

iSL Photonics

Fiber Laser Cutting Systems

Less is more



Gladius | Optimus | Maximus

iSL Photonics Gladius

Series GLADIUS

The series GLADIUS is a high speed 2D laser cutting machine of maximum worksheet size 1050*2050mm. The compact body of the machine is smartly designed to embody all necessary systems. The dust and the metal parts that remain after cutting go straight into dust particle collectors placed under the cutting table. The laser system is intended for small and medium size manufacturing enterprises.



Less is more



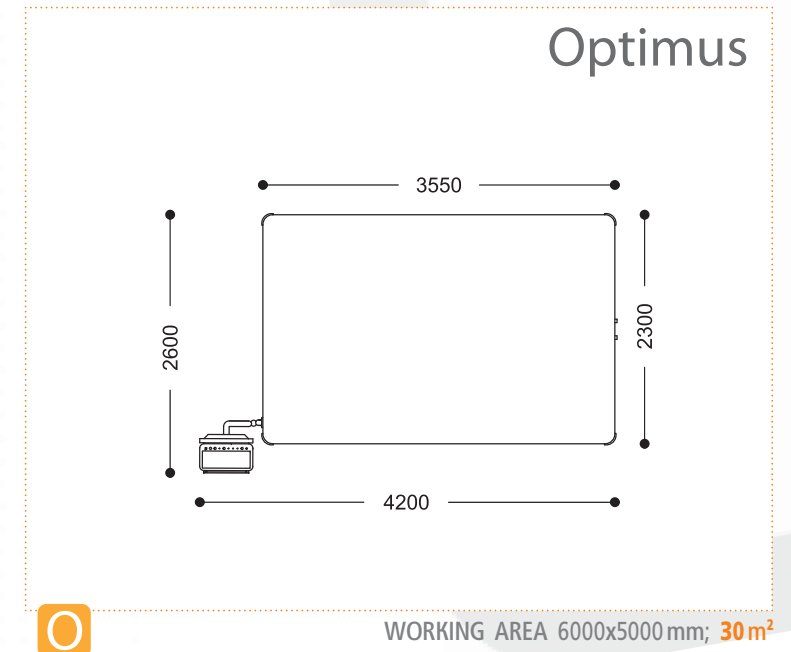
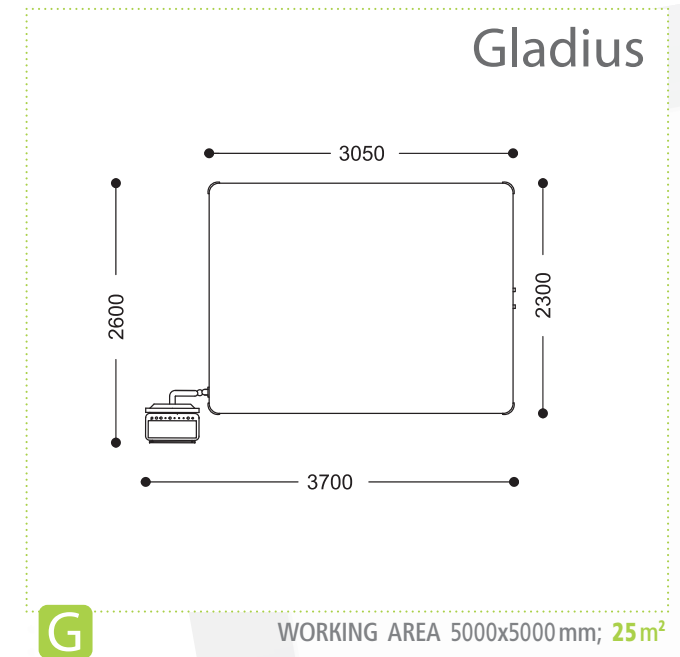
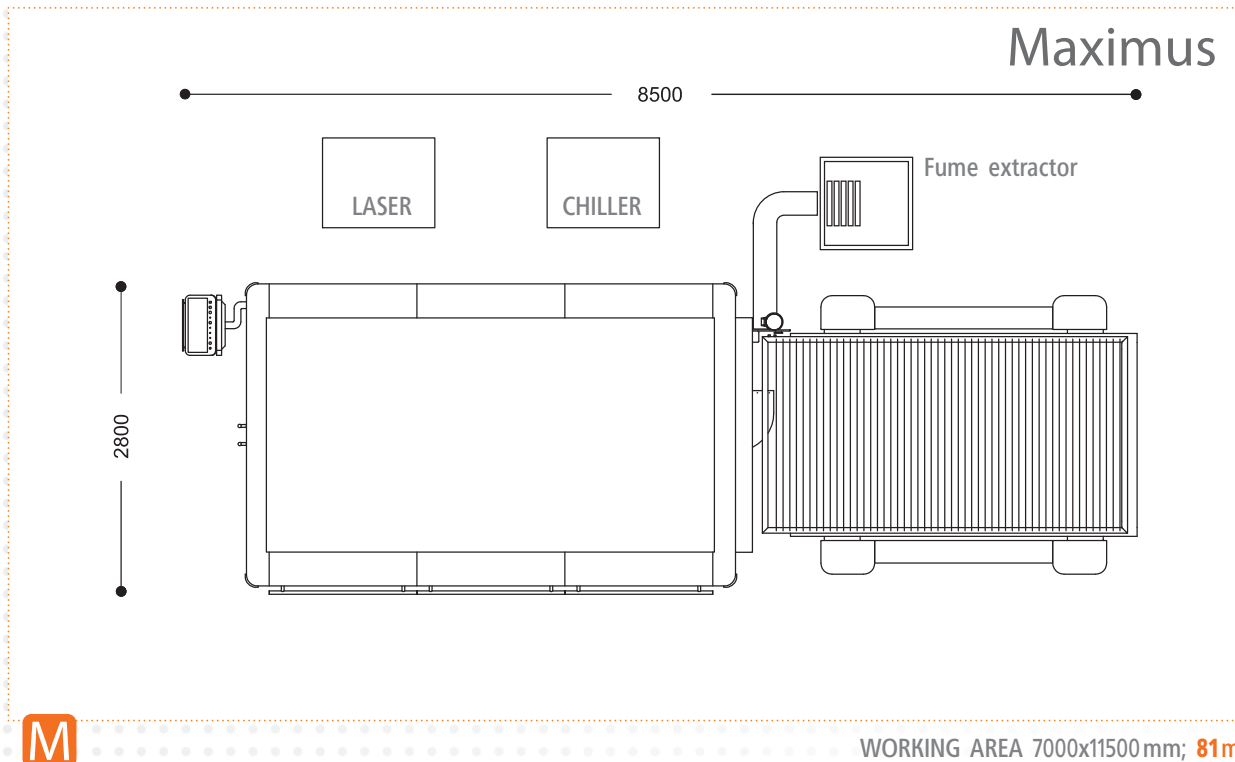
iSL Photonics

Less is more

The concept

The concept "less is more" serves as basis of the design and manufacture of our fiber laser cutting systems. Our desire is to create extremely compact machines requiring minimum working space as well as we implement them with high-tech components providing high speed, accuracy and high quality of cutting.

Layout



Series Specifications

SPECIFICATIONS	G GLADIUS	O OPTIMUS	M MAXIMUS
Fume Extractor	option	option	necessary option
Safety light barrier	included	included	option
UPS	option	option	option
ACRUPS 2® system	included	included	not necessary

Patent Pending



PATENT PENDING №112129.

Patent & Awards

The Machines have PATENT № BG 2291 U1.

iSL Photonics Gladius 400 was awarded with Gold Medal and Diploma at the 2012 International Technical Fair in Plovdiv, Bulgaria.



Our Partners:





Cutting head

ProCutter head offers a complete solution for the fiber laser cutting of thin and medium material thicknesses. High-quality optics ensures optimum shaping and guiding of the laser beam. The well-known Lasermatic® distance control guarantees a fast, accurate and drift-free distance measurement at any operation conditions and stable cutting process. The potential of the cutting head is optimally converted into productivity.

A unique electronic system is specially designed to keep safe and to prevent the cutting head from collision. In case of obstacle during the cutting process, the CNC stops the cutting ray and breaks the head movement.

LightCutter is suitable for integration in small and medium-sized flatbed cutting systems. Stainless steel and aluminum can be cut with the best cutting quality to a gauge of 5 mm, mild steel to 10 mm.

The completeness of the sealed beam input protects the optic from contaminants. A flushing air system provides protection for the collimated and focusing optics from external influences. The LightCutter can be adapted to different laser and process requirements with various lenses.

EFFICIENT

- lightweight and slim design created for fast acceleration and cutting speed
- motorized focus position adjustment for automatic machine setup and piercing work
- drift-free, fast-reacting distance measurement
- permanent protective window monitoring
- values displayed via Bluetooth

USER-FRIENDLY & SAFE

- completely dustproof beam path with protective windows
- LED operating status display
- display of operating parameters via Bluetooth and interface for machine control
- pressure monitoring in the nozzle area (gas cutting) and in the head
- monitoring of the piercing process and detection of cutting breaks with CutMonitor



Laser source

The machines from series GLADIUS/OPTIMUS have been completed with fiber optic laser sources produced by IPG Photonics, series YLR (rack mount laser module) with power capacity of 300W and 500/1500W.

The machines from series MAXIMUS have been completed with fiber optic laser sources produced by IPG Photonics, series YLS with power capacity of 1kW, 1,5kW and 2kW.



Drive system

The precise AC servo motors Mitsubishi Electric put up in motion X, Y and Z axis of the machine by helical hardened rack&pinion product of Gambini meccanica, with quality class Q7 that ensures the extreme acceleration up to 10 m/s and velocity of 80m/min. The motion is carried out by linear bearings with ball rail system a product of Bosch Rexroth. The motion between servo motor and pinion is delivered by high-precision transmission servo gearbox almost zero backlash.

HF Series-Medium-inertia Motor

- High-inertia machine accuracy is ensured.
- Range: 0.5 to 9[kW]
- Maximum speed: 4,000 or 5,000[r/min]
- Supports two types of detectors with a resolution of 260,000, 1 million p/rev.



Servo Drivers

MDS-DJ Series-Servo Drives

- Ultra-compact drive units with built-in power supplies contribute to reducing control panel size.
- The connection between the drive unit and CNC is fast and reliable optical communication.
- A high-efficiency fin and low-loss power module have enabled unit downsizing, which also leads to a reduction in control panel size.
- Higher-grade CNC performance attained



CNC Control

Mitsubishi CNC M720VW Series is a state-of-the-art model that provides high-speed and high-accuracy machining and advanced control technologies. Mitsubishi Electric Factory Automation technologies are condensed into a 64 bit RISC processor and an exclusively developed high speed LSI. The basic CNC functions, built-in PLC and graphic performance are all improved.



Control panel

An ergonomic control panel completed with implemented touch screen defines the machine as user-friendly. The operator has facilitated access to working area and can easily perform monitoring during the operation mode by the integrated Jog dial and fast access buttons on the control panel.

Filtration system

The smoke and gas filtration system itself is represented by a closed cassette type filtration system that comprises of 2 rows x 4 different in type and functionality filters. This is the filtration for the compact models GLADIUS and OPTIMUS.



Fume Extractor

The fume extractor is applicable to all models and for compact models is recommended as an option.

The main function of the fume extractor is to clean the air and take away the gases and dust released during the cutting process. The system is completed with controller that keep an eye on the cleanness of the filter elements.

If there is an indication for high value contamination of the filters self-cleaning function switches on. Cleaning is carried out by venturi nozzles.



Cooling system

There is air cooling for the machines completed with laser sources up to 500W. The cooling for machines with sources over 500W has been performed by air-water chiller that is incorporated inside or it is freestanding outside.

Gas control system

The machine is equipped with a system that automatically selects among 3 types of assisting gases and proportion valve for pressure control, which is controlled automatically by the CNC control unit. The operator chooses the assisting gas in dependence of the type of the processing material. The right assisting gas can be specified by the operator by using a preliminary created table with parameters.



G O M

Dust and particle collection system

The dust and particle collection system comprises of 3 sections for Gladius, and 4 for Optimus, as well as drawers that are located just under the working table.



G O

In Maximus the particle collection system is represented by drawers under the working table. However, Maximus itself needs a fume extractor for dust collection.



M

UPS

UPS (Uninterruptable Power System) is an electrical device that provides emergency power to a machine when the input power source, typically main power fails.

The main function of UPS is to ensure normal work of the powered equipment for a short time in case of electricity cut-off. Not only does UPS backup the power but it ensures quality power availability. At the same time, the unit keeps an eye on the parameters of the main power supply and in case of interruption or values out of the determined range, the unit automatically switch to battery supply preventing damages in the laser source and/or the electrical equipment.



G O M

Safety light barrier

In accordance with EU health and safety regulations IEC EN (BDS) 61496 1-2 working close to open moving parts that are directly accessible must be secured by active optoelectronic protective device incorporated inside the system.

The main function of the safety barrier is to provide safe protection at danger zone of the shuttle table. The device must be securely mounted to the points of access to the danger areas and any hazardous movement stopped when at least one light beam is interrupted.



M

ACRUPS 2[®] POWER REDUCTION SYSTEM



G O

ACRUPS 2[®] reduce residual power in the system that remains after cutting

The worldwide patented system aimed to reduce the useless heat power that remains after cutting.

The system comprises of copper louvers that are located between the cutting surface and the body of the machine that absorb the residual power evolved during the laser cutting process.

That way, the system keeps safe the machine parts from the destructive power of the laser beam.

Otherwise, and without existing of the ACRUPS2[®] system, the distance between the cutting surface and the components of the machine should be quite long, approx. 700-1000mm.

The system ACRUPS 2[®] enables to reduce the necessary distance by 250mm.

Such space-saving provide possibility to assemble the main components of the machine right under the working surface.

The system prevents slag from depositing on the copper louvers. That means easier cleaning and maintenance.

The system ACRUPS 2[®] is built-in the laser cutting machine for metal sheet cutting in GLADIUS and OPTIMUS.



PATENT PENDING N°112129.

HMI/CAD/CAM

MITSUBISHI

PRO-MMI from Mitsubishi is a professional HMI/CAD/CAM software specifically developed and incorporated in the laser cutting machines that brings together all functions needed for operation of the machines.

It contains the basic menus as follows:

- CNC
- Technology for cutting
- CAM modul
- CAD module
- Maintenance

That have the basic functions, such as:

- Standard: Import DXF, DWG, IGES, etc.
- Option: IGS, STL, HPGL, ESSI
- Drawing Objects: Line, Circle, Arc, Polyline, Hatch, Barcode
- Modify: Move, Rotate, Scale, Trim, Break, Erase, Mirror, Leadins, Leadouts
- Contour Tracing
- Loops, Bridges
- Copy XY, True Shape Nesting



G O M

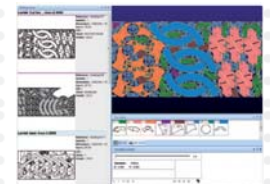
CAD/CAM

LANTEK

Lantek Expert Cut is in CAD/CAM system specially designed to automate the programming of sheet metal cutting machines. It is the result of over 25 years experience and close collaboration with both manufacturers and users of this type of machines.

It perfectly combines machine technology with the customer's programming and managements needs. Lantek Expert Cut offers an advanced, intuitive and friendly interface able to improve the user's efficiency when it comes to programming.

- Standard: Import DXF, DWG, IGES, etc.
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G O M