



Measuring device for stainless steel pipes

In order to manufacture catalytic converters for cars, the diameter, minimum circumscribed circle, and maximum inscribed circle must be determined very precisely. The sleeve of the catalyst consists of either a gloss, matt or painted stainless steel tube, which can be circular or oval in shape. Measurements must be extremely accurate to permit later use in a catalytic converter.

A measuring device from QS-Grimm GmbH is used to measure round tubes. Once the operator has positioned the component on the measuring table and centred it with a suitable device, the measurement is started with a click of the mouse at the evaluation computer. The tube is rotated through 360°, measured at three levels (beginning, end and middle) and evaluated. The confocalDT sensor is used here because of its high aperture, measuring distance and its ability to measure reliably on a variety of different surfaces.

The outer diameter, the minimum circumscribed circle, and the maximum inscribed circle are directly determined by software calculations. The sensor moves in a horizontal direction, depending on the size of the catalytic converter. The measuring device is available as a vertical version for measuring at different positions. As well as determining the diameter, a tactile measurement of the length is also carried out.

Advantages

- High accuracy on shiny surfaces
- A high tilt angle is possible
- Measurement on different surfaces

Requirements for the measurement system

- Metal tube with a glossy, matt or coated surface
- Non-contact measurement
- Diameter: 60 to 200mm
- Accuracy: $< \pm 10\mu\text{m}$

