

# WireProfiler

## True measurements of wire



- *Full cross section and shape*
- *Mill set up time dramatically reduced*
- *Improve product quality & yield*
- *Fast profile update*
- *Immediate product and process feedback*
- *Non contact – low maintenance*



### Design for harsh conditions

LIMAB has many years experience in manufacturing and supplying precision laser measuring systems for use in harsh environments found within steel plants. This knowledge is engineered into the WireProfiler to ensure high accuracy with very low maintenance. The system is supplied with a high performance air cooling system

to ensure complete reliability of operation in the hot and dirty conditions that are normal for hot wire rod mills. The system will meet customer mechanical and electrical requirements for a perfect integration into any rod mill.

### Design for accuracy

High precision sensors are at the heart of the WireProfiler but to ensure an accurate system the design details of all the supporting components and equipment need to be carefully considered. This is where LIMAB's experience counts by paying close attention to the overall design.

Furthermore, the WireProfiler uses our patented algorithm that eliminates errors due to bar movement in the measurement field.

# WireProfiler

System for accurate measurement of diameter, ovality and shape of hot rolled wire.

The WireProfiler uses up to 6 high performance laser micrometers, each one scanning at 1200 Hz making it the fastest rod mill gauge available today. The true cross section shape is determined by measuring at 12 points around the circumference of the rod. LIMAB's patented software algorithm ensures that movement and vibration of the wire in the measuring field do not affect the measuring accuracy. This method precisely measures the cross section profile and instantly alerts operators to all common rolling mill shape errors such as under fill and overfill, roll misalignment and roll eccentricity. The very compact size of only 180 mm in the rolling direction means that it is easy to incorporate the WireProfiler into existing lines without expensive modification to the mill. A pyrometer is incorporated which provides a very helpful temperature profile map along the length of the rod and is also used in the hot to cold size correction. The cooling is provided by a separate forced air system which keeps the optics clean and makes the system free from regular maintenance. There is no need for water or expensive compressed air supply. Operator workstation displays can be located at up to 10 separate locations around the mill simply by connecting to the existing company network. A large digit remote display shows key measured values.



## Benefits

Full cross section shape measurement using high performance laser micrometers which measures up to 12 points around the circumference of the wire.

Highest measurement rate available today with up to 14,400 measurements per second for the maximum detail even on the fastest mills

Instant recognition of rolling errors such as underfill, overfill and roll misalignment allowing operator to take immediate corrective action reducing scrap

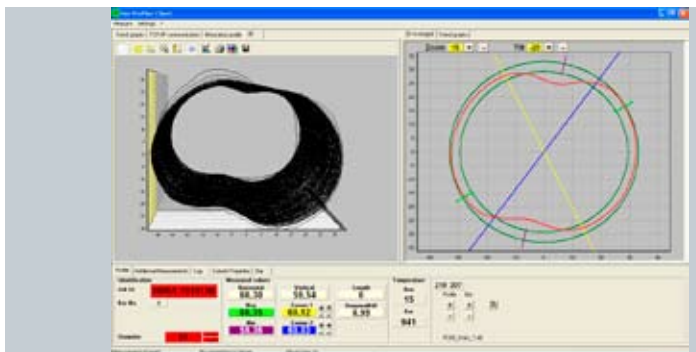
Mill setup time dramatically reduced between product changes, eliminating need for cutting and measuring of samples

Continuous through coil measurement and tolerance monitoring eliminates production of out of specification material increasing mill yield and reducing scrap.

Process trend and data logging for 100 % quality control and process documentation

Compact design makes it easy to install in new or existing rolling line. Can be easily relocated to new measuring locations if required

Forced air cooling keeps optics clean and does not require regular maintenance



## Applications

The WireProfiler is multi-axis non contact wire rod mill gauge designed to be optimized for the rolling process. This is achieved by providing the operator with instant and continuous feedback about the precise size and shape of the wire.

The gauge can easily be installed in an existing rolling line as the space required is minimal. The use of the WireProfiler has a very high benefit to cost ratio making it one of the most beneficial mill upgrades a company can make.

## Software key features

- 2D, 3D and trend graph presentation
- Numerical presentation of key values
- Tolerance and Alarm limits with on screen warnings
- System set-up
- Calibration
- Data logging for quality control
- Communication with level 2
- Remote service and supervision

# Technical specifications

## WireProfiler

Measurement objects	Hot/Cold wire
Measurement range	0,5–75 mm
Sampling rate	1200 Hz/axis
Profiles per second	20
Measurement system accuracy	+/-0,02 mm @2 $\sigma$
Operating temperature	0-40°C (without cooling system)

## Cabinet and PC

Size	2000x600x600 mm
Protection class	IP54
Operating system	Windows XP
Processor	Core 2 Duo
Interfaces	TCP/IP, RS232C, Digital I/O

## Laser sensor

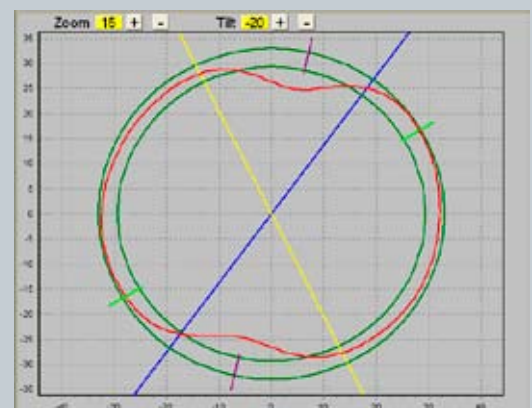
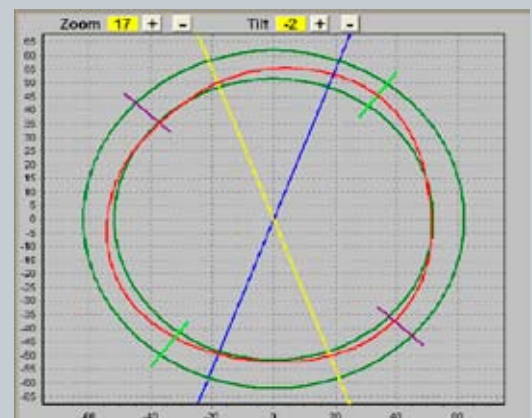
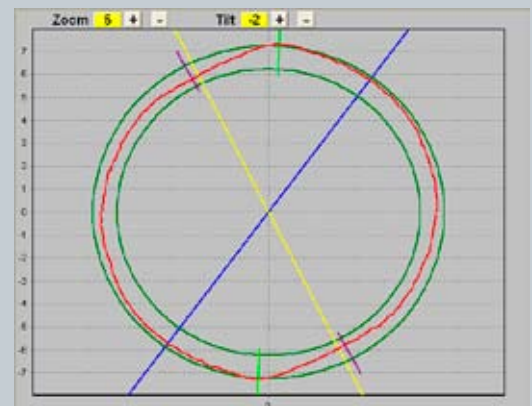
Size	500x134x68,5 mm
Laser class	2
Protection class	IP65, NEMA 4X
Interfaces	ethernet, RS232

## Sensor mounting frame

Installation	1200x1200x180 mm Floor mounted
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We reserve the right to introduce modifications without prior notice

## Profile examples



LIMAB were founded almost 30 years ago and have a long tradition of producing laser sensors and non contact measuring systems to meet the needs of the industry. Headquarters and manufacturing plant is located in Gothenburg, Sweden. LIMAB have regional offices in USA, UK, Germany and Finland and with distributors to cover other areas. LIMAB has over 20 years of experience in steel installations.



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