



Laser fiber



KIMLA

KIMLA

POLISH MANUFACTURER OF CNC MACHINES AND FIBER LASERS



Why...

are the companies working with Kimla machines
...so successful ?

Kimla are the only company in Poland developing and producing, powerful, fast, stable and easy to use CNC machines. Our leading position is achieved through our creative attitude and impressive machine performance. We have a friendly, respectful attitude towards our clients, whose satisfaction is of paramount importance to us. We have extensive experience and have worked on advanced machine solutions for the past 21 years.

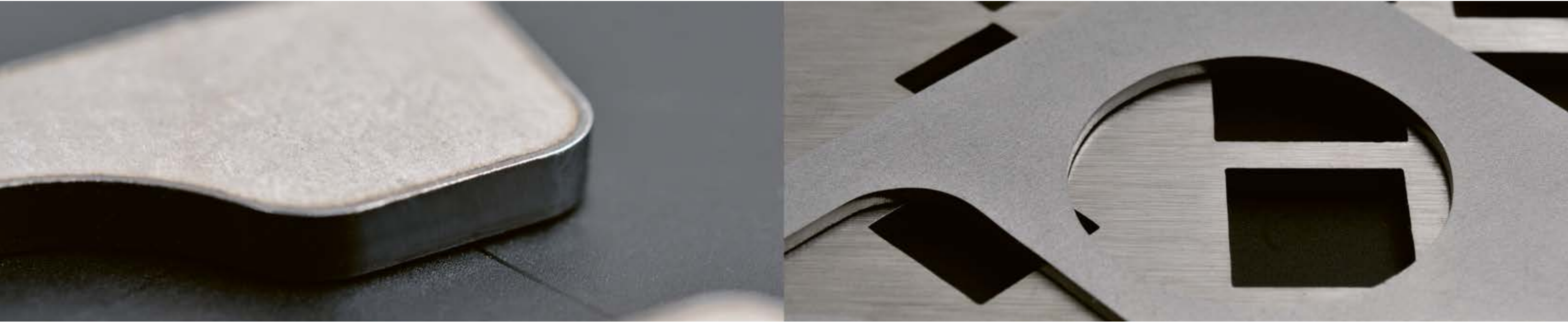
In the beginning, we were focused on producing electronics and control systems for CNC machine tools. This has transformed into a full range of CNC machines offering advanced technological capabilities.

Today, recognized as a leader in the industry, having installed more than 2,500 machines and continually researching and developing new solutions, Kimla achieve the highest performance on the market with prices considerably lower than most reputable companies around the world.

With continual expansion and improvements to our production facilities we continue to grow our organization.

Winner of many prestigious awards





ADVANTAGE OF FIBRE TECHNOLOGY LASER OVER CO₂ LASERS

LaserFiber is a shortened name for laser with fibre resonator. Unlike traditional CO₂ lasers, the active centre consists of an ytterbium-doped optical fibre and the entire resonator is based on a solid body without any replaceable regulatory elements such as mirrors, for example. The resonator operates on a frequency which is ten times higher than a CO₂ laser (and therefore a ten times shorter wavelength) allowing for improved focusing of the beam and a higher concentration of energy.

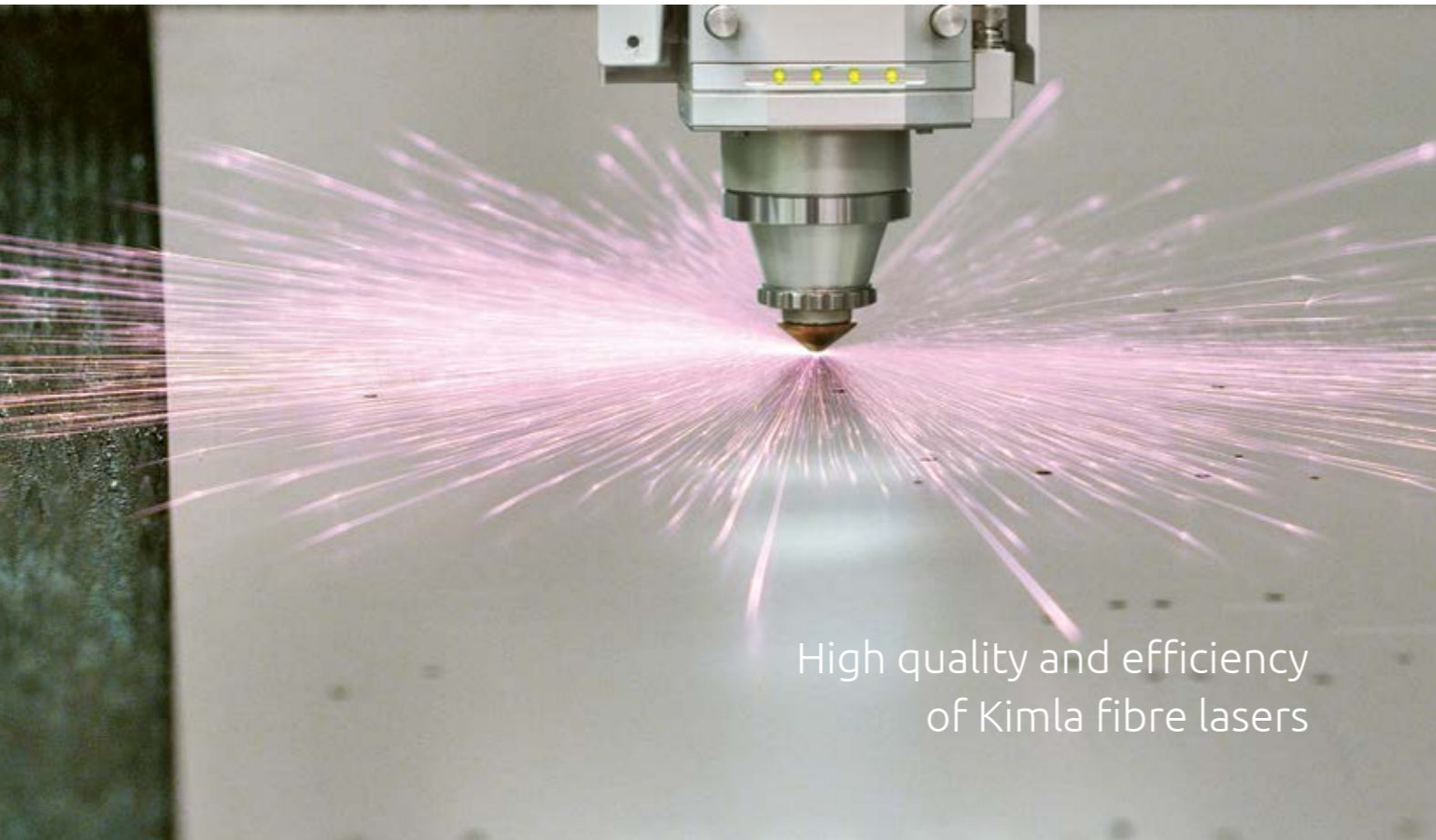
CO₂ technology has been in development since the earliest use of lasers for cutting steel in the 1950s, but in recent years no significant improvements to the technology has been made. Its efficiency is limited by physical phenomena that do not affect fibre lasers, and consequently fibre optic technology is the most modern and efficient method currently available.

Fibre lasers consume significantly less energy than CO₂ lasers, with energy efficiency values in the region of 50%, as compared with just 5% for comparable CO₂ lasers. To illustrate this point, a CO₂ laser with a power output of 4kW needs an 80kW power supply to operate it, where a 2 kW fibre laser of corresponding capabilities would consume just 7kW. This means that the cost of electricity associated with fibre laser operation maybe up to ten times lower than in the case of a CO₂ laser.

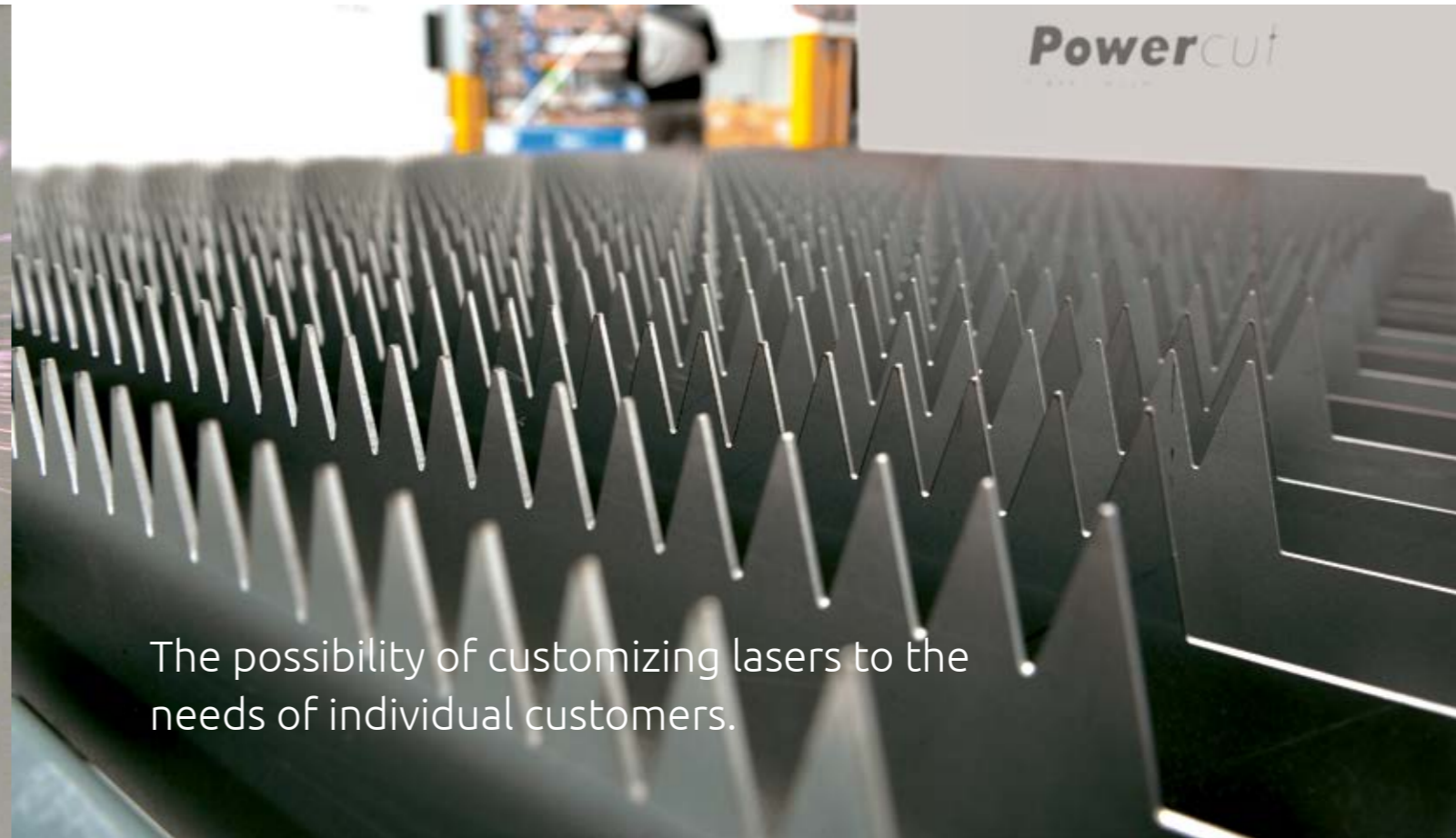
Another advantage of fibre lasers is the considerably shorter wavelength of the light they produce which allows for a higher energy density within the focused beam. This higher energy density enables faster laser cutting with less power required for operation. Fibre lasers can frequently achieve the same cutting speeds as CO₂ lasers with just half the power, and in the case of very thin metal sheets the fibre laser is able to cut at much higher speeds than the CO₂ laser with equivalent power. With the development of optoelectronics and semiconductors, laser diodes are achieving ever greater efficiencies. The processing of energy from the light produced by laser diodes into the output beam takes place in the fibre which can achieve processing efficiency of up to 80%. This solution delivers considerable energy savings, while the improved energy absorption of the fibre laser enables faster cutting.

The advantage of the lasers over CO₂ lasers is visible particularly with thin metal sheets up to 6mm. The thinner the sheet, the greater the advantage of a fiber laser over a CO₂ laser. Fiber lasers are also a great complement to machines for waterjet cutting. Waterjet machines have a very wide operating range extending up to 200mm thickness of metal. But the speed of Water jet machines is much lower than the speed of lasers. The optional solution for metal cutting is: the fiber laser for thin metal sheets and Water jet for thick plates.

Fiber laser technology is relatively new; devices of this type have been produced for only a few years. Companies which are familiar to most of the customers cannot pride themselves on many years of experience in this field, because they began the activity at a similar time. At this time, smaller companies can significantly outperform larger companies that have long-term procedures for adopting new technologies and adapting the software to the needs of a specific user.



High quality and efficiency
of Kimla fibre lasers



The possibility of customizing lasers to the
needs of individual customers.

With KIMLA fibre lasers, the user has the option of changing the size of the focused beam spot, allowing optimal adjustment of the laser's optical parameters to the type and thickness of a metal sheet. This is in direct contrast to CO₂ lasers where it is not possible to influence the diameter of the beam which will be focused in the head. In a fibre laser, beam delivery is done via a fibre optic, and having left the fibre the beam must be collimated. Collimation is the process of changing the diverging beam into a parallel one - a process carried out by means of a collimator lens.

Adjusting the focal length of the collimator lens influences the diameter of the beam. This in turn impacts on cutting speed and the ability to cut materials of varying thicknesses. The thinner the material, the smaller the diameter of the focused beam should be to make optimum use of the available power. For cutting thicker materials, the diameter of the focused beam should be increased; if the diameter is too small, the slot is not large enough to allow the shielding gas to blow out the melted material.

KIMLA lasers are manufactured in a variety of different configurations and to suit many different workspaces. This diversity of design relates to both the degree of automation as well as the laser power and its configuration. KIMLA manufacture lasers with a single work table offering high efficiency at a low price as well as production lasers which offer higher efficiency, higher maximum speeds and faster accelerations. These production lasers feature automatic pallet exchange with a high degree of automation, a suction system and systems for nesting and preparing production. The unique possibilities for rapid cutting of thin metal sheets offered by KIMLA fibre lasers mean that they are a superior alternative not only to other fibre laser machines, CO₂ lasers, and punch presses, which were previously considered the cheapest technology for cutting repeatable metal sheet components. Thanks to the revolutionary technology used in fibre lasers, using them to cut thin metal sheets has now become cheaper than cutting on turret presses.

Finecut **Flashcut** **Powercut** **ExtremeCut**

KIMLA — a leading manufacturer of CNC machines, specializing in the application of innovative technologies, has created a unique line of Fibre lasers with high performance at an affordable price.



KIMLA Fibre Lasers utilize the most up to date technology for the efficient cutting of any shape from sheet metal. The difference between fibre and CO₂ lasers is particularly visible in the case of thin sheets up to 5mm. where the cost of cutting a detail can be reduced by up to ten times. This is possible due to superior energy efficiency of up to 30% (compared with just 5% for CO₂) and a greater concentration of power as a result of shorter light wavelengths. Though the use of fibre laser technology for cutting sheet metal is still only a few years old it has gained many followers in this short time and the industry is growing very quickly. Laser cutters have never been cheap, but thanks to KIMLA fibre lasers this technology has the potential to reach the masses - our lasers can be as much as 50% less expensive to buy than 'big brand' machines, making them accessible not only to large factories, but to smaller workshops and service businesses as well.

Advantages of Fibre Lasers

KIMLA

- Extremely high efficiency gives an impressive ratio of cutting speed to laser power
- Cutting costs are as much as 10 times lower than with comparable CO₂ lasers
- No costly laser gases required only nitrogen and oxygen as assist gases.
- No costly turbines and other mechanical components with the source unlike the CO₂ lasers, significantly reducing operating costs.
- Advanced anti-reflective protection allows for cutting of highly reflective materials
- Automatic adjustment of head height
- Liquid cooling provides stability and minimizes the risk of damage to the head and the fibre connector
- The lens in the head is safeguarded by a quartz window which protects against splashes of cut material
- The laser optics can be adjusted to suit specific materials
- Fibre lasers do not require adjustment of mirrors in the resonator or the supply of gases to it
- Don't use turbines or vacuum pumps, which significantly reduces operating costs
- The laser beam is guided using a fibre located within the cable guides
- Available versions with a single pallet, double pallet or third pallet system
- Available pallet with tube cutting system
- Software includes an option of NESTING, which allows for optimal distribution of detail on the sheet
- System offers dynamic analysis of vectors - providing high performance for more complex shapes
- Graphic online visualization of laser operation
- Very low power consumption
- Monolithic laser construction provides high stability and accuracy
- Rigid steel construction eliminates vibration and thermal drifts
- Compact space-saving design - smallest footprint?
- Self-supporting construction, eliminating the need for special foundations during installation
- Totally enclosed working area, protecting the operator from radiation in accordance with health and safety requirements
- Machines feature laser safety barriers
- Cutting chamber equipped with automatic extraction of dust generated during cutting
- Easy import GEO files for customers using machines produced by other companies
- Print head labels workpieces very quickly, facilitating identification later
- Scanning head allows scanning of existing detail, shortening project preparation time
- Prices of fibre lasers are comparable to CO₂ cutting machines, despite superior performance
- Automatic nozzle changing and cleaning system



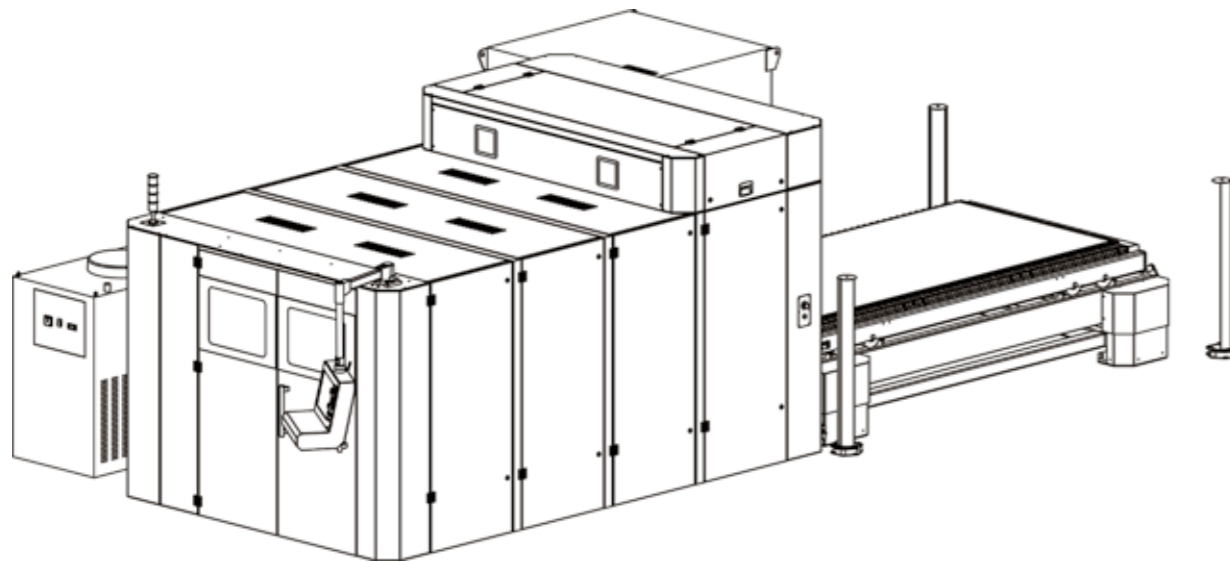
The control system of the KIMLA laser is equipped with extremely efficient drives that are based on technology allowing data transmission through real-time Ethernet. Using this fast method of communication, we have achieved exceptional dynamics of work and the ability to send four motion parameters (position, velocity, acceleration and jerk) to servo drive - a highly innovative solution since most solutions applied by other companies only give speed or position.

The software used by KIMLA lasers is the most advanced solution in recent years. Our company has developed software with a number of new features that promote fast and efficient work. The control system of the KIMLA laser has the ability to edit, correct, make geometrical changes, alter distribution or generate a path, all whilst continuing work. Preparation takes very little time as the system enables multi-threaded operation.

While the machine is Cutting, the operator can prepare the next elements directly in the control system. Communication with the external system can be achieved via Ethernet computer networks or USB. KIMLA laser systems are also equipped with automatic nesting modules to manage production, which enables the execution of orders and the creation of pre-prepared libraries. Our control system has integrated parameter sets that facilitate the cutting of various materials of different thicknesses, and our lasers achieve very high speeds and acceleration through dynamic vector analysis and a special software-optimized design for deformation analysis. The software also comes with automatic cutting costs calculations as standard.

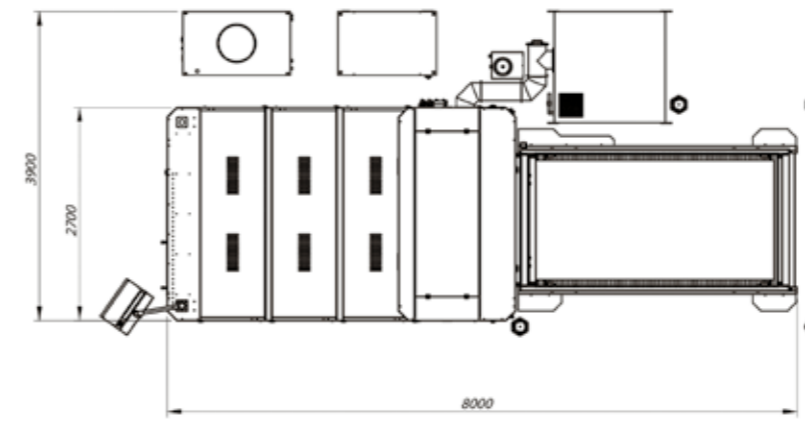
KIMLA LASER DESIGN

KIMLA lasers designed to cut steel with a fibre resonator comprise a mechanical part, which operates a linear drive system. These drives position the cutting head which is equipped with a focusing lens and nozzle which provides the cutting gas supply. The machine employs the Cartesian coordinates system; the material is fixed during cutting and the head moves in three axis: x, y and z. Industrial versions of KIMLA lasers are equipped with an automatic pallet exchange system which facilitates a continuous production process by enabling the operator and machine to work continuously. While work pieces are being cut on one pallet, the operator collects cut elements from the other pallet before installing the next quantity of material to be cut. On completion of cutting, the automatic pallet exchange is made while the laser continues to cut and the operator begins the next material change.

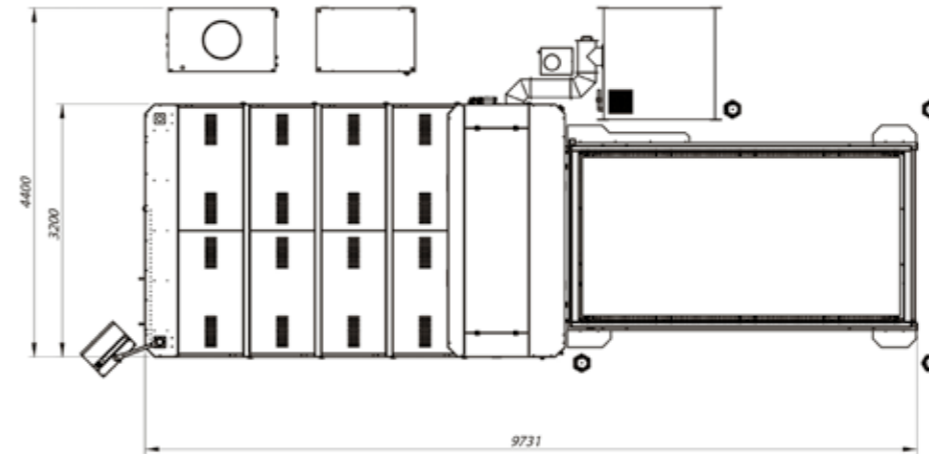


PROCESSED MATERIALS

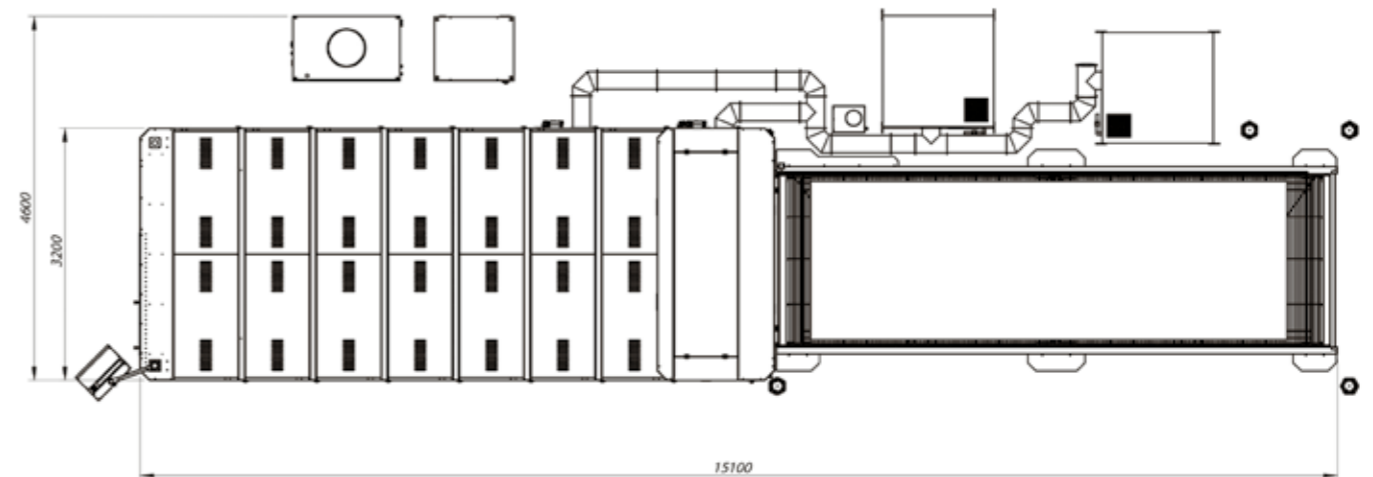
- carbon steel;
- stainless steel;
- aluminium;
- copper;
- brass.



Linear 1530 Laser



Linear 2040 Laser



Linear 2060 Laser

THE LOADING AND UNLOADING KIMLA **StoreSystem LUS30**

Innovative automated loading and unloading Kimla Store system has been designed to maximize productivity. The store consists of a tower rack, which stores the sheet metal, a loading frame that retrieves the sheet from the store and transports it to the loading table and a removal system that collects the cut parts and puts them onto the cut part shelves. The compact design allows for additional Kimla Store system shelves. The Store system works automatically with the Fibre Laser, eliminating the need for human labor in loading and unloading sheets of cut parts. During operation of the laser the operator can quickly and conveniently control the system and optimize the flow of material, which minimises machine downtime and achieves greater profitability.

AUTOMATED LASER CUTTING NEST **KIMLA LaserCEL**

Couple the three pallet system to our Store system for the ultimate production flexibility, LaserCEL enables you to fully utilise the speed of our fibre optic laser. The operator can automatically load and unload or manually load and unload from the third pallet table. When compared to the two pallet system an integrated three pallet system allows far more flexibility and greater efficiency.

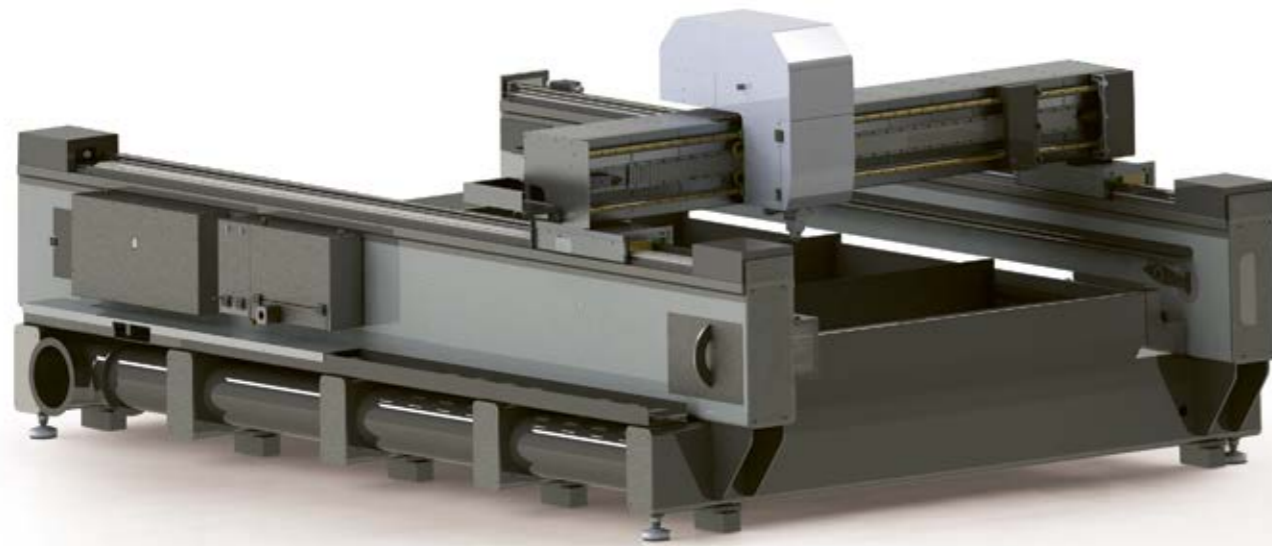
The Highest Efficiency

KIMLA's laser is built on a rigid and monolithic body on which the system driving the cutting head moves along. All linear guide surfaces are machined in one with a precision milling machine. This precision manufacturing eliminates the need for compensation joints, providing greater stiffness of the drive train. These systems have been designed using software for analysis of deformation, and their design and construction has been derived from aerial structures, where low weight and high rigidity are the main priorities. By using such a solution, the dynamics of KIMLA lasers greatly exceeds current standards.

The control system is in a rack integrated in the housing of the laser, thus reducing space requirements.

The fibre cable is fed to the head by means of guide rails through the machine. This construction requires no inspection and is entirely maintenance-free.

KIMLA lasers utilise an error free control where tracking inaccuracy is not proportional to the speed of the feed rate as in most devices, but is at a constant level of individual micrometers. This solution enables very fast and dynamic operation with high accuracy even at very high cutting speeds. Only these machines are able to exploit the full potential of fibre laser technology.



Additional Options



Automatic nozzle change

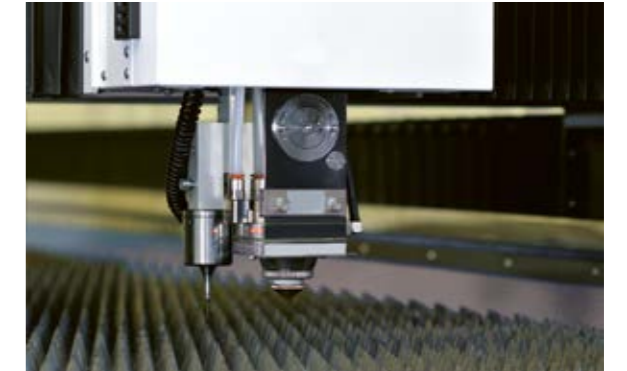
The nozzle changer and cleaning system allows for an even greater increase in operational efficiency. Each nozzle is cleaned before it is stored in the storage system. The new one is taken out according to the selected parameter.



Printing head - ink

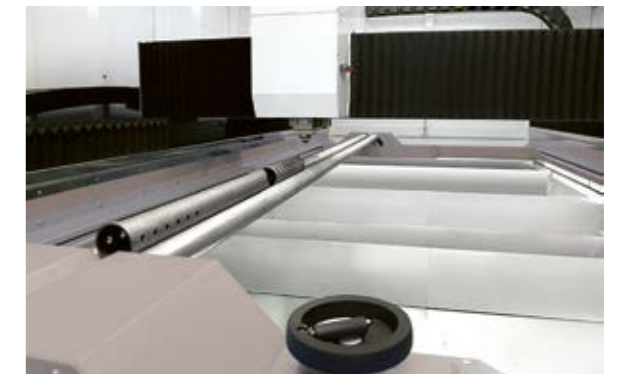
An automatic ink based head allows for quick marking of sheets before they are cut, making identification of parts on the sheet a breeze, the marking is automatically distributed via the integrated nesting software. The printing head marks the part with ink that can either be easily cleaned without leaving any trace on the material or left as a more permanent feature.

Laserfiber



The Scanning Head

An optional scanning head is an indispensable piece of equipment on the machine for more demanding projects or complex shapes. The measuring probe placed on the carriage of the laser automatically scans cut parts and can duplicate them, shortening the time it takes to prepare the project.



Possibility of cutting in pipes

Thanks to a new solution, which is a mounted turntable on one of the pallets it has become possible to cut a standard sheet and different shapes in tubes. This is done on the same KIMLA laser system. The tube rests freely during the cutting process without the tube chuck clamps that block the possibility of cutting the ends of the pipe. As a result, it can be cut without unnecessary waste.

Finecut

L A S E R L I N E A R

Finecut series lasers are created for the benefit of the companies, that start their operation in the field of laser cutters.

Flashcut

L A S E R L I N E A R

Flashcut series lasers are dedicated to customers looking for efficient and universal laser cutters.

Powercut

L A S E R L I N E A R

Powercut series lasers was designed to meet the expectations of the most demanding customers. Powercut laser is available in variants of up to 8 kW of power and allows for cutting with high efficiency.

Extremecut

L A S E R L I N E A R

Extremecut laser, thanks to its light gantry made of carbon fibres and the power of up to 12 kW is dedicated for customers, who expect extreme performance.



Technical Data

Finecut Series

Finecut Series Cutters of this series are dedicated to customers who appreciate high quality and performance and low purchase cost. A Finecut Laser can be perfectly applied in small or medium-sized company machining thin sheets.

Flashcut Series

Flashcut Series Industrial lasers of the Flashcut series are frequently chosen products by small and medium-sized manufacturing plants. The high degree of automation and exible control system provide fast and more efficient operation.

Powercut Series

Powercut series are the most powerful production cutters on the market. Powercut lasers are equipped with the innovative KIMLA control system with all the possible functions, which allows you to achieve the highest operating speeds up to 5m/s.

Extremecut Series

Extremecut Series Extremecut series lasers are equipped with a very light and rigid bridge made of Carbon fibre composites. They allow you to achieve peak performance.

Finecut
LASER LINEAR



Flashcut
LASER LINEAR



Powercut
LASER LINEAR



Extremecut
LASER LINEAR



Laser specification

	up to 3kW	up to 6kW	up to 15kW	up to 20kW
Laser power				
Work area	1000 x 2000 mm	1500 x 3000 mm 2000 x 4000 mm	1500 x 3000 mm 2000 x 4000 mm 2000 x 6000 mm 2000 x 8000 mm 2000 x 10000 mm	1500 x 3000 mm 2000 x 4000 mm 2000 x 6000 mm 2000 x 8000 mm 2000 x 10000 mm 2500 x 3000 mm 2500 x 6000 mm 2500 x 8000 mm 2500 x 12000 mm 3000 x 10000 mm
Linear drives	✓	✓	✓ (HP)	✓ (HP)
Automatic pallet changer	✗	✓	✓	✓
Safety laser barriers	✗	✓	✓	✓
Doors on all sides of the laser	✓	✓	✓	✓
Dust separator with Ultraweb filters	✗	✓	✓	✓
Adjustable focal distance of the head (zoom)	✗	●	✓	✓
Automatic height adjustment	✓	✓	✓	✓

Control and software

CAD/CAM/NEST/CNC Control System	✓	✓	✓	✓
Nesting with production management	●	1 station	1 station	2 stations
Connection with ERP system	✗	●	✓	✓
Flycut	●	✓	✓	✓
Pallet position control, servo	✗	✓	✓	✓
Automatic switching of suction zones	✓	✓	✓	✓
Dynamic vector analysis	✓	✓	✓	✓
Frequency of position adjustment	20kHz	20kHz	20kHz	20kHz
Electronic adjustment of the gantry angle	✓	✓	✓	✓
Parametric beam modulator	✓	✓	✓	✓
Common cutting lines	✓	✓	✓	✓
Material position detection	✓	✓	✓	✓
Detection of a nozzle travelling off the sheet metal	✓	✓	✓	✓
Too low a gas flow detection	✓	✓	✓	✓
Collision detection with automatic resumption	✓	✓	✓	✓
Frog jumping	✓	✓	✓	✓
Smooth processing of splins and polylines	✓	✓	✓	✓
Absolute straight-edge with the resolution of 1 nm	✓	✓	✓	✓
Double-sided gantry drive	✓	✓	✓	✓
Automatic cutting off with edge control	✓	✓	✓	✓
Pipe machining system	✗	●	●	●
Printing head for describing details	✗	●	●	●
Scanning head	✗	●	●	●
Automatic nozzle change	✗	●	●	●

Speed, efficiency, accuracy

Operational speed values	up to 150 m/min	up to 180 m/min	up to 230 m/min	up to 230 m/min
Positioning length	0.03 mm	0.03 mm	0.02 mm	0.02 mm
Repeatability of positioning	0.001 mm	0.001 mm	0.001 mm	0.001 mm

Additional information

Warranty	24 months	24 months	24 months	24 months
----------	-----------	-----------	-----------	-----------

✓ - is in standard ● - an option ✗ - not available



PROCESSED MATERIALS:
Carbon steel, Stainless steel, Aluminium, Copper, Brass



FIBER LASER FOR TUBE CUTTING

Fiber Laser for tube cutting from the brand Kimla is the first of its kind to be produced on the Polish market. It is based on the Kimla Powercut model, manufactured for years, thanks to which it shares most of the proven technical solutions, and at the same time still has the functionality of sheet metal cutting. This solution makes it possible to replace two machines with a compact unit that saves space in the production hall.

The construction used by us allows the work with rectangular 100x100 mm profiles, as well as round tubes with 150 mm diameter and a length up to 6 meters (optional - 12 meters). Depending on the size of the working range of the laser, the length of the cut-off sections can be 3, 4 or 6 meters. This is the only laser on the market that combines the above features.

Laser Flashcut and Powercut Linear are winners of many gold medals at the international fair of Poznań MTP (the biggest fair of modern industrial technologies ITM Poland MACH-TOOL) and the STOM fair in Kielce

Technical data of the laser

Working Range	1500 x 3000 mm max. profile length 6 m, max. length of cut detail 3 m	2000 x 4000 mm max. profile length 6 m, max. length of cut detail 4 m	2000 x 6000 mm max. profile length 6 m, (opt-12m), max. length of the cut detail 6 m
---------------	---	---	--

Laser power: up to 8 kW	Laser Safety Barriers
Diameter of machined tubes up to 150 mm	Access doors from all sides of the laser
Dimension of machined profiles up to 100x100 mm	Dust extractor with filters
Linear drives (HP)	Automatic height adjustment
Automatic pallet changer	

Control and Programming

CAD/CAM/NEST/CNC control system	Common cut lines
Nesting with production management	Detection of the material position
Connection to ERP system	Detection of the nozzle moving off the sheet
Flycut	Detection of insufficient gas flow rate
Control of pallet position Servo	Collision detection with automatic resumption
Automatic switching of the suction zones	Connection of paths with arches (frog jump)
Dynamic Vector Analysis	Smooth operation of splines and polylines
Frequency of the position controllers 20 kHz	Absolute digital scale with a resolution of 1 nm
Electronic regulation of the gantry angle	Gantry both sides driven
Parametric beam modulator	Automatic cut off with edge control

Optional

Printer head for describing the details
Scanning head
Automatic nozzle change

Speed, performance, accuracy

Working speeds up to 180 m/min
Positioning accuracy 0.02 mm
Repeatability of positioning 0.001 mm

KIMLA

ul. Bałtycka 30, 42-202 Częstochowa, Polen
phone: +48 34 365 88 85, fax: +48 34 360 86 11
email: kimla@kimla.pl
www.kimla.pl www.laserfiber.pl



The above offer is for information only and does not constitute trade offer in the meaning of Art. 66, § 1 of the Civil Code.
The manufacturer reserves the right to change parameters without prior notice. The manufacturer is not liable for any printing errors.