Laser measurement system
Strip thickness

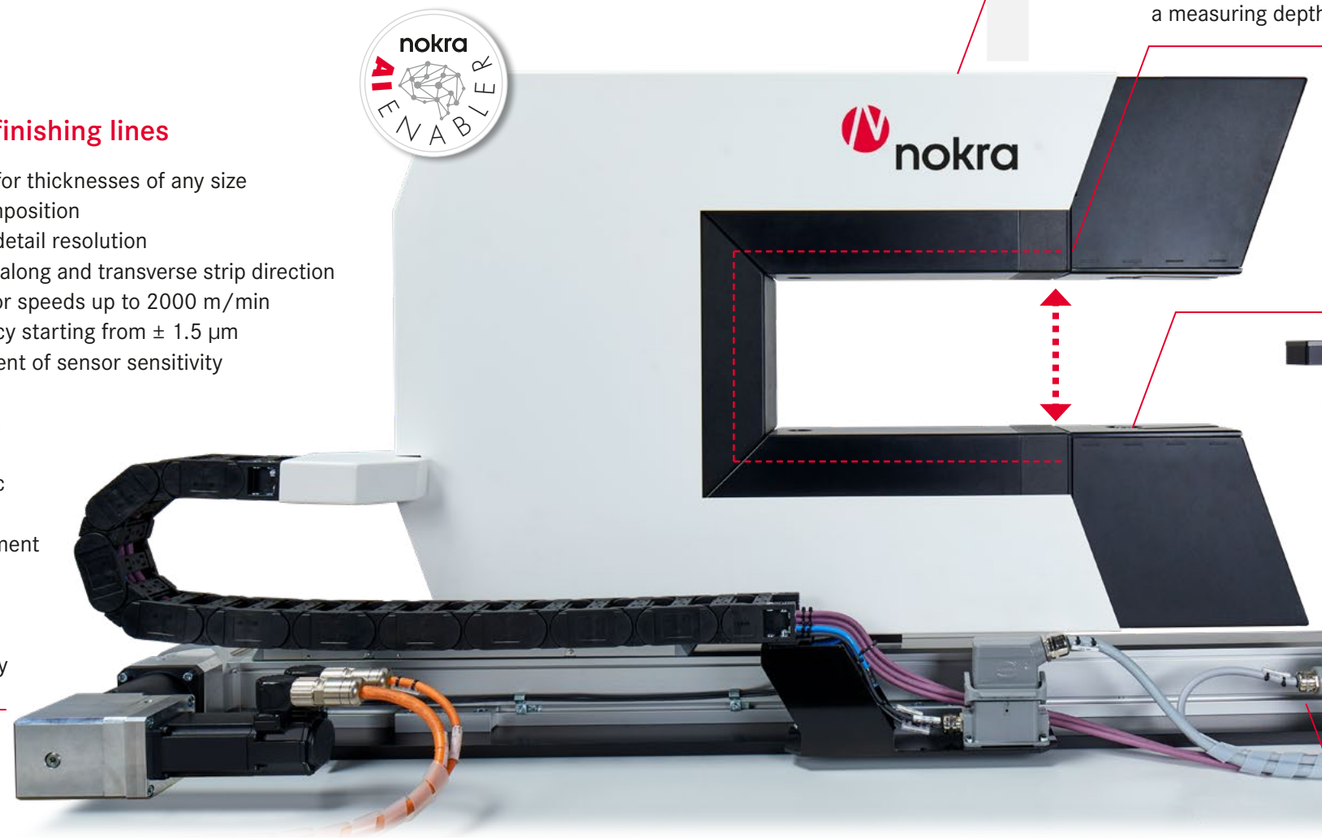
alpha.ti 5.0

Laser thickness measurement Strips up to 2100 mm wide

alpha.ti 5.0

For use in process and finishing lines

- Measuring method suitable for thicknesses of any size independent of material composition
- Small measuring spot, high detail resolution
- Precise position information along and transverse strip direction
- High measuring frequency for speeds up to 2000 m/min with a measurement accuracy starting from ± 1.5 µm
- Fast and automatic adjustment of sensor sensitivity to any surface
- Patented drift compensation for the entire system
- Traceability due to automatic referencing on gauge blocks
- Automatic measuring equipment monitoring according to MSA method 1
- Laser class 2, no special safety precautions necessary



C-frame for cross profile measurement up to 2100 mm

C-frame versions, measuring depths
500 / 1000 / 1500 / 2100 mm

Patented drift compensation

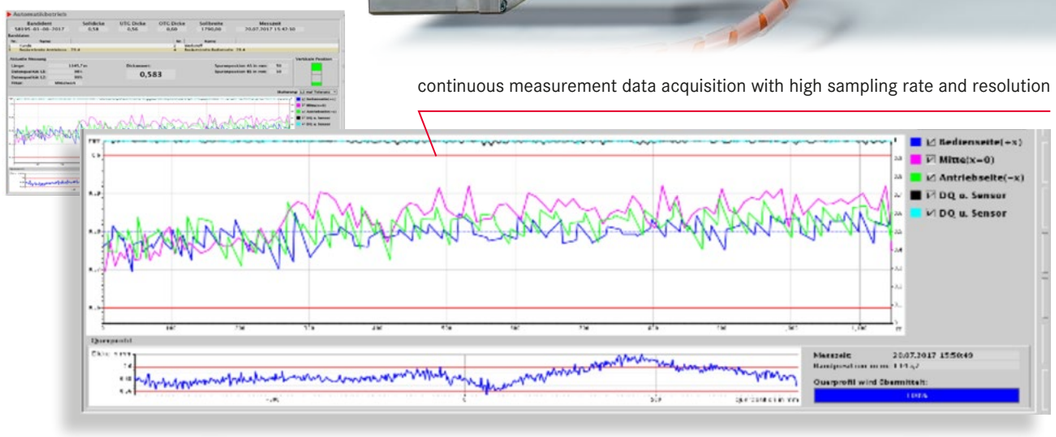
The deformation sensor continuously records the distance between the two C-bars with a precision of 0.5 µm at the scanning frequency of the triangulation sensors. Any change is immediately compensated automatically. This allows C-frame designs with a measuring depth of more than 2 meters with consistent measuring accuracy.

tool-free maintenance accesses

automatic, three-stage reference unit
with interchangeable standard gauge blocks

scalable linear guide with servo drive
for precise traversing operation

robust and durable design



continuous measurement data acquisition with high sampling rate and resolution

Accuracy

- Measuring accuracy is 0.01 % of the measuring range
- Repeatability is about a factor of 10 better than the measuring accuracy
- Three measuring ranges are available
  - 15 mm → Accuracy ± 1.5 µm → Repeatability ± 0.2 µm
  - 25 mm → Accuracy ± 2.5 µm → Repeatability ± 0.4 µm
  - 40 mm → Accuracy ± 4.0 µm → Repeatability ± 0.6 µm

Standard configuration

- automatic drift compensation through real-time deformation sensor
- temperature independent sensor linearity
- automatic exposure time and laser power control
- sample measurement mode
- automatic thickness reference unit using standard gauge blocks
- sensor windows prepared for compressed air blow-off
- measuring device capable, automatic monitoring according to MSA method 1
- standard interfaces Profibus/Profinet, TCP/IP, UDP
- prepared for analogue signal interface
- user interface in national language
- remote access via internet
- E-cabinet (1000 x 600 x 400 mm h x w x d)
- 15 m cable set (max. 80 m)
- signal inputs for safety-door and E-stop

Technical data – alpha.ti 5.0			
C-frame	**C-15**	**C-25**	**C-40**
Measurement principle	laser triangulation		
Measurement window	15 mm	25 mm	40 mm
Linearity	± 1.5 µm	± 2.5 µm	± 4 µm
Resolution	0.24 µm	0.39 µm	0.62 µm
Repeatability	± 0.2 µm	± 0.4 µm	± 0.6 µm
Measurement frequency	max. 67 kHz		
Integration time	0.5 µs - 1000 ms		
Laser class	2 (no laser safety officer)		
Laser wave length	660 nm (red)		
Measurement spot	50 µm		
Laser life time (MTBF)	80000 h @ 20 °C		
Measurement depth from strip edge	500 / 1000 / 1500 / 2100 mm		
C-frame width	144 mm		
Traversing speed	0.25 m/s		
Material type	all non-transparent materials, surface and alloy independent		
Material speed	> 0 m/min; ≤ 3000 m/min		
Material temperature	≤ 100 °C, others with active tempering		

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