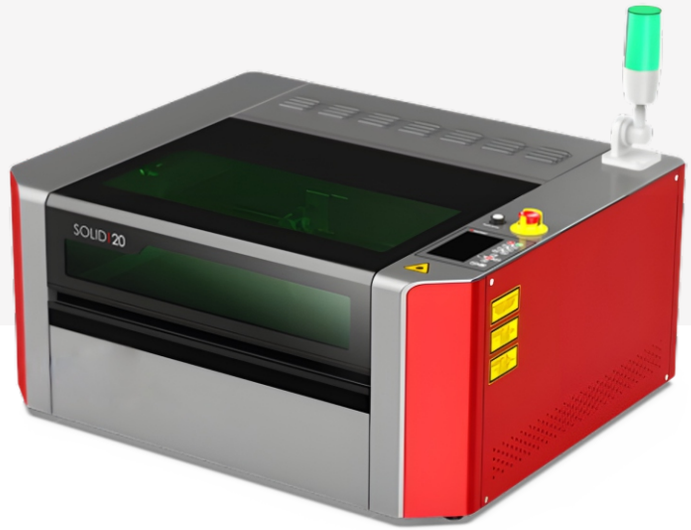
SOLID 20

COMPACT INDUSTRIAL CO_2 LASER ENGRAVING & CUTTING SYSTEM

CLASS 1 **ENCLOSED**





Product Overview

SOLID 20 is a compact, fully enclosed Class 1 CO_2 laser engraving and cutting system, designed for professional industrial, educational, and light manufacturing environments where safety, precision, and reliability are essential. The system supports both RF metal CO_2 laser sources and DC glass CO_2 laser tubes, allowing flexible configuration to meet different performance and budget requirements while maintaining European compliance standards.

1 Working Area & Mechanical Design

ITEM	SPECIFICATION
Working Area (X × Y)	500 × 300 mm
Z Axis Travel	200 mm (motorized)
Max Workpiece Height	up to 180 mm
Table Type	Honeycomb working table
Max Table Load	10 kg
Machine Structure	Rigid steel frame with vibration-damped enclosure
Drive Layout	Miniature belt drive with precision linear guide rails
Overall Dimensions (L × W × H)	approx. 950 × 780 × 550 mm
Net Weight	approx. 95 kg

2 Laser Source & Optical Configuration Optional

ITEM	CONFIGURATION	
Laser Type	CO_2 RF Metal Laser Tube	CO_2 DC Glass Laser Tube
Laser Wavelength	10.6 μm	10.6 μm
Rated Output Power	30 W	30 W
Power Control	0–100% digital modulation	0–100% analog modulation
Power Stability	±3% (typical)	±5% (typical)
Expected Laser Lifetime	⩾ 20,000 hrs (typical)	⩾ 2,000 hrs (typical)
Beam Delivery	Fully enclosed flying optical path	
Focusing System	Mechanical autofocus	
Standard Lens	2.0"focal length	
Optional Lenses	1.5" / 2.5"	
Minimum Line Width	⩽ 0.15 mm (material & lens dependent)	
Red Dot Pointer	Coaxial red laser pointer	

3 Motion System & Precision Performance

ITEM	SPECIFICATION
Motion Structure	XY gantry system
Linear Guidance	Precision linear guide rails
Drive Mechanism	Direct-drive synchronous belt
Motor Type	Digital stepper motors (direct-coupled)
Max Engraving Speed	up to 1000 mm/s
Max Travel Speed	up to 1200 mm/s
Positioning Accuracy	±0.05 mm
Repeatability	±0.03 mm
Control Resolution	0.001 mm

4 Control Software & Production Workflow

ITEM	SPECIFICATION
Control Mode	PC-based driver & control software
Supported OS	Windows 10 / 11
Supported File Formats	AI, PDF, DXF, SVG, PLT, BMP, JPG, PNG
Color Mapping	Multi-layer, multi-parameter processing
Material Database	Integrated, user-editable
Camera Vision	CCD camera for positioning (optional)
Network Interface	USB / Ethernet
Barcode & QR Code	Supported
Rotary Device	Supported (roller or chuck type, optional)
External I/O	Door & exhaust interlock, external start/stop

5 Safety Architecture & Laser Classification

ITEM	SPECIFICATION
Laser Safety Class	Class 1 (fully enclosed system)
Safety Enclosure	Fully enclosed metal housing
Door Interlocks	Dual-channel safety interlock monitoring
Emergency Stop	Compliant with EN ISO 13850
Key Switch	Standard
Laser Status Indicator	Visual emission indicator
Protective Viewing Window	IR-absorbing window suitable for 10.6 μm
Operator Exposure	No laser radiation exposure during normal operation

6 Exhaust, Utilities & Environmental Conditions

ITEM	SPECIFICATION
Exhaust Port Diameter	Ø100 mm
Recommended Airflow	⩾ 400 m³/h
Air Assist	Integrated, adjustable
Cooling System	Air cooling (RF) / external water cooling (DC tube)
Power Supply	AC 220–240 V, 50/60 Hz, single phase
Rated Power Consumption	⩽ 1.2 kW
Noise Level	⩽ 60 dB(A) @ 1 m
Operating Temperature	15–30 °C
Operating Humidity	30–70% RH (non-condensing)

Application



SOLID 20 is a desktop laser system for education, laboratory, and fine marking applications, suitable for light-duty processing of acrylic, wood, and paper.