

iLaser

FIBER LASER



Technology & Quality

Reliability, durability and precision are a top priority at MVD. Matched only by our commitment to customer service .

Each iLaser is put through a series of quality control protocols. This allows for real time testing which aids our engineers in addressing issues before they occur. Machine components are sourced from world renowned manufactures that share our vision for quality.



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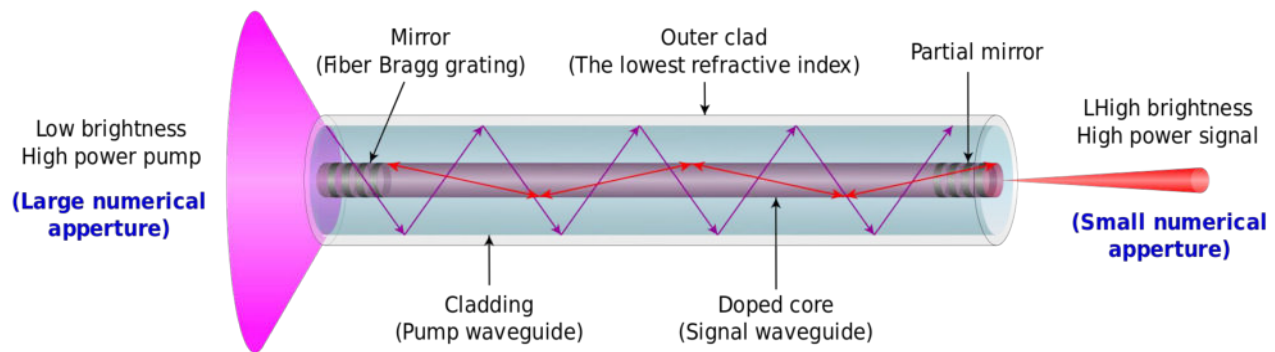


Fiber Laser Technology

High power Fiber Lasers are made of active optical fiber and semiconductor laser diodes, a combination of two of the most innovative and advanced laser technologies. The diodes act as a light source for pumping the active fiber.

The laser beam is generated in the optical fiber and is transmitted by flexible armored cable. Special active fibers are doped with rare-earth ions, allowing for extreme power generation.

The ability to focus the laser beam is improved, there is a higher rate of cutting, heat dissipation in the material is lower and the cut surface is more smooth. The average lifespan of the diodes is over 100,000 hours.



Infrared radiation is generated by a large number of laser diodes and is inputted into the optical fiber. There, with the help "Bragg mirrors", the wavelength of the generated laser beam is reduced to 1070 μm . This wavelength is about one tenth of the wavelength of a CO_2 laser.

With a wavelength of 1070 [μm] and divergence about 8 [$\text{mm} \cdot \text{mrad}$] the beam can be transmitted up to a distance of 50 [m] with unchanged quality. The active core of the fiber has a thickness of only a few micrometers.

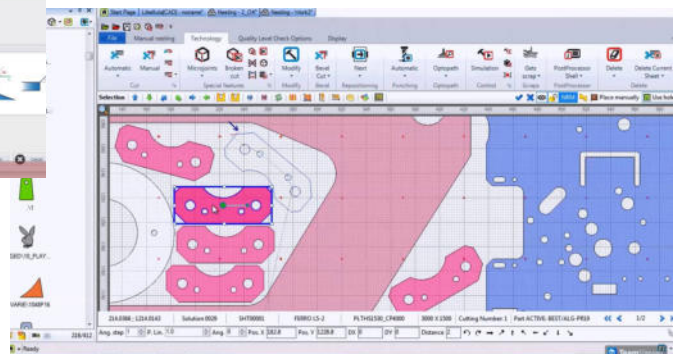
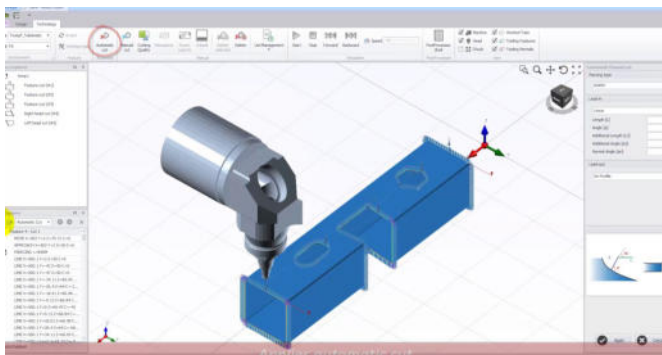
Transition of the laser beam between the resonator and the cutting head is carried over fiber. This means that there is no need for mirrors, thus avoiding the regular replacement of costly mirrors, cleaning and adjustment of the external optical way.

In comparison with the CO_2 laser, "Fiber" laser has ten times less wavelength. This makes it possible to cut virtually all types of material.

Cutting head path movements are determined by cad/cam drawings to maximize laser efficiency. By using the specifications on the cutting tables in this booklet, cutting time can be decreased considerably. Libellula is gaining acclaim as one of the most powerful cutting software solutions today. At MVD we are committed to ensuring that your iLaser preforms at it's optimum to ensure faster cutting times over your competition. After all, the programming software is where your profits are made.



A machine is only as smart as the software that operates it. Libellula focuses on research and development to ensure that your machines is working at it's optimum. Laser speeds and cutting quality are the result of intelligent cutting. Waste collection is controlled as to ensure cost efficiency at every level of the cutting process.



Optia (optional)

With the aid of a webcam optical system, Optia turns scrap material into a stock library using shape recognition.

Features

- MVD ESA control makes for easy operation and maintenance
- Solid plate box body machined in one piece
- Can be equipped with "IPG" 1,000W to 12,000W resonators
- The laser beam is transported through a fiber-optic cable preventing any power loss
- Loading and unloading of machined parts is carried out by a pallet changer table with hydraulic height adaptation during the cutting process
- The illuminated working area is fully enclosed and can be observed via a special-glass window and video surveillance

ESA

ESA uses powerful graphics to import Libellula cutting programs which allow particularly complex nesting layouts to be carried out. ESA's intelligent interface gives the operator control of virtually all laser features such as:

- gas pressure adjustment
- cutting speed adjustment
- turning the conveyor on and off
- palate changing
- focal testing
- machine referencing
- gas pressures testing

Camera Monitoring System

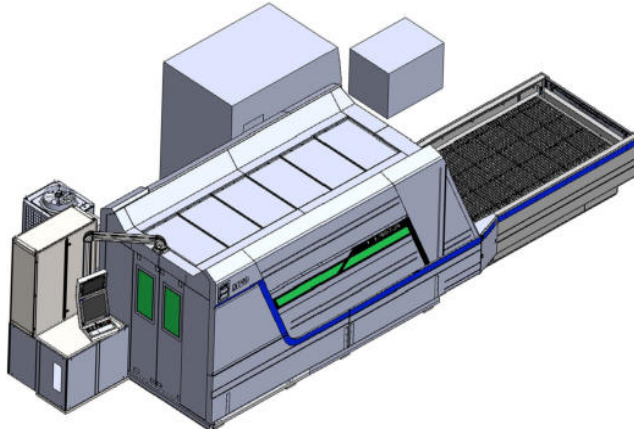
By remote access or next to the control panel, you are able to watch the work process real-time



Head Retraction

This feature prevents molten material from sticking to the tip of the laser head while piercing. Although not an issue for thinner materials it is imperative for anything above 1/4".

Construction



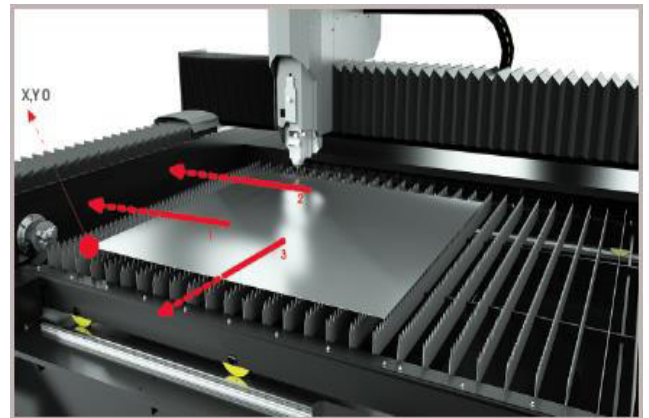
MVD lasers are built with thick plate in a box construction. The frame is machined in one piece for maximum strength with no flexing. This ensures more accuracy and repeatability. Many competitors use a much cheaper box tube construction, which is evident in the weight.

Easy access to pneumatic valves, vents and lubrication points make routine maintenance simple.

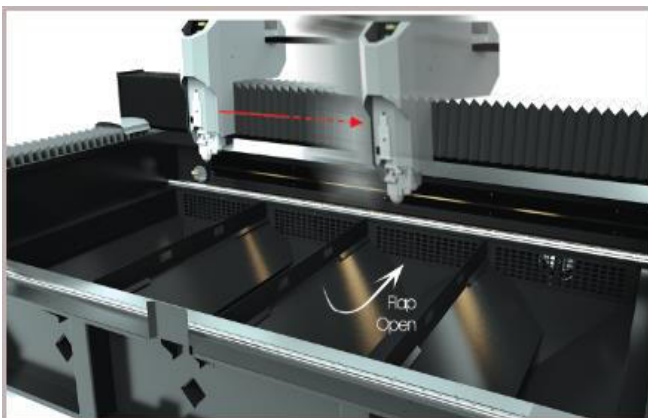
The highest grade German rack and pinion along with Italian control and drives ensure iLaser is one of the most reliable machines on the market.

Auto Detection

Sheet orientation is determined using 3-point and single point detection. This is crucial to identifying the cutting area. Single point detection is used for smaller pieces as it enables the operator to make a datum, or starting point, anywhere on the surface of the material, capitalizing on scrap pieces.



Partitioned Dust-Collection Function



An automatic flap opens and closes according to the movement of the laser head, offering on-the-spot dust collection during cutting. This concentrates the vacuum in a single area for maximum efficiency.

Technical Specifications

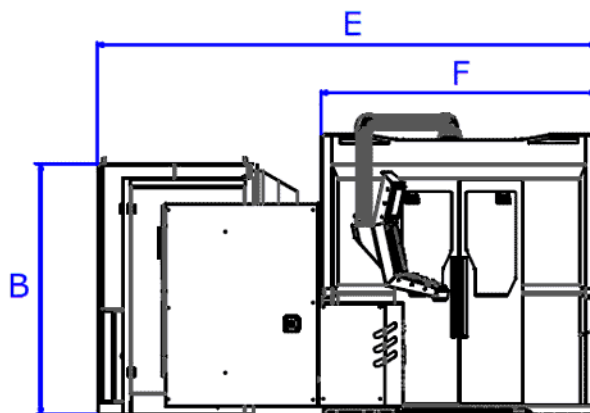
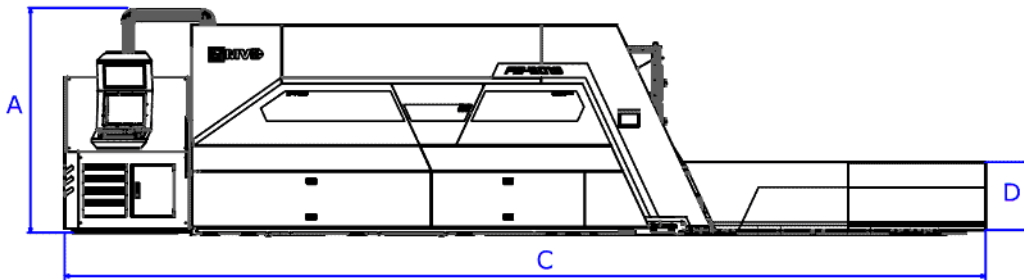
	1530	2040	2060	2080	
X Axis	3040	4030	6030	8030	mm
Y Axis	1535	2030	2030	2030	mm
Z Axis	120	120	120	120	mm
Velocity	2.5	2.5	2.5	2.5	g
Max. Axes Speed	150	150	150	150	meter/minute
Synchronized Speed	210	210	210	210	meter/minute
Positioning Accuracy	+/- 0.05	+/- 0.05	+/- 0.05	+/- 0.05	mm
Repeatability	+/- 0.03	+/- 0.03	+/- 0.03	+/- 0.03	mm
Machine Weight	16500	22200	27750	33250	kg
Max. Loading Capacity	1500	2500	4000	6000	kg
Table Change Time	24	30	45	60	sec

	1 kW	2 kW	3 kW	4 kW	5 kW	6 kW	8 kW	10 kW	
Resonator	YLS-1000	YLS-2000	YLS-3000	YLS-4000	YLS-5000	YLS-6000	YLS-8000	YLS-10000	
Output Power	100-1000	200-2000	300-3000	400-4000	500-5000	600-6000	800-8000	1000-10000	w
Mild Steel	8	16	18	20	22	25	30	30	mm
Stainless Steel	4	6	10	12	15	18	20	22	mm
Aluminum	4	6	8	10	12	15	18	20	mm
Oxygen Gas Pressure	13	13	13	13	13	13	13	13	bar
Nitrogen Gas Pressure	25	25	25	25	25	25	25	25	bar
Air Gas Pressure	13 or 25	13 or 25	13 or 25	13 or 25	13 or 25	13 or 25	13 or 25	13 or 25	bar
Avg Electricity Consumption	15	20	30	35	45	50	60	70	kw/h

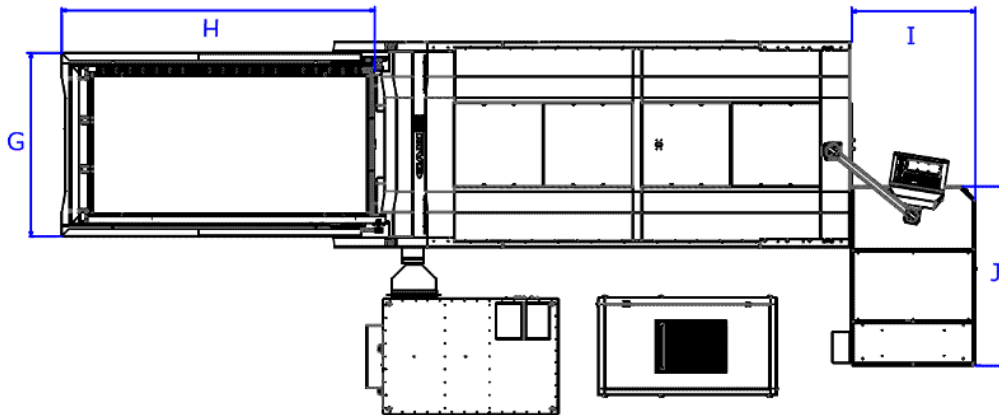


Dimensions

A	2600	2600	2600	2600	mm
B	2300	2300	2300	2300	mm
C	10000	12475	16725	16725	mm
D	1150	1150	1150	1150	mm
E	4150	5020	5020	5020	mm
F	2370	2530	2530	2530	mm
G	2030	2530	2530	2530	mm
H	3450	4670	6920	8730	mm
I	1240	1240	1240	1240	mm
J	1200	1200	1200	1200	mm



Dimensions



IPG Resonator

IPG resonators offer the following advantages:

- Compact
- High output power
- High quality of laser beam
- Large focus area
- Over 30% more efficient than CO2
- Low operation costs
- Flexible and durable fiber optic cable
- High electrical efficiency
- Diode lifespan of over 100,000 hours
- Low requirements for cooling



Precitec Fiber Laser Cutting Head

The ProCutter Zoom Lasermatic unit ensures constant distance between nozzle and material at all operating temperatures, even at high processing speeds. A replaceable cutting- and pressure-resistant protective window seals and protects the ProCutter from impurities in the cutting gas, and treated purging air in the collimator shields against process dust and particles. Highest-quality quartz lenses ensure a stable focal position, which can be set both laterally and vertically from the outside.



The Precitec ProCutter App, available from Google Play, is used to display the cutting head condition during operation and to query error messages. As an option the app can also be used to set some sensor value parameters. The app connects via Bluetooth with the laser head and shows the sensor values in seven different windows: connection, temperature, pressure, optics, errors, IO and system.



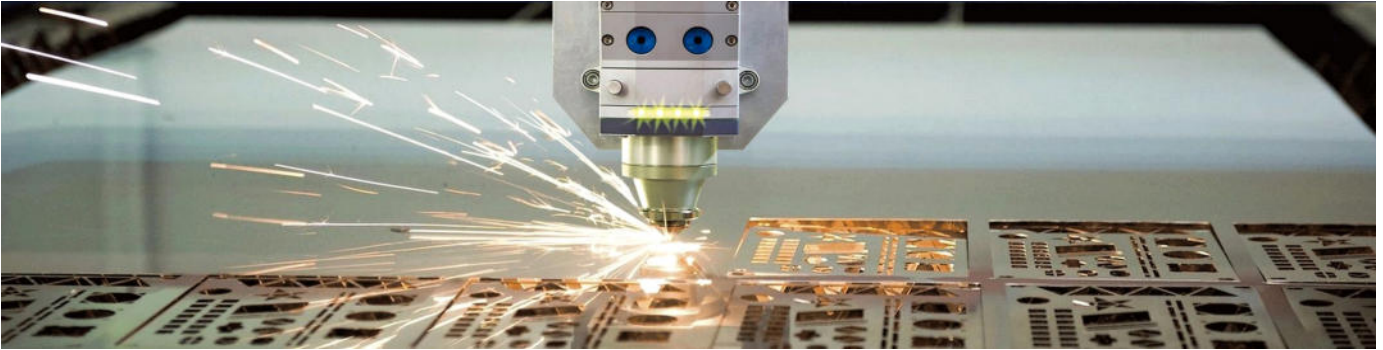
Benefits

- Zoom optics for automatic adjustment of the focus diameter
- Drift-free, fast-reacting distance measurement
- Permanent protective window monitoring
- Dustproof beam path with protective windows
- LED operating status display
- pressure monitoring in the nozzle area and in the head
- Display of operating parameters via Bluetooth® and interface for machine control

Technical Data

- Max. laser power: 8 kW (with wave lengths of 1030 - 1090 nm)
- Focus length FF: 175 mm
- Magnification ratio: 1.5 / 1.75 / 2.0 / 2.5 / 2.85 / 3.2
- Dimension (WxD): 92 x 115 mm

Nozzle Cleaning & Safety Glass



Fast piercing and increased cutting speeds can be achieved by using nitrogen. Changing nozzle tips can be done in less than a minute. The break-away ceramic disc prevents any damage to the laser head in the case of any collisions or tipping parts. The operator can see the cutting head and the loading and unloading area via the laser monitor which enables him to see what is happening in and around the machine. Speed and user friendly controls are a priority to give the customer an edge over their competition.

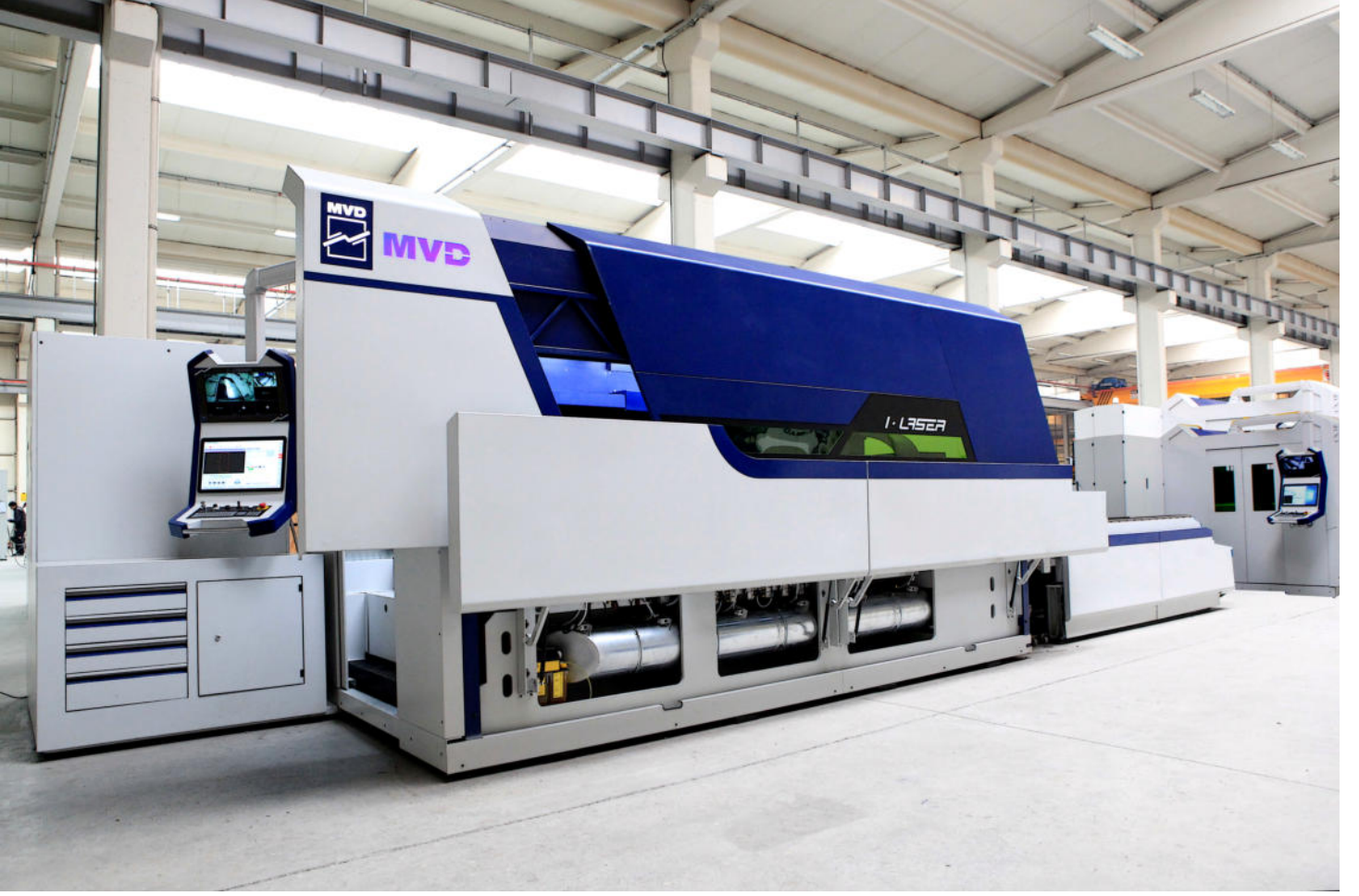
Nozzle Cleaning And Head Calibration

The cutting head will use the cleaning brush to clean the tip of the nozzle and will then re-calibrate to it's original position. This is a selectable automatic function.



Laser Beam Safety Glasses

Acrylic laser safety windows offer the highest VLT (Visible Light Transmission) and optical density protection, making them the safest and easiest to view through. Ilaser features large windows on the side and doors of the machine allowing the operator to be in constant view of the cutting operation.



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