

INTEGRATED LASER WELDING SYSTEM (ILWS)



IPG's ILWS is a fully-integrated, turnkey remote laser welding equipment set. Comprising a zero-maintenance laser with laser processing head optimized for the application, and dedicated system controller, the system includes a user-friendly HMI and system control software to provide high-speed, high-precision 2D welding of metal parts.

In typical applications, the laser processing head is attached to a six-axis robot or a gantry systems for positioning over individual parts, or pallets of parts, to be welded. Industry-standard interfaces allow simple ready / complete signaling to enable the ILWS unit.

System options include vision alignment to correct part placement and positioning errors, significantly relaxing the requirements for part tooling accuracy, and LDD Real-time Weld Measurement for continuous quality monitoring.



FEATURES

- ▶ High Efficiency, Maintenance-free Fiber Laser
- ▶ 2-axis High Power, High Precision Scanner
- ▶ User Friendly GUI for Rapid Part Reprogramming
- ▶ Integrated Vision System with Powerful Automated Part Alignment
- ▶ Single Integrated Control Console for Fast Installation & Minimized Footprint



APPLICATIONS

- ▶ Heat Exchangers for Chemical/ Oil & Gas Applications
- ▶ Heat Exchangers for Domestic Heating
- ▶ Automotive Components Body, Door, Seats Batteries & Contact
- ▶ Food & Pharmaceutical
- ▶ Furniture Components
- ▶ Domestic Appliances White Goods & Electrical Cabinets"

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System Specifications

Characteristics

Integrated HMI Full HD Touch Screen Size, in	15.6 Wide	
Teleservice	LAN	
Operating Ambient Temperature, min - MAX, °C	5 to 50	
Storage Temperature without Water, min - MAX, °C	-10 to 60	
Cabinet Dimensions, W x D x H, mm	19" x 6U rack mountable x 767 mm	
Operating Voltage, 3 phase	110-230 Vac + PE @50-60 Hz	
Signal Interfaces	ProfiNet, ProfiBus, EtherCat, EtherNet IP	

Laser Options

Integrated HMI Full HD Touch Screen Size, in	YLS	YLR
Laser Wavelength, nm* verify laser characteristics with your local office	1070	

Vision System

Camera Sensor, Mpixel	2	
Camera Resolution, µm/pixel	max 25 with 400 mm Focal Length	
Focus Adjustment	By adaptive lens	
Field-of-view, mm x mm	15 x 25 with 400 mm Focal Length	
Illumination	2x Bars or 2x Anular Spot	
Illumination Wavelength, nm	625	

Beam Delivery

Process Head Model* Other process heads available upon request	Mid-Power 2D Scanner Head	HP 2D Scanner Head
Maximum Power, kW	2	12
Working Area, mm	80x80 / 160x160	110x110 / 200x200
Working Distance, mm	135 / 245	261 / 415
Weight, kg	6	14
Configuration	Vertical / Horizontal	Vertical
Repeatability, rms	<5, urad	

Characteristics
Integrated Wobbling Geometries with Variable Frequency & Amplitude
Optimized Beam Quality & Spot Size
High Quality through the Lens Vision
Adjustable High-Performance Air-Knife Assembly

The components of the ILWS constitute a Class 4 high-power laser system that requires adherence to safety procedures. It is the customer's responsibility to ensure that the system is operated in a Laser Controlled Area and conforms to all safety standards including CFR 1926.102(b)(2), ANSI Z136.1 (US) and EN207/EN208 (Europe). All users must review the Product User Guide in its entirety and be fully trained before using the ILWS Device



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MAX. AVERAGE OUTPUT POWER: 80 W
MAX. PEAK OUTPUT POWER: 40 MW
PULSE DURATION: 250-500 fs
PULSE REPETITION RATE: 20-2000 kHz
WAVELENGTH RANGE: 500-1100 nm

⚠ DANGER - INVISIBLE LASER
RADIATION AVOID EYE OR SKIN
EXPOSURE TO DIRECT OR
SCATTERED RADIATION
CLASS 4 LASER PRODUCT

IEC 60825-1:2014