

AL-ROCK

The mobile laser robot for laser hardening directly on site

The mobile AL-ROCK laser robot is the ideal tool for targeted partial hardening of metallic surfaces; for example, on cutting edges or bend radii of heavy casting molds.

With its self-driving caterpillar truck, the robot can effortlessly be driven directly into the thick of the action. On site, the flexible robot arm moves in free 3D movements, reaching even the most demanding, three-dimensional workpieces without issue. Therefore, there is no need to remove the components to be hardened.

Due to the temperature-based laser control, the heat can be applied precisely to the desired spot. This makes it possible to achieve exactly the required degree of hardness, without material distortion in the surrounding area.

During hardening, the quality assurance process is documented precisely. AL-ROCK therefore offers the highest process security and reproducibility.



A cooperation
between ALPHA LASER
and ALOtec Dresden



Components of the Laser System

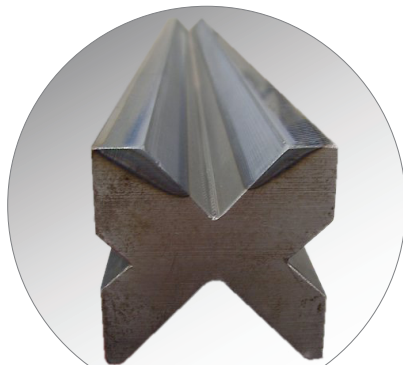
- Mobile part, including
 - Laser
 - Zoom-Optik mit Zoom optics with variable hardening gauge
 - 6-axle articulated arm robot
 - Caterpillar truck
- Station, including robot switch cabinet and water-air cooling
- Touchscreen operating console for controlling the movement system and laser
- Laser safety equipment

Options

- Mobile laser safety screens
- Turn-tilt axis
- Mirror system and beam splitter
- Smoke exhaustion
- Mobile working table
- External DCAM programming system

External dimensions	Mobile part (W × L × H)	120 cm x 130 cm x 180 cm
	Station including cooler (W × L × H)	110 cm x 190 cm x 180 cm
Weight	Mobile part	Approx. 1.300 kg
	Station including cooler	Approx. 700 kg
Electrical connection	3-phase	63A 400V 3P+PE 6h 50 Hz
Laser	Active medium	Laser diodes
	Wavelength	920 – 980 nm (invisible)
	Pilot laser	630 – 680 nm (≤ 1mW)
	Laser protection class	4
	Output	3.000 W (CW)
	Laser cooling	External water-air cooling
	Hardening	Gauges
Case hardening depth (CHD)		Approx. 2 mm (depending upon the material)
Control		Camera-led continuous laser output control LompocPro with E-MAqS camera
Focal distance		f=200 mm
Protective Gas feed		Included
Smoke exhaustion		Can be fed externally
Movement system	3-D working radius	Approx. 2 m
	Smallest programmable increment	0.01 mm
	Repeat accuracy	0.08 mm max.

Achievable Hardness – in HRC, for tool steel



Hardened bending tool made of tool steel C45, material no. 1.1730. Hardness on the surface of the bending radii: 59 HRC

