

Dear Sirs!

Thank you for your trust and inquiry. Our many years of experience in the field of cutting are a guarantee that you have made the right decision.

Description of the company's needs and desires

- the customer wants to invest in new and modern equipment for laser cutting,
- machine dynamics, precision and speed are important, so he wants to have a compact machine on precise linear guides,
- wants to have guaranteed local service in Croatia,
- wants to achieve high-quality sheet metal cutting with a laser,
- wants to increase its competitiveness and productivity,
- wants to reduce or eliminate secondary processing of cut pieces,
- wants to minimize the thermal load on the material,

Brief description of the proposed solution

In order to satisfy your needs and desires, we advise you and offer you a sheet metal cutting laser that ensures the fulfillment of your desires and requirements:

- high machine dynamics,
- high accuracy and repeatability,
- high speed of movement of all machine axes,
- robust production for industrial conditions,
- To eliminate emissions, the machine is equipped with an efficient intake filter system.

Advantages of the offered CNC cutting system for the customer

The offered machine offers a high degree of automation and enables the following technological operations of sheet metal processing:

- Laser cutting of metal (for thickness see data on laser source),
- Laser marking,
- Laser sources are state-of-the-art, high-efficiency cutting systems,
- Achieving high cutting quality - no need for secondary processing,
- Automatic gas mixing ensures economical gas use and significant savings,
- Achieving high cutting speed thanks to high energy density per cross section,
- Due to lower thermal loads on the material, further processing procedures (bending, welding, turning, etc.) are easier and cheaper.
- High machine productivity thanks to the use of an expert system in human/machine communication. The latter significantly facilitates work and increases the level of automation.
- Ease of use reduces machine learning time and increases machine and operator flexibility.
- Fast and dynamic control ensures high productivity of the machine.
- Automatic optimization, i.e. nesting of machined pieces along the cutting surface, significantly reduces the amount of sheet metal waste and thus increases material utilization.
- The machine is connected to the user's network,
- There are no special requirements regarding the qualifications of the operating personnel to work on the machine,
- An efficient suction filter system ensures a clean, emission-free working environment.

Who we are

X-Las doo is your Slovenian partner for laser cutting. Our engineers are specialized in the sale, service and maintenance of high-quality and reliable laser cutters. In cooperation with a renowned partner, Bodor, we offer first-class CNC laser cutters on the Slovenian market at a very affordable and competitive price. A wide selection of different machine models and powers ensures that we can satisfy even the most demanding customer.

Advantages for our customers:

- Our engineers' many years of experience in the field of laser cutting,
- Technical support and service in Croatia,
- Operator and programmer training,
- Response to error reports within 24 hours,
- Guaranteed delivery of spare and consumable parts within 2-3 days,
- Professional approach, expertise,
- We arrange everything: from consulting, delivery and installation, to maintenance,
- Remote support,
- We guarantee long-term partnership cooperation and the satisfaction of our customers.

Customer reviews

"At LSC TEH, we are extremely satisfied with the purchase of the Bodor laser cutter model C4 12kW with MAX source, as it has brought greater flexibility, precision and cost reduction to our company, which has increased our productivity and competitiveness. The cooperation with the company X-LAS doo is excellent, as they are very responsive and provide excellent technical support. We are extremely satisfied with the purchase of the laser device, so we decided to continue the cooperation and purchase a tube laser cutter from the same manufacturer."

**Luka Simic, director
LSC TECH doo**

"When choosing the right laser cutter, in addition to the technological requirements, choosing the right supplier was also important to us. The expertise and speed of response of a business partner are of great importance to us, because in our company we also build on these values. In the company X-las, doo we recognized a competent partner expert who meets our needs and requirements. With the integration of the Bodor laser cutter a year ago, the technological goals set were achieved. Production productivity in our company increased by 30%! The decision to purchase the Bodor laser cutter was the right one."

**Gašper Razpotnik, ELMA TT production
manager, Tovarna Transformatorjev dd**

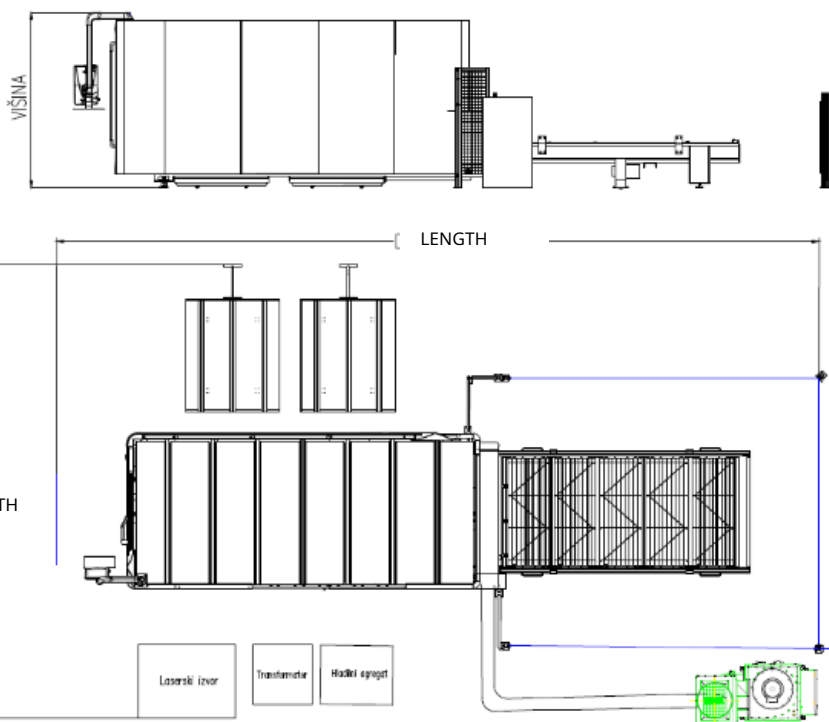
"The Bodor laser cutter convinced us. With it, we increased the productivity of our production by 100%. We ACHIEVED the goal we set. We became 100% productive and flexible in accepting new orders. In X-LAS, we found a long-term strategic partner at our fingertips, with a quick response and the provision of professional support. The decision was the right one!"

**Aleš Musec, production manager
Niropro doo**

1. TECHNICAL DESCRIPTION OF THE OFFERED LASER CUTTER

Basic technical data P6 12 kW:

Model	P6 12 kW MAX Photonics
Working area	6500mm x 2500mm
Laser source	12,000 watts
X and Y axis repeatability	0.03 mm
Maximum axis speed, simultaneous	200 m/min
Maximum acceleration	2.8 G
Maximum load capacity of the installation table	5100 kg
Time to replace the interchangeable tables	45 seconds
Automatic nozzle cleaning	THAT
Touch screen	THAT



3

Min. dimensions of the required space

	Bodor P6
Length	17 900 mm
Width	7 500 mm: with drawers pulled out 5 500 mm; with drawers closed
Height	3 100 mm

Required electrical connections

P6 12 kW	
Required switches	125 A
Connection power	70 kW

Technical requirements

1	The machine must NOT be near equipment that causes vibrations (e.g. drills, shears, etc.).
2	Electrical connection: 3x400V. Fuses 125 A, slow-acting. Connecting cable HORN 5G 50 mm ² (copper). The maximum permissible voltage fluctuation of the connection is +/- 10%. The connection cable should be brought to the location marked on the layout. Grounding: The resistance must be less than 4 Ohms if the grounding point is within 500 mm.
3	The installation of smoke extraction systems and gas cylinders must not interfere with the operation or maintenance of the machine.
4	Compressed air requirements: Nominal pressure 5-6 bar. Total air consumption 500-800l/min. 2 x pressure reducing valve 10bar. Max. particle size = 0.1µm. Max. oil content = 0.3mg/m ³ . Max dew point temperature +3 °C inside / PDP -40°C outside.
5	nitrogen inlet pressure - 28 bar - 99.99% purity (recommended liquid phase, dry, oil and moisture free) oxygen inlet pressure - 10 bar - 99.95% purity (recommended liquid phase, dry, oil and moisture free) pneumatic tube diameters: oxygen: 10 mm nitrogen: 22 mm Conclusion with reducing valves and quick coupling Free access to connections is provided The collection points are mounted on the wall

Gas consumption

Gas: O₂ Pressure: 0.5MPa				
Gas temperature: 43.0 Gas rate: 100%				
Diameter nozzles	Flow gas	Speed gas	40L bottle	
Double	(L/min)	(m/s)	bottle/hour	
1	3.49	1.38	0.26	
1.5	6.32	2.38	0.47	
2	9.45	3.56	0.71	
2.5	11.13	4.2	0.84	
3	12.56	4.74	0.94	
3.5	12.81	4.68	0.96	
4	12.88	4.86	0.97	
5	13.33	4.65	0.99	

GAS: N2		Pressure: 2.0MPa		
Temperature: 43.3				
Diameter nozzles	Flow gas	Speed gas	40L bottle	
Single	(L/min)	(m/s)	bottle/hour	
1.5	24.52	9.36	8	
2	36.68	13.75	11	
2.5	36.84	14.33	12	
3	41.62	15.7	13	
4	51.19	20.37	16	
4.5	58.32	19.25	18	

Cutting table - Parameters

Cutting parameters for the Bodor laser

		Thickness	1	2	3	4	5	6	8	10	12	14	16	18	20	25	30	35	40	45	50	60	70		
Carbon steel Q235A	24kw	oxygen	9-11	5-7.5	3.5-5.5	3.5-5.3	3.3-4.8	3.0-4.3	2.5-3.5	2.0-2.7	1.6-2.1	1.5-2.0	1.4-2.0	1.4-2.0	1.5-1.9	1.0-1.6	0.8-1.4	0.6-1.0	0.5-0.9	0.3-0.6	0.2-0.3	0.1-0.3			
		nitrogen	--	--	--	--	--	--	--	3.5-3.9	3.4-3.8	3.3-3.7	3-3.6	2.9-3.5	2.8-3.4	2.8-3.3	2.5-2.9	1.5-2.2	1.2-1.6	1-1.2			0.7-1	0.5-0.9	
	22kw	oxygen	9-11	5-7.5	3.5-5.5	3.5-5.3	3.3-4.8	3.0-4.2	2.5-3.5	2.0-2.7	1.6-2.1	1.5-2.0	1.4-2.0	1.4-2.0	1.5-1.9	1.0-1.6	0.8-1.4	0.6-1.0	0.5-0.9	0.3-0.6	0.2-0.3	0.1-0.3			
		nitrogen	--	--	--	--	--	--	--	3.5-3.9	3.4-3.8	3.3-3.7	3-3.6	2.9-3.5	2.8-3.4	2.8-3.3	2.5-2.8	1.5-2			1-1.4	0.8-1.1	0.5-0.9	0.4-0.7	
	12kw	oxygen	9-11	5-7.5	3.5-5.5	3.5-5.3	3.3-4.8	3.0-4.2	2.5-3.5	2.2-2.7	1.2-2.1	1.7-1.9	1.2-1.7	1.0-1.8	0.6-1.5	0.5-1.2	0.3-0.7	0.2-0.4	0.2-0.3	0.15-0.25					
		nitrogen	--	--	--	--	--	--	--	3.2-3.8	3-3.6	3-3.5	2.8-3.3	2.6-3.1	2.2-2.7	1.8-2.4	1.3-1.6	0.8-1							
6000W		8-10	5-7.5	3.5-5	3.0-4.5	3.0-4.2	2.5-3.2	2.2-3.2	1.8-2.5	1.2-2.1	1.2-1.8	0.8-1.5	0.6-1.2	0.5-0.8	0.3-0.55	0.2-0.3									
3000W		8.0-10	5.5-7.5	3.0-4.0	2.8-3.5	2.6-3.2	2.5-2.6	1.6-1.8	1.4-1.6	1.0-1.4	0.8-0.9	0.7-0.8	0.6-0.7	0.5-0.6											

		Thickness	1	2	3	4	5	6	8	10	12	14	16	18	20	25	30	35	40	45	50	60	70		
Stainless steel 201	24kw		72-100	50-75	38-55	25-35	24-32	20-26	15-19.5	10.5-14	8.2-10.5	6.2-9.4	4.2-6.5	3.1-4.5	2.2-3.5	1.6-2.5	1.3-1.8	0.5-1.0	0.4-0.8	0.3-0.7	0.2-0.5	0.1-0.3	0.1-0.3	0.1	
	22kw		72-100	50-75	38-55	25-35	24-32	20-25	15-19	10-13.5	8.0-10.6	6.0-8.5	4.0-6.0	3.0-3.5	2.0-3.0	1.5-2.2	1.2-1.5	0.4-0.8	0.3-0.6	0.2-0.6	0.2-0.5	0.1-0.3	0.1-0.3	0.1	
	12kw		70-85	40-66	35-45	20-32	18-25	12-15	8-12	6.0-8.0	4.0-5.5	3.0-5.0	2.2-2.8	1.2-2.0	1.0-1.6	0.5-0.8	0.3-0.6	0.3-0.5	0.3-0.5	0.2-0.4	0.1-0.2				
	6000W		42-52	20-33	15-22	10-15	7.0-12	4.8-9.0	3.0-4.0	1.6-2.5	0.8-1.5	0.6-1.2	0.5-1.0	0.4-0.8	0.3-0.6	0.2-0.4									
	3000W		30-55	12-30	6.0-10.0	4.0-6.0	3.0-5.0	2.0-3.2	1.0-1.8	0.5-0.85	0.4-0.5														

		Thickness	1	2	3	4	5	6	8	10	12	14	16	18	20	25	30	35	40	45	50	60	70		
Aluminum	24kw		70-100	40-70	35-60	30-43	22-35	18-28.5	12-20.5	7-12.5	4.5-7	3-4.5	2.5-4	1.8-2.2	1.5-2	0.8-1.5	0.6-1.2	0.4-0.9	0.3-0.6	0.3-0.4	0.2-0.4	0.2-0.4	0.1-0.3	0.1-0.3	
	22kw		70-100	40-70	35-60	30-43	22-35	18-28	12-20	7.0-12.0	4.5-6.5	3.0-4.0	2.5-3.5	1.8-2.2	1.5-2.0	0.8-1.5	0.6-1.2	0.4-0.9	0.3-0.5	0.3-0.4	0.2-0.4	0.2-0.4	0.1-0.3	0.1-0.3	
	12kw		60-85	38-50	30-40	20-30	15-25	10-15	7.0-12	4.5-8.0	4.0-5.0	1.8-2.7	1.5-2.5	1.0-1.8	0.9-1.5	0.6-0.9	0.3-0.8	0.3-0.6	0.3-0.4	0.2-0.3	0.1-0.2				
	6000W		42-55	20-40	15-25	9.5-12	5.0-8.0	3.8-5.0	2.0-2.5	1.0-1.5	0.8-1.3	0.9-1.2	0.5-0.8	0.5-0.7	0.5-0.7	0.3-0.5									
	3000W		25-30	13-20	6.5-7.5	3.5-5.0	2.5-3.5	1.5-2.5	0.7-1.0																

		Thickness	1	2	3	4	5	6	8	10	12	14	16	18	20	25	30	35	40				
Brass	24kw		65-75	40-60	25-40	22-35.5	21-28.5	13-21	10-13	6.5-11	3.5-6.0	2-4.5	1.8-3.5	1.2-2.8	0.5-2.3	0.3-0.8	0.3-0.5	0.1-0.3					
	22kw		65-75	40-60	25-40	20-35	20-28	12-20	9.0-12	6.0-10	3.0-4.5	1.8-4.0	1.5-3.0	1.0-2.5	0.4-2.0	0.3-0.5	0.2-0.4	0.1-0.2					
	12kw		55-65	38-42	18-30	15-20	10-15	6.0-8.0	5.0-7.0	4.5-6.0	2.4-4.0	0.8-1.5	0.6-1.2	0.4-0.6	0.3-0.5								
	6000W		35-45	20-30	12-18	8.0-12.0	6.0-8.0	3.0-6.5	1.6-2.2	0.8-1.2	0.3-0.5	0.3-0.5											
	3000W		20-30	6.0-10	3.0-8.0	2.5-4.0	1.5-2.0	1.0-1.8															

Note: This parameter is for reference only. Various conditions on site (sheet quality, gas quality, etc.) will affect it more, so it cannot be used as the basis for acceptance or quality traceability, and the final interpretation right belong to the manufacturer.

The white part is the processing limit material, laser cutting is inefficient and the effect will be reduced when processing the limit material, and cannot be processed continuously; The gray part can be stably cut in batches.

Functions and configurations:

Basic parameters	Desktop	6500mm x 2500mm
	Max. positioning speed	200 m/min
	Automatic continuation of cutting gas pressure	O2, N2 and air
	Automatic beam focusing	●
	Ergonomic remote control (Bodor Mango®)	●
	Format of input files for slicing	G code、DXF、DWG
	Sheet metal anti-vibration function	●

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	Cutting parameter database	●
	Slag protection	●
Cost savings	Management software	●
	Nozzle for uniform gas flow	●
	Maintenance reminder	●
	Bodor Lightning perforation - function	●
Services	24/7 Bodor remote support	●
	WIFI wireless connection	●
Performance	Max. acceleration	2.8 G
	Table load capacity	5100 kg
	Protective housing	●
	Machine dimensions - floor plan without periphery	16888*3872*2519mm
	Machine weight	15,000 kg
	Z axis travel	370 mm (max.)
	Positioning accuracy	±0.05 mm
	Repeatability	±0.03 mm
	Min. distance between pieces	10 – 15 mm
	Min. hole diameter	Thickness x (0.5 – 1.0) The greater the thickness, the greater the factor.
Mechanical system	Table construction	Welded, segmentally assembled
	Linear guide and rack and pinion	Bodor
	X-axis, Y-axis, Z-axis	Servo motors
Electrical system	Control panel, including user interface	Bodor Thinker 3.0
	Screen	21.5 inches
	Alarm	●
Peripheral system	Cooling unit – water cooling	●
	Emissions extraction	YES – 2x suction and filtration device

Advantages and characteristics of the offered CNC cutting system for the customer:

- The offered machine offers a high level of automation,
- The completely enclosed cutting area (cabin) ensures safe operation of the machine,
- The renowned manufacturer of laser sources MAX Photonics,
- Laser head with automatic beam focus adjustment,
- Mango wireless machine control device,
- Large and clear screen,
- The CAM program is also fully installed on the machine, which allows program preparation both Offline (in the office) and directly on the machine,
- The Bodor Thinker 3.0 software as a user interface ensures simple and intuitive operation of the machine,
- Integrated expert system for easy search of optimal cutting parameters,
- High-quality servo motors and regulators ensure fast, dynamic and precise movements,
- Linear guides,
- Built-in capacitive laser head collision protection.

(Pictures are for reference)

		
<p>Laser source: MAX Photonics</p>	<p>Laser head with autofocus Bodor Genius</p>	<p>Mango Wireless machine control device</p>
		
<p>Control screen</p>	<p>Aluminum machine bridge</p>	<p>Industrial Design Award</p>

		
<p>Bodor Thinker 3.0 software</p>	<p>Quality servo motors</p>	<p>Linear guides and bearings</p>

Fully enclosed cabin

Ensures safe operation of the machine: protective glass protects against laser radiation and ensures safe operation of the machine. Exhaust of emissions (smoke and dust) ensures operation that is acceptable to the environment and people. Intelligent operation monitoring reduces and prevents the possibility of accidents and injuries, ensuring the safety and reliability of the cutting process.



Postavljen 6 meterski stroj kod poduzeća Kovit projekti d.o.o. u Trbovljama, Slovenija.

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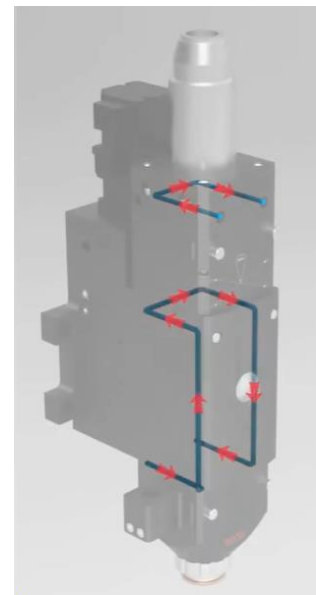
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Water-cooled cutting head

The built-in double water-cooled structure ensures a constant temperature of the parallel laser beam and optical components of the laser head. It actively prevents overheating of the components and extends the life of the lenses.



Remote diagnosis and servicing of the machine

The software for remote diagnostics enables monitoring of all important functions of the cutter (servo regulators, servo motors, switches,...) and its controls (installed software applications and parameters). The package includes a software license with the communication software. Including the SecuRemote VPN Client (security system) in the so-called CheckPoint-Software provides a high level of security at work. Remote diagnostics enables a quick and simple insight of the supporting service center into the operation of the machine. This significantly reduces maintenance and servicing costs. Remote diagnostics also enables the quick elimination of numerous errors on the cutter and thus increases its productivity.

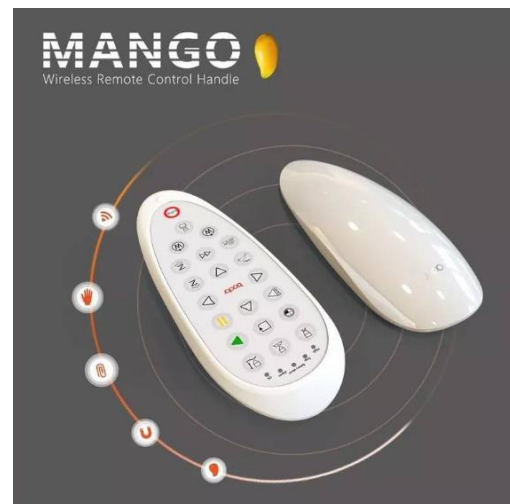
Automatic exchange table

It ensures the change of tables in 45 seconds and thus contributes to increasing the productivity of the machine.



Mango - Wireless portable controller

Wireless control module. The elegant design ensures one-handed operation, the magnetic design allows attachment to the machine housing, thus ensuring easy and quick control of the machine, regardless of where you are standing.



Bodor Thinker 3.0

User interface with rich software for intuitive machine control. Supports importing multiple formats for preparing cutting programs, automatically optimizes cutting sequence, automatically detects sheet edges and determines the start of the program. Enables logical programming and a unique experience. Increases work efficiency and sheet utilization.



FUNCTIONS:

Bodor Lightning perforation:

The perforation function of Bodor Thinker 3.0 is a perforation that can be customized through the interface to process cutting parameters, including perforation time, perforation force, etc. For different materials and shapes.

Sheet metal anti-vibration function:

The inductive sensitivity can be automatically adjusted according to the level of plate shaking to achieve stable cutting and improve processing efficiency despite sheet shaking.

Slag protection:

Slag protection is achieved by the laser head air path structure, where a cyclone is formed at the laser head nozzle to prevent dust from entering, protect the protective lens (below) from slag contamination, and reduce glass wear.

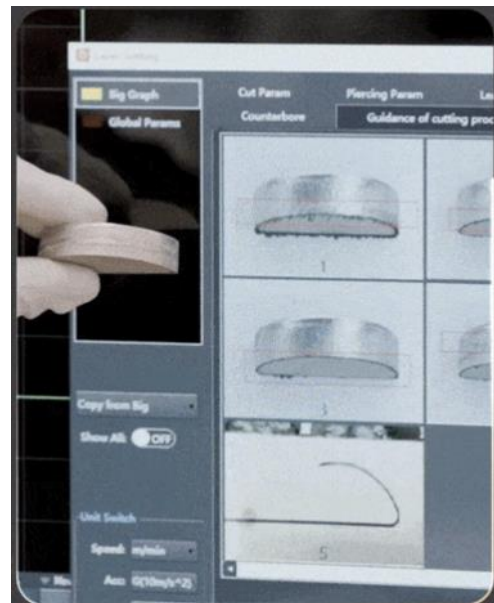
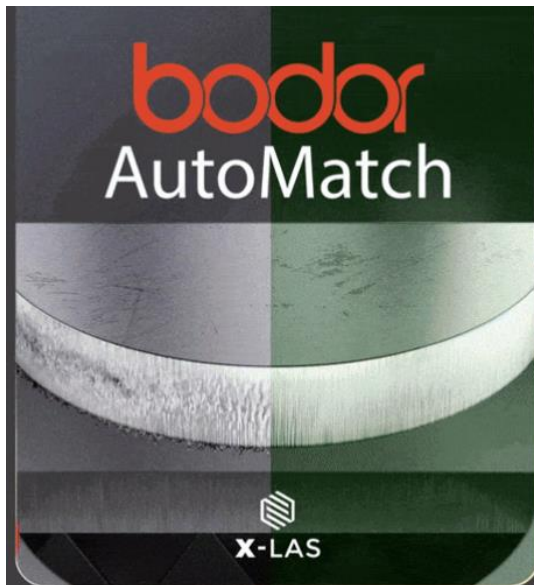
Bodor AutoMatch – Automatic cutting optimization

Faster setup. Higher productivity. Lower costs. Stable results.

How it works:

- Set the basic parameters and cut the test pattern.
- In the AutoMatch program, compare the sample with reference images and select the most similar example.
- The system automatically adjusts cutting parameters for optimal results.

The procedure is repeated if necessary until the perfect cut quality is achieved.



Suction and filter unit: Suction device 7.5 kW – 2x set

The suction and filter unit is specially designed to remove dust and smoke particles during laser cutting.

The filter works on the principle of surface filtration with an automatic self-cleaning process. Harmless particles are removed using a filter cartridge with a Teflon membrane. The removal capacity is provided by the cleaning system (uses compressed air) and filter cartridges with blow-off. The filtered particles are caught in the collector. All functions of the suction-filter unit are monitored and displayed as special diagnostics on the control unit.

- engine power: 7.5 kW
- number of filter cartridges: 6
- number of exhaust valves: 6
- frequency converter for optimal starting and traction
- sound attenuator
- electrical control cabinet with installed wires
- documentation

About the manufacturer

Bodor, headquartered and manufactured in China, is the largest manufacturer of laser cutters in the world, producing over 7,900 lasers annually. Their wide range guarantees that every user can find the optimal solution for their needs.

The company has service and all other support in Croatia (local service from Lendava).



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The Bodor development and research center has more than 200+ employees, which makes them number one in the field of laser cutting. Every year, millions are invested in research and development, resulting in more efficient cutting methods and high-quality cutting products.



Core Technologies by Bodor R&D



Automatic loading system - BODOR iLoader

For fast, safe and fully automated sheet metal loading, which increases productivity by up to 20%. It guarantees **reliable positioning without the need for manual intervention**, therefore it is ideal for environments with **greater amount of sheet metal processing**.
Compatibility:Bodor C, Bodor P



Automatic system for loading and unloading sheets - BODOR iTrans



Bodor iTrans is intended completely automated **loading and unloading sheets**. Accurate sensors and servo control ensure **reliable separation and positioning of material**, the modular design allows **adaptive layout** and quick integration into production.
Compatibility:Bodor P

BENDPRO SERIES BENDING MACHINES

They are designed for different production needs - from fully electric to hybrid solutions.

- **e-BEND pro MODEL NG (fully electric CNC bending machine)**
Compared to hydraulic models, it consumes up to 80% less energy, which means lower operating costs.
- **MODEL HG (hybrid CNC bending machine)** It combines servo and hydraulic technology. Enables the processing of larger and thicker blackberries.
- **MODEL HM (hybrid CNC bending machine)** It is equipped with an additional servo motor that increases speed, accuracy and energy efficiency. It is intended for a demanding production environment.



4. ADDITIONAL PARAMETERIZATION

You can easily request additional settings of cutting parameters that exceed the basic range of five different parameters. Additional parameterization is calculated separately.

The price of setting each additional parameter is 100 EUR + VAT.