

AL-ROCK

MOBILE LASER HARDENING SYSTEM

The AL-ROCK is the first mobile robot for targeted hardening of metal surfaces – whether at the customer's site or at changing locations in the hall. With the self-driving caterpillar track, you can move the laser right to the workpiece. There is no need to remove the components to be hardened, and reworking cost is significantly reduced. All that is needed is the laser beam's free access to the processing location.

The laser beam precisely follows the workpiece contour in free 3D movements. This allows weld edges, grain structures, nubs or individual points to be hardened easily.

Temperature-dependent control of the laser power brings the heat precisely to the desired location to achieve the maximum hardness needed there.

The component's surrounding areas receive little or no heat load.

For quality control, the hardening process is documented, ensuring process reliability and reproducibility.

With the AL-ROCK, you can also perform laser deposition welding with powder or wire (with add-on modules).



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Technical Data

AL-ROCK	
LASER	
Laser type/wave length	Diode laser, 900–1070 nm
Pilot laser	red 630–680 nm (≤ 5 mW) green 532 nm (5mW)
Power	3.000 W (CW)
Focal distance	$f = 250$ mm
Shielding gas feed	Included
Laser cooling system	External water-air cooling system
Display and operation	Display 1 on mobile component Display 2 at the station with 8 mm cable for free position selection
WORK AREA	
Movement speed (X, Y, Z)	Focal spot 0–10 mm/s over component surface
Movement range (X, Y, Z)	3000 × 1000 × 1900 mm as spherical half space
Lowest working point	0 mm
Highest working point	1910 mm
Radius of 3D work area	approx. 2 m (from the booth)
HARDENING	
Gauges	Variable, from 5–30 mm (depending upon the material)
Case hardening depth (CHD)	max. 2 mm (depending upon the material)
Control	Camera-guided continuous laser output control LompocPro with E-MAqS camera
Repeat accuracy	+/- 0,08 max.
Smallest programmable path dimension	0.01 mm
EXTERNAL DIMENSIONS	
Mobile component W × D × H in mm	1200 × 1500 × 1800
Weight	approx. 1.400 kg
Station, incl. cooling system W × D × H in mm	1100 × 1900 × 1800
Weight	approx. 700 kg
EXTERNAL CONNECTIONS	
Electrical connection	63A 400V 3P+PE 6h 50 Hz Version P250 and higher: only 32A 400V 3P+PE 6h 50Hz
OPTIONS	
Mobile laser protection walls rotation/tilt axis Mirror system and beam splitter smoke extraction Mobile workbench DCAM external programming system	

ACHIEVABLE HARDNESS – IN HRC, E.G. TOOL STEEL

