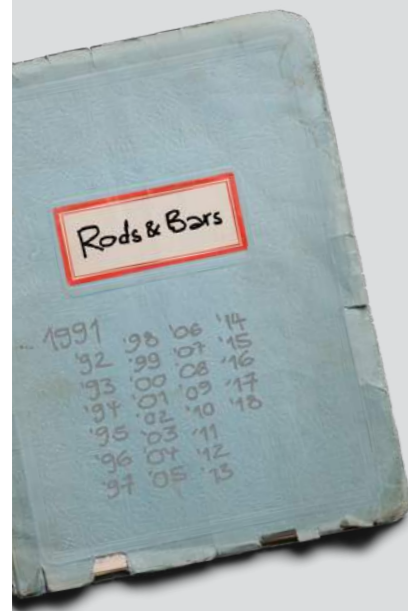


# CONTOUR CHECK

REAL-TIME LASER PROFILE MEASUREMENT





## QUALITY AND EXPERIENCE SINCE 1984

LAP laser measurement systems are successfully used worldwide in metals industries, mostly in steel industry. They prove themselves daily in the harsh environment of rolling mills and in similar working conditions. LAP profile measurement systems have been a part of it from the beginning – first with analog sensors, intricate frames and customized software for every customer. Today our systems are equipped with digital laser technology, decoupled carrier frame in solid steel housing with fixed or turning measuring axes, modular software and intuitive user interface with selectable views of profile, process and statistics. Furthermore, our systems are equipped with air purge for cleaning the sensor windows and staying in the temperature range for safe operation and always with minimal maintenance effort. LAP is always here with an open ear for you, our customers, and your special requirements.

# LAP CONTOUR CHECK

Wire, rod, bar, tubes – CONTOUR CHECK is THE solution for inline measurement of long products before, during or after rolling. Profiles may be round, square or hexagonal, glowing, hot or cold – CONTOUR CHECK measures relevant dimensions, detects changes in shape, rolling defects and defects of surface. The system provides warnings if tolerances are exceeded so you can intervene before scrap is produced. Start-up times after product changes are reduced substantially by measuring from the first moment material comes through.



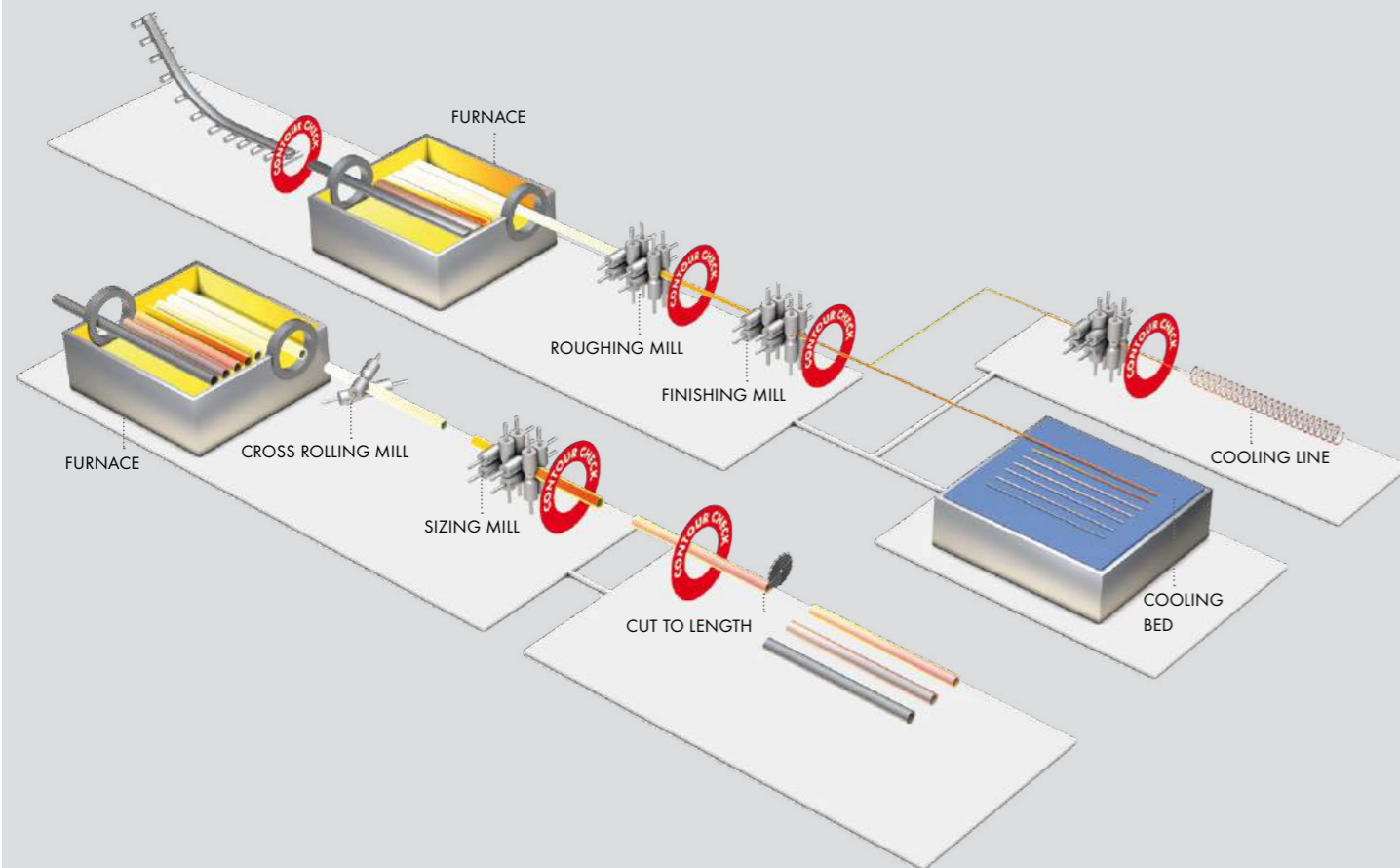
CONTENT	PAGE
The right solution for your rolling mill	4
Process optimization and quality control	5
CONTOUR CHECK WIRE	6
CONTOUR CHECK BAR & TUBE	10
CONTOUR CHECK ROUND & EDGE	14
CONTOUR CHECK SHAPE	18
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System overview	28
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# THE RIGHT SOLUTION FOR YOUR ROLLING MILL

LAP CONTOUR CHECK provides all the information needed for fast and precise adjustment of rolling lines. Depending on model, it can measure rounds, rebar, flats, squares, hexagons, L-, U-, T-, H-shaped profiles or even rails. The patented TrueShape technology allows precise measurement of three-lobed or polygonal rounds, and of

single-sided over- or underfill. Off-size conditions are immediately displayed and allow corrections during the runtime of a billet. Elimination of sample cutting reduces the ramp-up time after size or product change. Precise determination of off-size lengths at head and tail allows crop-optimization, further increasing the yield.



## PROCESS OPTIMIZATION AND QUALITY CONTROL

Your customers' satisfaction depends on the quality of the products you provide. The quality depends on your control of the production process. For control you need precise, detailed, reliable information delivered in real-time. LAP CONTOUR CHECK provides this data for control and documentation.

- Real-time process monitoring
- Check dimensions and show trends
- Detect rolling defects and offer solutions
- Detect singular and periodic defects of surface
- Connect several CONTOUR CHECK systems for comprehensive process analysis

# CONTOUR CHECK BENEFITS



### MONITORING

CONTOUR CHECK shows you what happens in your production. You can see trends, implement corrective action and check the impact before exceeding a limit. If sudden errors occur, they are documented for later handling.



### QUALITY

Deliver optimum quality and stand out from your competitors. Quality equals saving money, as you increase efficiency and yield, and you reduce scrap as well as customer complaints.



### DOCUMENTATION

All data is recorded and saved to a database. You have access to parameters and measuring values for all jobs, batches and single products.



### ANALYSIS

Use filed data for precise analysis of production parameters. Save money by using the optimum parameter set. Detect weaknesses before they have visible impact on your production.



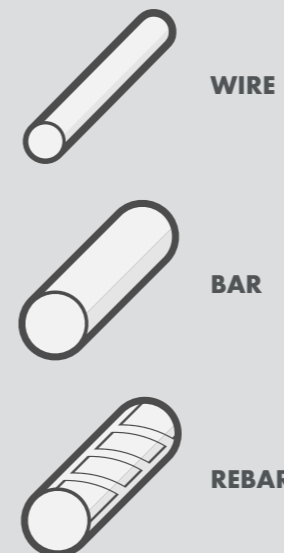
# CONTOUR CHECK WIRE

CONTOUR CHECK WIRE is a laser gauge profile measurement system that quickly and accurately quantifies the diameter for small round cross sections. In the version with 1 axis it can precisely measure wires. The CONTOUR CHECK WIRE with 2 or 3 axes is even suitable for hot bars and reinforced bars.





The compact industrial design and use of CONTOUR CHECK WIRE software optimized for monitoring rolling processes makes the WIRE gauge extremely reliable and easy to integrate into production control systems. It is cost-effective, fast, flexible and increases levels of accuracy and excellent returns on investment.

- Dimensional measurement of wires and reinforced bars
- Measurement range up to 45 mm
- Two economic housing types
- Thermal protection by airflow
- 1 axis for diameter measurement
- 2 or 3 axes for measuring the diameter and ovality
- C shape frame for easy installation or mobile measurement
- Dirt and humidity protection with permanent airflow (air purge)

## PRODUCT



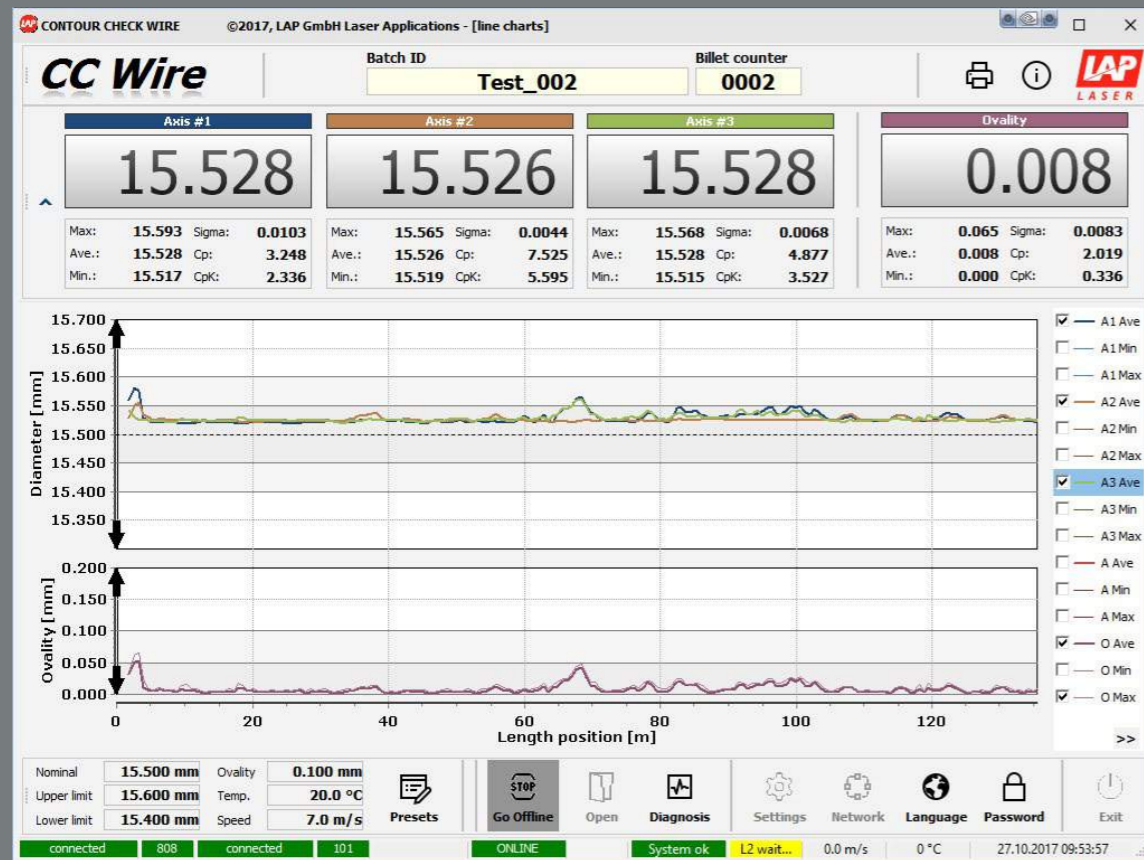
## BENEFITS

-  **COST-EFFECTIVE QUICK PAY OFF**
-  **FOR PRODUCTION LINES WITH LOW THROUGHPUT**
-  **FOR HOT AND COLD APPLICATIONS (MAX 1200 °C)**
-  **SMALL, MOBILE FRAME**

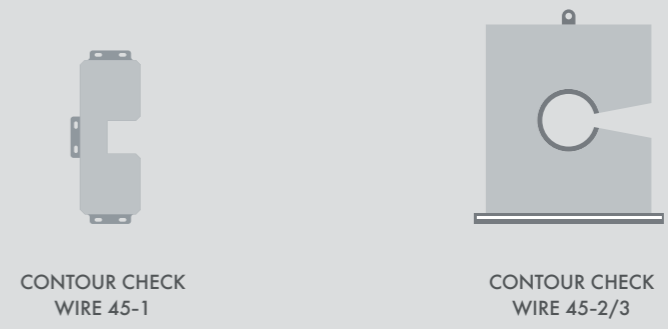


CONTOUR CHECK WIRE

# TECHNICAL DATA AND SOFTWARE



STANDARD VIEW FOR A 3 AXIS ROUND MEASUREMENT WITH CURRENT MEASUREMENT VALUES AND STATISTICS BY AXIS (TOP), LINE CHARTS FOR DIAMETER AND OVALITY (MIDDLE), NOMINAL AND LIMIT VALUES (BOTTOM LEFT) AND FUNCTION BUTTONS (BOTTOM RIGHT) DESIGNED FOR USE ON A TOUCH PANEL PC.



Scan field width	45 mm	45 mm
Accuracy up to	±15 µm	±15 µm
Number of axes	1	2-3
Frame width	255 mm	620 mm
Overall height	630 mm	710 mm
Overall depth [mm]	75 mm	150 mm
Inner diameter blower ring	100 mm	190 mm
Passline height	315 mm	358 mm

Blower	no	
Air cooling unit (optional, dimensioning depends on ambient conditions)	no	

**STANDARD**

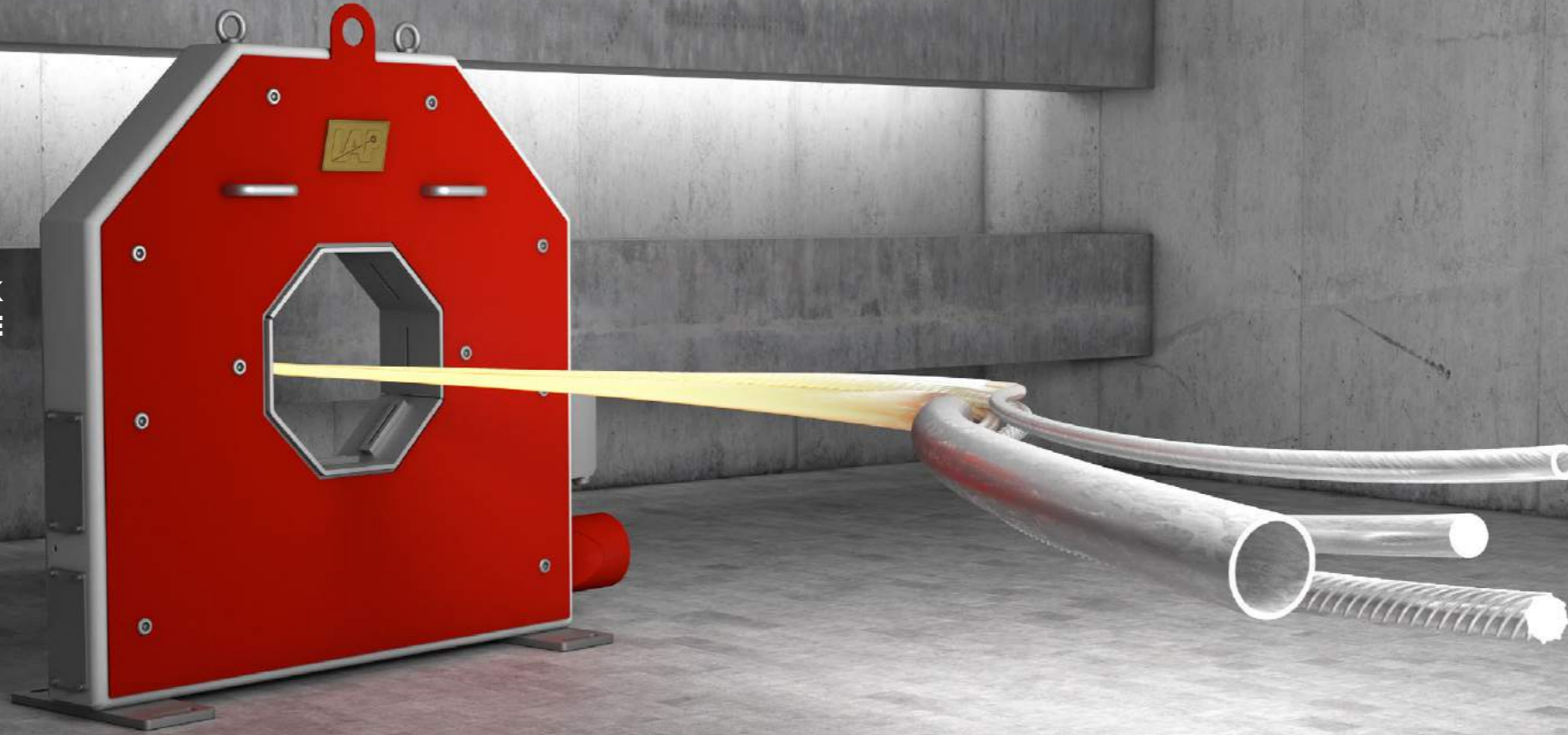
Measuring frame with sensors  
 Control box with integrated Panel PC with touchscreen  
 1 x Client Software license software  
 Cable between measuring frame and control box

**OPTIONAL**

Alarm contact ■ Speed and temperature (material temperature) monitoring  
 Ethernet interface for level 2 connection ■ Software for rebar/ribbed steel



## CONTOUR CHECK BAR & TUBE

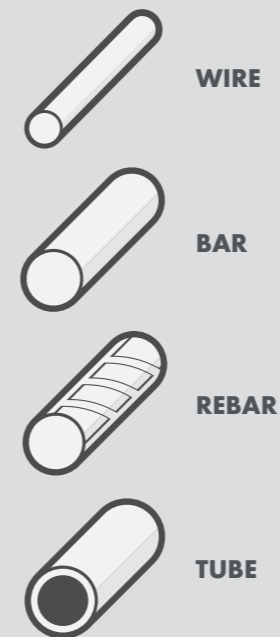


# CONTOUR CHECK BAR & TUBE


CONTOUR CHECK BAR & TUBE is a non-contact, scanning laser beam diameter measurement for mid-size round cross sections. The LAP profile measurement system provides all the information needed for fast and precise adjustment of rolling lines and can measure rounds and rebars. Elimination of sample cuttings reduces the ramp-up time after a size or product change and precise determination of off-size lengths at head and tail allows crop-optimization, further increasing mill yield. The CONTOUR CHECK BAR & TUBE is available with measuring ranges of 90 mm, 120 mm, 150 mm and can be exposed to material temperatures of up to 200 °C.

- Dimensional measurement of bars
- Measures diameter and ovality
- Measurement range of 90 mm / 120 mm / 150 mm
- Maximum material temperature 200 °C
- 2 or 4 axes
- Dirt and humidity protection with permanent airflow (air purge)

## PRODUCT



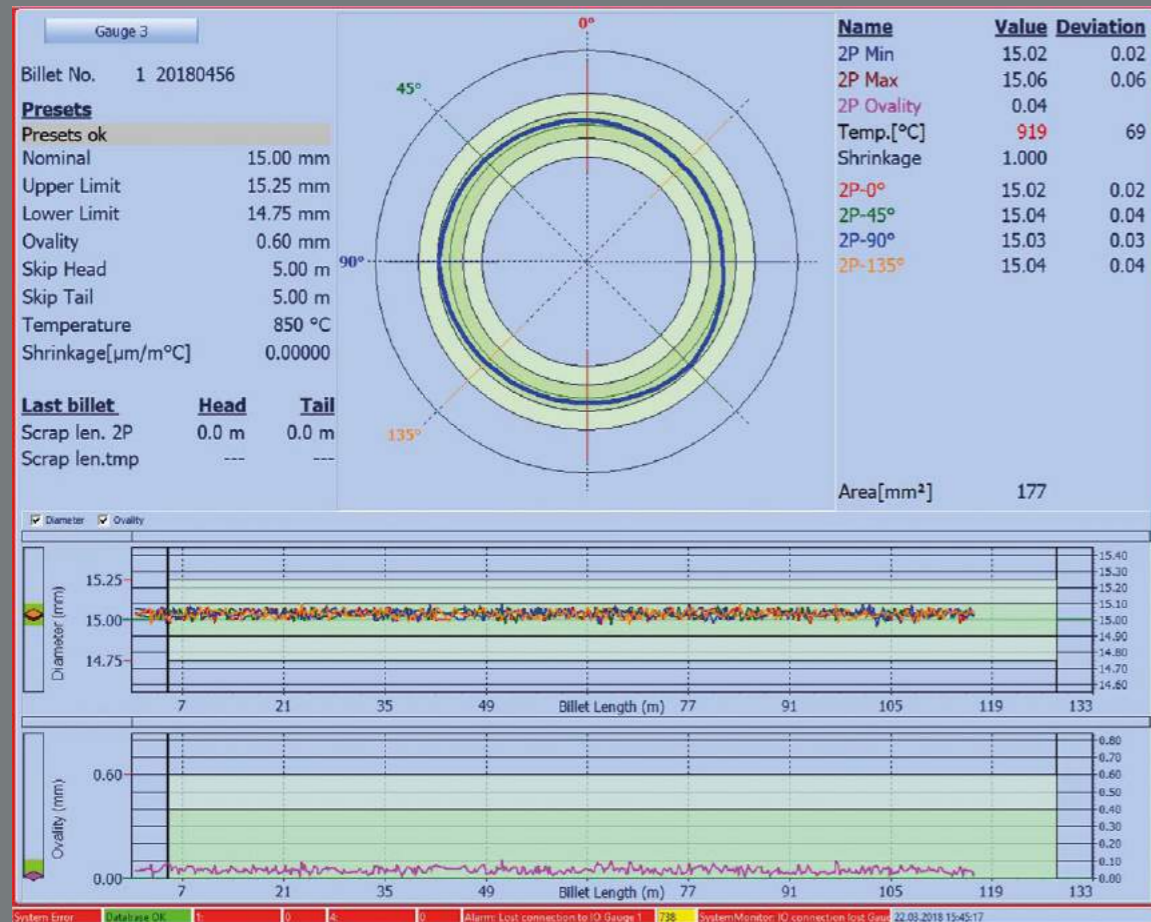
## BENEFITS

-  **SPECIALIZED IN BAR AND TUBE LINES WITH A MAX. MEASUREMENT RANGE OF 150 MM**
-  **QUICK AND EASY INSTALLATION IN EXISTING PRODUCTION LINE**
-  **COST-EFFECTIVE MEASUREMENT SOLUTION FOR PRODUCT UP TO 200 °C**
-  **DOCUMENTED QUALITY**

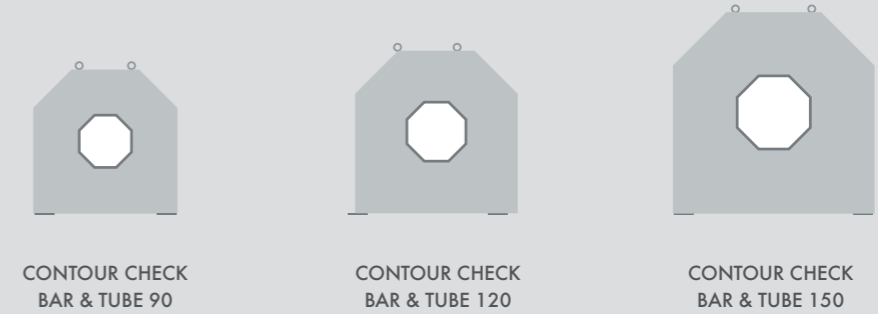


CONTOUR CHECK BAR & TUBE

# TECHNICAL DATA AND SOFTWARE

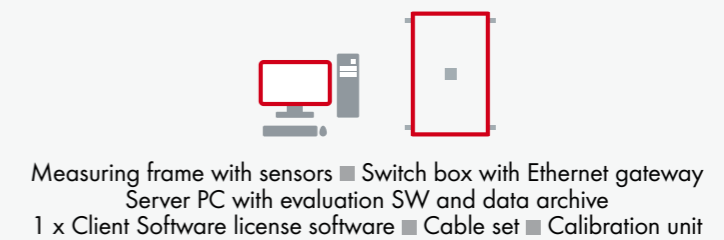


"CROSSSECTION" SCREEN DISPLAY: THE CORE DIMENSIONS ARE DISPLAYED IN THE VISUALIZATION AREA. THE STRUCTURE AND SCOPE OF THE SCREEN DISPLAYS CAN BE CONFIGURED.

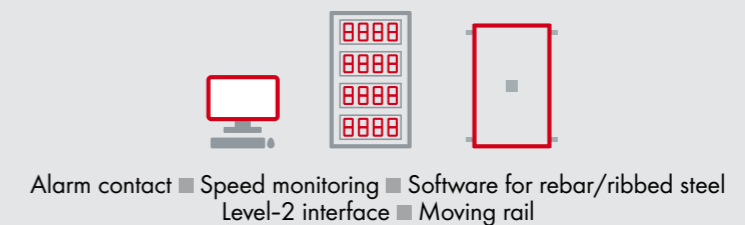


Scan field width	90 mm	120 mm	150 mm
Accuracy up to	$\pm 20 \mu\text{m}$	$\pm 25 \mu\text{m}$	$\pm 30 \mu\text{m}$
Number of axes	2 or 4	2 or 4	2 or 4
Frame width	1100 mm	1580 mm	1580 mm
Overall height	1194 mm	1674 mm	1674 mm
Overall depth [mm]	380 mm	380 mm	380 mm
Inner diameter blower ring	383 mm	583 mm	583 mm
Passline height	565 mm	805 mm	805 mm
Moving Rail (optional)	yes	yes	yes
Blower			
Air cooling unit (optional, dimensioning depends on ambient conditions)			
Pyrometer (optional)	no	no	no

STANDARD



OPTIONAL

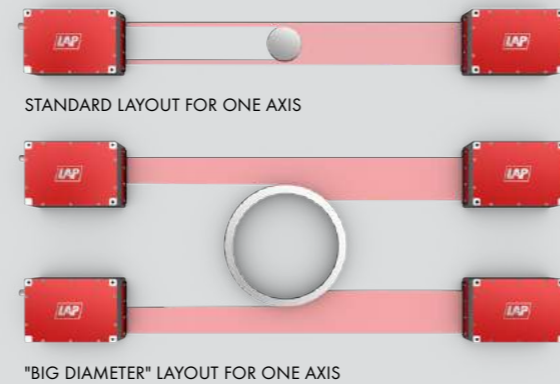


# CONTOUR CHECK ROUND & EDGE

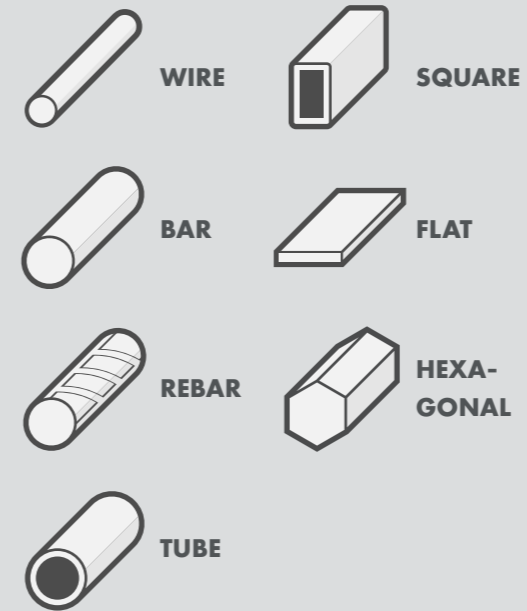
CONTOUR CHECK ROUND is the standard solution for dimensional measurement of round profiles and rebars up to 1200 °C. In the versions with 3 or 6 axes it can precisely measure 3-lobed shapes.

CONTOUR CHECK EDGE uses a set of sensors on a circular oscillating baseplate. This way square, flat or hexagonal profiles can also be handled. Both systems use LAP METIS laser micrometers, either in standard or in "big diameter" configuration.





- Slim housing, can be moved in and out of the production line on a rail
- Mechanically stress-free base plate carries sensors separated from the housing
- Thermal protection by airflow, heating optional

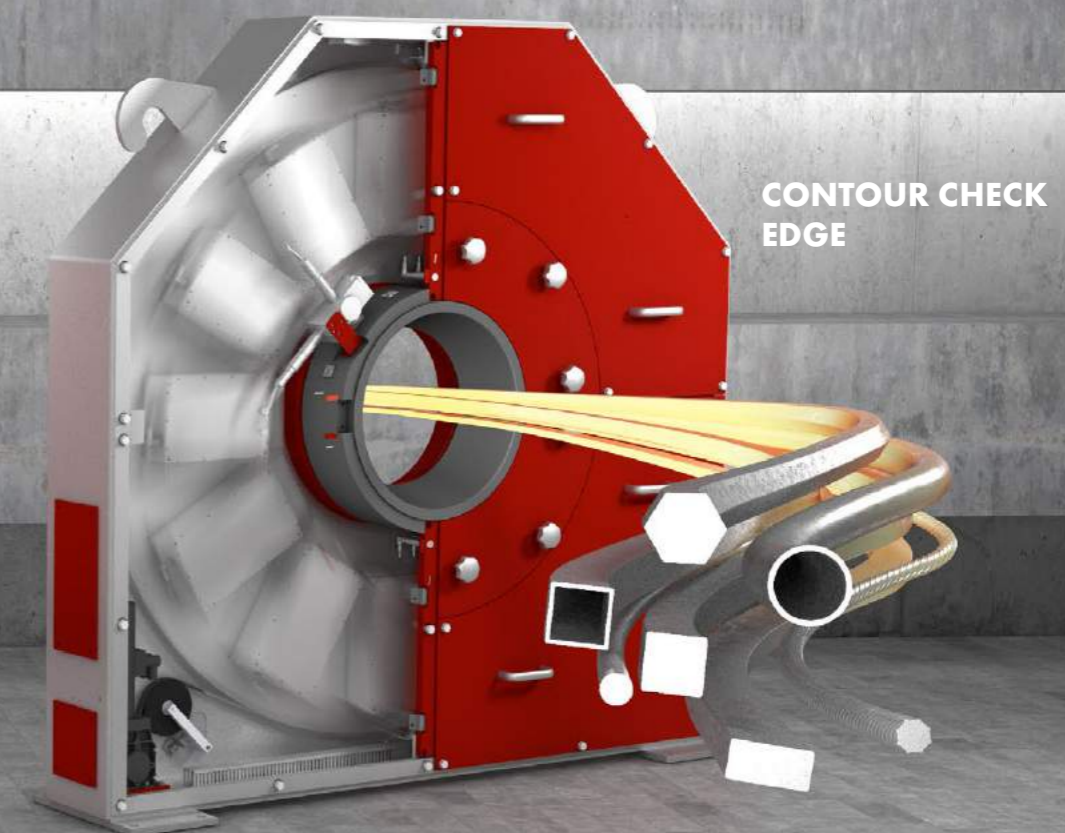
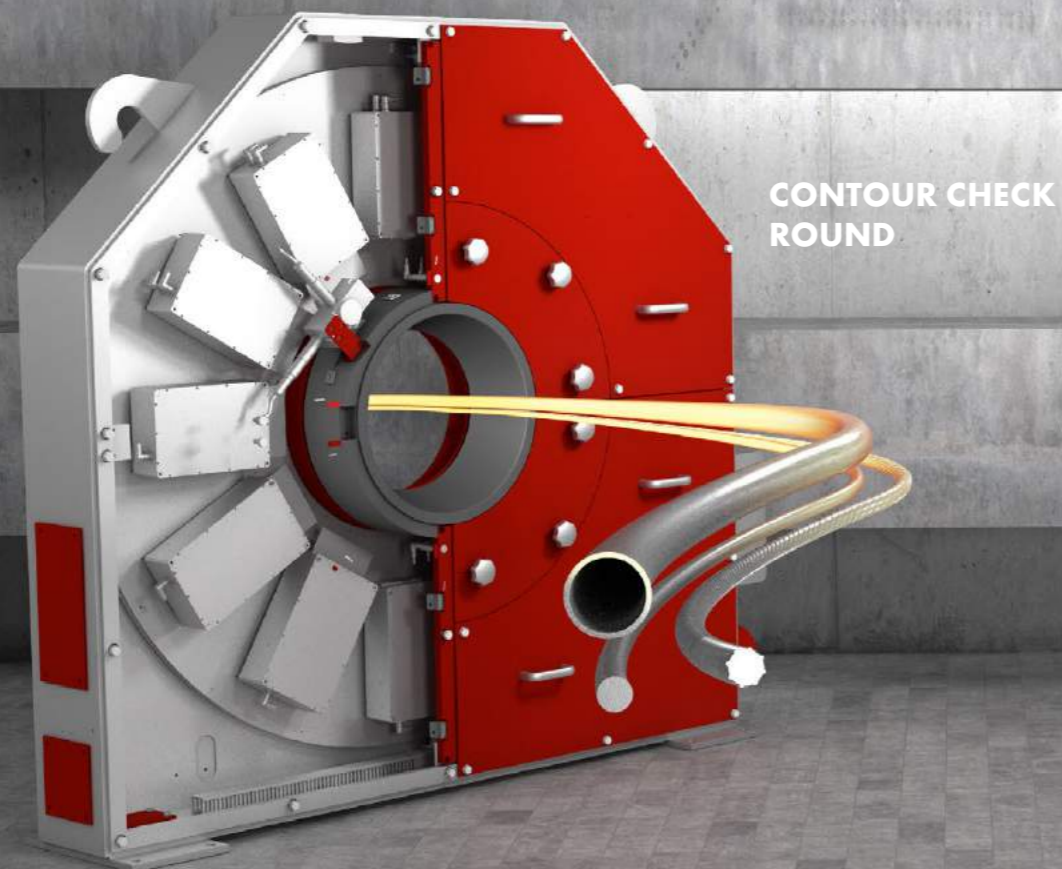


## PRODUCT



## BENEFITS

-  **STABLE DATA CAPTURING & PROCESSING FOR PRODUCTS UP TO 1200 °C**
-  **SUPERVISION: SHOW DEVIATIONS AND ERRORS OCCURRING DURING THE PRODUCTION PROCESS**
-  **INCREASED PRODUCT QUALITY**
-  **ASSURES MINIMAL PRODUCT CHANGEOVER TIMES**





**CONTOUR CHECK ROUND & EDGE**

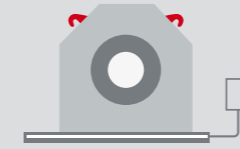
# TECHNICAL DATA



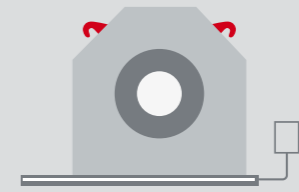
CONTOUR CHECK ROUND 45



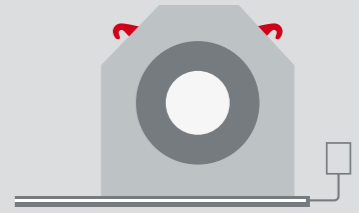
CONTOUR CHECK ROUND 90  
CONTOUR CHECK EDGE 90



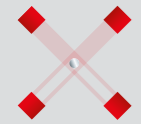
CONTOUR CHECK ROUND 120/150  
CONTOUR CHECK EDGE 120/150



CONTOUR CHECK ROUND 180/230  
CONTOUR CHECK EDGE 180/230



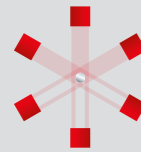
CONTOUR CHECK ROUND 500  
CONTOUR CHECK EDGE 500



2 AXES  
ROUND



DETECTABLE  
ROLLING DEFECTS



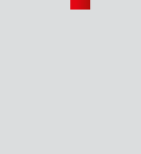
3 AXES  
ROUND



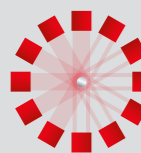
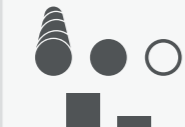
3 AXES  
EDGE



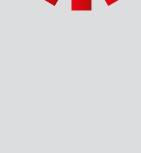
4 AXES  
ROUND



4 AXES  
EDGE



6 AXES  
ROUND



6 AXES  
EDGE



Scan field width	45 mm	90 mm	120 mm/150 mm	180 mm/230 mm	500 mm
Accuracy up to	±15 µm	±20 µm	±25 µm/±30 µm	±35 µm/±45 µm	±90 µm
Number of axes	2, 3, 4, 6	2, 3, 4, 6	2, 3, 4, 6	2, 3, 4, 6	2, 3, 4
Frame width	860 mm	1240 mm	1720 mm	2250 mm	2550 mm
Overall height	940 mm	1170 mm	1685 mm	2215 mm	2515 mm
Overall depth [mm]	81 mm/130 mm	302 mm	302 mm	302 mm	302 mm
Inner diameter blower ring	140 mm	350 mm	350 mm	450 mm	910 mm
Passline height	450 mm	570 mm	835 mm	1100 mm	1250 mm
Moving Rail (optional)	yes	yes	yes	yes	yes

Blower					
Air cooling unit (optional, dimensioning depends on ambient conditions)					
Pyrometer (optional)	yes	yes	yes	yes	yes

STANDARD

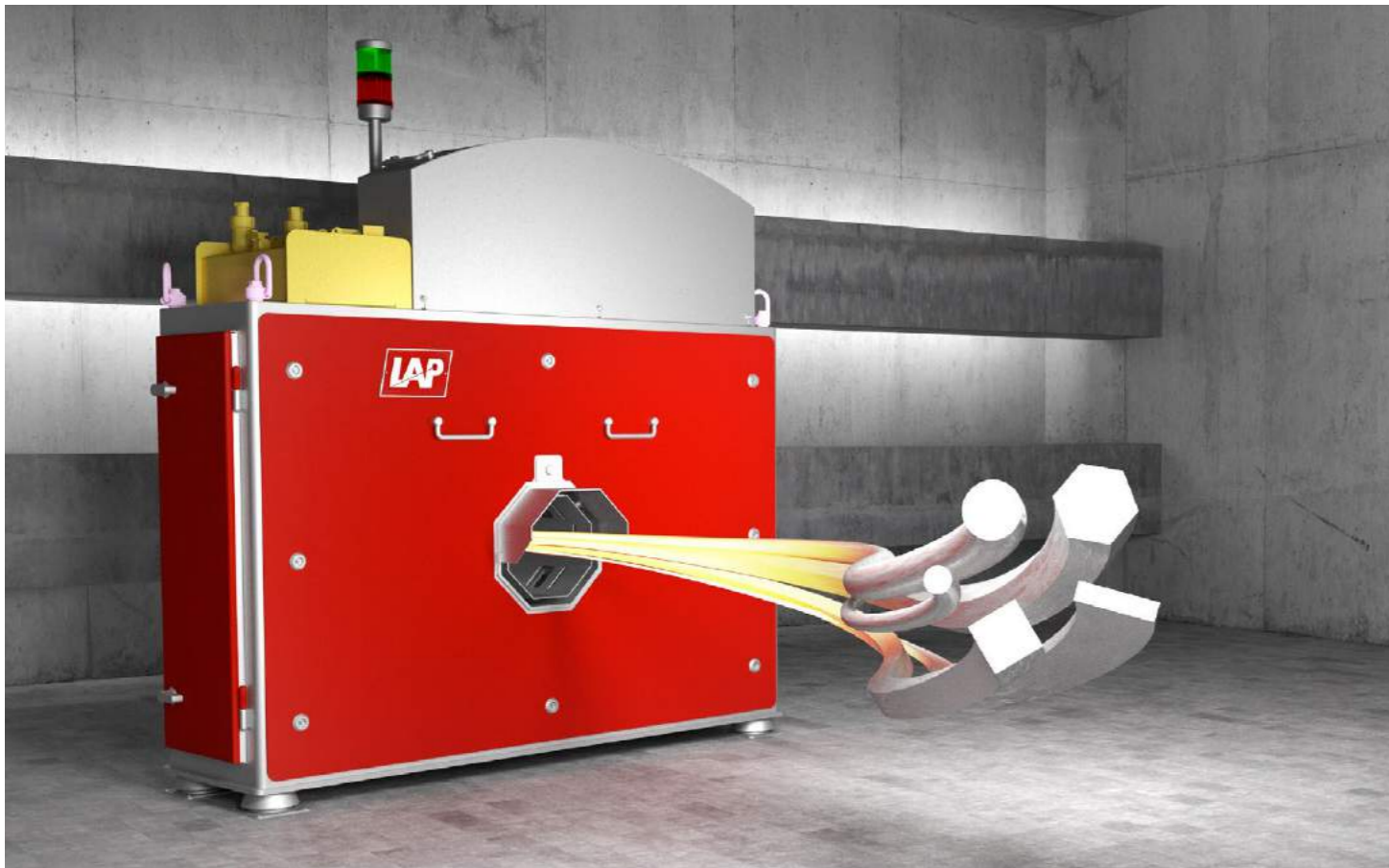
Server PC with evaluation SW and data archive & control cabinet  
Switchbox including Controller ■ Measuring rate: 800 Hz

OPTIONAL

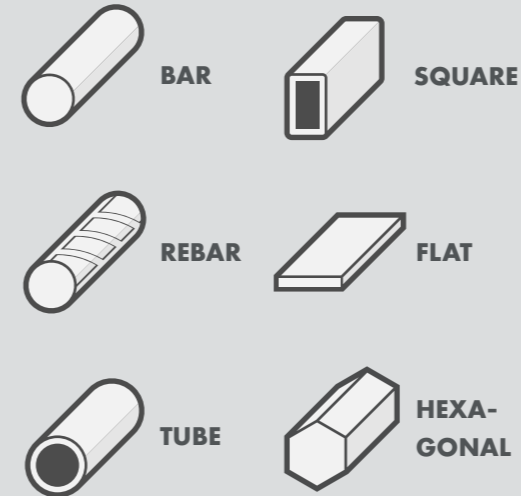
Control cabinet with external display ■ Software for standard profiles ■ Database  
Alarm reports ■ Temperature monitoring in frame

Software for 3-roll reducing/sizing technology ■ Software for rebar/ribbed steel  
Temperature monitoring of rolling stock ■ Uninterruptible power supply ■ Big Display (4 rows)  
Air conditioning unit for cabinet ■ Measuring rate 1600 Hz





## MEASURABLE PROFILES



## BENEFITS



IMPROVED PROCESS CONTROL



APPLICABLE TO MULTIPLE CONTOURS WITH A MAX. TEMPERATURE OF 1200 °C



SCRAP REDUCTION/ INSTANT RECOGNITION OF ANOMALIES



AUTOMATIC DETECTION OF IMPORTANT ROLLING DEFECTS

## CONTOUR CHECK SHAPE

CONTOUR CHECK SHAPE is a laser based measurement system for profiles and long products. The purpose of CONTOUR CHECK SHAPE is the control of all dimensions and detection of (dimensional) rolling defects during the production process of long products. The system can be applied for inline measurement of long products before, during or after rolling, and for both cold and hot material. The revised Rebar software offers even more measurement details for ribbed steel. The cameras are protected by 4 layers: heat-shield, airflow through frame (also used for air purging), airflow around sensor baseplate and water-cooling of the cameras. The laser lines are blue for optimal visibility on glowing surfaces.

The rugged, robust design of CONTOUR CHECK SHAPE is based on more than 30 years of experience of supplying systems for rolling mills.

- Standardized gauge with no moving parts
- Detection of size, geometry and defects of surface
- Temperature stabilized setup
- Supporting various profile types
- Closed thermal design for extreme conditions
- Standardized setup, measuring areas from 50 mm to 250 mm
- Virtually maintenance free
- High accuracy and simple calibration
- Intuitive software for visualization and documentation

## MEASURABLE DEFECTS OF SURFACE

An advantage of the Software is that production failures and their type can be recognized. Due to this feature CONTOUR CHECK SHAPE

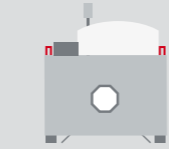
is able to provide useful information about the production failures. Also details like type and size of dimensional failure can be given out.





**CONTOUR CHECK SHAPE**

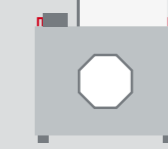
# TECHNICAL DATA



CONTOUR CHECK  
SHAPE 50





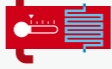

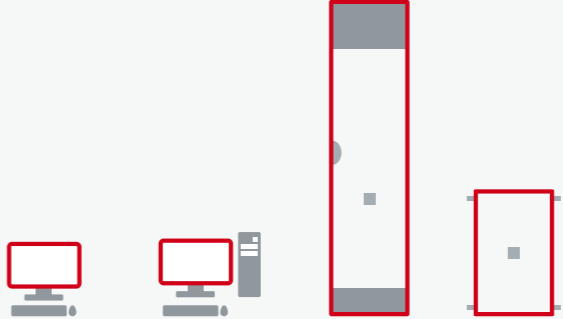


CONTOUR CHECK  
SHAPE 100



CONTOUR CHECK  
SHAPE 150



CONTOUR CHECK  
SHAPE 250

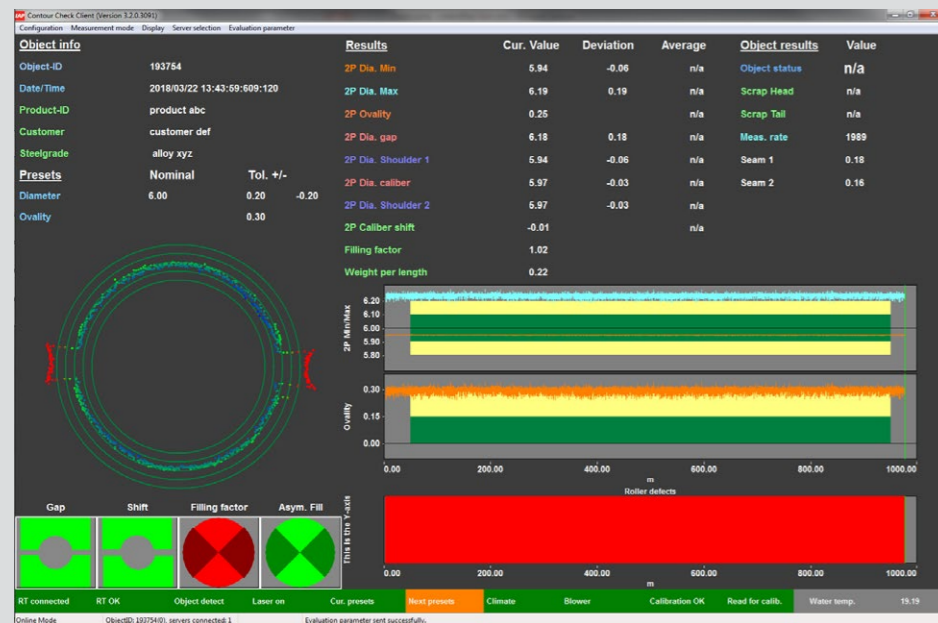
Scan field width	50 mm	100 mm	150 mm	250 mm
Measurement accuracy up to	±20 µm	±40 µm	±60 µm	±100 µm
Number of cameras	4	4	4	4
Frame width	1250 mm	1270 mm	1470 mm	1850 mm
Overall height	1460 mm	1580 mm	1800 mm	2200 mm
Overall depth	370 mm	470 mm	550 mm	650 mm
Passline height	450 mm	540 mm	640 mm	750 mm
Blower				
Air and water cooling unit (dimensioning depends on ambient conditions)				
Pyrometer (optional)	yes	yes	yes	yes
STANDARD	 <p>Control cabinet with external display ■ Switchbox including Controller ■ Software for standard profiles Database Alarm reports ■ Temperature monitoring in frame ■ Measuring rate: 1000 Hz</p>			
OPTIONAL	 <p>Multi-client software ■ Level-2 interface ■ Temperature monitoring of rolling stock Speed monitoring ■ Air-condition for cabinet Software for 3-roll reducing/sizing technology ■ Software for rebar/ribbed steel Uninterruptable power supply ■ Big Display ■ Measuring rate: 2000 Hz</p>			
DETECTABLE ROLLING DEFECTS				



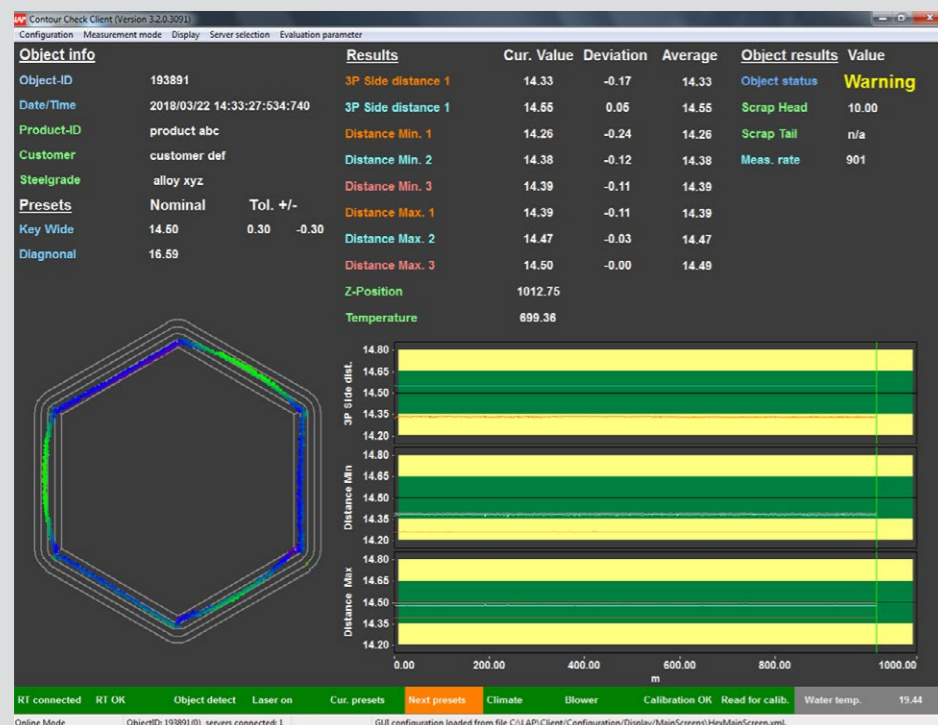
# CONTOUR CHECK SHAPE SOFTWARE

The functions and display of the new CONTOUR CHECK SHAPE software are optimized for monitoring rolling processes. The GUI offers the possibility to show line graphs, cross section, numerical values, visualization of rolling defects, tables and much more.

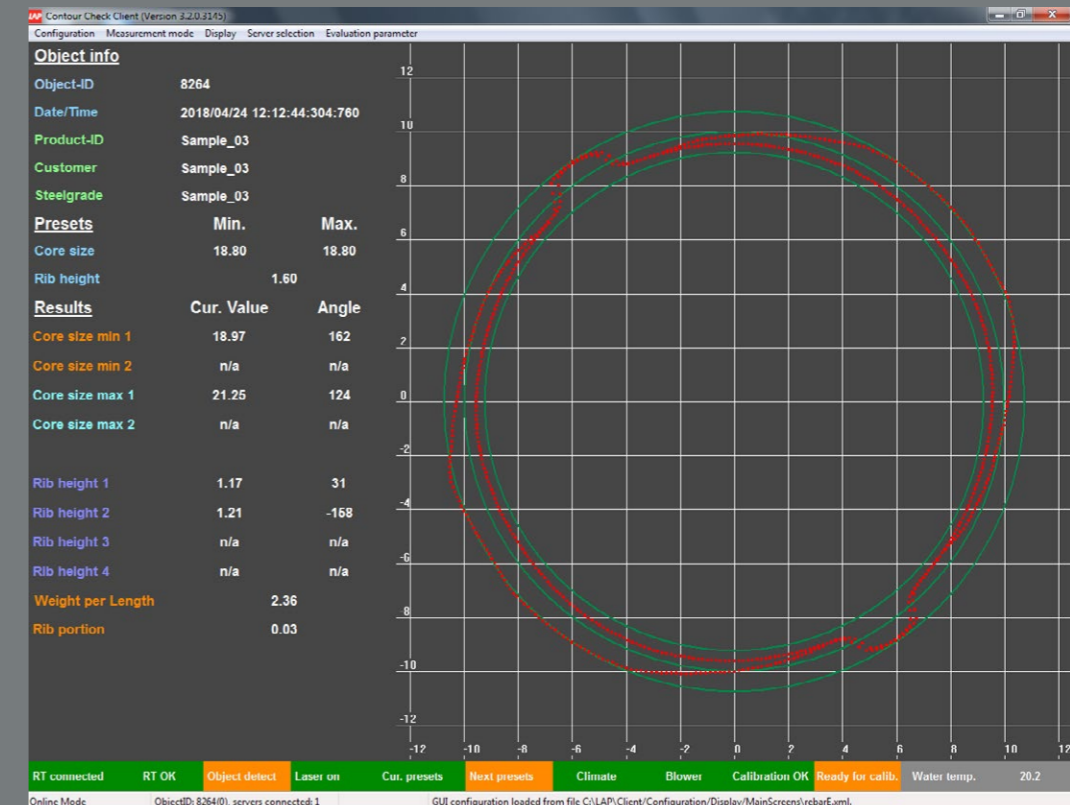
Beside from standard screens, customers can modify or create new screens to their needs. The SW offers the unique functionality to virtually rotate the wire or rod to mill orientation, to measure directly the real rolling defects.



DOUBLE SEAM: THE RIB HEIGHT IS DISPLAYED



HEXAGONAL PROFILE: IN THIS CASE 3P ROLLED AND WITH BENDING.

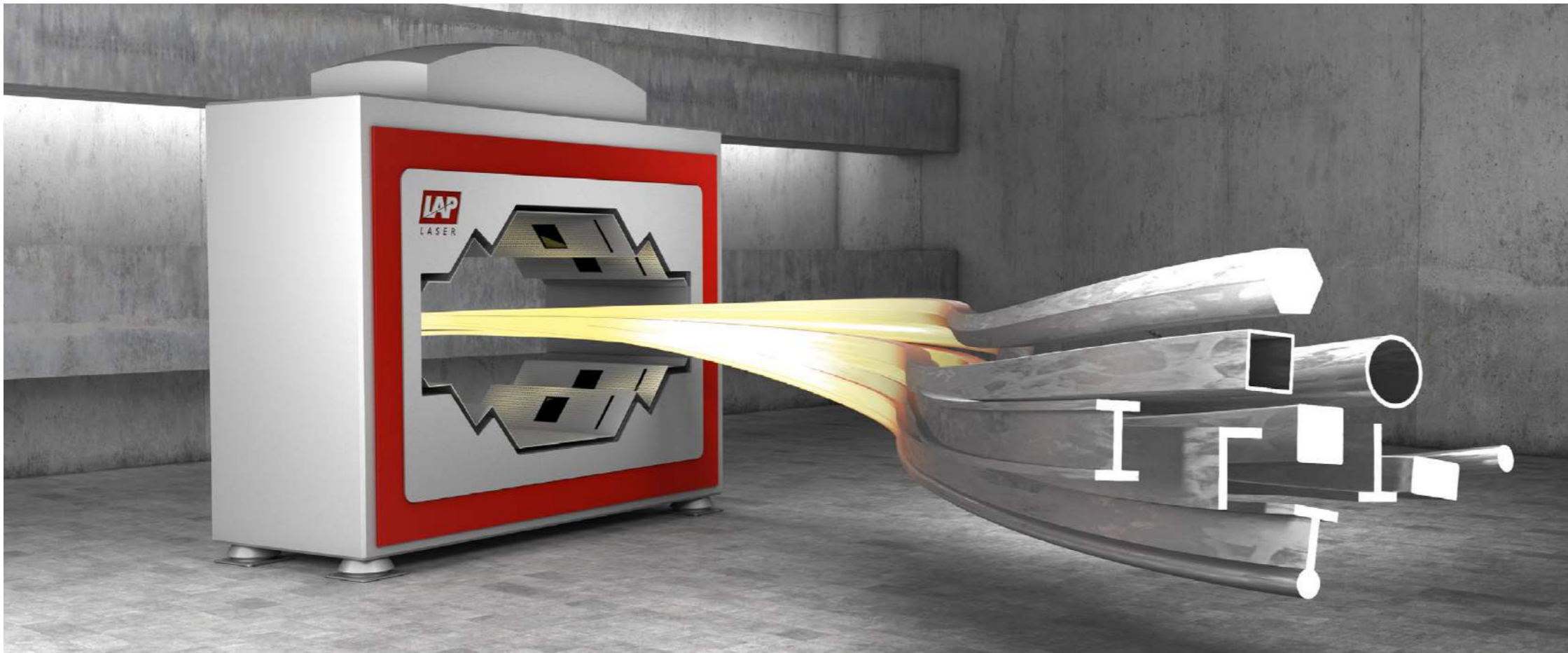


REBAR: CORE, ENVELOPE AND RIB HEIGHT ARE MEASURED

## OVERVIEW

- Finds defects of surface over the complete shape
- Presents profile cross section, numerical values, production history, pass/fail information and production details
- Visualization can be configured to specific user requirements
- Database for long-term storage of relevant data
- Multi-client capable even on Windows tablets
- Interfaces to data mining systems such as iba and level-2 network connectivity
- Up to 4 systems can be connected to and evaluated by one server
- Ready for Industry 4.0: Connection via Level2 interface for data exchange with the control system (as well as all other measuring frames of the LAP)





# BENEFITS



FULLY CUSTOMIZED TO YOUR NEEDS



HIGHER THROUGHPUT, HIGHER YIELD, HIGHER UTILIZATION



HIGHER DIMENSIONAL ACCURACY FOR INDIVIDUAL PRODUCTS



LOW MAINTENANCE DUE TO ROBUST HOUSING WITH AIR COOLING AND CLEANING

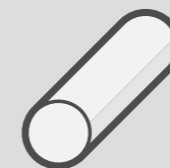
# CONTOUR CHECK PROFILE

CONTOUR CHECK PROFILE is the modularized n-camera solution for all profiles. Like in CONTOUR CHECK SHAPE, the cameras are protected by 4 layers: heat-shield, air-flow through frame, airflow through sensor baseplate and water-cooling of the cameras.

A little slower than CONTOUR CHECK SHAPE, CONTOUR CHECK PROFILE offers more opportunities by building a customized system from a set of defined elements. You may handle concave profiles, rail profiles, profiles with flanges, profiles of varying type and/or size in production lines with centered or lateral guiding. Profile or size range requires more than 4 cameras? No problem. You tell us the possible variations, we design the system.

- The perfect solution for concave profiles, rail profiles, profiles with flanges, profiles of varying type and size
- Closed thermal design for extreme conditions
- Modular setup, typically 4 up to 12 cameras
- Virtually maintenance free
- Flexible measurement by recipe evaluation

# MEASURABLE PROFILES



BAR



FLAT



L-PROFILE



TUBE



H-PROFILE



U-PROFILE



SQUARE



T-PROFILE



**OUR MOST  
CUSTOMIZED  
PRODUCT**

**CONTOUR CHECK PROFILE**

# TECHNICAL DATA

SAMPLE SOLUTIONS



4 CAMERAS

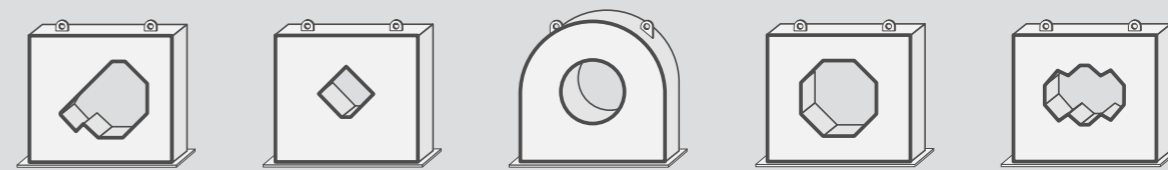


6 CAMERAS



8 CAMERAS

Application	e.g. billets & merchant bars with max. measuring range: appr. 160mm x 160mm	e.g. bar mills max. measuring range: appr. 400mm x 400mm	e.g. medium section mill max. measuring range: appr. 500mm x 500mm
Profiles	Round, square, hexagonal	Round, square, hexagonal, U-Profile, T-Profile, L-Profile	Round, square, hexagonal, H-profile, I-profile, U-profile, L-profile, Rails
Achievable accuracy	± 0.07 mm	± 0.1 mm	± 0.15 mm
Sampling frequency	60 Hz	60 Hz	60 Hz
Setup	angles and distances depend on rolling stock variation		



CUSTOMIZED SET-UP WITH 4 TO 12 CAMERAS SUPPORTING VARIOUS PROFILE TYPES





# CONTOUR CHECK MODEL OVERVIEW



CONTOUR CHECK  
**WIRE**

CONTOUR CHECK  
**BAR & TUBE**

CONTOUR CHECK  
**ROUND**

CONTOUR CHECK  
**EDGE**

CONTOUR CHECK  
**SHAPE**

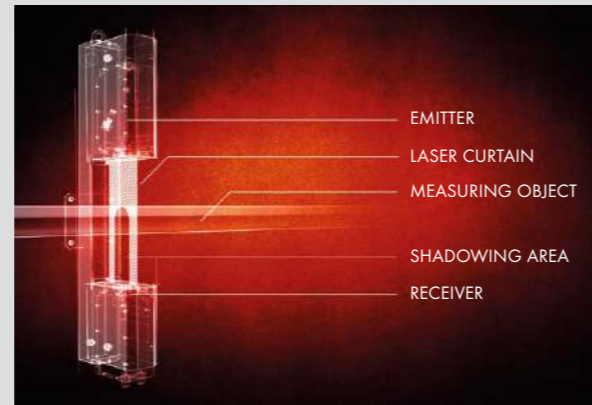
CONTOUR CHECK  
**PROFILE**

ROUND	● diameter, ovality	● diameter, ovality	● diameter, ovality	● diameter, ovality	● diameter, ovality	● diameter, ovality
SQUARE			■ height, width, diagonal length	■ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides	■ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides	■ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides
FLAT			▬ height, width, diagonal length	▬ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides	▬ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides	▬ height, width, side length, diagonal length, corner radius, corner angle, convexity of sides
HEXAGONAL			⬡ distance between centers, width across flats	⬡ side relations, side length, distance between centers, width across flats, corner radius, corner angle, convexity of sides	⬡ side relations, side length, distance between centers, width across flats, corner radius, corner angle, convexity of sides	⬡ side relations, side length, distance between centers, width across flats, corner radius, corner angle, convexity of sides
OTHER PROFILES						<b>UTHL</b> lengths, thickness, corner angle
REBAR	yes	yes	yes	yes	yes	no
MATERIAL TEMPERATURE	1200 °C	200 °C	1200 °C	1200 °C	1200 °C	1200 °C
ROLLING ERRORS	not detected	detection of irregularities, interpretation required	detection of irregularities, interpretation required	detection and identification	detection and identification	detection and identification
DEFECTS OF SURFACE	not detected	not detected	not detected	detected within the specified limits	detected within the specified limits	not detected
MEASUREMENT SCOPE	Outer dimension (Shadowing)	Outer dimension (Shadowing)	Outer dimension (Shadowing)	Surface profile (Laser Light Section)	Surface profile (Laser Light Section)	Surface profile (Laser Light Section)
	COMPACT		STANDARD			MODULAR

# MEASURING METHODS

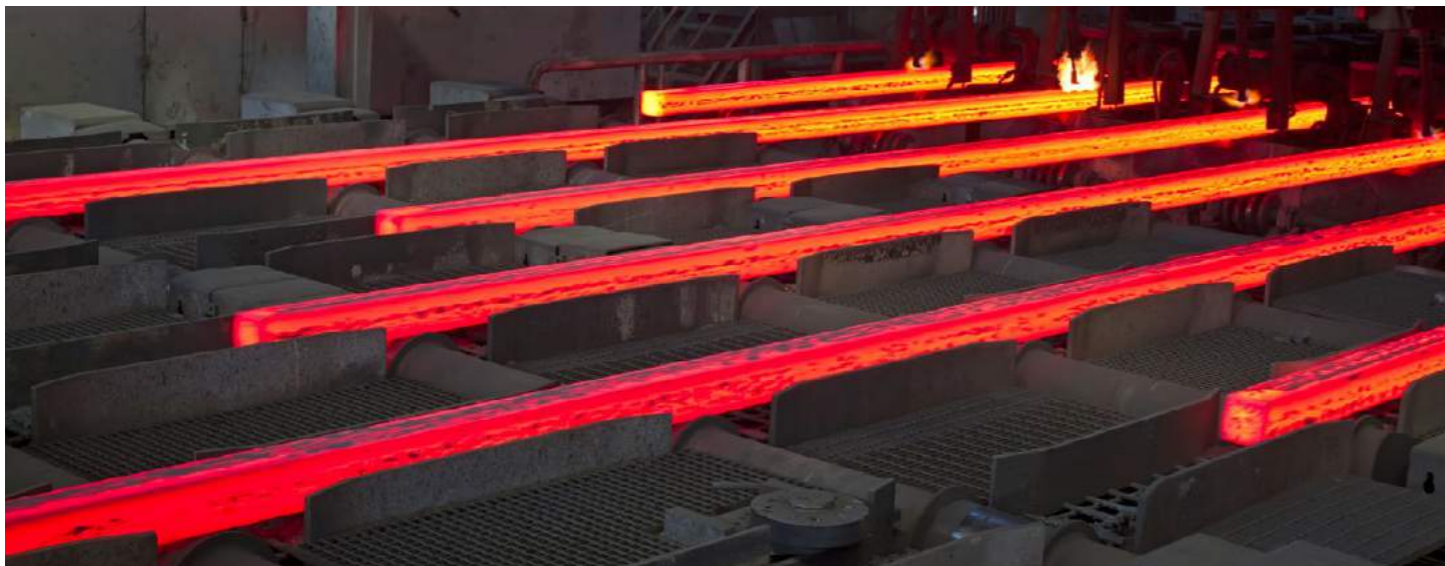
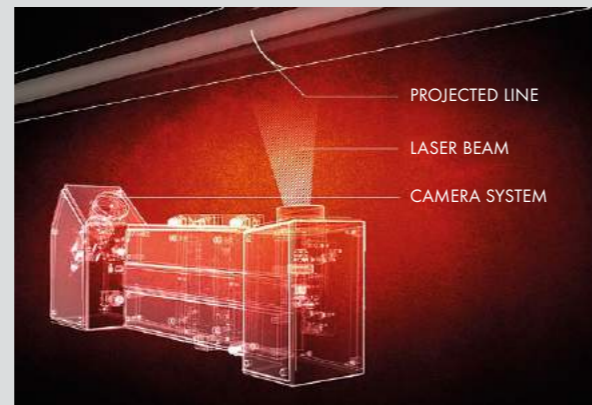
## SHADOWING METHOD

One sensor consists of an emitter and a receiver in separate housings. In the emitter, a laser beam hits a rotating polygon mirror. The deflected beam is converted into a beam that periodically runs through the measuring area, building a virtual light-band. In the receiver, the parallel moving beam is focused on a light-sensitive diode. Any object within the measuring field partially shadows the receiver. The time interval of shadowing precisely determines the dimension of the object. LAP uses METIS laser micrometers of our own design and production.



## LASER LIGHT SECTION METHOD

The sensor contains a line laser, a high dynamic matrix camera and electronics for processing the camera signals. The laser projects a straight line perpendicular to the surface to be measured. The camera is fixed at a certain angle to the laser line. Any deformation of the surface causes a deformation of the laser line from the camera's angle of view. Using the basic calibration as reference, the sensor calculates the dimensional values. LAP designs and manufactures laser light section sensors, using own laser technology and high-end industry cameras that best fit the customer's requirements.



## REFERENCES

Worldwide, more than 250 systems of CONTOUR CHECK'S predecessor, RDMS, prove their reliability in daily use. The systems CONTOUR CHECK ROUND and CONTOUR CHECK EDGE follow in their footsteps. The new laser light section systems CONTOUR CHECK SHAPE and CONTOUR CHECK PROFILE start where micrometer technology reaches its limits. Examples of installations:

### CHINA

Fully automated in-line profile and full dimensional measurement of octagons with a diameter of 121–122 mm before shear

### CZECH REPUBLIC

Measuring the profile of steel rods with 4.5–35 mm behind finishing mill

### GERMANY

Measuring full profiles of flat, round and square products in a billet mill; large frame

### GERMANY

Fully automated in-line measurement for wires with 5.0–22.0 mm in a double wire rod mill, final quality check for optimizing the rolling process

### JAPAN

Measuring full profiles of flat, round and square products in a billet mill; large frame

### JAPAN

CONTOUR CHECK ROUND 150 measures section profiles and dimensions of hot rolls in a Bar Work. The round steel has a diameter of 15–120 mm.

### POLAND

Using the CONTOUR CHECK SHAPE 50 measurement systems for rods up to 28 mm in wire rod mill behind the finisher block.

### SWITZERLAND

Three CONTOUR CHECK ROUNDS in use with scan field width of 90 and 120 mm for measuring full profiles of rounds behind finisher for optimizing the rolling process

### SOUTH KOREA

Fully automated in-line profile and full dimensional measurement in a merchant bar mill; lateral guiding

### USA

Using two CONTOUR CHECK EDGE 120 measurement systems for round and rebar profiles of 19–99 mm in a bar mill

### USA

CONTOUR CHECK SHAPE measures the profile of flats, channels, rounds, squares, hexagons and equal and unequal angles; fully automated

# SERVICE

## MAINTENANCE – INSPECTION – REPAIRS SOFTWARE ENHANCEMENT

LAP stays right by your side before, during and after the installation of a LAP system. International experience acquired over decades in the installation and maintenance of laser systems across virtually all industries makes us a reliable and competent partner. For detailed information you can download our service brochure.





## CONTOUR CHECK, HIGH-TECH QUALITY BY LAP

For more than 30 years, LAP has been developing, manufacturing and distributing laser measurement systems, line lasers and laser template projectors for industrial and medical applications. LAP products are high-precision devices *Made in Germany*. Using LAP laser systems, our customers improve performance and increase the quality of their products as well as the effectiveness of their processes.

As a result of continuous product innovation, LAP has become a world leader in lasers for projection and measurement. LAP products are setting the standards in a wide range of markets from manufacturing to heavy industrial environments and medical applications. Environmental protection is important to us. We use solar panels, green electricity and roofs planted with grass. Our production is planned by standards of sustainability.

Quality has always been part of our commitment. We are content if you are. We know your high demands. To meet your requirements, the quality management of LAP is certified by DIN EN ISO 9001:2008 for industrial products and by EN ISO 13485:2007 for medical engineering products.

[www.lap-laser.com/CONTOUR-CHECK](http://www.lap-laser.com/CONTOUR-CHECK)



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