

Laser Cutting 4-Axis Workcell


Laser Cutting for Small Parts

CUTTING WORKCELL



Applications

- ▶ 2D Part Cutting & Drilling
- ▶ Tube Cutting
- ▶ 3D Contouring
- ▶ Medical Device and Sensors
- ▶ Automotive Components
- ▶ Electronics Enclosures




Features

- ▶ Highly Configurable and Versatile
- ▶ Choice of IPG's Lasers: 500 W to 4000 W
- ▶ Rotation about any Axis
- ▶ CDRH Class 1 Laser Safety Enclosure
- ▶ X-Y-Z Precision Linear Stages



IPG's Laser Cutting 4-Axis Workcell is a compact and highly cost-efficient tool providing 2D and 3D laser cutting for prototype environments or as supplemental laser machining capability in production machine shops.

With a rugged industrial construction, this system includes a granite table and superstructure for thermal and mechanical stability. The high-accuracy linear drive motors and low-mass cutting head are optimized for the rapid motions associated with small-part machining. The Laser Cutting Workcell, fiber laser and cutting head are **designed, manufactured and supported by IPG**—your partner for precision laser cutting systems.



Optional System Features

- ▶ Micro Cutting Head
- ▶ Fume Extraction System
- ▶ Automatic Door Mechanism
- ▶ Laser Power Meter

Laser Cutting 4 Axis Workcell

Laser Cutting for Small Parts

Laser Options

- CW: 500, 1000, 2000 and 4000 Watt
- QCW: 150/1500, 300/3000 W and 450/4500 Watt
- Lasers below 1000 W can be Internally Mounted Saving Space
- YLS Lasers >1000 W Housed in NEMA 12 Air-conditioned and Sealed Cabinet
- YLS Lasers have Module Redundancy for Increased Tool Availability
- Wide Choice of IPG Fiber Lasers Available (Other Lasers Available; Please Discuss with IPG)

System Enclosure

- CDRH Class 1 Enclosure with Laser-safe Viewing Windows
- Front Doors Available as Manual or Automatic Operation from HMI or G-code Programmable
- Access Panels on Front and Sides of Cell for Easy Access and Maintenance

Modular Work Area

- 500 mm X Travel, 300 mm Y Travel, 300 mm Z Travel
- Aluminum T-slot Tooling Table
- Rotary Stages Available

Beam Delivery

- IPG's FLC-D30 Cutting Head Standard, Power up to 6 kW
- Lightweight for High-speed Part Processing
- Maintenance-free Fiber Feed to Head
- Coverslide with Integrated Contamination Sensor
- Computer Control of Two Process Gas Supplies



User Interface

- Intuitive HMI for Machine Control
- Multiple Screens for Programming All Process Parameters
- G/M-code Programming
- CAD/CAM Software (Optional)

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

- Linear Stages for Demanding Applications Requiring High Speed and High Accuracy
- Stages are Sealed to Protect against Damage, Contamination and Debris

Compact Footprint

- 1600 D x 1300 W x 2220 H mm (63 x 51 x 88")
- Minimizes Floor Space Requirements
- Ergonomic Work Height- Easy Part Loading and Unloading
- Easy to Install in Existing Facilities



Laser Cutting 4-Axis Workcell

Laser Cutting for Small Parts

System Specifications

Laser Power	CW: 300, 500, 1000, 2000 and 4000 W QCW: 150/1500, 300/3000 W and 450/4500 Watt
Beam Delivery	IPG Photonics' FLC-D30 Cutting Head (Standard) Micro Cutting Head (Optional) Includes Off-axis Viewing System
Work Envelope	X: 500 mm (19.6 in.); Y: 300 mm (12 in.); Z: 300 mm (12 in.) Work Piece Coverage Depends on Selection of Stage Options Below
X Stage Option Y Stage Option	Drive: Travel: 500 mm, Accuracy $\pm 8 \mu\text{m}$, Repeatability $\pm 2 \mu\text{m}$, Velocity 1 m/sec Direct Drive: Travel: 300 mm, Accuracy $\pm 8 \mu\text{m}$, Repeatability $\pm 2 \mu\text{m}$, Velocity 1 m/sec
Z-Stage Option	Ball-screw Drive: Travel: 300 mm, Accuracy $\pm 25 \mu\text{m}$, Repeatability $\pm 3 \mu\text{m}$, Velocity 400 mm/sec
Tooling	Aluminum T-slot Table Optional Cutting Table with Honeycomb Inserts
Rotation Stage Options (about X-axis)	Direct Drive: Travel: 360° Continuous, Speed: 600 rpm max Accuracy $\pm 10 \text{ arc-sec}$, Repeatability $\pm 4 \text{ arc-sec}$ Integral, Pneumatic ER25 Collet Chuck Gear Drive: Travel: 360° Continuous, Speed: 30 rpm max Accuracy $\pm 180 \text{ arc-sec}$, Repeatability $\pm 45 \text{ arc-sec}$ 5C Collet, 3 Jaw 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	Computer Controlled Pressure Regulator, Solenoid Valve and Flow Switch for Control of Cutting Gas up to 250 psi, Supports Two Cutting Gasses for Easy Material Changeover
Exhaust	4" Blast Gate with Exhaust Plenum for Optional Cutting Table
Safety	CDRH Class I Laser System (Complies with 21 CFR Chapter 1, Subchapter J)
Dimensions, LxWxH, mm in.	1600 x 1300 x 2220 63 x 51 x 88

The Laser Cutting Workcell can be custom-configured by IPG to include additional rotary axes and part handling capabilities. Please consult IPG for custom-designed laser cutting solutions.

+1 (508) 373-1100

sales.us@ipgphotonics.com

www.ipgphotonics.com

Legal notices: All product information is believed to be accurate and is subject to change without notice. Information contained herein shall legally bind IPG only if it is specifically incorporated into the terms and conditions of a sales agreement. Some specific combinations of options may not be available. The user assumes all risks and liability whatsoever in connection with use of a product or its application. IPG, IPG Photonics, The Power to Transform and IPG Photonics' logo are trademarks of IPG Photonics Corporation. © 2009-15 IPG Photonics Corporation. All rights reserved.

The Power to Transform®

rev. 05/15