

# IPG Photonics' Robotic Laser Workcell

from the World Leader in Fiber Lasers



Applications



Features



Advantages



[www.ipgphotonics.com](http://www.ipgphotonics.com)

■ The Power to Transform®

# System Overview

IPG Photonics' Robotic Laser Workcell



## Standard & Compact Workcells at a Glance

IPG's Robotic Laser Workcells are modular, highly-configurable workstations comprising IPG's world-leading fiber lasers, laser processing heads and a 6-axis robot. A 17-inch touchscreen monitor is the operator interface to the integrated control system that provides programmability of motion, laser parameters and processing gas.

Examples of the product range include Standard and Compact Class 1 laser safety workcells. Typically equipped with a 6-axis robot and an optional 2-axis tip/tilt positioner, the robot is used to move the laser processing head around a complex shaped stationary part. These workcells can be optionally equipped with a pneumatically actuated two-station rotary part loading system that is light-guarded and fully interlocked to ensure safe laser operation. IPG can also offer Custom designed equipment such as the 50 kW thick welding system, having a long reach for large part processing.

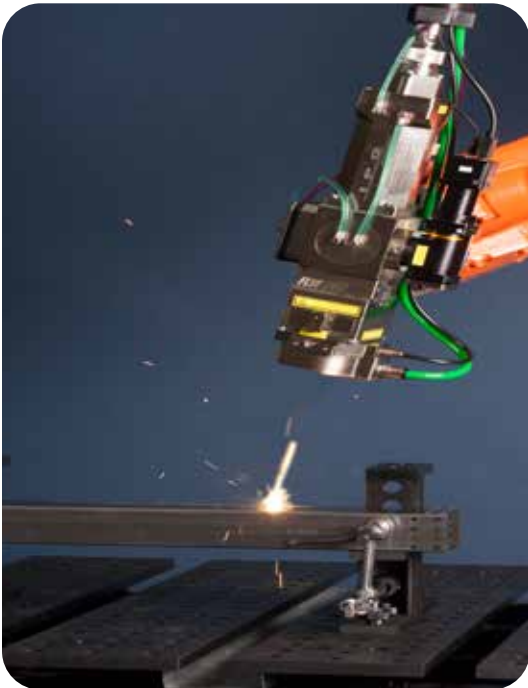


## System Applications

Cutting	Cladding
Welding	Marking
Drilling	Thick Welding



Laser Drilling



Laser Welding

Typical system capabilities are for reference only. Each primary function such as laser power, process head capabilities and robot capacity and reach is available in a range of sizes and is easily integrated into the base configuration. IPG also offers an option to equip a system for multiple applications, with automatic re-tooling between process heads.

IPG's modular approach makes systems readily customizable for your specific applications; enabling you to invest in processing capabilities optimally matched to your needs.

# Fiber Lasers & Processing Heads

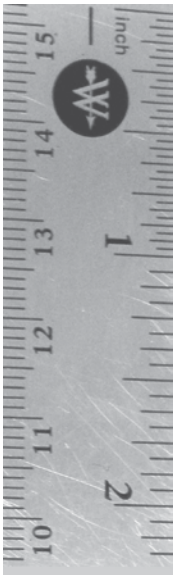
IPG Photonics' Robotic Laser Workcell



## System Versatility

IPG's Robotic Workcells enable users to choose a laser source from a unique selection of high-efficiency, high-reliability fiber lasers. IPG's fiber lasers are entirely solid state, with no mechanical cavity resonators or mirrors and no adjustable or replaceable parts within the laser. Light is outputted along a flexible optical fiber pipe that is plugged directly into the laser processing head, eliminating the need for optics and adjustments in the beam delivery path. Laser options include quasi-CW (QCW) sources having high pulse energy and high peak power for

welding and drilling, where penetrating metal with minimal heat affect is important and high-power CW lasers that provide high-speed material processing.



50 kW Power  
1.5 inches (38 mm)  
Weld Depth



## Process Head Versatility

IPG's Laser Processing Heads are specifically designed to optimize the cutting, drilling or welding performance

achieved using fiber lasers. Featuring a wide range of collimator and focus lens options, the processing heads include real-time contamination monitoring, process gas delivery and camera options in a rugged, light-weight unit.

Additional accessories include air knife, gas assist/plume suppression and seam-tracking and wobble modules for extended process flexibility. Robot Workcell options include a programmable laser beam switch and a pneumatic tool coupler to enable selection of processing head and changing of machining process.



FLW-D50 Welding Head

# System Configurations

## Types of Robotic Laser Workcells

### Standard Robotic Laser Workcell

**Enclosure:** CDRH Class 1 Laser  
Dual Wall Aluminum Panels

**Dimensions (WxDxH):** 117 x 175 x 106 inches

**Laser:** 1 kW up to 50 kW

**Processing Heads:** Cutting  
Drilling  
Welding  
Thick Welding  
Cladding

**Robot Reach/Repeatability:** 72/ 0.002 inches

**Laser Work Volume:** TBD??50 x 50 x 40 inches



Interior of Standard Robotic Laser Workcell

## Compact Robotic Laser Workcell



**Enclosure:** CDRH Class 1 Laser  
Dual Wall Aluminum Panels

**Dimensions (WxDxH):** 58 x 100 x 76 inches

**Laser:** 1 kW up to 10 kW

**Processing Heads:** Cutting  
Drilling  
Welding  
Cladding

**Robot Reach/ Repeatability:** 88/ 0.002 inches

**Laser Work Volume:** 30 x 30 x 30 inches

## Custom Robotic Laser Workcell

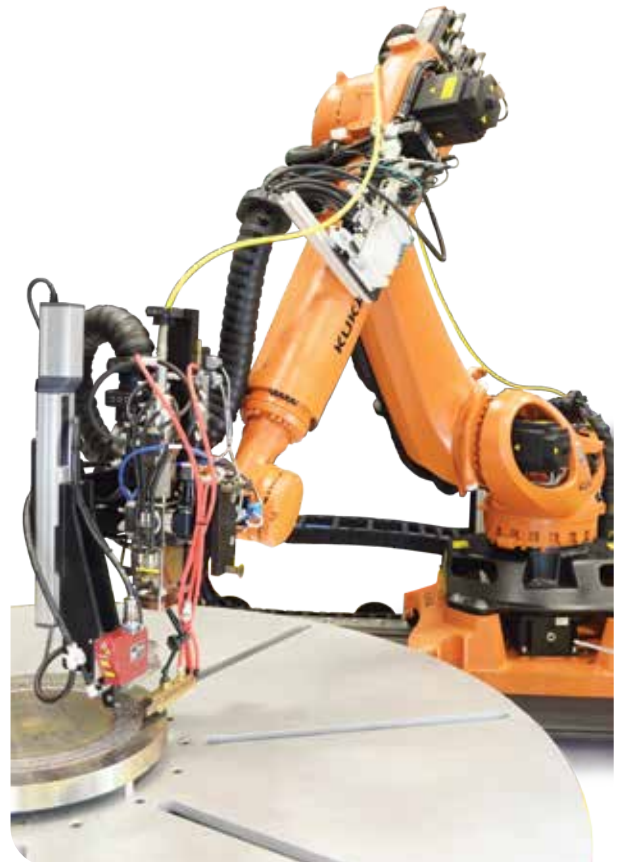
**Enclosure:** Class 4 Laser  
Open or Custom Enclosure

**Laser:** 1 kW up to 50 kW

**Processing Heads:** Cutting  
Drilling  
Thick Welding  
Welding  
Cladding

**Robot Reach/ Repeatability:** To Customers Needs

**Laser Work Volume:** To Customers Needs



## Company Overview



### Leader in Innovation

IPG Photonics is the world leader in high power fiber lasers and amplifiers. Founded in 1990, IPG pioneered the development and commercialization of optical fiber-based lasers for use in a wide range of venues such as materials processing, medical, scientific and other advanced applications. Fiber lasers have revolutionized the industry by delivering superior performance, reliability and usability at a lower cost of ownership compared with conventional lasers, allowing end users to increase productivity and decrease operating costs. IPG is headquartered in Oxford, MA with additional facilities throughout the world.



IPG Photonics World Headquarters, Oxford MA, USA



### Service & Support

As the world leader in fiber lasers, IPG Photonics is your ideal partner to provide service and support for your precision laser processing system. IPG has over 100 field service engineers, specializing in servicing industrial lasers and laser systems used in 24x7 manufacturing. North American applications and field service offices are located in Oxford, MA, Santa Clara, CA and Novi, MI. IPG's Field Service Team is comprised of experienced and highly-skilled engineers, supported by a global infrastructure including parts warehousing, applications scientists and the design and manufacturing teams that build the products.

IPG understands the rigors of today's manufacturing line and can provide customer support 24/7 depending on your needs. In addition to warranty coverage, IPG offers support packages ranging from on-demand and hourly paid service to scheduled preventive maintenance and guaranteed response times. Whatever your service preference, IPG has an option that will meet your needs.

# System Specifications

IPG Photonics' Robotic Laser Workcell

## Specification Summary

	Standard Robotic Laser Workcell	Compact Robotic Laser Workcell	Custom Robotic Laser Workcell*
Enclosure - Class 1 Laser Safety Dual Wall Aluminum Extrusion Panels Laser Safe Viewing Window		✓	
Enclosure - Class 4 Steel Wire Mesh Machine Guarding			✓
Workcell Dimensions, WxDxH, inches	117 x 175 x 106	58 x 100 x 76	Custom Design
Laser Power Options (avg power), kW	1-10		
Laser Process Head Options:			
FLC-D30 Cutting Head (12 kW)	✓	✓	✓
FLW-D30 Welding Head (6 kW)	✓	✓	✓
FLW-D50 Welding Head (10 kW)	✓	✓	✓
FLW-D50HP Welding Head (50 kW)	✓		✓
Wobble & Seam Track Module	✓	✓	✓
Cladding Head (Application Dependent)	✓	✓	✓
Beam Delivery Options	Selectable Collimator/ Focus Lenses Integrated Air-knife/ Cross-jet Integrated Shield Gas Delivery Nozzle Electronic Flow Control Water-cooled Optics Engineered Cable Management		
Robot Capabilities (Typical)	Includes Robot Controller with Motion Package & Safety Position Check		
Reach/ Repeatability, inches	61/ 0.002	88/ 0.002	121/ 0.003
Laser Work Envelope, inches	50 x 50 x 40	30 x 30 x 30	Custom Design
Controls/ Interface Options	Stand-alone Mobile HMI Stand, Industrial PC with 17" Color Touchscreen. IPG Cell Control Interface. Front panel Controls for Emergency Stop, Laser Mode, System Reset, Cycle Start, Cycle Stop		
Tooling	Heavy Duty Table to Mount Machine Tooling		
System Integration	Electrical Integration of all Components; Software Integration of Robot, Laser, Cell Safety		

*\*Specifications for the Custom Robotic Workcell are typical values.  
IPG will configure equipment to meet specific customer needs.*

**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. © 2009-16 IPG Photonics Corporation. All rights reserved.





Sales & Service ■  
 Development, Sales & Service ■  
 Manufacturing, Development, Sales & Service ■

**IPG Photonics Corporation**  
 World Headquarters  
 Oxford, MA USA  
 +1 508 373 1100  
[sales.us@ipgphotonics.com](mailto:sales.us@ipgphotonics.com)

**IPG Photonics Corporation**  
 World Headquarters  
 Oxford, MA USA  
 +1 508 373 1100  
[sales.us@ipgphotonics.com](mailto:sales.us@ipgphotonics.com)

**IRE- Polus Co.**  
 IPG Russia  
 Fryazino, Moscow RU  
 +7 (495) 702 95 89  
[mail@ntoire-polus.ru](mailto:mail@ntoire-polus.ru)

**China**  
 +86 10 6787 3377 ext. 1020  
[sales@ipgbeijing.com](mailto:sales@ipgbeijing.com)

**France**  
 +33 (0) 388 674 974  
[sales.france@ipgphotonics.com](mailto:sales.france@ipgphotonics.com)

**India**  
 +91 80 2852 4861  
[sales@ipgphotonics.in](mailto:sales@ipgphotonics.in)

**Italy**  
 +39 0331 170 6900  
[sales.italy@ipgphotonics.com](mailto:sales.italy@ipgphotonics.com)

**Japan**  
 +81 45 716 9831  
[info@ipgphotonics.co.jp](mailto:info@ipgphotonics.co.jp)

**Poland**  
 +48 32 721 22 20  
[sales.poland@ipgphotonics.com](mailto:sales.poland@ipgphotonics.com)

**Singapore**  
 +65 62722663  
[sales.singapore@ipgphotonics.com](mailto:sales.singapore@ipgphotonics.com)

**South Korea**  
 +82 42 930 2000  
[ipgk@ipgphotonics.com](mailto:ipgk@ipgphotonics.com)

**Spain & Portugal**  
 +34 937 999 971  
[sales.spain@ipgphotonics.com](mailto:sales.spain@ipgphotonics.com)

**Turkey**  
 +90 (216) 306 0317  
[sales.turkey@ipgphotonics.com](mailto:sales.turkey@ipgphotonics.com)

**United Kingdom**  
 +11 203 178 21 11  
[sales.uk@ipgphotonics.com](mailto:sales.uk@ipgphotonics.com)

