

Instruments made to measure!

CLAMP-ON

Resistance thermometer

The economical and innovative temperature measurement - not just for hygienic application

The resistance thermometer in clamp-on technology is used for temperature sensing and process control, mainly in the food and pharmaceutical industries.

The resistance thermometer can be quickly and easily fitted to all existing pipework. There are no changes necessary to the piping and no welding required.

NEW:
- meas. system patented
- high accuracy
- fast response time
- up to Ø 57 mm

Features



- Suitable for all standard nominal pipe sizes from Ø 4 up to Ø 57 mm
- Excellent temperature sensing with special contact system
- Fast operating
- Measuring range -20 °C up to +160 °C
- Pt 100 measuring insert replaceable
- Transmitter can be integrated

Advantages

- dead-zone free temperature measuring
- easy installation, cost efficient, no welding
- no process interruption
- high accuracy
- suitable for easy calibration



**Clamp-on
type GA2610**



Resistance Thermometer for temperature measurement on pipes Clamp-on-technology

Design

The temperature is sensed by means of a modified, fast-response Pt 100 measuring element that is held in place and isolated by a pipe collar made of heat-resistant plastic.

The measuring insert consists of a special silver temperature sensor that is pressed against the pipe with constant spring force.

The replaceable measuring insert is held in place by a mounting device that positively guides and presses the insert with pre-defined spring force against the pipe surface. Because the insert is always kept in the same installation position, all measurements taken are reproducible.

Reproducible measurements

In order to be able to reliably derive the temperature of the pipe system contents from the surface temperature of the pipe itself, certain fundamental conditions have to be met:

1. There must be good and steady heat transfer from the contents to the sensor.
2. The heat dissipation through the thermometer must be kept as low as possible.

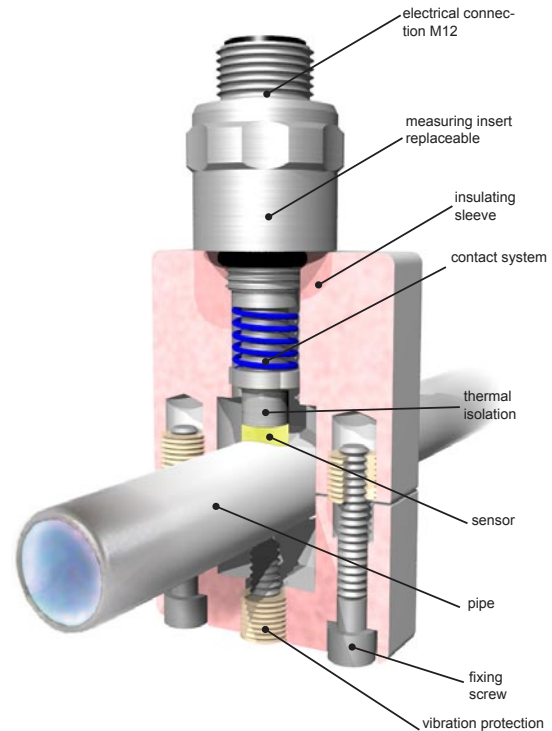
This metallic clamping system has been developed to exactly match the pipe diameter. The design permits good heat transfer, producing the same measuring results as with other, more invasive methods such as immersible sensors with thermowells or inline measuring systems.

The sensor can be replaced without disassembling the pipe collar. This convenient design ensures that the physical characteristics of the measuring point remain unchanged after sensor changes or recalibrations during normal operations. Such consistency is the prerequisite for having an accurate measuring point with long-term stability.

A clamp-on resistance thermometer fully meets all device requirements for optimum monitoring of surface temperatures, especially in sterile processing.

Hygienic compliance

The hygienic configuration of temperature measuring points in the pharmaceutical, natural foods and food/beverage industries must comply with the strictest requirements in design and functionality. The design and arrangement of the measuring devices used must be such that they preclude configurations allowing ac-



cumulation of contaminants, permit regular, thorough cleaning and meet the standards of precision required by the system operator.

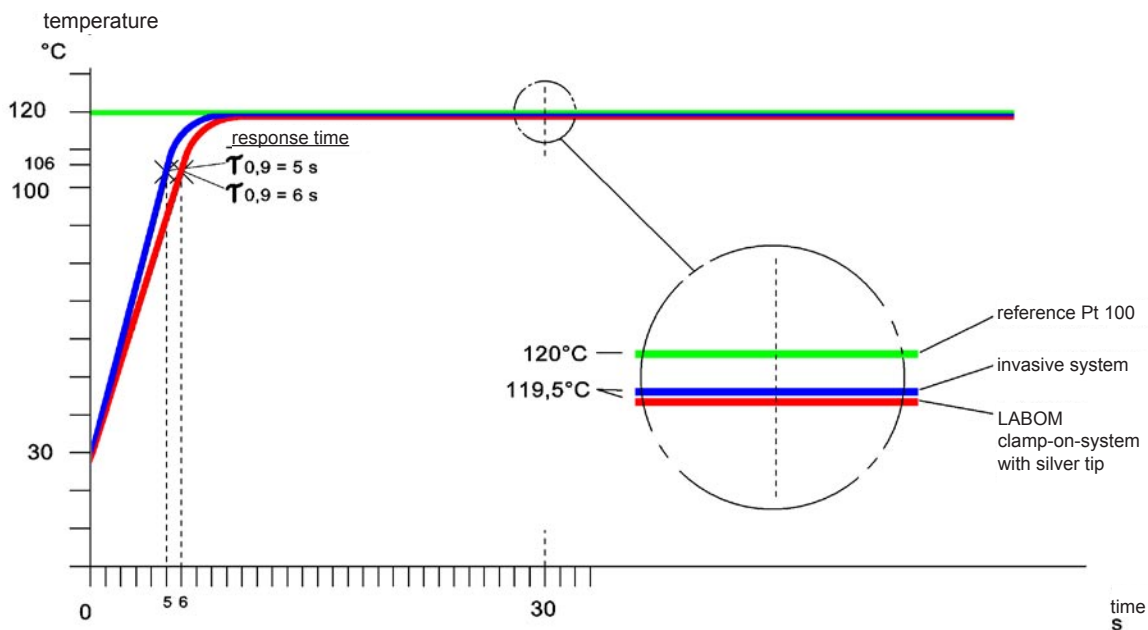
In many plant production areas subject to hygienic requirements, monitoring the temperature of the system contents is indispensable. At the same time, there is a need for good cleanability in CIP (cleaning in place) or SIP (sterilization in place) processes. Tests, such as those carried out by the EHEDG, indicate that dead spaces (inaccessible areas such as nooks and crannies), pockets, gaskets and protective sleeves in pipe systems are problematic in this respect, even if they do, in fact, meet the applicable guidelines (GMP) and recommendations (FDA). The ideal measuring point will function with great accuracy in a non-contact manner, without affecting the process being monitored. Another requirement for hygienic production processes is the need to maintain constant, consistent quality that can be readily monitored and verified. This means, then, that the measuring and test equipment also must be subject to continuous inspection.

The objective is to achieve stable, fault-free processing that meets the most stringent requirements for cleaning and monitoring.

Easy installation

The measuring devices are individually supplied for specific pipe diameter. Both halves of a pipe collar can be easily and quickly installed around the piping by joining them with the two mounting screws. The location of the collar has no effect on the measuring range.

Accuracy

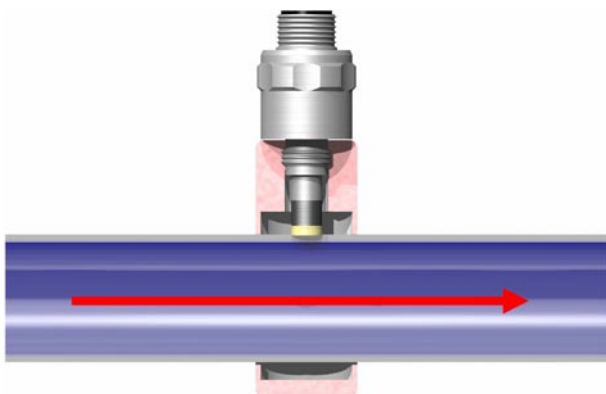


Typical application for model GA2610, version for 13 x 1.5 stainless steel pipe, using heat sink compound.

Application

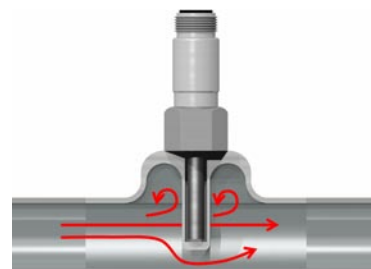
The clamp-on resistance thermometer with the new silver temperature sensor is not only used for temperature monitoring but also for process control. It is especially suited for use in sterile processing as well as in the food and pharmaceutical industries.

Meas. principle LABOM Clamp-on



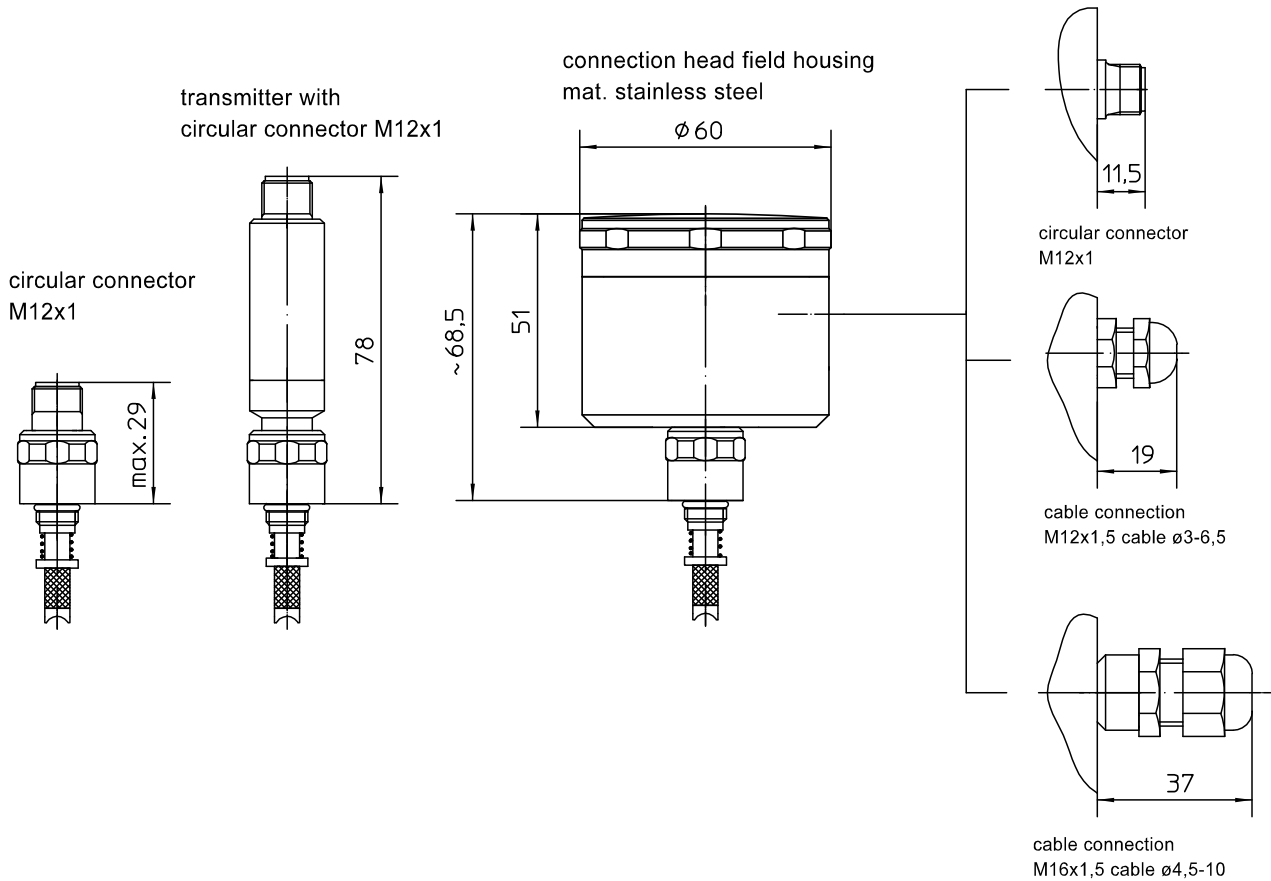
- dead-zone free measuring
- easy installation, no welding
- no process interruption

Temperature measurement invasive

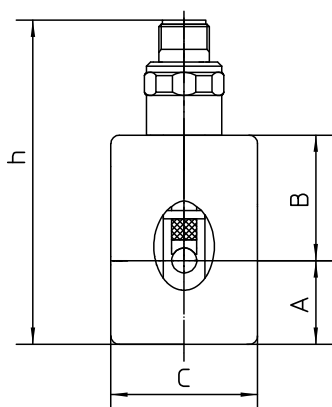


- weld-in adapter required
- flow is disturbed
- high installation costs

Design



Dimensions



pipe-Ø	A	B	C	H
4-17.2	20	30	35	77.5
18-38	30	40	70	97.5
38.1-57	40	50	85	119