

# Measurement Solutions for Tubes and Bars

Laser based measurement systems for the steel industry



# We measure your way to perfection



## LIMAB

### Your partner for in-line laser measurements

LIMAB started their activities in the early 80's. Since then, we have focused on developing laser based sensors and systems for a wide scope of steel industry measurement applications.

Today, we are considered as a world leader in non-contact, in-line measurements and have installations in all major steel companies, in all parts of the world.

Product development and production is done within the company, which makes it possible to have full control of our products and offer high quality sensors and systems according to the requirements of our customers.

We can offer local support through our subsidiaries or our network of certified partners.



# Measurement Solutions for the Steel Industry

LIMAB has a long history in providing laser based measurement systems to the steel industry. Today, we can offer solutions for a wide scope of applications in the production of tubes and bars.

Through our long experience in the steel industry, we have an extensive application knowledge. This ensures that our products meet your expectations in both performance and quality, which has been proven by installations throughout the world.

LIMAB is developing and manufacturing the complete measurement solution including the laser based sensors. We can offer both 1D and 2D sensor technology. Our product offering covers a wide variety of measurement applications.

Production	LIMAB Product	Dimensions	Conditions	Features
Tubes	Sensors	Depends on application	Hot / Cold	1D and 2D laser triangulation
	Compact systems	Depends on application	Hot / Cold	Based on 2D laser. OD, thickness, width
	TubeProfiler C	Ø 0,8 – 16"	Cold	OD, ovality, length
	TubeProfiler	Ø 0,8 – 60"	Hot / Cold	OD, ovality, shape, length
	TubeProfiler 3D	Ø 0,8 – 60"	Hot / Cold	OD, ovality, full shape, length, weld
	TubeProfiler S	Ø 2 – 60"	Hot / Cold	OD, ovality, shape, length, straightness, weld
Bars	Sensors	Depends on application	Hot / Cold	1D and 2D laser triangulation
	HotProfiler	5-650 mm (0,2-26")	Hot / Cold	OD, ovality, shape, length
	BarProfiler 3D	5-650 mm (0,2-26")	Hot / Cold	OD, ovality, full shape, length
Wires	WireProfiler	5-20 mm (0,2-0,8")	Hot / Cold	OD, ovality

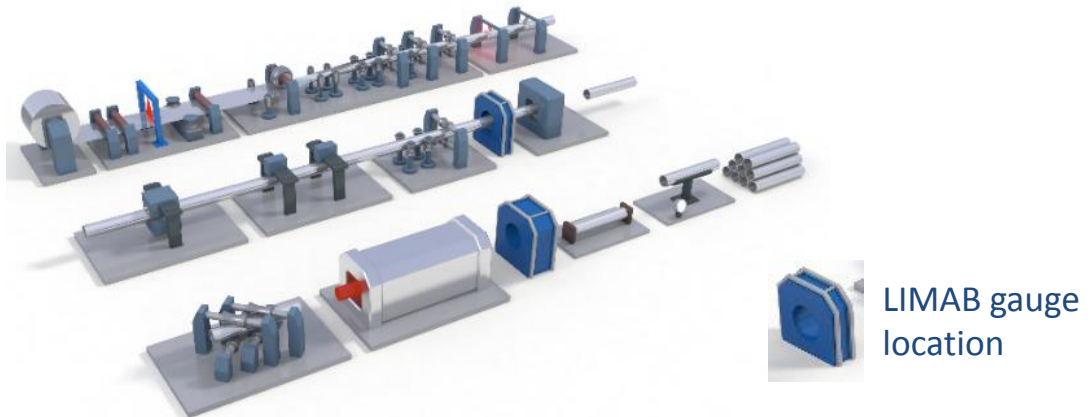
# Production of Tubes

LIMAB provides measurement solutions for different types of tube production processes, such as seamless, ERW and UOE. Round, square and rectangular tubes are measured.

Using our systems, measurements including OD, ovality, shape, straightness and length can be performed. We can measure tubes up to a diameter of 60" (1524 mm).

Measurement applications cover process control and quality control.

## ERW plants



### TubeProfiler S

**OD, Ovality, Shape, Straightness, Length, Weld**

The TubeProfiler S is an in-line system measuring OD, ovality, shape, length as well as end, local and total straightness of the tube. It is a perfect tool for optimizing your threading and straightener operation. It is also installed at the finishing line for quality control according to API standards.

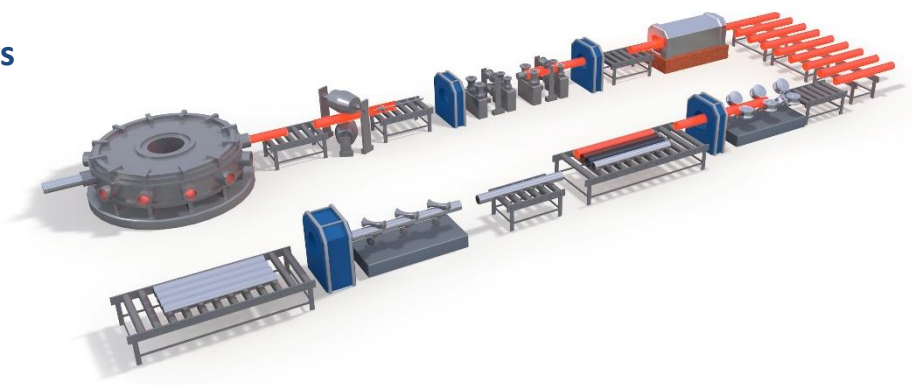


### TubeProfiler / TubeProfiler 3D

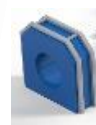
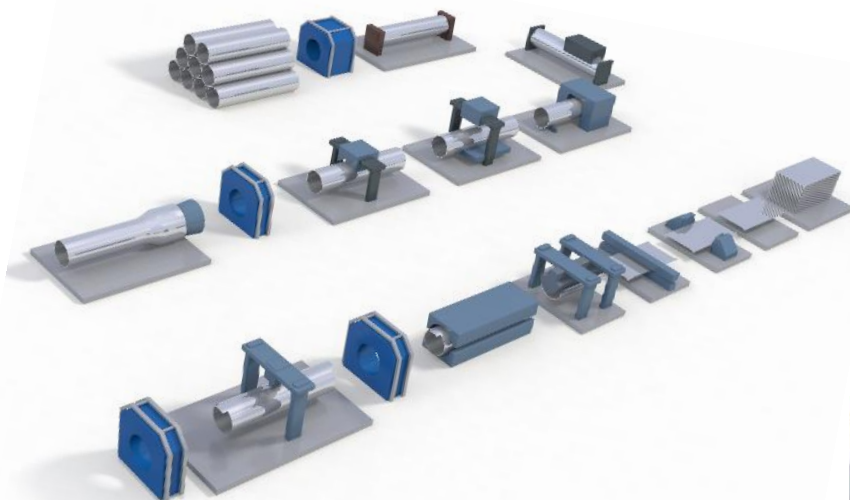
**OD, Ovality, Shape, Length**

The TubeProfiler measures OD, ovality, shape and length. It comes in different versions for hot or cold conditions and dimensions up to 60". Due to the modularity of the system, we can offer a various of standard versions depending on your requirements and measurement tasks. The TubeProfiler 3D will make a complete scanning of the tube circumference.

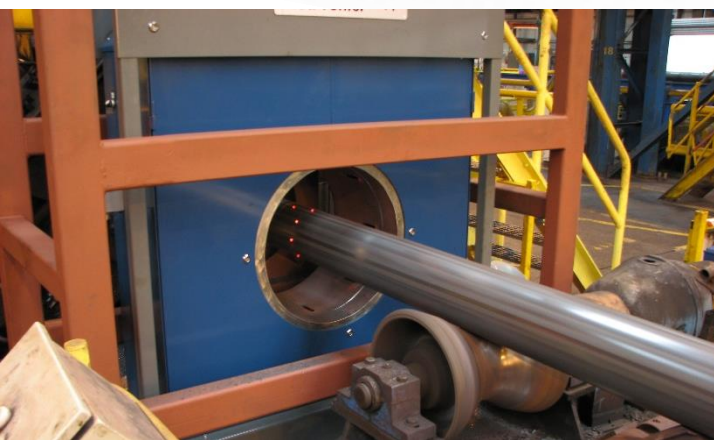
## Seamless plants



## UOE plants



LIMAB gauge  
location



### TubeProfiler C Dimensional control in cold applications

Our TubeProfiler C is the perfect option for OD and ovality measurement applications for cold tubes. It incorporates between 8 to 24, 1D sensors for a precise measurement at a competitive price. The system is available in different versions depending on tube dimensions.



### ProfiCura Smart sensor Measurement applications

Our ProfiCura Smart sensor is a state-of-the-art 2D sensor designed for the harsh environment in steel plants. It has pre-defined measurement modes and integrated communication protocols like Ethernet, Profibus and Modbus. It can be installed to solve several different measurement tasks. One example is to replace a manual caliper measurement of OD with a single laser sensor.



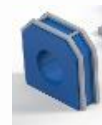
# Production of Bars

LIMAB has a series of different measurement gauges for the bar mills. They can handle different bar shapes including rounds, squares, rectangles, hexagonals and flats.

An instant recognition of rolling errors such as under fill, over fill, roll misalignment, concave and convex surfaces, will allow immediate actions for rolling optimization.

We are able to provide measurement gauges for bar and billet dimensions up to 650 mm (26").

## Bar plants

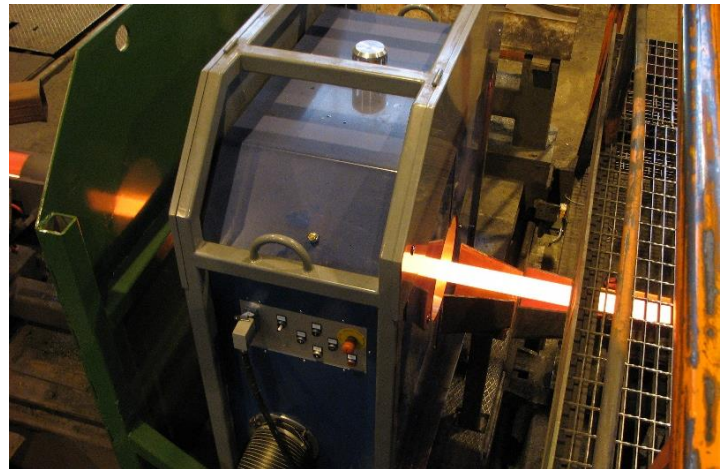


LIMAB gauge location



### BarProfiler 3D Complete scanning of the bar

The BarProfiler 3D is equipped with LIMAB 2D sensors. The complete bar circumference is scanned by the sensors ensuring that rolling errors such as under and over fills, concave and convex shapes will be detected. Characteristic dimensions for 3-roll production lines, such as Kocks GT/DT values, are calculated and displayed. It can be installed in both hot and cold applications.



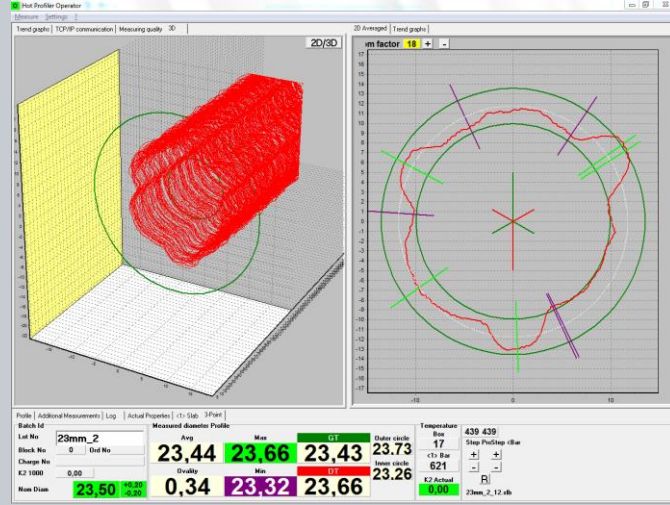
### HotProfiler Shape measurements

The HotProfiler incorporates our 1D sensors. By rotating the sensors around the bar, a very precise shape measurement can be done. The HotProfiler is also capable of measuring relevant dimensions for 3-roll production lines. It is available for both hot and cold applications.

# 3-roll rolling optimization

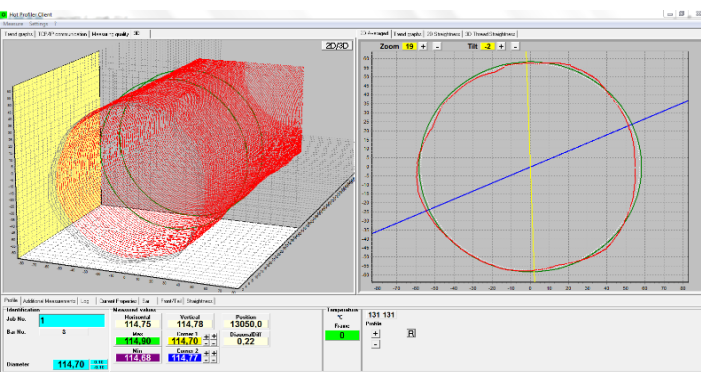
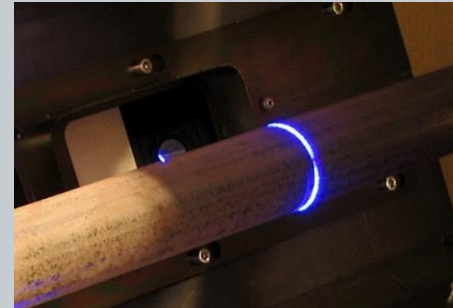
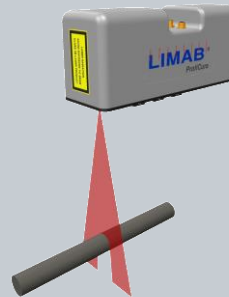
Our BarProfiler 3D comes with the option to measure the characteristic dimensions of a 3-roll rolling line.

This includes the GT/DT values, which are calculated and displayed as well as communicated for dynamic rolling optimization under load.



## 3D scanning of the bar

We have developed our own 2D sensors, the ProfiCura family, which are used in our BarProfiler 3D. These sensors are specially designed for the harsh condition in a steel mill.



## Software key features in LIMAB systems

- 3D and trend graph presentation
- Numerical presentation of key figures
- Tolerance and alarm limits with on-screen warnings
- System set-up and parametrization
- Data logging for quality control
- Communication with plant management system
- Remote service and supervision

# LIMAB Measurement Solutions for Tubes and Bars

## World wide presence

LIMAB has a world wide presence for sales and support, either by subsidiaries or certified partners.



We reserve the right to introduce modifications without prior notice

## LIMAB – the complete measurement solution provider for the tube and bar industry

Our core capability resides in our ability to deliver effective laser scanning systems for our customers. Through our experience and understanding of your needs we engineer and produce the right process measurement solutions that will improve your production yield.

LIMAB was founded 30 years ago and has a long tradition of developing and manufacturing laser based technology. We supply laser guide lines, laser sensors and complete systems for dimensional and profile measurement in steel mills, panel production and saw mills. Headquarters and manufacturing plant is located in Gothenburg, Sweden. LIMAB has regional offices in the USA, UK, Germany and Finland as well as approved distributors and partners in other regions.



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