

DHS | DES

Sealing plug handling system | Sealing plug removing system



DHS

Sealing plug handling system

The sealing plug handling system is used for the fully automatic closing of the valve holes prior to helium leak testing.

The premium production of aluminum wheels requires a leak test with the rare gas helium. As part of the preparation for the helium test, the pre-drilled valve holes must be closed. In order to get a reliable test result, it is crucial to press the sealing plugs into the valve holes with consistent pressure.

The MAKRA sealing plug handling system replaces the former manual process and therefore increases the process reliability of the helium leak test. The wheels are conveyed into the machine in random order. The system is equipped with a 3-D camera system that enables the precise detection and measurement of the valve hole position. New wheel types, independent of diameter and rim width, can run through the sealing plug handling system in random order without teach-in.

The conveying system of the sealing plugs has a volume of approx. 4000 plugs and is hence sufficient for a production time of approx. 10 hours. The machine separates the sealing plugs, picks them up with a specially designed gripper and closes the valve hole reliably and safely.

Your advantages

- » Short cycle times: 420 wheels per hour, 17" wheel
- » Chaotic wheel production possible; wheel data is not required
- » High operational safety: constant press-in pressure
- » Cost reduction: automation of a former manual process



Touchscreen

Simple operation through built-in, touch-sensitive screen



Gripper

The special DHS gripper ensures that the sealing plugs are pressed in correctly and evenly. A high level of operational safety in the helium leak test is guaranteed. The press-in angle and force are variably adjustable



Wheel centering

Reliable system for centering and positioning the wheel carefully



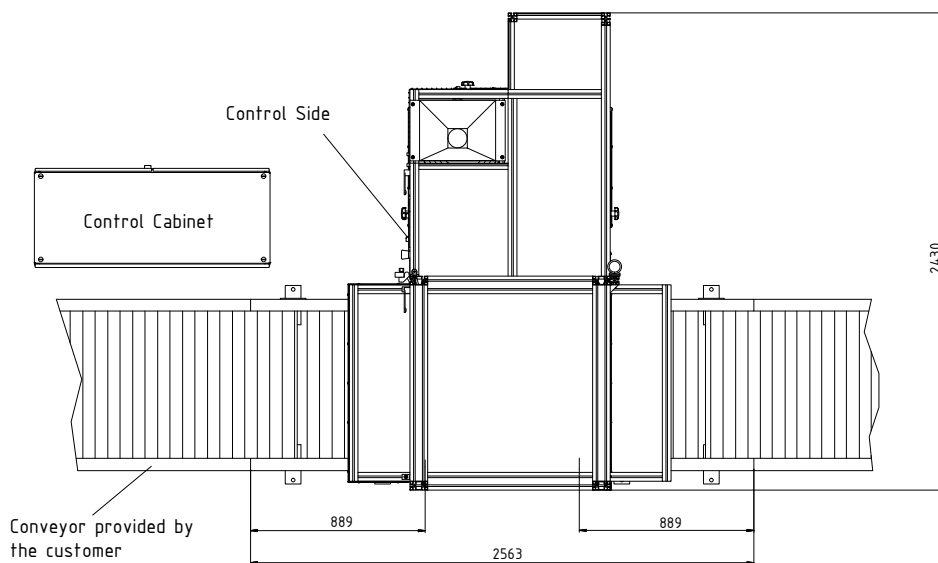
Sealing plug reservoir

A filling of approx. 4000 pcs. is sufficient to completely cover the need for plugs for one shift (max. 10 hours). To monitor the period of usage, sealing plugs of two different colors are available



TECHNICAL DATA

Machine features	technology features	detection of the valve hole by camera system 3D detection of valve hole position positioning of the wheel determination of the wheel diameter
Wheel parameters	wheel variants	optionally unpainted or painted automatic valve hole positioning
	wheel size	13 – 24"
	wheel width	4 – 13"
	wheel weight	max. 35 kg
	valve diameter	11.5 ± 0.2 mm (others on request)
	MAKRA sealing plugs	d = 9 mm, D = 15 mm, L = 40 mm
Performance characteristics	system capacity	approx. 420 wheels/hour (17")
	press-in force	adjustable 50 – 300 N
	sealing plug feed unit	reservoir filling volume max. 4000 pcs.
Technical components	HMI	7" touch display
	control system	Siemens S7 series
Interfaces		Profibus Profinet others on request
Media	electric connection	3 x 400 VAC, 50 Hz, 7.5 kW optional 3 x 480 VAC, 60 Hz, 9.5 kW
	pneumatic connection	min. 6 bar
Machine dimensions	L x W x H	2563 x 2430 x 2350 mm height with signal system approx. 3000 mm
Weight	machine	approx. 1200 kg
	control cabinet	approx. 300 kg



DES

Sealing plug removing system

The DES is used for fully automated removal of sealing plugs which have been applied by the sealing plug handling system (DHS).

To complete and support our successful sealing plug handling system (DHS) MAKRA developed the new sealing plug removing system (DES). It secures the reliable removing of the sealing plug directly after the helium leak test and before further production steps are taken. This decreases the wear and the damage of sealing plugs resulting in reduced production costs due to less human faults.

The sealing plug removing system is optimized for random production. Wheel data is not required to secure simplified separations and minimized set-up time.



Your advantages

- » Compact design: electrical cabinet completely integrated into the machine housing
- » Chaotic wheel production possible; wheel data are not required but can be transmitted
- » Integration into customer system with common interface standards possible
- » Reduced production costs: extended life time of the sealing plugs and reduction of labor costs

Integrated machine control

Compact machine design for minimum space requirement



Wheel centering & conveyor

The know-how of the centering and conveying system has been applied from the approved DHS system



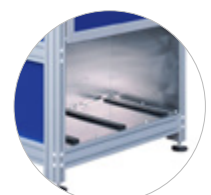
Gripper with linear sensors

Special gripper design with eject system and laser sensors for fast plug detection and plug removing



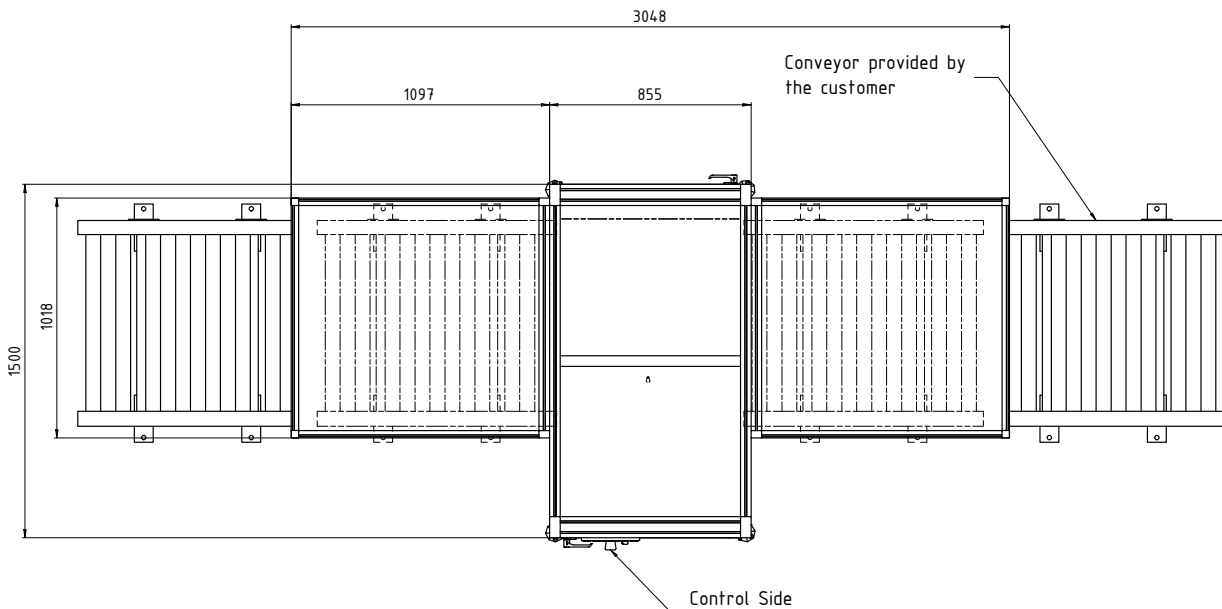
Collecting container

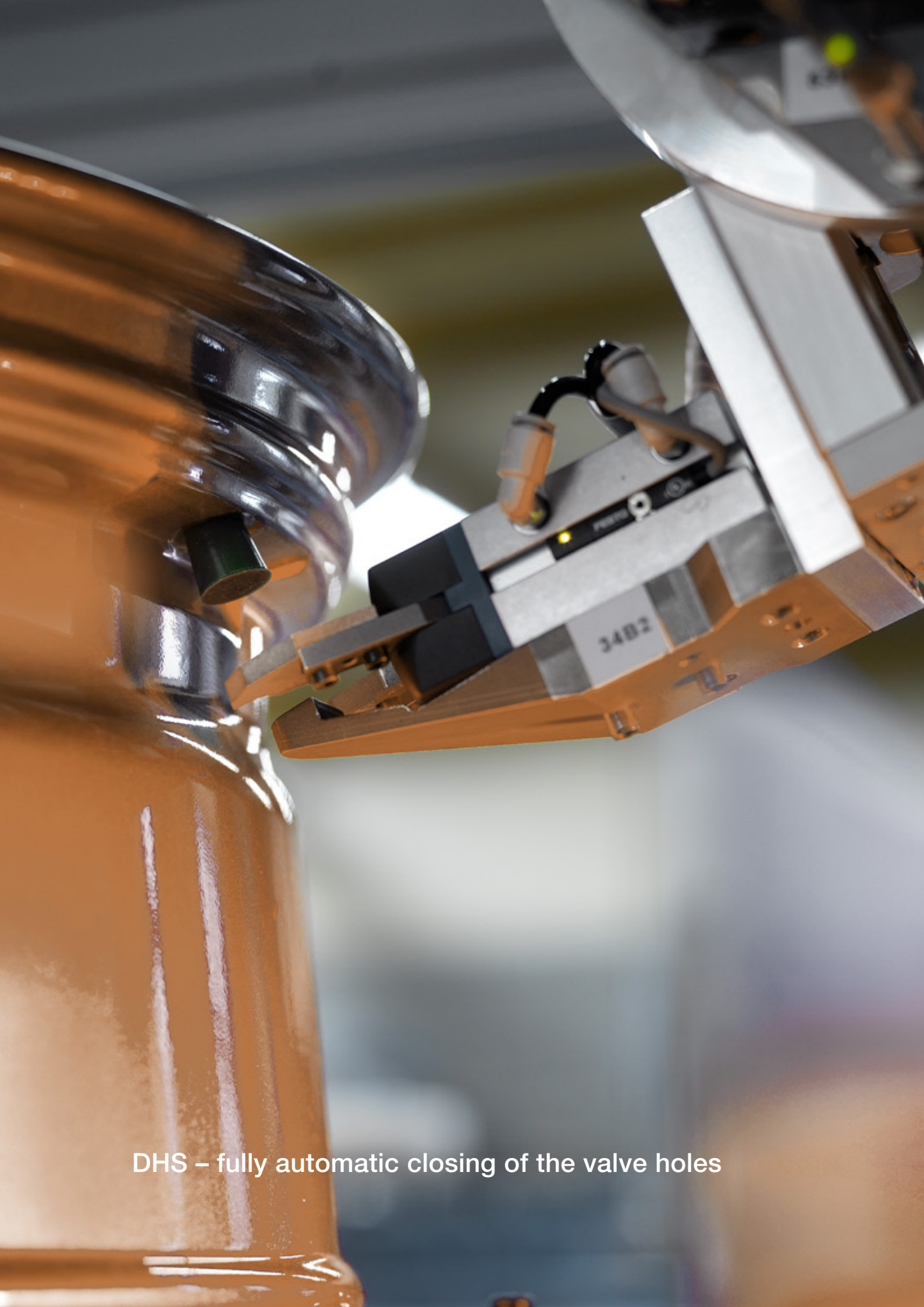
Customer friendly access to different kinds of containers or conveying systems



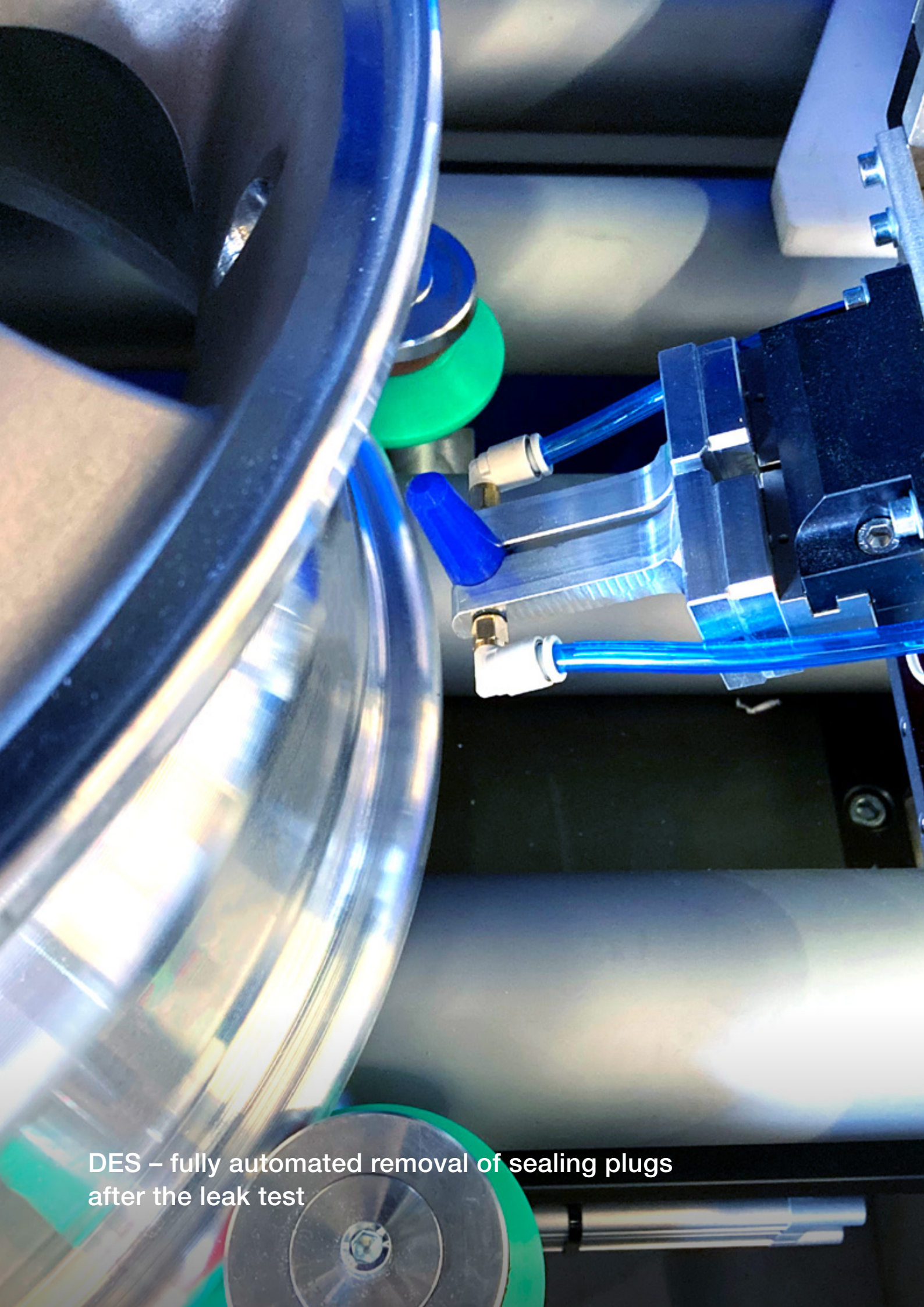
TECHNICAL DATA

Machine features	technology	fully automatic removal of sealing plug
	feature	detection of sealing plug by laser sensor
Wheel parameters	wheel variants	optionally unpainted or painted automatic valve hole positioning and sealing plug detection
	wheel size	13 – 24"
	wheel width	4 – 13"
	wheel weight	max. 35 kg
Performance characteristics	system capacity	approx. 260 wheels/hour
	collecting container	customer container (message at max. fill level)
Technical components	HMI	Siemens S7 touch display
	control system	Siemens S7 series
Interfaces		Profibus
		Profinet
		others on request
Media	electric connection	400 – 480 VAC, 16 A, 50/60 Hz
	pneumatic connection	min. 6 bar
Machine dimensions (L x W x H)	without hand guard	approx. 900 x 1500 x 2500 mm
	with hand guard	approx. 3100 x 1500 x 2500 mm
Weight		approx. 500 kg





DHS – fully automatic closing of the valve holes



DES – fully automated removal of sealing plugs after the leak test

Alpine Metal Tech Germany GmbH
Werner-von-Siemens-Straße 15
76694 Forst (Baden), Germany
Tel.: +49 7251 9751-0
E-mail: makra@alpinemetaltech.com
Web: www.alpinemetaltech.com

