DIGITAL
ELECTRONICS PLC

1390 CO_2 CNC LASER MACHINE



1. MACHINE OVERVIEW

- Working Area: 1300 mm × 900 mm (1390)
- Machine Dimensions: 1900 mm (L) × 1500 mm (W) × 1000 mm (H)
- Machine Type: Industrial CO_2 CNC Laser Cutting & Engraving System
- Controller: Ruida RDC6445 / RDC6442 (CO_2 Laser DSP Controller)
- Laser Power: 150W CO_2 glass tube
- Laser Tube Model: Typically RECI W6 or equivalent
- Cooling System: Industrial CW-5200 Water Chiller
- Frame Structure: Welded steel body, vibration-treated

2. MOTION SYSTEM

X-Axis

- Motor Type: NEMA 23 Stepper Motor
- Transmission: 1:3 gear reduction (timing belt reduction)
- Linear Guide: Hiwin-type Linear Rail System
- Drive Type: Heavy-duty GT3 or GT2 timing belt

Y-Axis

- Motor Type: Dual NEMA 23 Stepper Motors
- Transmission: 1:5 gear reduction (timing belt reduction)
- Linear Guide: Dual Hiwin-type Linear Rail System
- Drive Type: Dual synchronized timing belts

Stepper Drivers

- Digital Stepper Drivers: DM556 / DM542 or equivalent

3. LASER & OPTICS

- Laser Type: Sealed CO_2 glass tube, 10.6 μm wavelength
- Rated Laser Power: 150W
- Beam Delivery: Fully enclosed optical path
- Mirrors: MO (molybdenum) high-reflective mirrors (3-piece set)
- Lens: ZnSe focusing lens, F=63.5 mm or F=101.6 mm optional
- Max Cutting Thickness (Approx):
- Acrylic: 20–25 mm
- MDF: 10–12 mm
- Plywood: 8–10 mm
- Leather/Fabric/Paper: Yes
- PVC: Not recommended

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4. ELECTRICAL SYSTEM

- Laser Power Supply: Matching 150W high-voltage PSU
- Input Voltage: 220–240V AC, 50/60 Hz
- Mainboard: Ruida DSP controller
- Emergency Stop: 1× E-Stop emergency shutdown
- Air Assist Control: Automatic via Ruida relay output
- Exhaust Control: Automatic or manual control

5. SOFTWARE

- Supported Software: RDWorks
- LightBurn (Recommended)
- Supported File Types: AI, DXF, PLT, BMP, JPG, PNG, SVG, etc.

6. ASSIST SYSTEMS

- Air Assist
- Compressor: 0.03–0.1 MPa output
- Purpose: Keeps lens clean & improves cutting quality
- Duct Size: 150 mm
- Water Cooling
- Chiller: CW-5200 recommended (closed loop)

7. MACHINE PERFORMANCE

- Max Engraving Speed: 300mm/s – 500 mm/s (depends on Ruida settings)
- Max Cutting Speed: 30–100 mm/s (material dependent)
- Positioning Accuracy: ±0.05 mm
- Repeat Accuracy: ±0.02 mm
- Power Consumption (total): 2.5–3 kW max

8. PACKAGE & WARRANTY

- Laser Tube: 6–10 months (brand dependent)
- Machine: 1 year

9. Included Accessories

- USB cable
- Air pump
- Tool kit
- Lens & mirror kit