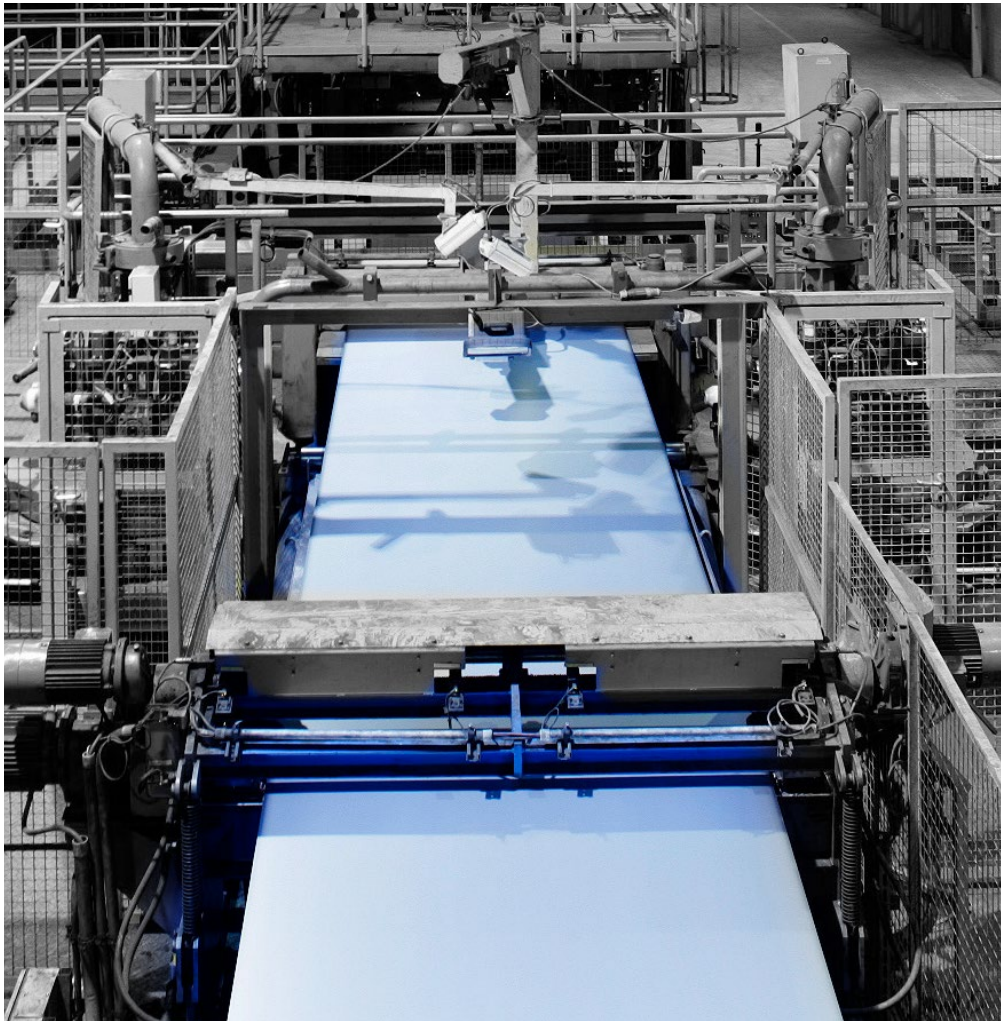
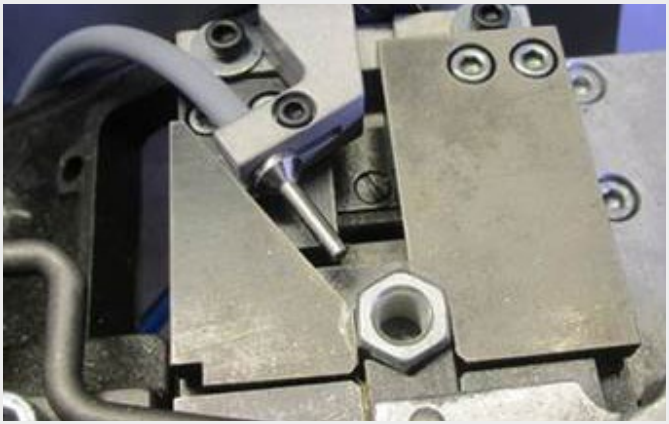
Sensors & Applications
Surface Finishing

MICRO-EPSILON



More Precision

Recognition and
distinction of colors



Distinction of shiny nuts

In fully automatic machining centers, the reliable distinction of supplied parts is state of the art. Measurement objects with shiny surfaces in particular place high demands on sensors. Here, colorSENSOR CFO100 sensors are used to reliably differentiate between glossy nuts made of aluminum and tin. Therefore, an optical fiber is guided to the measuring point. The high accuracy of the CFO100 sensor then enables the reliable detection of the respective metal and transfers the measured value to the processing machine.

Sensor: colorSENSOR CFO100

Inspection of the interior coating in aluminum cans

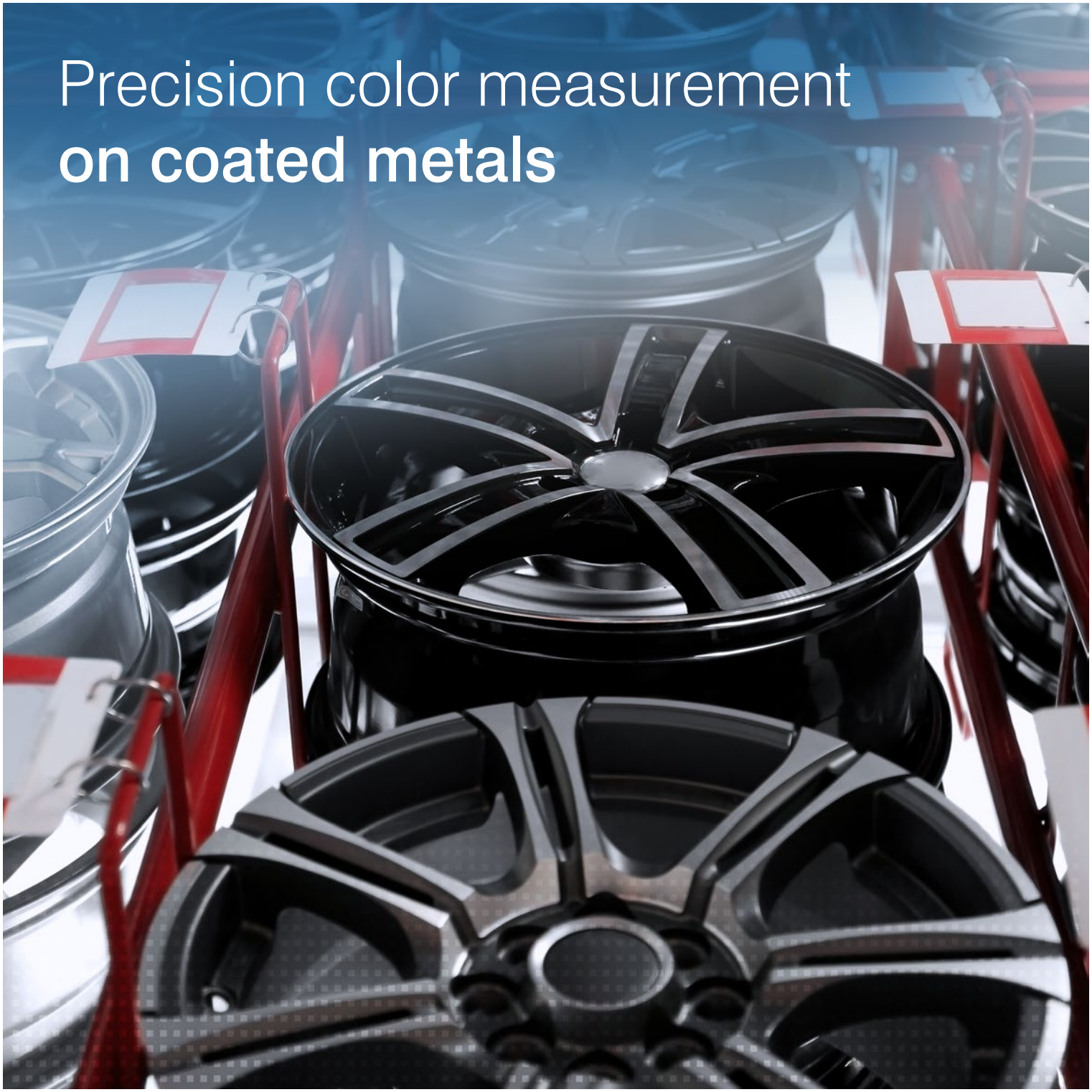
Aluminum cans are painted inside and outside. This transparent varnish protects the can from corrosion and reactions with the filling media. For presence monitoring of the interior varnish, colorSENSOR CFO200 color sensors are used which check the presence of the interior varnish using fiber optic sensors.

Sensor: colorSENSOR CFO200

colorSENSOR CFO100 / CFO200

- High measurement speed for dynamic processes
- Large color memory for different test batches
- High color accuracy
- High measuring rate, ideal for quality assurance and documentation in the processing line

Precision color measurement **on coated metals**



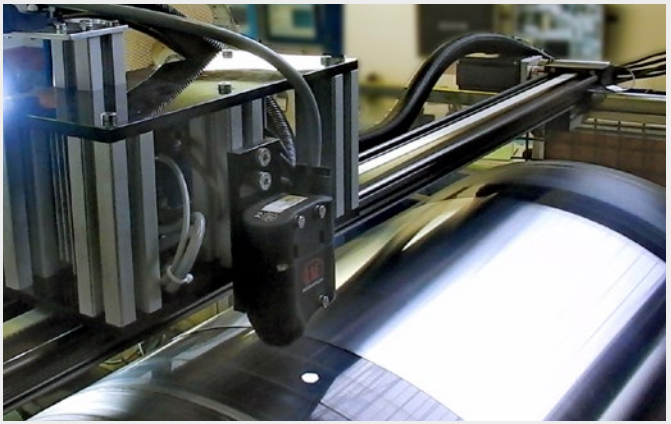
colorCONTROL ACS7000

- Inline color measurement at the highest precision
- Optimized sensor models for different surfaces, e.g. reflecting, transparent, curved
- High measuring rate, ideal for quality assurance and documentation in the processing line

Color distinction of aluminum rims

In the automatic inspection of incoming goods, identical color shades must be assigned reliably in order to be able to match identical color pairs. For fully automatic recognition of colors, the colorCONTROL ACS7000 color measuring system is used. It recognizes bright and dark color shades in order to ensure the reliable assignment of relevant color shades.

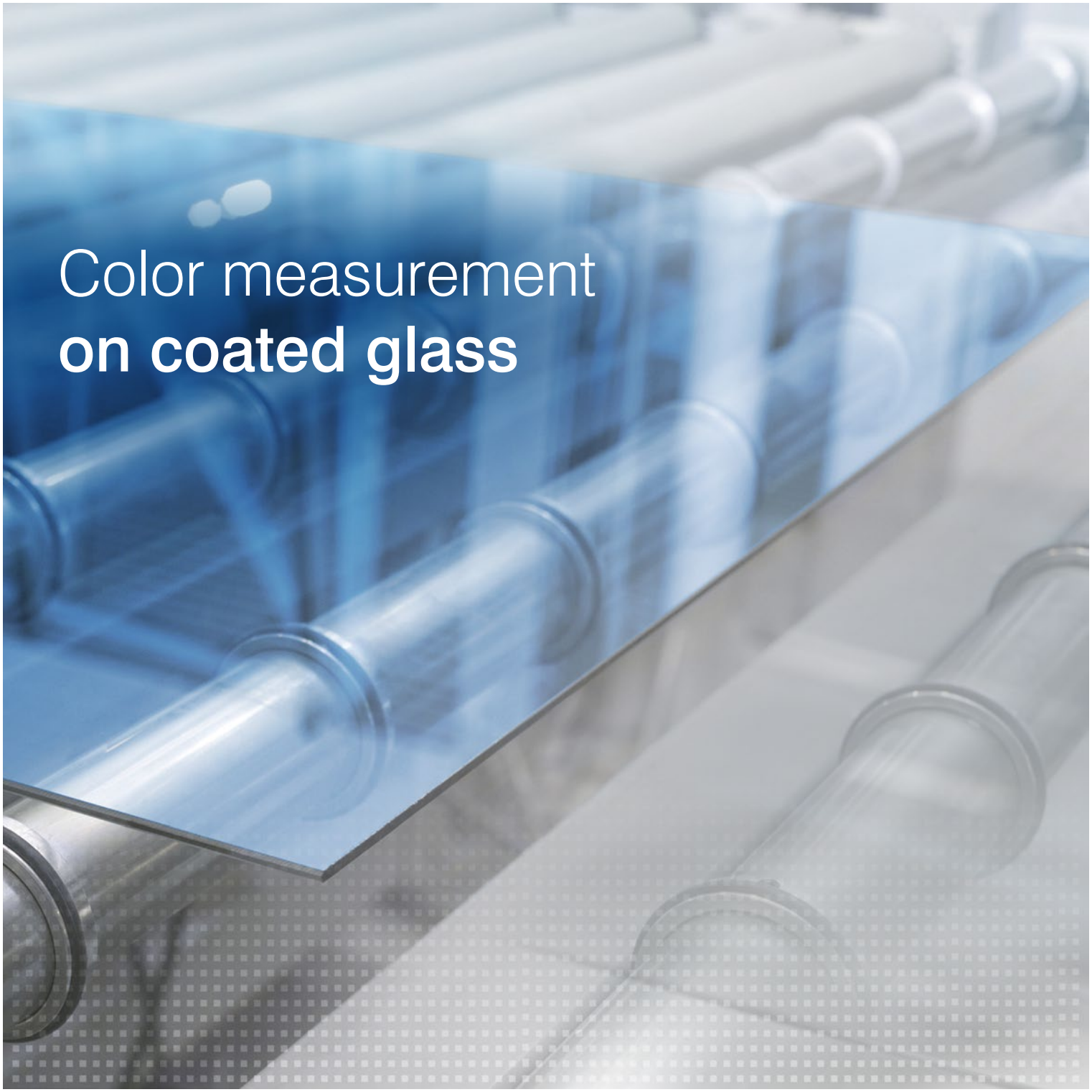
Sensor: colorCONTROL ACS7000



Color measurement on coated metal strips

When coating steel, titanium and aluminum, metal strips not only receive protection against corrosion and wear, but also a defined color. The color shade is measured in strip systems after they had gone through a coating process. Due to the high requirements in terms of accuracy and dynamics, colorCONTROL ACS7000 is used in this application. This color spectrometer is ideal for integration into processing lines while offering excellent color accuracy, different interfaces for integration purposes and high measurement speed.

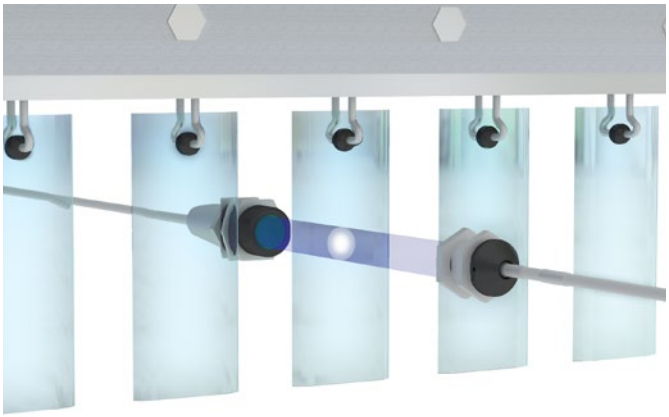
Sensor: colorCONTROL ACS7000


Color measurement
on coated glass

Recognition of anti-reflection coating on lenses

Optical surfaces of many lenses have an anti-reflection coating which should reduce surface reflections. These anti-reflective layers must be applied evenly; otherwise undesired color gradients may occur which might impair the function of the lens. In order to inspect the visual color impression (green-blue for highly sophisticated coatings) and the coating quality, colorSENSOR CFO200 color sensors are used. Equipped with the A1.1 sensor head (total reflection/angle of incidence=angle of reflection). Due to the high resolution, they detect even the slightest of color variations reliably.

Sensor: colorSENSOR CFO200



Color shade inspection of flat glass

The color of glass is the crucial and visually distinctive feature of many different glass products. This is particularly true with raw materials based on varying compositions, where continuous and objective control of the color effect is a decisive factor in consistent, homogeneous quality. Color sensors from Micro-Epsilon are used in order to inspect glass colors and glass shades in the production process. Combined with an ACS3 transmitted-light sensor head, the ACS7000 color measuring system detects the exact color shade of flat and display glasses and then transmits the color values to the higher-level control system.

Sensor: colorCONTROL with the ACS3 sensor head

colorCONTROL ACS7000 + ACS3

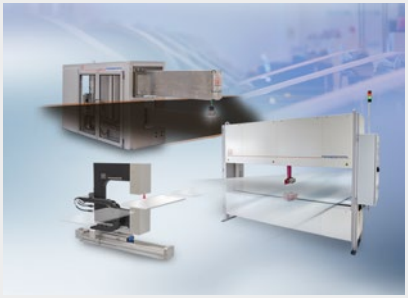
The ACS3 transmission sensor is used in color measurements of transparent objects. A transmitter illuminates a (semi-)transparent measurement object. The receiver records the color while the controller evaluates it. The spectral measuring procedure enables the measurement of colors, shades, contrasts and coatings at high resolutions.

Due to their high measuring rate, colorCONTROL ACS7000 color measuring systems are also used in dynamic processes.

Sensors and Systems from Micro-Epsilon

Sensors and systems for displacement, distance and position

Sensors and measurement devices for non-contact temperature measurement



Measuring and inspection systems for metal strips, plastics and rubber

Optical micrometers and fiber optics, measuring and test amplifiers

Color recognition sensors, LED analyzers and inline color spectrometers

3D measurement technology for dimensional testing and surface inspection

More Precision

Whether it is for quality assurance, predictive maintenance, process and machine monitoring, automation or R&D – sensors from Micro-Epsilon make a vital contribution to the improvement of products and processes. High precision sensors and measuring systems solve measurement tasks in all core industries – from machine building to automated production lines and integrated OEM solutions.

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