IPG PHOTONICS

IPG HIGH POWER LASER SOURCE
OUTPUT POWER 20000W YLS-U/CUT SERIES

YLS-U/CUT Series is a High-Power Laser Source have been developed specifically for demanding cutting applications. Supplied in the smallest form factor available on the market, these lasers can be easily integrated within cutting machines. The lasers are packaged in a hermetically sealed cabinet containing an internal dryer, enabling the laser to be used in the harshest of production environments. The YLS incorporate the latest IPG technical improvements in the design of diode modules, fiber blocks, digital power supplies and digital control electronics, resulting in unparalleled reliability and increased control flexibility, stability and precision. The new control system allows integrated control of both laser and process subsystem. The industry-leading wall-plug efficiency over 40% results in electrical cost savings adding up to many tens of thousands of dollars over lifetime of a laser. Hot redundancy ensures 100% up time with no change in power, record reliability and maintenance-free operation.

IPG PHOTONICS

Optical Characteristics

Central Wavelength Range , nm	**: 1070 ±5**
Mode of Operation	: CW/Modulated
Modulation Frequency, kHz	: 0-5
LASER POWER	**: 20000W**
Power Tunability, %	: 10-100
Power Stability**, %	: ± 2
Optical Noise***, % RMS	: <2, typ.1
Output Fiber Core Diameter*, µm**	: 50, 100, 150, 200
Beam Parameter Product, mm × mrad	: <2.2 @ 50 µm, 2.0 typ., <4.0 @ 100 µm, 3.3 typ.,
	: <6.0 @ 150 µm, 5.0 typ., <8.0 @ 200 µm, 6.0 typ.

*** ** Over 4 hours, T=const**
***** A direct feeding fiber terminating in either an HLC-8 (QBH-type) or LCA (QD-style) connector in standard lengths of up to 30 meters. Maximum delivery fiber length is 20 m @ 50 µm. Custom connectors and fiber length are available.**

General Characteristics

Cabinet Dimensions (W×D×H)	**:** 1005 × 804 × 556 mm
Cabinet Weight	: 300-450 Kg.
Supply Voltage, 3-phase, VAC	: 400-480
Wall-plug Efficiency, %	: >40

IPG PHOTONICS

WORLD FAMOUS BRAND

- **YLS-U/CUT Series High Power Fiber Laser Source** with a powerful cutting ability with Stainless Steel, Aluminum, Carbon Steel and other Metal Materials.

LONG SERVICE LIFE

- The world leading IPG Laser Source has stable performance, the service can reach 100000 Hours and overall quality of the equipment can be guaranteed safely.

STABLE CUTTING PERFORMANCE

- Fiber Laser Source can produce excellent beam quality, finer cutting lines higher working efficiency and better machining quality. Fully closed constant temperature working environment makes Laser Source more effective to ensure stable operation.

The Highest Reliability

IPG's unique combination of technologies results in a highly reliable laser system that outperforms any traditional laser technology including disc, rod or CO_2 lasers. IPG is compact, robust fiber lasers have the longest diode lifetimes, require minimal maintenance and have the lowest down time.

Features

- Output Power 20000W
- Internal Dehumidifier
- Ultra-compact Size
- Optimized for 24/7 Cutting
- Excellent Beam Parameter Product
- Record Reliability
- Fiber Delivery 50, 100, 150 or 200 µm
- Wall-plug Efficiency >40%
- High Peak Power Piercing Option
- Cost Effective Cutting System

Applications

- 2D/3D Thin & Thick Metal Cutting
- Stainless and Mild Steel Cutting
- Processing Copper, Brass and Aluminum
- Processing Titanium

IPG PHOTONICS

A Unique Combination of Benefits

Fiber lasers have established a superior position in high average power multi-kW industrial laser applications. High power fiber lasers possess unique combination of properties that make them excel over conventional non-laser and competing laser technologies on both quality and cost:

- inherently higher brightness (high power and small spot size)
- superior reliability/ hot redundancy
- wall-plug efficiency exceeding that of high brightness direct diode systems
- modularity and scalability allowing for easy maintenance and low-down time
- fiber optic delivery with a wide choice of output fiber core diameters optimized for the application
- compact rugged design
- ease of integration with scanners and optical heads
- availability of beam switches, couplers and sharers providing unique versatility.

A Unique Combination of Advanced Technologies

High power fiber lasers are created from active optical fibers and semiconductor diodes, a merger between two of the most innovative and advanced laser technologies. Fiber lasers use single emitter semiconductor diodes as the best light source to pump the active fibers. The laser beam emitted is contained within optical fibers and delivered through an armored flexible cable. Active fibers are special optical fibers doped with rare earth ions, these allow for an extremely bright light from a very small core, thus combining multikilowatt output power with excellent beam quality. IPG uses unique set of proprietary technologies to create the highest beam quality, the most reliable and most energy efficient kilowatt class lasers available on the market today.

Fiber Lasers are Modular, Allowing Hot Redundancy

IPG YLS lasers are modular, with output of several fiber laser modules, each generating multiple hundreds of Watts of output power, combined into a single output fiber. In an unlikely event of a module failure the remaining modules will automatically compensate for the loss maintaining the output power, allowing production to continue. An error message will then alert the user of the specific issue that requires service. The laser can be operated without interruption due to redundancy of the number of modules built into the system, as well as diode pump redundancy built into each individual module. The hot redundancy of the number of pumping diodes also allows their operation at a reduced current, increasing their lifetime and the overall life of the laser.