

LASER Series 2000

Efficient diameter measurement for hose and tube extrusion lines



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With the gauge heads of the LASER Series 2000, SIKORA offers high-quality laser technology for efficient diameter measurement, meeting the increasing demands of the hose and tube sector in regard to quality and productivity. High precision, reliability and continuous functionality are the outstanding features of the dual and triple-axis gauge heads for a product range of 0.05 to 300 mm. Due to their functional design, the systems can easily be integrated into any production line.

Non-contact measuring technology

SIKORA measuring systems are known worldwide for their unique non-contact and non-destructive measuring principle. The innovative technology is based on CCD line sensors and laser light sources in combination with powerful signal processors. The outer diameter is calculated by an intelligent diffraction analysis directly from the shadow image. Extremely short exposure times ensure a high single value precision at all line speeds – even at a high vibration frequency of the measuring object.

Functional design in perfection

Interesting is the design of the LASER Series 2000 devices. The smaller gauge heads are equipped with a unique and proven multi-slot protection. The gauge heads starting at 30 mm as well as all triple-axis devices are open at the bottom, which prevents water and dirt from falling into the gauge head.

A special feature of the larger models and 3-axis measuring heads is the swiveling gauge head design, allowing the head to be moved up and out of the production area. The measuring heads are free from wearing parts, retain their high precision during the entire period of operation and do not require any calibration or routine maintenance.



Specific gauge heads for every application

LASER Series 2000 XY

With the LASER Series 2000 XY, SIKORA offers efficient gauge heads for a precise diameter measurement in two planes. Innovative regarding the laser and the CCD sensor – the diameter measurement based on diffraction analysis sets highlights. This technology does neither require rotating mirrors nor optical components, is absolutely maintenance-free, does not require any calibration and offers the highest precision during the operation.

LASER Series 2000 T

The LASER Series 2000 T models are 3-axis gauge heads for precise diameter and ovality measurement that leave nothing to be desired. The focus of the 3-axis gauge heads is on defining the ovality of a product. An oval is defined by five tangents, and therefore, by using three measuring axes (six tangents on the oval) not only the min/max value of the oval, but also the orientation of the oval is defined. The LASER Series 2000 T is predestined to precisely measure the diameter and ovality of transparent products.

LASER Series 2000 F/R (Flat/Round profiles)

The perfect concept for reliable online measurement of flat and round profiles is the LASER Series 2000 F/R. For flat profiles, it provides an exact measurement of the width and the height as well as the diameter for round products. The fascinating technology of the gauge head requires no rotation and thus, no maintenance.

Availability

The measuring heads are free from wearing parts and have a nearly unlimited lifetime. Even after years of operation, the devices measure as precisely as on the first day. The optical measuring principle, without any moving parts, ensures an availability of 99.8 %.

Interfaces + Industry 4.0

The LASER Series 2000 gauges offer all kinds of interfaces such as RS485 and optionally Profibus-DP, Profinet IO, CANopen, EtherNet/IP, DeviceNet or OPC UA for a direct connection to a PC or the display and control devices REMOTE 6000 or ECOCONTROL 6000, 1000 or 600 and are therefore, designed for the use under the aspect of Industry 4.0.



The measuring values of the LASER Series 2000 are clearly displayed on the ECOCONTROL 6000



Swivel gauge head function

Outstanding features

- State-of-the-art CCD line sensor technique combined with pulse-driven laser light sources
- Extremely short exposure times for the highest single value precision
- Complete processing of measured data in the measuring head, including statistics, standard deviation, trend and FFT analysis
- RS232 diagnosis interface
- Analog output or alternatively industrial fieldbus (e.g. Profinet IO, EtherNet/IP, Profibus-DP, CANopen, DeviceNet, OPC UA) (optional)
- Reliable SMD-technique, no moving parts
- No need for calibration
- Availability: 99.8 %

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Certified according to
DIN EN ISO 9001

Technical Data LASER Series 2000

Product Name	Product Diameter	Accuracy*	Repeatability	Dimensions
LASER 2005 XY	0.05 - 5 mm	± 0.25 µm	± 0.1 µm	140 x 140 x 63 mm
LASER 2010 XY	0.2 - 10 mm	± 0.5 µm	± 0.1 µm	140 x 140 x 62 mm
LASER 2030 XY	0.2 - 25 mm	± 1.0 µm	± 0.2 µm	468 x 285 x 37 mm
LASER 2050 XY	0.5 - 50 mm	± 2.5 µm	± 0.5 µm	468 x 285 x 37 mm
LASER 2100 XY	1.0 - 100 mm	± 5.0 µm	± 1.0 µm	714 x 633 x 55 mm
LASER 2200 XY	5.0 - 190 mm	± 10.0 µm	± 2.0 µm	714 x 633 x 55 mm
LASER 2300 XY	50 - 300 mm	± 20.0 µm	± 4.0 µm	920 x 920 x 133 mm
LASER 2010 T	0.2 - 10 mm	± 0.5 µm	± 0.1 µm	250 x 182 x 62.5 mm
LASER 2025 T	0.2 - 25 mm	± 1.0 µm	± 0.2 µm	360 x 290 x 38.5 mm
LASER 2050 T	0.5 - 50 mm	± 2.5 µm	± 0.5 µm	472 x 496 x 41 mm
LASER 2100 T	1.0 - 100 mm	± 5.0 µm	± 1.0 µm	635 x 621 x 53 mm
LASER 2030 F/R	0.2 - 25 mm (round)	± 1 µm (round)		481 x 305 x 36 mm
	0.5 - 20 mm (flat: width)	± 5 µm (flat)		
	0.25 - 10 mm (flat: thickness)			
LASER 2050 F/R	0.5 - 50 mm (round)	± 2.5 µm (round)		481 x 305 x 36 mm
	1.0 - 50 mm (flat: width)	± 10 µm (flat)		
	0.5 - 25 mm (flat: thickness)			

Measuring Rate**

500 measurements/sec/axis

1,000 measurements/sec/axis for LASER 2050 T

1,200 measurements/sec/axis for LASER 2005 XY

Exposure Time

0.2 µs

Interfaces

Serial interface RS485, setup and diagnosis interface RS232

Optional: analog output or alternatively industrial fieldbus (e.g. Profinet IO, EtherNet/IP, Profibus-DP, CANopen, DeviceNet, OPC UA)

Power Supply

100 - 240 V AC ± 10 %, 50/60 Hz, 30 VA

* ± 0.01 % of the measured value

** higher measuring rates on request

Technical data is subject to change

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