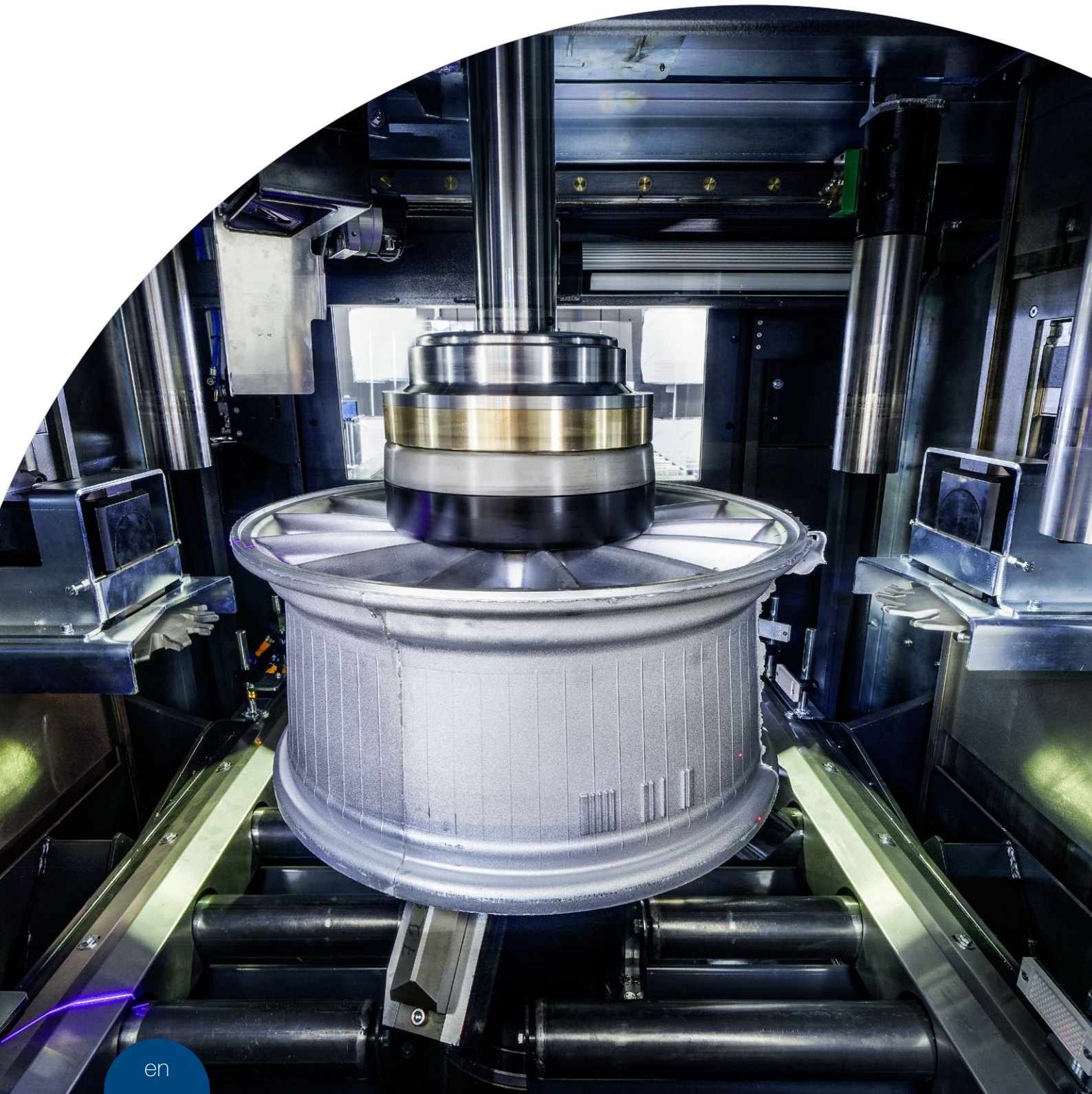


REF300

Inline wheel deflashing





The REF300 removes flashes in order to ensure a smooth automatic wheel production flow.

REF300

Inline wheel deflashing

Continuously growing demands in terms of quality and productivity in the alloy wheel industry require a flash-free rough casted wheel for automatic production flow.

During casting of alloy wheels, flashes occur most likely at the parting lines of the casting molds. Flashes on rough casted alloy wheels reduce transportability on the conveyor systems from the casting to the machining area and cause clamping faults at robots or in the chucks of CNC machines in machining cells. Casting flashes are also creating pseudo errors during the X-ray process, which ends up in wasted resources. In the heat treatment line, flashes can create vibrations during movement, and this results in distortion and unnecessary rejects. The REF300 inline wheel deflashing machine is designed and built to resolve this disturbing influence in the production of alloy wheels. The flashes at the inboard and outboard flange and on the parting line will be completely removed in order to make every single part identical for the automatic production. The inline concept of the REF300 does not require any additional manipulation, saves space and is easy and quick to integrate into existing processes. By using the well-known and

approved NUMTEC barcode system and a flexible wheel clamping unit, the machine can operate in mixed production. All machining parameters can be modified, taught in and a completely flexible manner for each single wheel type. The teach-in process of new wheel types is done fully automatically by using a scanning system based on laser sensors to the wheel contour. A taught wheel will move into the machine, it will get pre-centered, the conveyor will lower down, and the wheel will be clamped on a special flexible conical fixture. After clamping, the wheel will start rotating for NUMTEC barcode scanning to identify the wheel type and, in tandem with that, to check the exact wheel rest position. When the clamping is finally approved and the full automatic calculation of machining parameters is done, the CNC-machining process will start with two simultaneous running milling units to reach a high productivity. The wheel will be machined according to customer requirements at the inboard and outboard flange as well as at the parting lines at the rim. Finally, the conveyor will lift the wheel back up and move the wheel out on the roller conveyor.

YOUR ADVANTAGES

- » Fully automated production
Wheels are fully deflashed to ensure a safe handling during the automated production process.
- » No X-ray pseudo errors
Flashes can cause pseudo errors during the automatic X-ray process.
- » Robot manipulation
Safe and repeatable gripping of the wheels with the robot during loading into the chucking devices of the lathe in the machining cell.
- » No chucking errors at the machining line
No disturbing flashes in the chucks. Especially in combination with the three-inch chuck, the flash on the outboard flange causes the majority of all problems during the first operation.

FEATURES

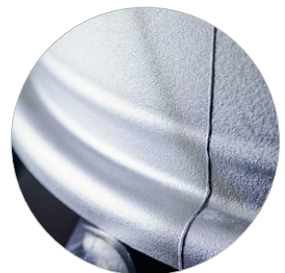
Deflashing inboard and outboard flange

Both inboard and outboard flange will be deflashed all around the wheel according to the actual need and the condition of the mold. The amount of material and the exact cutting position can be individually adjusted in the control software for each wheel type.



Deflashing of parting lines

The four parting lines based on its original contour will be fully deflashed during the machining of the wheel in the REF300. The CNC contour of the rim will be measured and stored in the system during the setup of a new wheel model. Since this works fully automatically, a full wheel setup only takes a few minutes, including CNC contour of the parting lines.



Automatic wheel identification

The REF300 deflashing machine is completely flexible and can work with mixed supply from different wheel sizes and types. The automatic wheel type identification is done in the deflashing cycle by using the NUMTEC barcode system. This enables individual deflashing programs based on the mold number to even setup perfectly to the different wear of the molds.



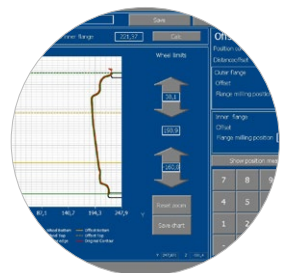
Two individual CNC machining units

The machine is equipped with two independent CNC-controlled deflashing units. In normal operation, both units will work on every wheel to speed up the machine capacity to around 120 wheels/hour. In case of a required stop of one machining unit (i.e. for change of cutting tool or machine service), the remaining CNC unit will still deflash 100% of the wheel, just with a slightly extended cycle time.



Automatic cutting speed control system

The REF300 is equipped with a fully automatic cutting speed control system. Standard flash sizes will be cut with 100% of the selected feed rate. In case of extremely massive flashes, the machine automatically reduces the feed rate to protect the cutting disc and extend the life time of the tools.



Milling tool

Powerful standard disc milling cutter with carbide tip



Flow forming wheels

With an optional special centering unit, flow forming wheels can be deflashed as well.



Remote maintenance

Possibility for remote maintenance access, if requested



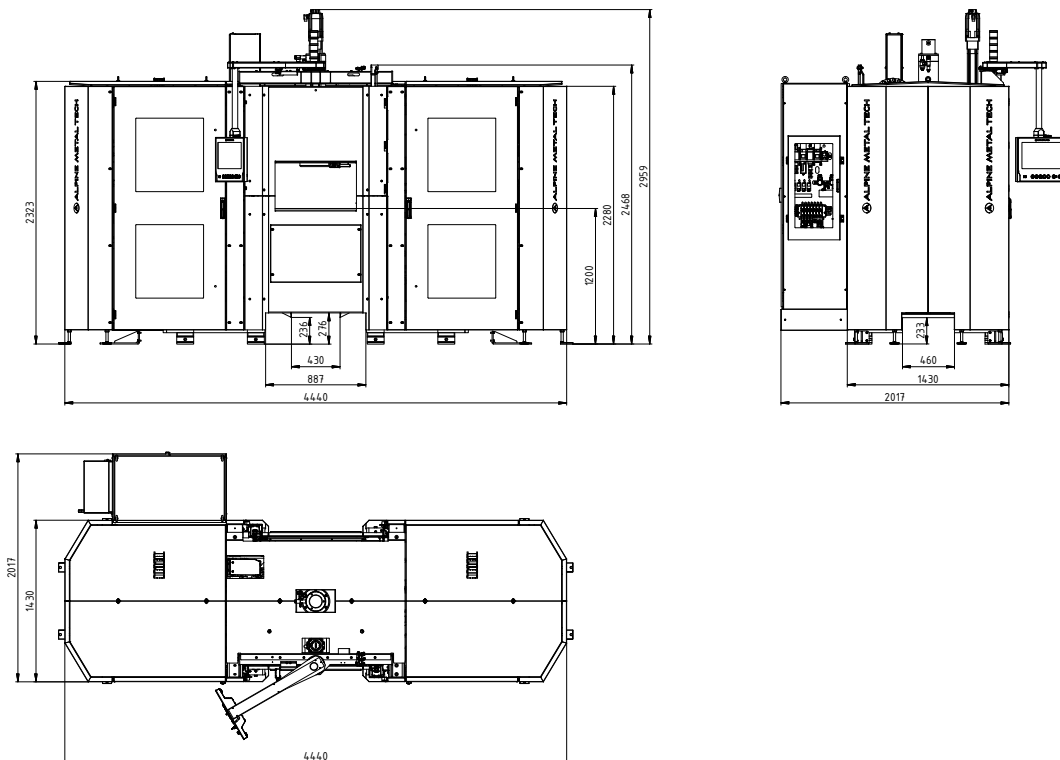


- ① Control panel
 - » Standard industrial touch panel
 - » Moveable to both service doors
 - » With position switch to avoid collision with wheels on the conveyor
- ② Connection for roller table
 - » Infeed and outfeed with standard roller conveyors
 - » Conveyor height of 1200 mm
 - » Conveyor transport speed up to 30 m/min
- ③ Maintenance door
 - » Individual service door for each CNC machining side
 - » Both machining units can be isolated individually for service work while the other side stays in production
 - » Good access for service and tool exchange

TECHNICAL DATA

Machine features	wheel clamping device	flexible chucking system
	tooling	with 3 resting bars at the wheel backside disc milling cutter with carbide tip, disc diameter 220 mm
	deflashing positions	inboard flange, outboard flange, parting lines
	wheel identification	standard NUMTEC barcode system
Wheel parameters	wheel size	15 – 24"
		420 – 670 mm
	wheel height	4,5 – 12"
		max. 365 mm
	wheel weight	max. 45 kg
	max. temperature of wheels	80°C
Performance characteristics	cutting disc speed	max. 2500 rpm, adjustable
	machine capacity	120 wheels/hour
Technical components	HMI	WinCC flexible, 19" touch display
	control system	Siemens Simotion 435D
Interfaces		Profibus, Profinet, EtherNet/IP, Parallel I/O
Media	electrical connection	3 x 400 VAC, 50 Hz, 32 KVA optional 3 x 460 VAC, 60 Hz, 32 kVA
	pneumatical connection	at least 6 bar
Machine dimensions	L x W x H	4440 x 2017 x 2959 mm
Weight		9500 kg

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