

Monitoring of hot rolled rings

Industries: Metal
Application type: Monitoring

Description

Ring rolling mills are used to manufacture seamless rings from steel or other metals. A preformed blank is gradually shaped to the desired diameter and wall thickness by controlled pressure and rotational movements between a main rolling tool and counter-rollers. This process requires precise monitoring and control of the blank's dimensions and position to ensure the highest quality and efficiency.



Dimetix Laser Distance Sensors provide a reliable and non-contact measurement solution for monitoring and controlling the rolling process. In a ring rolling mill, these sensors are used for the following tasks:

During the rolling process, the outer diameter of the blank continuously changes. The Dimetix sensor precisely measures the current diameter in real time and transmits this data to the system control. This allows for early detection and correction of deviations, significantly improving process accuracy.

To ensure precise alignment of the blank during rolling, the sensor detects the ring's position and sends this information to the control system. This enables precise adjustments of the rolling parameters, preventing misalignment that could lead to irregular rings or material waste.

After the rolling process is complete, the Dimetix Laser Distance Sensor automatically measures the final dimensions of the finished ring. The recorded values are compared with the target specifications to ensure that all tolerances are met.



Customer Benefits:

- **High Precision:** Accurate measurements even on moving or hot objects.
- **Robustness:** Suitable for use in harsh industrial environments with high temperatures and dust exposure.
- **Easy Integration:** Compatible with industrial control systems for seamless process monitoring.
- **Production Optimization:** Reduction of waste and rework through continuous monitoring and adjustment of the rolling process.



DIMETIX APPLICATION EXAMPLE

AE-0217

Dimetix Sensors – the solution for applications with high precision requirements

Thanks to the clearly arranged product portfolio the evaluation of a suitable Dimetix Laser Distance Sensor is simple and uncomplicated.

Dimetix sensors offer numerous features, which are integrated in each and every device as standard, including, among others, various interfaces like SSI, RS-422/485, RS-232 and 2 digital outputs.

Optionally, the Industrial Ethernet interfaces PROFINET, EtherNET/IP and EtherCAT are also available. Furthermore, all devices are IP65-protected and impress with a weight of less than 500 grams!

Particularly noteworthy, however, is the accurate measurement of 1 millimeter over distances of up to 500 meters, even under the most extreme conditions. This is possible with the sensors of the types DPE, DEN and DEH.

No less interesting are sensors of types DAE, DAN and DBN. Preferably, they can be used for projects which do not require a range over 500 meters or are cost-sensitive.

	DPE-10-500	DPE-30-500	DEN-10-500	DEH-30-500
PARTNUMBER	500630	500636	500637	500638
SPECIFICATION				
Typical accuracy $\cong \pm 2\sigma$	± 1 mm	± 3 mm	± 1 mm	± 3 mm
Mensurierung range on natural surfaces	0.05...~100 m	0.05...~100 m	0.05...~100 m	0.05...~100 m
Measuring range on reflective foil	~0.5...500 m	~0.5...500 m	~0.5...500 m	~0.5...500 m
Max. measuring rate	250 Hz	250 Hz	100 Hz	100 Hz
Operating temperature	-40...+60°C	-40...+60°C	-10...+50°C	-10... +60°C

	DAE-10-050	DAN-10-150	DAN-30-150	DBN-50-050
PARTNUMBER	500633	500632	500634	500635
SPECIFICATION				
Typical accuracy $\cong \pm 2\sigma$	± 1 mm	± 1 mm	± 3 mm	± 5 mm
Mensurierung range on natural surfaces	0.05...~50 m	0.05...~100 m	0.05...~100 m	0.05...~50m
Measuring range on reflective foil	~40...50 m	~40...150 m	~40...150 m	
Max. measuring rate	100 Hz	100 Hz	100 Hz	10 Hz
Operating temperature	-40...+60°C	-10...+50°C	-10...+50°C	-10...+50°C