4-Axis Compact Laser Processing Workcell

Welding, Cutting or Drilling

COMPACT
WELDING WORKCELL

Applications

- Spot Welding
- Seam Welding
- 2D Cutting
- Tube Cutting
- Via Drilling
- Medical Devices
- Electronic Enclosures
- Electrical Contacts
- Sensors & Transducers
- Automotive Components

Features

- 4-Axis Part Movement
- Choice of IPG's Lasers: CW or QCW
- Lasers Internally Mounted with Zero Maintenance
- Small Footprint & Narrow Width
- Choice of Cutting, Welding or Drilling Process Heads
- Automated Vertically Opening Front Door
- Rotation about X-axis
- CDRH CLass 1 Laser Safety Enclosure

IPG's 4-Axis Compact Workcell is a highly cost-efficient tool for processing smaller size metal components and enclosures. The high pulse energy and high peak power of the QCW laser enables cutting and drilling of a wide range of material types including steel, aluminum and alloys.

The Compact Workcell's rugged industrial construction includes a granite base and superstructure for thermal and mechanical stability, is easily programmed for maximum tool flexibility and features an internally mounted laser to minimize its' footprint. The Laser Welding Workcell, fiber laser and welding head are ***designed, manufactured and supported by IPG*** –your partner for precision laser welding systems.

Optional System Features

- Fume Extraction System
- Laser Power Meter
- Wobble & Seam Tracking Head
- High Precision X-Y Stages
- High Precision Rotary Stages
- Beam Expansion for High Power Welding

4-Axis Compact Laser Processing Workcell

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Laser Power Options

- CW High Efficiency Lasers: 300, 500 W
- QCW High Peak Power Lasers: 150/1500, 300/3000 & 450/4500 W
- Laser is Internally Mounted, Saving Energy & Space

System Enclosure

- CDRH Class 1 Enclosure with Laser-safe Viewing Windows
- Automated Vertically Opening Front Door
  Operation from HMI or G-code Programmable
- Access Panels on Front and Sides of Cell for
  Easy Access & Maintenance

Modular Work Area

- 250 mm X Travel , 250 mm Y Travel, 200 mm Z Travel
- Aluminum T-slot Tooling Table
- Rotary Stages Available for X-axis

IPG's 4-Axis Compact Workcell

Workcell Features

Beam Delivery Options

Cutting & Drilling Head

- IPG's FLC-D30 or MicroCutting Head
- Off-axis Viewing System
- Supports 2 Process Gases

Welding Head

- IPG's FLW-D30 or D50 Welding Head
- Coaxial Viewing System
- Supports One Process Gas
- Optional D50 Wobble Module

User Interface

- Intuitive HMI for Machine Control
- G/M-code Programming
- CAD/CAM Software (Optional)

Up to 4-Axes of Coordinated Motion for 2D, Tube & 3D Materials Processing

- Ball Screw Driven Stages with 250 mm Travel
- Stages are Sealed to Protect against Damage, Contamination & Debris

Compact Footprint

- 1240 D x 840 W x 2230 H mm (49 x 33 x 88”)
- Minimizes Floor Space Requirements
- Ergonomic Work Height-

  Easy Part Loading and Unloading

Why IPG’s Multi-axis Workcell?

Fast Production Laser Processing
High-force Motion Systems and Low-mass Processing Heads

IPG’s Fiber Reliability
No Laser Maintenance
No Mirrors to Clean or Align

Low Operating Costs
Low Facilities Costs
Some Models Don’t Require Chillers

Size Matters
As Little as 4.2 square feet of Bench Space

Affordable
The Right-sized Machine for Your Parts

Broad Capabilities
Cut, Weld or Drill Steel, Aluminum & Highly Reflective Metals
with Great Results

Simple Production Implementation
Process Development & Automation by IPG

Single Point Service & Support
Laser & Workstation
Designed, Built & Supported by IPG

Position your Business for Growth with IPG

4-Axis Compact Laser Processing Workcell

Welding, Cutting or Drilling

System Specifications

	Compact Workcell
Laser Power Options, W	CW: 300, 500 QCW: 150/1500, 300/3000 & 450/4500
Beam Delivery-Cutting	IPG's FLC-D30 or FLC Microcutting Head Includes Off-axis Viewing System
Beam Delivery-Welding	IPG's FLW-D30 Welding Head Includes Co-axial Vision & Single Process Gas Support FLW Wobble Module (Optional)
Work Envelope, X:Y:Z, mm, in.	250 x 250 x 200 10 x 10 x 8
X-Y-Stage Travel	X: 250 mm, 10 in., Y: 250 mm, 10 in. Accuracy: ±24 µm (1.0 mils); Repeatability: ±3 µm (0.12 mils); Velocity: 100 mm/sec (236 in/min)
X-Y Stage (Option)	Accuracy: ±12 µm (0.5 mils); Repeatability: ±2 µm (0.08 mils); Velocity: 1 m/sec (2360 in/min)
Z-Stage Travel	Z: 200 mm (8") Accuracy; ±24 µm (1.0 mils); Repeatability: ±3 µm (0.12 mils); Velocity: 100 mm/sec (236 in/min)
Tooling	Aluminum T-slot Table
Rotation Stage (X-axis): Gear Drive	Travel: 360° Continuous, Speed: 30 rpm max; Accuracy: ±180 arc-sec Repeatability: ±45 arc-sec 5C Collet, 3 Jaw Chuck
Rotation Stage Options (X-axis): Direct Drive	Travel: 360° Continuous; Speed: 600 rpm max; Accuracy ±10 arc-sec Repeatability ±4 arc-sec; Integral, Pneumatic ER25 Collet Chuck
Controls/ Interface	Industrial Motion Controller, Full Look-ahead Contouring Capability Laser Power Proportional to Velocity, Windows-based CNC Interface G/M-code Programming, Editable Materials and Laser Parameter Database
Process Gas	Cutting: Computer Controlled Pressure Regulator Solenoid Valve & Flow Switch for Two Process Gases Welding: Manually Adjustable Pressure Regulator & Computer Controlled Solenoid Valve and Flow Switch for One Process Gas
Exhaust	4" Blast Gate with Exhaust Plenum for Optional Welding Table
Safety	CDRH Class I Laser System (Complies with 21 CFR Chapter 1, Subchapter J)
Dimensions, LxWxH, mm, in.	1240 x 840 x 2240 49 x 33 x 88

***IPG's Laser Processing Workcell can be custom configured to include additional rotary axes & part handling capabilities. Please consult IPG for custom laser machining solutions.*

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