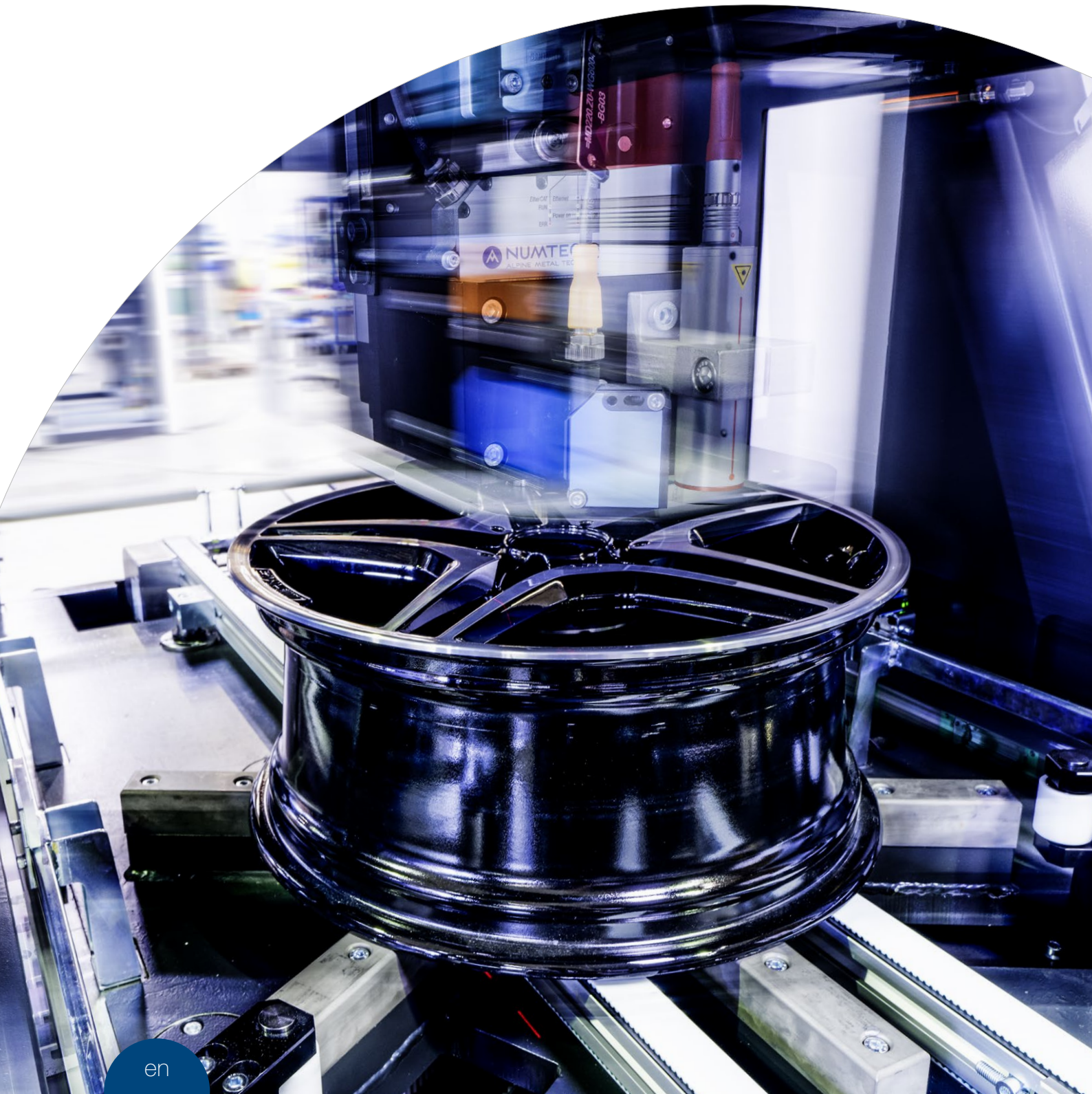
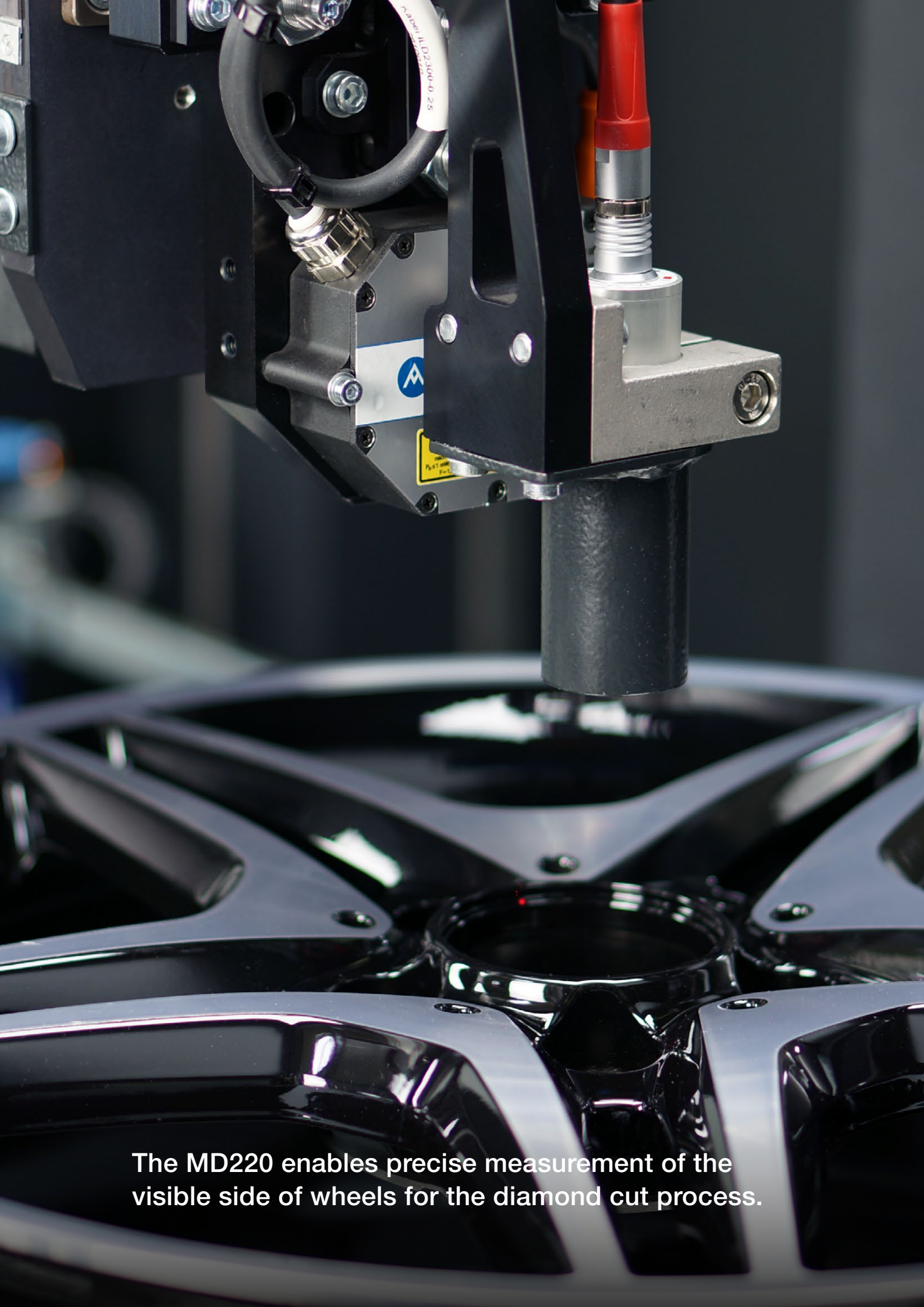


MD220

Diamond cut measurement





The MD220 enables precise measurement of the visible side of wheels for the diamond cut process.

MD220

Diamond cut measurement

The MD220 measuring machine is used for precise measurement of the visual side of wheels prior to the diamond cut process; it is available in inline or loading variants (with light grid as a protective device).

The machine is delivered fully assembled so as to ensure quick commissioning. By means of an integrated conveyor and an optional camera system, the wheel is positioned, aligned and then placed on the resting pad jaws that are adapted to the lathe. This combination yields a highly accurate result. The measured value recording is done with the NUMTEC precision laser, preferably at the front, or outside, flange and in the vicinity of the cap seat. From these two measuring circuits, the deepest points are determined; based on this, the variance when

compared to a sample wheel is calculated. Optionally, the paint layer thickness is then measured without contact. Thanks to the modular machine concept, the wheels can be directly taken from various positions by a robot out of the machine or further transported directly onto a conveyor belt. The calculated correction data will be passed on by means of a standard interface. As a result of this measurement, distortions and irregularities in the casting are detected before the diamond cut and the turning parameters are adjusted accordingly by tilting or parallel shifting. As a result, a significant increase of the OK rate after the first turn process is achieved. Reworking (coating and turning again) is thus omitted, which boosts productivity and production capacity significantly.

YOUR ADVANTAGES

» Correction data

The laser measurement determines correction data for the subsequent turn process.

» Laser measurement

The use of special lasers makes the measurement of different paints possible.

» Flexibility

No retooling is necessary; wheel sizes from 14 – 24" can be measured without adjustment

» Increase in capacity

By increasing the OK rate in the first CNC machining, a lot more wheels per CNC lathe can be processed.

» Paint layer thickness measurement (optional)

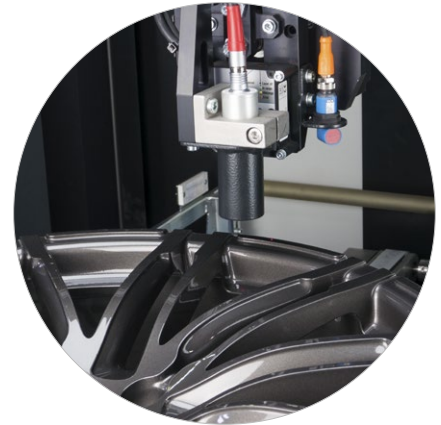
Contact-free layer thickness measurements in order to detect the processing status of the wheel

» Modular machine design

Different designs for different cell layouts available

FUNCTION

After the feed-in of the painted wheel, the wheel is pneumatically centered and lifted at the reference position (rear flange or mounting face) into the measuring position. The measurement is made with a special laser sensor from above on the design side of the already painted wheels. As standard, two measuring circuits are run on the wheel – one on the outside on the flange and a second one inside, near the cap seat. For special designs, more measuring positions can be defined. From these measuring circuits, the deepest points are determined; based on this, the necessary correction values for the subsequent CNC machining are calculated and transferred via interface. With this measurement, distortions and irregularities on the casting are detected prior to turning, and the turning parameters can be adapted accordingly. With the laser system used, all common paints can be measured. The range extends from unpainted surfaces up to different paints.



Measuring position of front flange

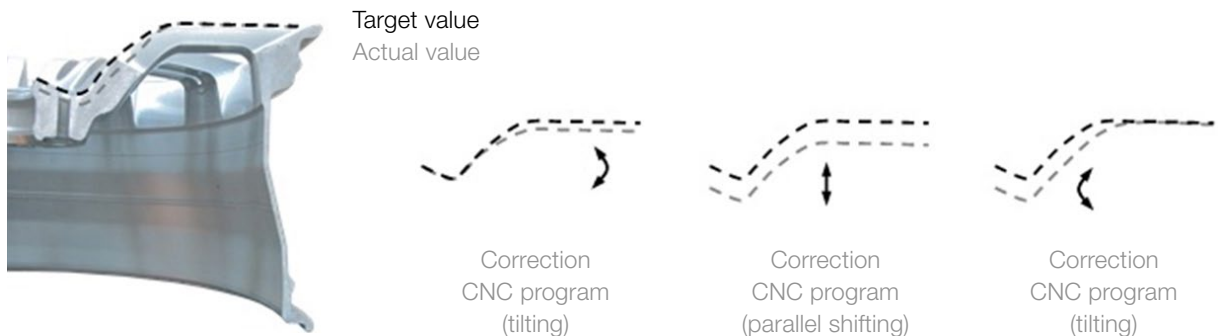
This allows you:

- » to detect early on faulty wheels whose design surface cannot be turned “perfectly”
- » to avoid additional and cost-intensive lathe operations on diamond cut surfaces with remaining paint
- » to boost productivity and capacity of the existing production lines because reworking steps such as re-turning and re-coating are avoided



Painted surface

Correction CNC program



FEATURES

Cap jump / cap diameter

Contact-less monitoring of the cap jump/cap diameter



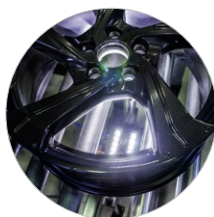
Wheel orientation

The optional orientation of the wheel via the valve hole position allows each wheel to be aligned for measurement in order to achieve maximum accuracy.



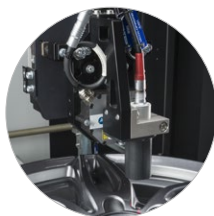
Wheel type detection / DMC

Optional detection via a camera or DMC reader; as an alternative, transmission via interface is possible



NUMTEC laser unit

Excellent measurement quality through the use of optimized NUMTEC laser units; collision protection in order to avoid damage to the measuring head due to operating errors



Variable resting pad positions

In order to achieve optimum results, the resting pad in the MD220 is adapted to the chucking of the lathe. Resting pad at the rear flange (6 or 3 jaws) or optionally at the wheel mounting face.



Paint layer thickness measurements

The optional contact-free measurement of the paint thickness (option) can be used to identify wheels to be reworked as well as for the adjustment of the machining parameters (e.g. cutting speed, correction value)



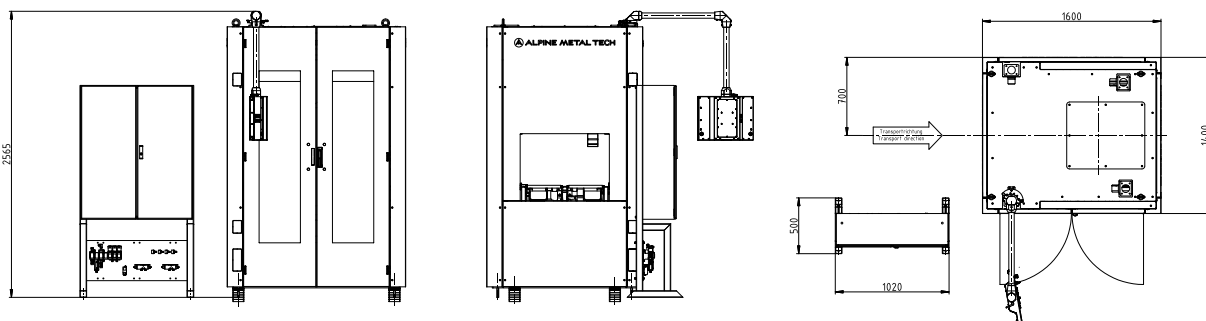


- ① Intuitive software
 - » To operate and teach in new types of wheels
 - » Software available in various languages
- ② Maintenance door
 - » Generously sized to allow easy access to the machine components
 - » Precise lathe positioning and centering of the wheels for the transfer to a robot
- ③ Control cabinet
 - » Integrated in the machine or outside with installation frame for flexible positioning
- ④ Central pneumatic system
 - » Adjustment of all machine movements at a central point
- ⑤ Swivel-mounted touch panel
 - » Machine operation made easier
 - » Various installation options

TECHNICAL DATA

Machine features	measurement method	laser sensor, triangulation procedure camera (option) infrared sensor (option), photo-thermal measurement method
	measuring characteristics	distortion measurement on the visible flange and in the cap area paint thickness (option) valve hole alignment (option) cap jump/cap diameter monitoring
	measuring circuits per wheel/position	typically 2, front flange and near the cap seat
	wheel type detection	via customer interface design detection by camera (option) DMC reader (option)
Wheel parameters	wheel size	14 – 24" without retooling
	wheel height	3.5 – 15"
	wheel weight	max. 45 kg
Performance characteristics	machine capacity	120 wheels/hour with 19"
Technical components	HMI	18.5" touch display
	control system	industrial PC (Windows) and PLC
Interfaces		Profibus, Profinet, EtherNet/IP, Parallel I/O
Media	electrical connection	3 x 400 VAC, 50 Hz, 2 kVA optional 3 x 400 – 480 VAC, 50/60 Hz, 2 kVA
	pneumatic connection	at least 6 bar
Machine dimensions	L x W x H	1600 x 1400 x 2565 mm
Weight		1900 kg

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