your system.

- Installation site, angle and length are three parameters that depend upon the space available and the diameter of the pipe. The manufacturer generally recommends three possible installation scenarios in pipes with flowing:

    - Small pipe diameter: Installation directly against the direction of flow in a bend in the pipe (**1**). –
    - Small pipe diameter: Installation diagonally against the direction of flow, if a bend in the pipe is available (**2**).
    - Large pipe diameter: Vertical installation, if flow-induced periodic vortex shedding does not cause the thermometer to vibrate in its resonance frequency (**3**).

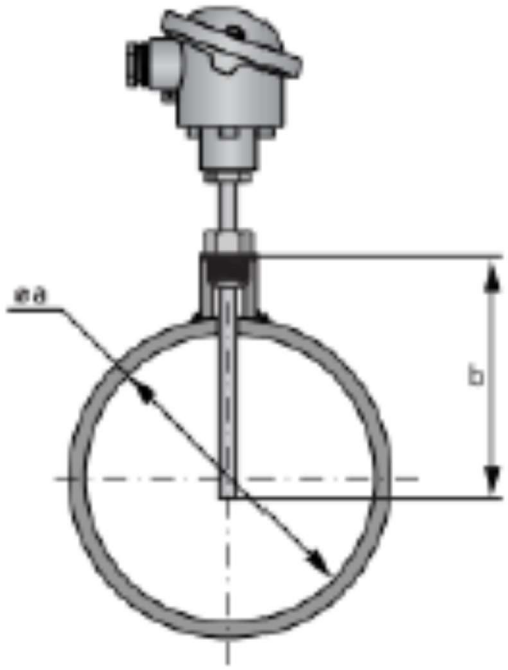


***Thermowell**
Thermowells are cylindrical fittings used to protect temperature sensors installed in industrial processes. A thermowell consists of a tube closed at one end and mounted in the process stream

Clorius Controls
Skovvej 30, DK-5610 Assens
Tel.: +45 7732 3130 Mail:
mail@cloriuscontrols.com
www.cloriuscontrols.com

2. General Instruction continued

- The "insertion length" of the thermowell* or measuring insert refers to the distance from the seal of the process connection (for G threads), two-thirds of the thread height (for NPT threads) or the bottom of the flange (for flange thermometers) to the tip of the thermowell or immersion tube. This length determines how far the sensor projects into the measured medium. To avoid measurement errors, ensure that the insertion length ("b" in the drawing below) meets the following requirements:
    - Insertion length = 10...15 x thermowell diameter, but at least 100 mm / 3.94" (shorter insertion lengths are possible but they impair measuring accuracy
    - Tubes with Ø < 300 mm / 11.8": thermowell tip should project past the middle of the pipe if possible.



- To avoid measurement errors caused by poor heat transfer, the measuring insert must always be in contact with the bottom of the thermowell* (this is normally guaranteed by filling the thermowell with heat conducted compound).
- Choosing the right gasket for the process connection depends on the process conditions; the manufacturer can thus only give the general recommendation that the gasket must comply with the individual requirements of the measuring point (e.g. pressure, temperature, chemically aggressive media, hygienic requirements).
- A well-insulated pipeline or tank around the measuring point reduces the heat transfer and the distorting influence of the ambient temperature.
- In case of removing the insert, make sure to remove it slowly to avoid thermal shock due to the sudden variation of temperature specially for material like ceramic.

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mail@cloriuscontrols.com
www.cloriuscontrols.com