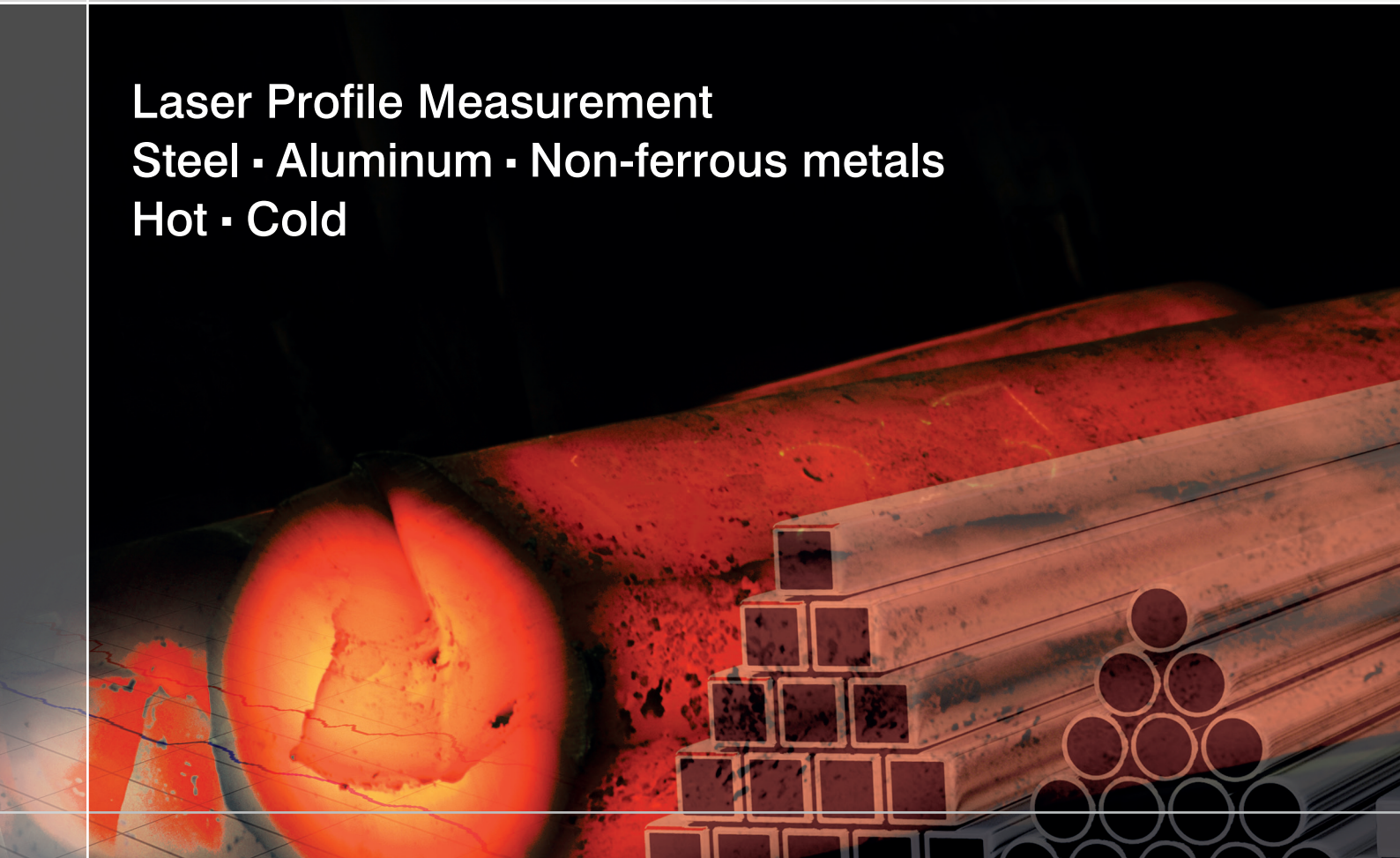
MICRO-EPSILON

Measuring and Inspection Systems for Long Products

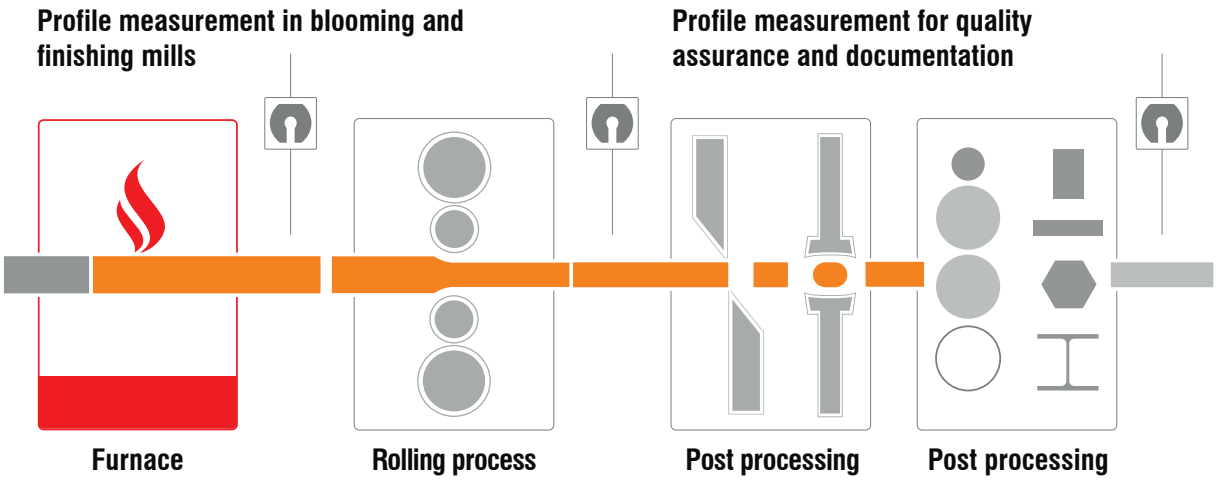
Laser Profile Measurement
Steel · Aluminum · Non-ferrous metals
Hot · Cold



Innovation

Laser-Line Profile Measurement

A Better Solution for Your Rolling Line



dimensionCONTROL MPG

Optical measuring systems from Micro-Epsilon Messtechnik stand out in the metal industry all over the world due to their performance. Laser profile gauges of the **dimensionCONTROL Metal Profile Gauge (MPG)** series help optimize the production of long products by measuring a wide range of dimensions and features.
At various positions along the rolling line, they provide essential information for **process control, quality assurance and good/bad decisions.**

The range of possible profile shapes to be measured is covered by a product portfolio which includes different technologies from ThruBeam sensors to red and blue laser sensors in order to have the optimum solution for each application right at hand.

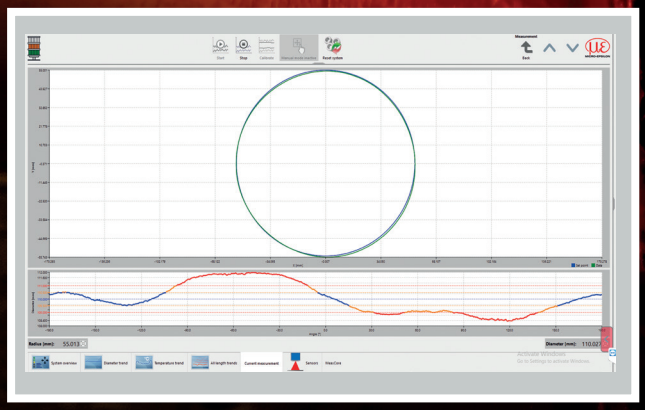
Even under the harshest conditions in the hot rolling sector, the systems operate with impressive precision.

Integrated, fully automatic calibration compensates for the temperature-related, potential long-term drift of the mechanical structure.

The 9208 models feature water cooling to generate reliable measurement results even at material temperatures above 1000 °C.

System

dimensionCONTROL MPG



Radius vs. angle

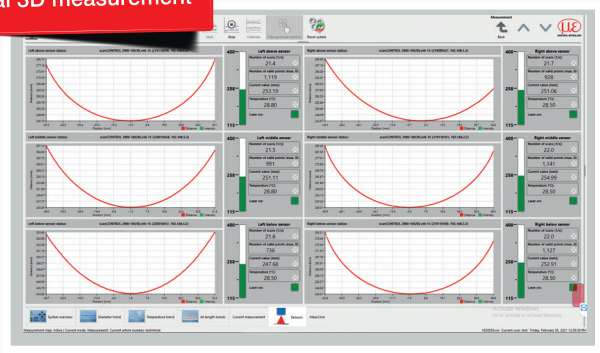
dimensionCONTROL MPG 9208

3D MEASURING AND INSPECTION SYSTEMS

The MPG 8208 and MPG 9208 systems are designed as horseshoe frames and are individually integrated into the line. Inside the frame are six laser line triangulation sensors and a fully automated calibration system.

The lasers project straight lines onto the surface to be measured. These lines are deformed from the camera's point of view. The basic calibration of the sensor serves as a reference to convert the deviation into concrete measured values. In challenging environmental conditions such as heat, the sensor system is protected from the environmental influences by complex, integrated cooling systems.

Real 3D measurement



Measured values of individual sensorst

Advantages:

- Real 3D measurement with axis correction of potentially curved measuring objects
- Compact design for easy integration into the line
- Comprehensive software package for monitoring and optimization of production
- Non-contact infrared temperature measurement can be integrated
- Extensible with ThruBeam sensors, red or blue laser line profile sensors
- Pneumatic protection of sensor lenses
- Flexible interface for communication with production

Applications:

- Continuous measurement, as well as fast feedback when intervention and tolerance limits are exceeded enables optimization of product quality
- Registration and logging of process data for 100% quality control and documentation
- Significantly reduces retooling time when changing the product
- No more manual measurements on hot materials increases safety

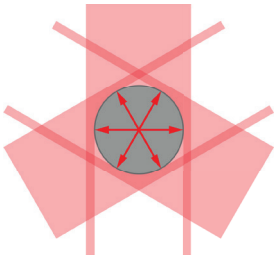
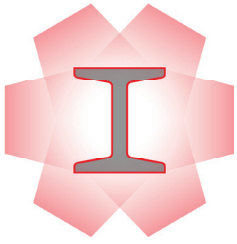
Technology

dimensionCONTROL MPG ODC, LLT

MPG 8208 ODC

MPG 8208 LLT

MPG 9208 LLT

Measuring range	up to 500 mm	130 mm	130 mm
Measurement accuracy	up to +/- 10 µm	up to +/- 50 µm	up to +/- 50 µm
Number of axes	1-3	unlimited	unlimited
Width Height Depth Weight	1100 mm 960 mm 200 mm 120 kg	1100 mm 960 mm 200 mm 120 kg	1100 mm 960 mm 200 mm 150 kg
Passline height	constant	variable	variable
Axis correction	no	yes	yes
Cooling	Air cooling	Air cooling	Water cooling
Pyrometer	optional	optional	optional
Laser system	 Measurement of discrete diameters	 360° profile measurement	 360° measurement of glowing profile using blue laser
Profile types	Wire Bar Rebar Tube 	 Any profile, e.g., (double) T or U profiles	 Any profile, e.g., (double) T or U profiles

Micro-Epsilon

Sensors & Systems in the Metals Industry

THICKNESS MEASUREMENT - FLAT PRODUCTS

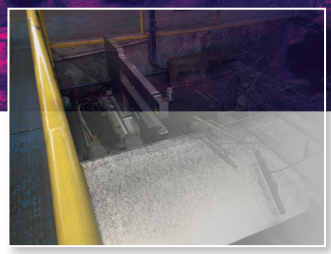
Micro-Epsilon offers innovative, optical thickness gauges for the production and processing of flat products.
Our product portfolio includes C- and O-frame systems that impress with their precision and stability even under the most difficult process conditions.

They offer different working modes and allow the measurement of center thickness, cross profile, wedge and crown bow, as well as width and cambering.

Heavy plate - thickness profile

Heavy plate - edge profile

Aluminum slab - thickness profile

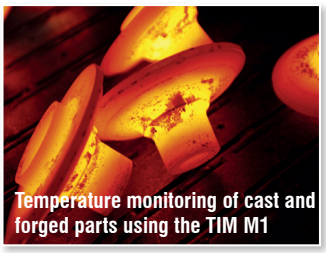


Hot-dip galvanizing line - thickness profile

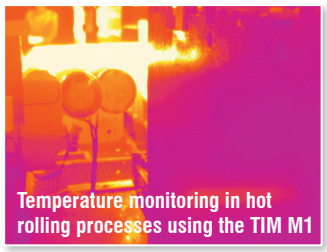
Levelling line - thickness profile

Longitudinal slitting shears - thickness profile

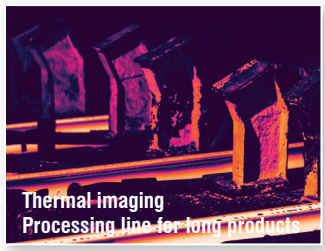
INFRARED TEMPERATURE MEASUREMENT WITH METALS



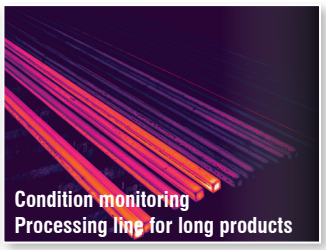
Temperature monitoring of cast and forged parts using the TIM M1



Temperature monitoring in hot rolling processes using the TIM M1

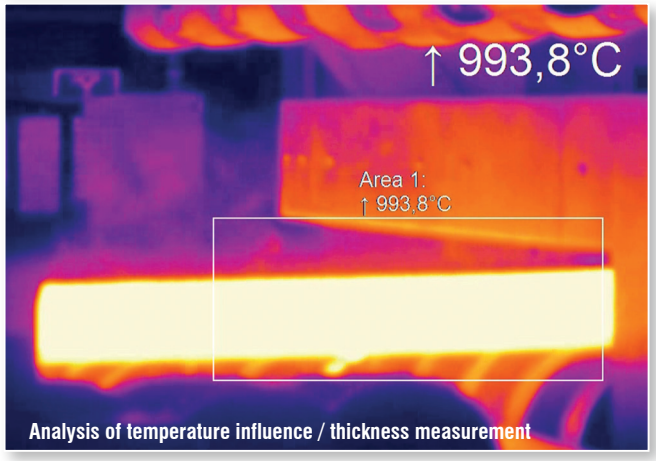


Thermal imaging
Processing line for long products



Condition monitoring
Processing line for long products

Infrared temperature sensors and thermal imaging cameras from Micro-Epsilon are frequently used for monitoring and control purposes in metal production processes. Numerous models, equipment options and a comprehensive interface concept enable their fast and easy integration in different measuring positions. Thermal imaging cameras are especially used for control and condition monitoring of processes and of semi-finished parts. They measure from a safe distance to the measuring object, record temperature values and can be directly integrated into the control system.



Analysis of temperature influence / thickness measurement

References

MICRO-EPSILON

More precision for Added Value

Performance and quality, as well as reliability of products and services have made Micro-Epsilon Messtechnik GmbH & Co. KG one of the leading suppliers of inspection systems for optical thickness measurement used in the metals industry. Installations in more than 13 countries all over the world placed in hot mills, cold mills and process lines speak for themselves. The development of all required core components such as sensors, software and measurement-specific mechanical design inside the company group provides unique innovative skills which are mirrored in the product portfolio of Micro-Epsilon.

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