SOLID 98

LARGE-FORMAT INDUSTRIAL CO_2 LASER CUTTING SYSTEM



Product Overview

SOLID 98 is an extra-large format, open-architecture industrial CO_2 laser cutting system, designed for high-throughput cutting of large sheets and oversized components. The platform adopts a dual-drive servo motion system with rack & pinion and ball screw transmission, enabling high dynamic stability, long-travel accuracy, and scalability to high laser power levels. The system supports both RF metal CO_2 lasers and high-power DC glass CO_2 laser tubes, providing flexible configurations for precision cutting or cost-optimized industrial production lines.

1 Working Area & Mechanical Design

ITEM	SPECIFICATION
Working Area (X × Y)	2500 × 1300 mm
Z Axis Travel	350 mm (motorized)
Max Workpiece Height	up to 320 mm
Table Type	knife blade cutting table
Max Table Load	⩾150 kg
Machine Frame	Heavy-duty welded steel gantry strure
Motion Architecture	Gantry type, dual-drive configuration
Transmission System	Rack & pinion + precision ball screw
Linear Guidance	Heavy-load precision linear guide rails
Drive Configuration	Dual-drive (X-axis)
Overall Dimensions (L × W × H)	approx. 3600 × 2200 × 1500 mm
Net Weight	approx. 1800 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	100 W / 150 W / 200 W	100 W / 130 W / 150 W / 180 W / 200 W
Power Control	0–100% digital modulation	0–100% analog modulation
Power Stability	±3% (typical)	±5% (typical)
Expected Laser Lifetime	⩾ 20,000 hours (typical)	⩾ 2,000 – 3000 hours (typical)
Modulation Response	High-speed RF modulation	
COMMON OPTICAL CONFIGURATION		
Beam Delivery	Fully enclosed beam path (laser source to cutting head)	
Focusing System	Motorized autofocus cutting head	
Standard Lens	2.5" focal length	
Optional Lenses	4.0" / 5.0"	
Minimum Line Width	⩾ 0.2 mm (material & lens dependent)	
Red Dot Pointer	Coaxial red laser pointer	

3 Motion System & Precision Performance

ITEM	SPECIFICATION
Drive Motors	AC servo motors (direct-coupled)
Feedback System	Absolute encoder closed-loop control
Max Cutting Speed	up to 600 mm/s
Max Travel Speed	up to 1200 mm/s
Positioning Accuracy	±0.08 mm
Repeatability	±0.05 mm
Control Resolution	0.001 mm

4 Control Software & Production Workflow

ITEM	SPECIFICATION
CNC Controller	Industrial PC-based CNC control
Operating System	Windows / Industrial RT kernel
Supported File Formats	DXF, DWG, AI, PDF, PLT
Cutting Parameter Library	Material-based cutting database
Nesting Software	Supported (optional)
Network Interface	Ethernet
Fieldbus	Profinet / EtherCAT (optional)
I/O Interfaces	External start/stop, safety chain, extraction interlock
Automation Interface	Loading/unloading system ready

5 Safety Architecture & Laser Classification

ITEM	SPECIFICATION
Laser Safety Class	Class 4 (open system)
Safety Strategy	System-level risk assessment & mitigation
Area Protection	Light curtains / safety fences (optional)
Emergency Stop	Multi-point E-stop, EN ISO 13850 compliant
Key Switch	Standard
Warning Indicators	Visual & audible laser warning
Safety PLC	Optional, EN ISO 13849-1 compliant
Operator PPE	Laser safety eyewear required

6 Exhaust, Utilities & Environmental Conditions

ITEM	SPECIFICATION
Exhaust Port	⩾Ø250 mm
Recommended Airflow	⩾ 2000 m³/h
Assist Gas	Compressed air / nitrogen (optional)
Cooling System	Industrial water chiller
Power Supply	AC 380–400 V, 50/60 Hz, three-phase
Rated Power Consumption	⩽ 10 kW
Noise Level	⩽ 70 dB(A) @ 1 m
Operating Temperature	15–30 °C
Operating Humidity	30–70% RH (non-condensing)

Application



SOLID 98 is a large-format industrial cutting system for high-volume production, enabling continuous processing of large acrylic sheets, industrial foams, and similar materials.