




TECHNICAL CLAUSES FOR THE IDONIAL ACQUISITION OF A HIGH POWER LASER SYSTEM FOR HYBRID LASER WELDING

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	<p>Technical clauses for the acquisition of a High Power Laser System for hybrid laser welding</p>	<p>www.idonial.com info@idonial.com T +34 984 390 060 F +34 984 390 061</p>
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TECHNICAL CLAUSES

Technical description of a High Power Laser System for hybrid laser welding:

Equipment specifications

Idonial Welding Technologies research Unit is looking for a welding system to execute full penetration welds above 50mm thickness carbon steel plates. These technical specifications cover the minimum characteristics of the mentioned facility. Idonial Invite your company to attend this tender with an offer to provide a powerful laser welding equipment for research activities.

This laser welding system should execute high productivity and optimal welding quality with the lowest operating costs and simplest operator control.

We are considering to use a system with industrial design in compact cabinet. The system need to be prepared for a high power laser welding but, initially install around 10kW (output power operating in CW/modulated modes up to 5 kHz) in order to have the possibility of increasing the power up to 60kW in case we can weld 10 to 50 mm and over 50 mm in the future. The dynamic operation range must be from 10% to full power with no change in beam divergence or beam profile, allowing a single laser to be used for both high and low power applications in research activities for multiple industrial solutions.

Main technical features of the facility:

- 10kW high efficiency laser unit, upgradeable up to 60kW. Output power of 10,000 W will be at the workpiece.
- Laser welding head for 10-60 kW welds in Keyhole mode. 90° for working zone. Camera Adapter included. Collimator 150-200 mm. Focus 300-400 mm. A beam quality of 8 mm*mrad or better for laser light cable diameters = 200 µm, or equivalent. Processing optics based on mirror principle.
- Alternative and rotate movements of the focal point by motorized welding head.
- External Chiller for cooling the laser and optics (independent if possible) for future power of 60 kW. Water pipes should be included.
- An adequate hybrid welding optics which is necessary for hybrid laser welding is supplier responsibility. Welding equipment will be not included in this quotation but assembly and commissioning will include coupling of laser system with an existing CMTi Fronius or Titan XQ EWM power source, or similar.

- Feeding fiber cable (minimum 20m around \varnothing core200-400 μ m),
 - Laser light cable with protective hose for robot applications. Optimized for 3D robot processing.
 - Cooling system of the processing optics will use the laser cooling circuit.
 - Air knife to protect optics.
 - GAS assist system to protect the weld pool.
 - Pilot laser per output included.
 - Internal online real-time laser power control for highest power stability of typ. $< \pm 1\%$.
 - Operating panel: Panel PC connection via Ethernet; including cables and connections, free of charge software and hardware for operation, control and monitoring the welding system.
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- Language – Labels Spanish and English.
 - Operation language Spanish and English.
 - Language system messages Spanish and English.
 - Documentation on paper Spanish and English.
 - Document. Digital on data carrier Spanish and English.
 - Operator's manual language Spanish and English.
 - Interface description language Spanish and English.
 - Language of other doc. Spanish and English.
 - CE declaration. Spanish.


Laser class/ laser type:

The laser device will comply with laser class 4 as contemplated under IEC 608251; an accordant manufacturer declaration shall be issued. Appropriate measures must be taken by the supplier in order to satisfy the general laser protection standards.

With the CE marking and the EU Declaration of Conformity, the supplier should confirm that in its design and construction, the delivery item meets the basic health and safety requirements of the EU Machinery Directive 2006/42/EU.

Installation in Idonial existing facility:

Assembly and commissioning included. The system should be mounted in an existing robotic cell to move the welding head. The system is going to be installed in a laboratory facility while safety barriers or safety environment peripherals should be included in the quotation as optional items.

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Customized training

Customized training (operation and maintenance) for 4-5 people. Included in 2 steps:

- Training program for 1 week in supplier facilities.
- Training program for Idonial technical and operators for 2 weeks in Idonial facilities.

Additional services:

Remote support (onsite support available if needed) for first year. Teleservice: Supply should offer a teleservice comprising diagnosis regarding and recommendations for remedying disruptions. It will be free of charge for the first 12 months.

Extended 3-year warranty (maintenance free of charge) from the date of customer acceptance, with proper usage. The supplier will replace free of charge any component that becomes faulty during the warranty period.

Limitation period for claims for defects:

Claims for defects will be done upon the conclusion of 24 months.

Replacement part service:

The supplier should offer a replacement part service within twenty-four to forty-eight hours. The service comprises the possibility of placing an order for replacement parts by telephone outside normal business hours.