FIBER LASER TECHNOLOGY

- FIBERMAK G-FORCE
- FIBERMAK SL
- FIBERMAK RAPTOR
- FIBERMAK HAWK
- TOWER
  Full Automatic Sheet Metal
  Loading and Unloading System

ERMAKSAN
INNOVATIVE TECHNOLOGIES

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INNOVATIVE TECHNOLOGIES

In a journey that left behind half a century, Ermaksan is taking firm steps to the future by continuing to develop “innovative technologies”.

Ermaksan continues to operate with the 21st century’s innovative perspective, with the goal of becoming one of the world’s leading producers in the fields of technology and R&D.

Ermaksan is a leading industrial organization that shapes the sheet metal processing machines sector with its strong R&D, that produces high-quality machines with high technology with more than its 800 qualified staff in its modern production facilities extending to an area of 96.000 m2. In a 10.000 m2 field, it continues to carry out future oriented R&D works such as Fiber laser technologies, new machine models; Industry 4.0 applications and 3D printer (additive manufacturing) machine. The machines produced by Ermaksan now operate in 110 countries.

Continuously following the new trends and customer expectations, designing and producing machines with advanced technology, high added value, that are environment friendly and energy saving, Ermaksan takes firm steps forward on the way of sustainable growth by using resources effectively and efficiently.

2 Laser R&D Centre

3 Laser Production Factory, Academy and P&D

FIBERMAK
G FORCE

For Momentum Gen-3 G Force series servo motor models;

• 2.5 G high acceleration is offered as a standard. (higher acceleration of 4G is optional for 3015 table size as Momentum Gen-4)

• High acceleration provides a great advantage in transitions between parts.

• Through the high acceleration, the production time is reduced and the productivity is increased by 15% on average per hour.

• The more complex the part to be processed, the greater the productivity.

• Certified design with Good Design, Reddot, IF Design Awards

IT IS CORRECT THAT
WE ARE VERY PRECISE

Our precision is known not only from our advanced technology, quality components, strong body construction and long-lasting working performances, but also from our environmentalism, energy and maintenance cost saving solutions and cost friendly design.

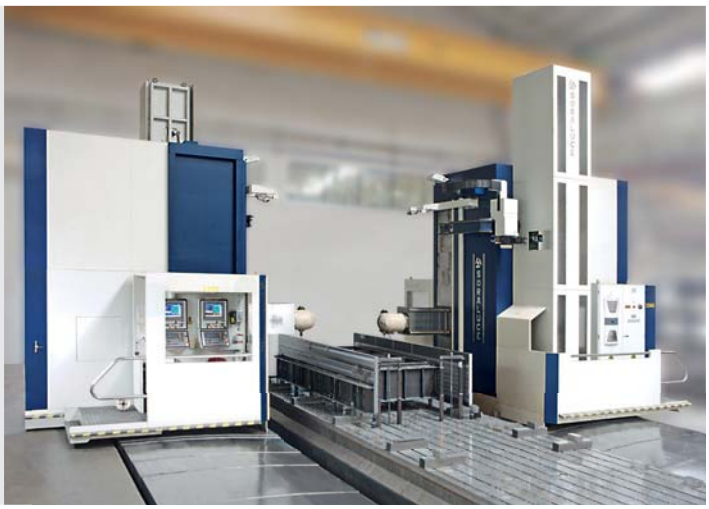
1 Control Panel
2 Safety-Front Door
3 Conveyor
4 Protective Glasses
5 Light Barriers
6 Shuttle Table

FIBERMAK
MAIN BODY

With Double-Tower CNCs
Micron Level Precision

The motor, the ruler and the rails must be mounted on a perfect surface. A slight deflection on the mounting surface may cause severe disruptions in the cutting and damage to the motors and rulers. Therefore, the Fibermak main body is perfectly processed with double-tower CNCs. In linear motor machines, the linear scale, linear motor and rail bearings and in servo motor machines, the geared rack and rail bearings are processed with micron level precision in CNC machines. Thus, a perfect movement surface is obtained. And this is the basis for quality cuts.

Fibermak is produced by using strong body structure, long-life and high quality components. It is designed to operate continuously and precisely even under the most severe conditions.



STANDARD EQUIPMENT

- 4 Axes (X, Y, U, Z)
- Servo Motor
- Automatic focus cutting head
- Laser Source
- Cooling unit
- Clean - Dry air system
- Safety cabinet
- 2x Automatic Shuttle Table
- CAD/CAM Software
- 15” Touch Controller
- Conveyor
- Warning lamp
- Nozzle and cleaning kit
- Nozzle cleaning and calibration table
- Light protection barrier

LASER SOURCE

• The beams produced in the modules of the laser source are transported to the cutting head by means of the fiber cable without any loss. Thus, a suitable laser beam is provided for cutting.

• The laser source can range from 500 W to 8 kW. Here, as the power increases, the cutting speed and cutting thickness increase.

• Its assembly and disassembly are easy. In case of any malfunction, changing the parts is easy. It is designed as modular, plug-and-play.

COOLING (CHILLER) UNIT

• It is the part that cools the laser unit, the collimation part on the cutting head and the linear motors. It has a water-based cooling system.

SUCTION UNIT

• It provides a healthy working environment by absorbing the fumes and small particles formed during cutting. It runs automatically when cutting is started.

• The laser cutting head activates the suction eye over which it is located. Thus, a much higher level of suction is achieved.

• One of the most important parts of the suction unit is the suction bucket. The machine has a sensor that recognizes and remembers whether the bucket has been changed/unloaded. It is possible to monitor the cleaning of the dust bucket in the suction unit.

• As the filters are cleaned with dry air, the filter has a long life and efficiency.

CONVEYOR

• It is a band system that carries the parts and slags falling from the grids to the collection chamber after the cutting process in the system.

CONTROL PANEL

- The Unit controls the system and sends the user commands to the machine.
- Resistant to harsh environmental conditions. (Shock, dirt, moisture, temperature etc.)
- Touch screen and monted functional keyboard.
- You can increase and decrease the axial speeds while operating with the speed adjustment potentiometer.
- The drawing of the material to be cut can be seen before cutting.
- Shortcuts provide easy use.
- Cutting process is instantly processed in the NC Graphic.
- Increased memory
- Enhanced processor
- Window 7 operating system flexibility
- Alpha numeric keyboard
- Wired and wireless hand wheel (optional)

All the software on the Control Panel have been developed by the Ermaksan engineers and custom additions can be made.

EASY USE BUTTONS

With the Easy Use Buttons at the bottom of the control panel, any programmed function can be run with a single key.

Shuttle table control, conveyor, suction unit, laser unit controls, focus reference, HSU calibration, providing motion to the closing and service positions etc.

We can access to the necessary functions through the shortest way by the “Easy Use Buttons” rather than navigating between the pages on the HMI screen.

FIBERMAK'S
TECHNOLOGICAL ADVANTAGES

Provides Transition at High Speed with Lift Transition Type

In the transition between the parts, the type of transition that will put the speed and acceleration into practice is as important as the speed and acceleration in question. With the lift transition type used in Fibermak Momentum Gen-3, you will get maximum efficiency from your machine by transition at maximum speed.

Ultra Fast Communication with Ethercat

Through the Ethercat communication protocol, all equipment of the machine is controlled at ultra speed. The total time between the instruction given and its execution is at microsecond level.

With Effective G Code Structure, it Performs Cutting Process in Minimum Time

In CNC controlled machines such as Fibermak, the flow of G codes is important in the performance duration of a process. In Fibermak, the G code flow is designed to achieve the desired result from the shortest path. This minimizes your lost time in transitions between processes.

Backup

It is possible to restart the machine within minutes by means of a system backup against possible errors.

Fly-Cut Feature

With the fly-cut feature of the Fibermak Momentum Gen-3, you can perform cutting at great speeds and great qualities in both circular and rhombohedral parts.

Frequency modulated cutting

Thick material blasting (piercing) is done in a much shorter time and the material to be cut is prevented from getting heated. With the frequency modulation used during cutting and at sharp corners, it also allows thick materials to be cut without erosion in perpendicular corner cuts or without giving radius to the corner.

Work List

By creating a work list, dozens of programs can be ordered in one go and run automatically.

Machine Update

Because the machine hardware and software are designed and implemented with a very advanced vision by the Ermaksan engineers, it can work with up-to-date performance for many years.

USER FRIENDLY INTERFACE

Work repetition, sheet and angle detection

Work can be repeated and you can find the starting point and sheet angle automatically.

Data Collection System (Optional)

With Industry 4.0 applications, you can make instant machine and work follow up.

Online Parameter Change Facility

You can change the parameters while cutting.

Graphical Tracking with Nc Graphics

With Nc Graphics, you can see which part will be cut before cutting and you can follow that current cut graphically in real time.

Wireless Data Collection

You can monitor the data such as temperature, humidity, warning, etc., through the sensors placed inside the cutting head.

Film Burning

There are various film burning options available for cutting film-sheets.

Part Control System

You can instantly perform quality control of the cut-off part.

Work Report in PDF Format

You can keep a detailed work record of the cut parts. You can create documents as PDF.

All Errors Registered

As long as the machine is energized, all faults and warnings that occur are recorded. This makes problem detection and intervention easier.

Remote Connection and Service

With a wireless modem and USB type adapter or via 3G modem, you can provide internet connection and connect to the machine remotely at any time.

Real-Time Imaging (Optional)

With the integrated IP camera system, you can monitor the work area over the network.

Speed Change While Cutting

You can increase or decrease the speed while cutting on the machine.

Inch-Metric Conversion

Fibermak can operate in inch and metric systems.

Languages

Our system has English, German, French, Russian, Italian, Spanish, Dutch and Arabic languages. Adding new language to our system is quite simple.

CAD/CAM

CAD/CAM programs such as Lantek, Metalix, Almacam, Sigmanest, Radan are used actively. Compatibility of other desired programs is also ensured.

Sensitive Gas Control

With the gas control, you can get more precise, faster and better quality cuts.

Operator Identification with RFID (Optional)

Barcode Reader (Optional)

Gps Locating (Optional)

Error Alert information transfer to mobile phone in a message form (Optional)

Mail Sending (Optional)

CAD / CAM SOFTWARE

TECHNICIAL SPECIFICATIONS

• All the functions of the CAD/CAM software are integrated in a single program, thus functions such as part design, call, placement (automatic or manual) etc. can be used without switching the program.

• Production management process: CAD/CAM software is ready to connect to production management systems (ERP) by means of automatic processes.

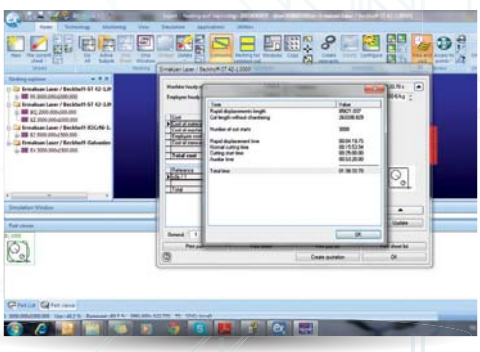
• Teamwork: It can be used either as an independent productivity cell or as a part of a network system.

• Sheet metal stock with part management and open database: All parts information are stored in databases that is organized so that users can easily find the needed parts and sheets since they are classified based on fields such as material, thickness, etc.

• 2D design: CAD/CAM software has advanced geometry and editing functions.

• Real time and cost calculation: CAD/CAM software calculates the cutting time and cost. This calculation takes into account the number of blasting, cutting length, marking, material cost, hourly operation of the machine, auxiliary material costs and depends on the machine's technological data.

• CAD/CAM software can be used to make bevels on side surfaces.



SUPERIOR TECHNOLOGIES

• CAD/CAM allows to configure and manage the type and value of inputs and outputs for different internal and external contour types.

• With micro joint and pre-cutting, common cut feauture can be conducted between different parts or two identical parts.

• It detects errors in the design and in the process.

• CAD/CAM software has features such as automatic input-output, manual and automatic cutting, copying the cuts, customized machine configuration for any type of machine.

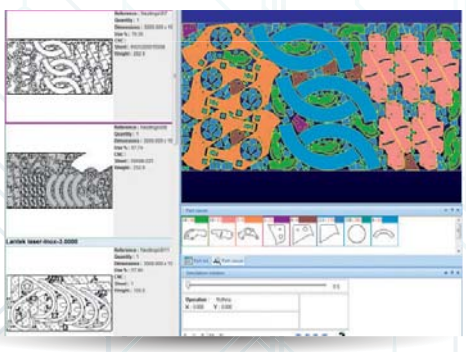
AUTO NESTING

• Manual and automatic nesting with excellent flexibility and maximum performance.

• Perfect combination of automatic and semi-automatic nesting functions with powerful manual nesting functions such as copy, move, rotate, align, etc.

• The automatic nesting function parts of the CAD/CAM software places the parts on the plate as much as possible.

• CAD/CAM software can also perform nesting on the culls. Just like for plates, a border can be defined for the culls too.



CUTTING HEAD

· The laser beam produced in laser sourse is carried to the cutting head by the fiber cable. The cutting head transfers the laser beam from the fiber cable to the processing surface.

· The fiber cable is fixed at the top side of the cutting head.

· The beams arranged in the collimation unit are transferred to the focusing unit.

· The laser beam is focused to desired value with the lenses in focusing unit.

· The Protection Glass is the part that prevents the slag from cutting to damage the lenses.

· Instant system control can be done by the LEDs on the cutting head.

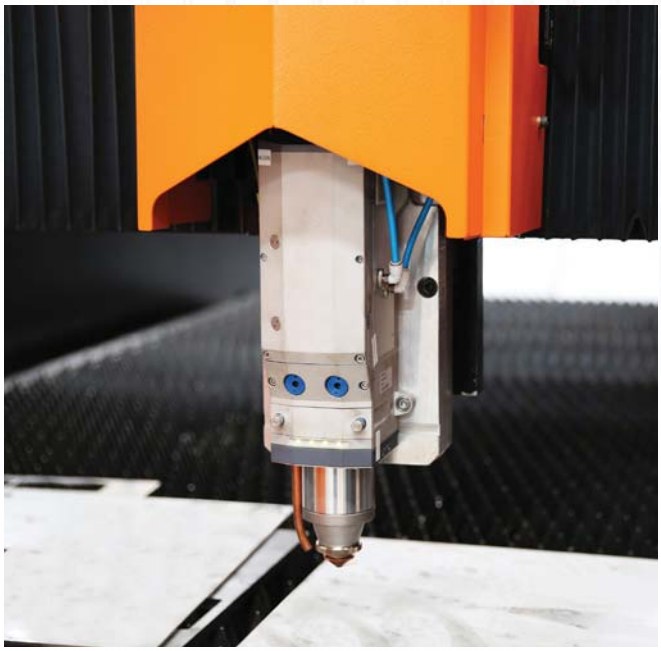
· The Height Sensor Insert is an element of the height control system used to adjust the distance between the cutting head and the machining surface. The information from here is converted into numerical values by transferring to an upper unit.

· Nozzle directs the auxiliary gases. Along with this, it helps to make height control.

Bevel Head (Optional)

· Through the motor controlled biaxial cutter head, it can move +- 45 degrees.

· For angled welding operations of 45 degrees or less, it is possible to cut angularly in a planar manner to open a welding groove.



ProCutter Zoom Head (Optional)

· Fast cuts in fine materials, quality cuts in thick materials

· Higher focal length

· Changeable Spot Size

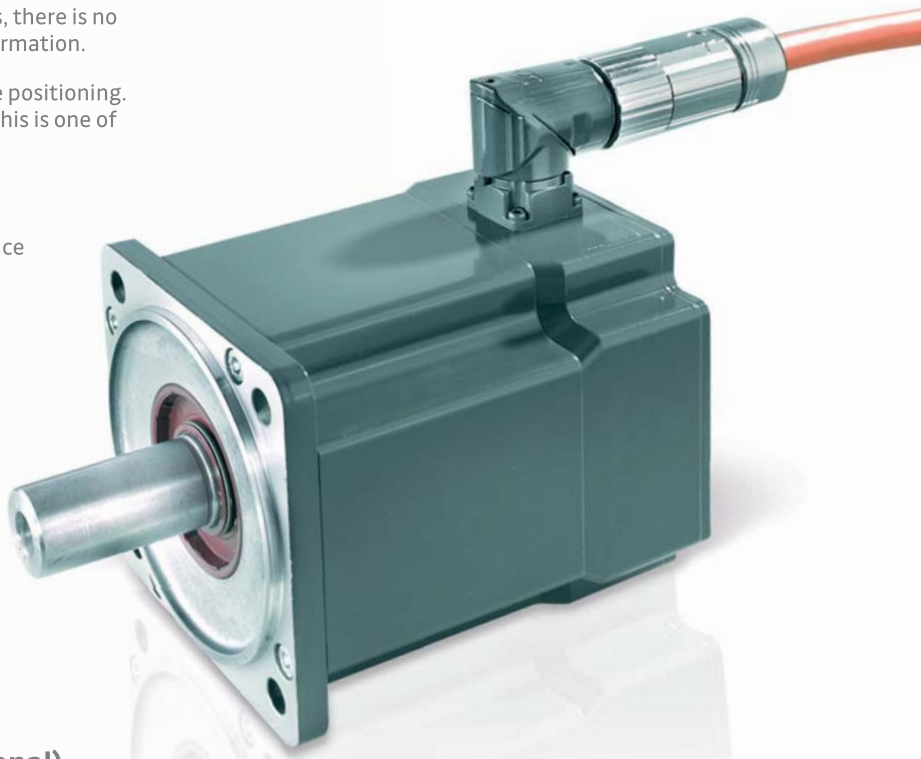
AXIS MOVEMENTS TECHNOLOGY

SERVO MOTOR TECHNOLOGY

There are 4 “single-wire servo” motors in the Fibermak as a standard to provide axis movements.

In single-wire servo motor technology, the position information is carried over the power cable. Thus, there is no need for a second cable to carry the position information.

Single-wire servo technology offers more precise positioning. Positioning is done with micron level precision. This is one of the basics for the accuracy of the part geometry.



- Low cost without compromising the performance
- Low energy consumption
- Easy maintenance and repair
- Low maintenance need

LINEAR MOTOR TECHNOLOGY (Optional)

Fibermak uses linear motor technology in bridge motions.

LINEAR MOTOR WORKING PRINCIPLES

Linear motors work with an electromagnetic motor principle. The moving directions of the electromagnetic motors on the magnets are changed to move the axes.

In linear motors, the position information is read over the linear ruler through the optical eye. In this case, position control is ensured with micron level precision.

Due to the fact that linear motors work in frictionless environment;

- It reaches high speed and acceleration easily.
- Its maintenance is practical and easy.

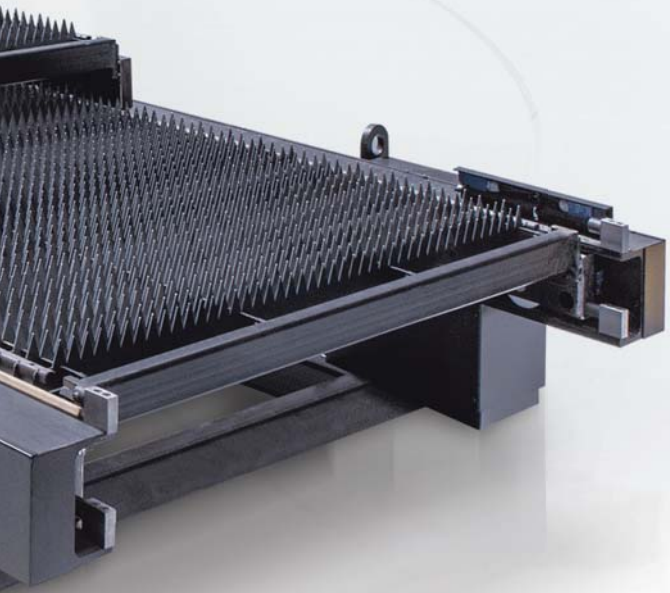
SHUTTLE
TABLE

It consists of two movable tables. While processing on the table inside the machine continues, the other table can be loaded with sheet metal or machined parts can be collected. In this way, it allows continuous cutting. In addition to the shuttle table, full automatic loading and unloading systems can also be added.

Continuous Cutting with Hydraulic and Movable Tables

ERCUT 7 CONTROL PANEL

· User-friendly interface
· Thanks to the simple and plain interface, it provides the user a comfortable and reliable experience
· The error and warning messages displayed with pop-up windows provide the users the best user experience
· Coloured, 7'' touch screen with high brightness and resolution
· The shuttle table is controlled more safely and quickly with the CNC control panel on the rear side of the machine.



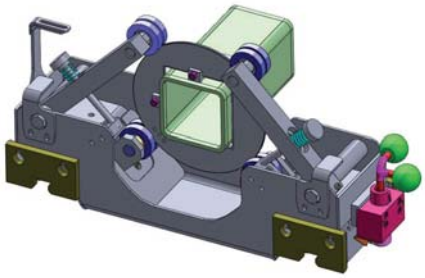
PIPE AND PROFILE
CUTTING OPTION

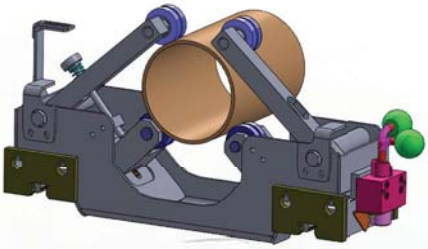
In our Fibermak Momentum Gen-3 series machines, in addition to straight sheet cutting, we also offer our users the options of pipe and profile cutting.

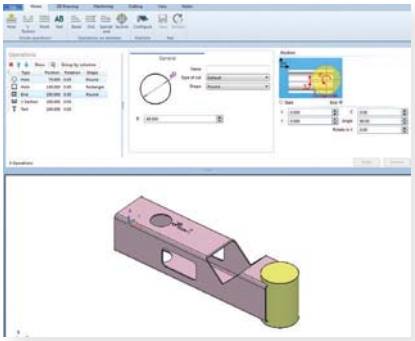
While your machine performs flat sheet metal cutting, your operator saves time by connecting the pipe or profile on the loading-unloading cart independent of the shuttle tables.

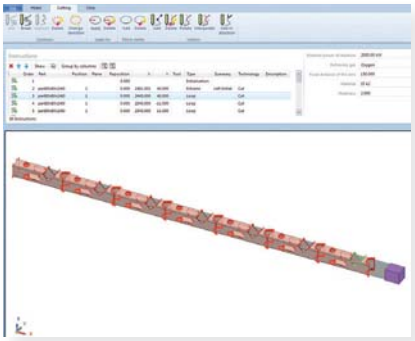
The pipe or profile fixed between the chuck and tailstock are supported with connecting support apparatus to ensure smooth rotation of the long parts without deflecting, which ensures a high quality cut.

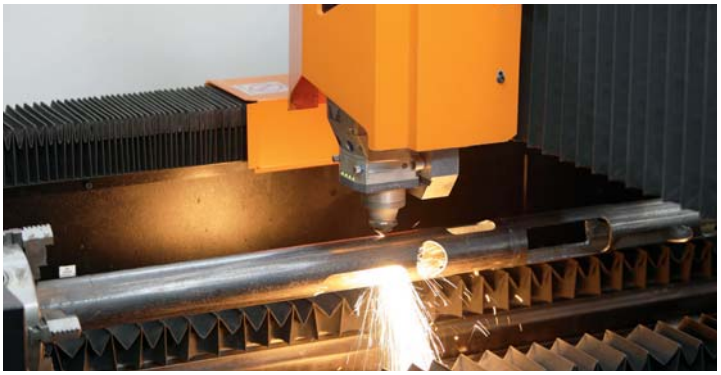
In addition to the Cad/Cam software for flat sheet cutting along with our machines which are provided with Pipe - Profile cutting option, a 3D Cad/Cam software is also provided where the drawings of the pipe and profile parts are drawn and/or loaded, the desired holes and figures are opened, the nesting and cutting simulation can be made.





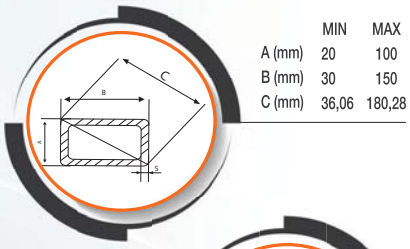




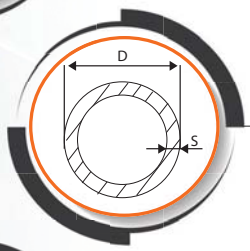


Pipe - Profile Wall Thickness

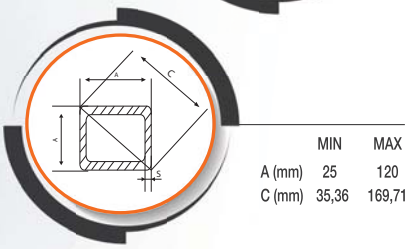
Material / Resonator POWER	Mild Steel	Stainless Steel
0,5 kW	4 mm	2 mm
1 kW	8 mm	4 mm
2-3-4-6 kW	8 mm	8 mm



	MIN	MAX
A (mm)	20	100
B (mm)	30	150
C (mm)	36,06	180,28



	MIN	MAX
D (mm)	25	200



	MIN	MAX
A (mm)	25	120
C (mm)	35,36	169,71

TECHNICIAL SPECIFICATIONS

TECHNICIAL SPECIFICATIONS/ MACHINE		SM 2,5x1, 25	SM 3x1.5	SM 4x2	SM 6x2	SM 8x2	SM 9x2
WORKING AREA	mm/inc	2500 x 1250 / 98,4x49,2	3000x1500/118,1x59,1	4000x2000/157,5x78,7	6150x 2000/242,1x78,7	8100x2000/318,9x78,7	9100x2000/358,3x78,7
MAX. LOAD CAPACITY	kg	1000	1500	2500	4000	6000	7000
AXIAL MOVEMENTS	-	-	-	-	-	-	-
X, U axes / Servo Motor Table	mm/inc	2550/100	3050/120	4050/159	6200/244	8200/323	9200/362
Y axes / Servo Motor Bridge	mm/inc	1270/50	1550/61	2050/81	2050/81	2050/81	2050/81
Z Eaxes / Servo Motor Cutting	mm/inc	150/6	150/6	150/6	150/6	150/6	150/6
ACCELERATION	G	2,5	2,5	2,5	2,5	2,5	2,5
SERVO MOTOR MAX. AXIS SPEEDS		141 (compound speed) (X, Y single axis speed 100 m/min)					
LINEAR MOTOR MAX. AXIS SPEEDS (OPTIONAL)	m/min	170 (compound speed) (X, Y single axis speed 120 m/min)					
AUTOMATIC LOADING UNLOADING UNIT	Pallet	2 (30 sec)	2 (35 sec)	2 (45 sec)	2 (65 sec)	2 (90 sec)	2 (100 sec)
MACHINE DIMENSIONS (LxWxH)	mm/inc	8190X3460X2200/ 322x136x87	10360X5112X2310/ 408x201x91	12430X5664X2310/ 489x223x91	16794X5664X2310/ 663x221x91	21078X5787X2310 830x228x91	22250X4300X2200 876x169x87
MACHINE WEIGHT	kg	10400	14200	18150	24750	37760	44170
MACHINE AXES		4-Axis [X, Y, Z, U]					
POSITITIONING ACCURACY	mm/inc	± 0,03/0,001					
REPETITION ACCURACY	mm/inc	± 0,015/0,0006					
CNC	-	BECKHOFF					
CAD/CAM SOFTWARE	-	LANTEK EXPERT CUT					
NETWORK CONNECTION	-	Ethernet					
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard					

SPECIFICATIONS/RESONATOR		YLR 500	YLS 1000	YLS 2000	YLS 3000	YLS 4000	YLS 6000
RESONATOR	Watt	500	1000	2000	3000	4000	6000
LASER BEAM QUALITY	rad	0,37	1 - 2	2 - 2.5	2 - 2.5	2 - 2.5	2 - 4
POWER STABILITY	%	± 0,5	1 - 3	1 - 2	1 - 2	1 - 2	1 - 2
FIBER CABLE DIAMETER	µm	50	50	100	100	100	100
COOLING WATER FLOW RATE	l/min	6	8	10	20	20	40
AVERAGE CONSUMPTION	kW	12	14	18	20	22	28
CUTTING HEAD	-	Precitec LightCutter		Precitec ProCutter			
POWER RANGE	%	10-105					
PULSE FREQUENCY RANGE	kHz	50	5	5	5	5	5
LASER WAVE LENGTH	nm	1070 ± 5					
EXCITATION		Laser diod					
AUXILIARY GASES	-	-					
OXYGEN	-	0,5-6 Bar					
NITROGEN	-	0,5-25 Bar					
DRY AIR	-	0,5-25 Bar					

· All Specifications are Subject to Change Without Notice.

· Sheet cutting speeds and thicknesses may vary when factors such as material quality, gas quality, ambient conditions, parameter settings, original spare parts usage, periodic maintenance, optical cleaning are not suitable.

· Cutting quality at the upper limit thickness depends on the desired geometry, material quality and the operating conditions of the system. There may be burrs at the lower edge during cutting at a limit value.

· For high thickness, cutting surface roughness increases in the fiber laser technology

SM 6x2,6	SM 8x2,6	SM 9x2,6	SM 10x2,6	SM 12x2,6	SM 14x2,6	SM 16x2,6	SM 18x3
6150 x 2600/242,1x102,4	8100x2600/318,9x102,4	9100x2600/358,3x106,3	10000x 2600/393,7x102,4	12000x 2600/472,2x102,4	14000x 2600/551,2x102,4	16000x 2600/629,9x102,4	18000x 3000/708,7x118,1
5000	8000	9000	10000	12500	14000	16000	24000
-	-	-	-	-	-	-	-
6200/244	8200/323	9200/362	10200/402	12200/480	14200/559	16200/638	18200/717
2700/106	2700/106	2700/106	2800/110	2800/110	2800/110	2800/110	3200/126
150/6	150/6	150/6	150/6	150/6	150/6	150/6	150/6
1	1	1	1	1	1	1	1
110 (Compound Speed) (X, Y Single axis speed 80m/min)							100 (Compound Speed) (X, Y Single axis speed 70m/min)
141 (Compound Speed) (X, Y Single axis speed 100m/min)	141 (Compound Speed) (X, Y Single axis speed 100m/min)	141 (Compound Speed) (X, Y Single axis speed 100m/min)	-	-	-	-	-
2 (65 sn)	2 (90 sn)	2 (100 sn)	2 (130 sn)	2 (150 sn)	2 (180 sn)	2 (200 sn)	2 (220 sn)
15430X 5110X 2200/ 607x201x87	21078X 6470X 2310/ 830x255x91	22250X5110X2200 876x201x87	25000X 5110X 2200 984x201x87	26500X 4300X 2200/ 1043x197x91	30500X 5500X 2200 1201x217x87	35000X 5100X 2200/ 1378x201x87	41000X 5500X 2200/ 1614x217x87
31400	39900	48120	55000	63000	70000	75000	80000
4-Axis [X, Y, Z, U]							
± 0,03							
± 0,015							
BECKHOFF							
LANTEK EXPERT CUT							
Ethernet							
15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard							

OPTIONAL EQUIPMENT

- Linear motor technology
- Laser power options
0.5 kW, 1 kW, 2 kW, 3 kW, 4 kW, 6kW and 8kW
- Suction unit
- Shuttle Table with pneumatic support
- Air conditioner for the electric panel
- CAD/CAM Software
- Cutting with dry filter by means of compressor filter, tank additional equipment
- Nozzle changer
- Profile and pipe cutting system
- Tower system
- Bridge type loading system
- LCM (laser cut monitor) sensor for piercing and cutting error control.
- Automatic sheet loading and unloading system
- Light protection barrier

Materials	Maximum Thickness to be Cut					
	Laser Power 500 W	Laser Power 1 kW	Laser Power 2 kW	Laser Power 3 kW	Laser Power 4 kW	Laser Power 6 kW
Mild Steel (S235JR, S355MC)	4 mm	8 mm	16 mm	18 mm	20 mm	25 mm
Stainless Steel (AISI 304)	2 mm	4 mm	8 mm	10 mm	12 mm	15 mm
Aluminium (AlMg3)	2 mm	3 mm	6 mm	8 mm	10 mm	12 mm
Copper (Cu-ETP)	1 mm	2 mm	4 mm	5 mm	6 mm	8 mm
Brass (CuZn37)	1 mm	2 mm	4 mm	5 mm	6 mm	8 mm

NOZZLE CHANGER

It is used to nozzle changer automatically before cutting the materials of different types and thicknesses. (Optional)

xis

et metal is cut at once,
and labour

meter

9 meter

FIBERMAK Momentum Ge
Bevel Cutting **Fiber Laser**

Thanks to the 9 meter table length
a single sheet metal is cut at once,
saving time and labour

FIBERMAK SL
G FORCE

With its side loading new design, Fibermak SL is the best choice for workshops with limited space, without compromising the Fibermak Momentum Gen-3 G Force standards and quality.

In Momentum Gen-3 G Force series servo motor models; thanks to the 2.5 G high acceleration, production time decreases and efficiency increases by 15% per hour.

1 Control Panel
2 Safety-Front Door
3 Conveyor
4 Protective Glasses
5 Light Barrier
6 Shuttle Table


ERMAK SL
FORCE
ERMAKSAN
4
5
6

GENERAL
SPECIFICATION

STANDARD EQUIPMENT

·4 Axis (X, Y, U, Z)
· CAD/CAM Software
·Servo Motor
· 15” Touch Controller
·Automatic-focus cutting head
· Conveyor
· Laser Source
· Warning lamp
· Cooling unit
· Nozzle and cleaning set
· Clean - Dry air system
· Nozzle cleaning and calibration table
· Safety cabinet
· 2 Automatic Shuttle Table

CONTROL PANEL

· The Unit controls the system and sends the user commands to the machine

· Resistant to difficult environmental conditions. (Shock, dirt, humidity, temperature, etc.)

· Touch screen and mounted functional keyboard

· You can increase and decrease the axis speeds in the working area with the speed adjustment parameter.

· Shortcut keys provide easy use.

· Cutting operation can be monitored instantaneously in NC graphic.

CUTTING HEAD

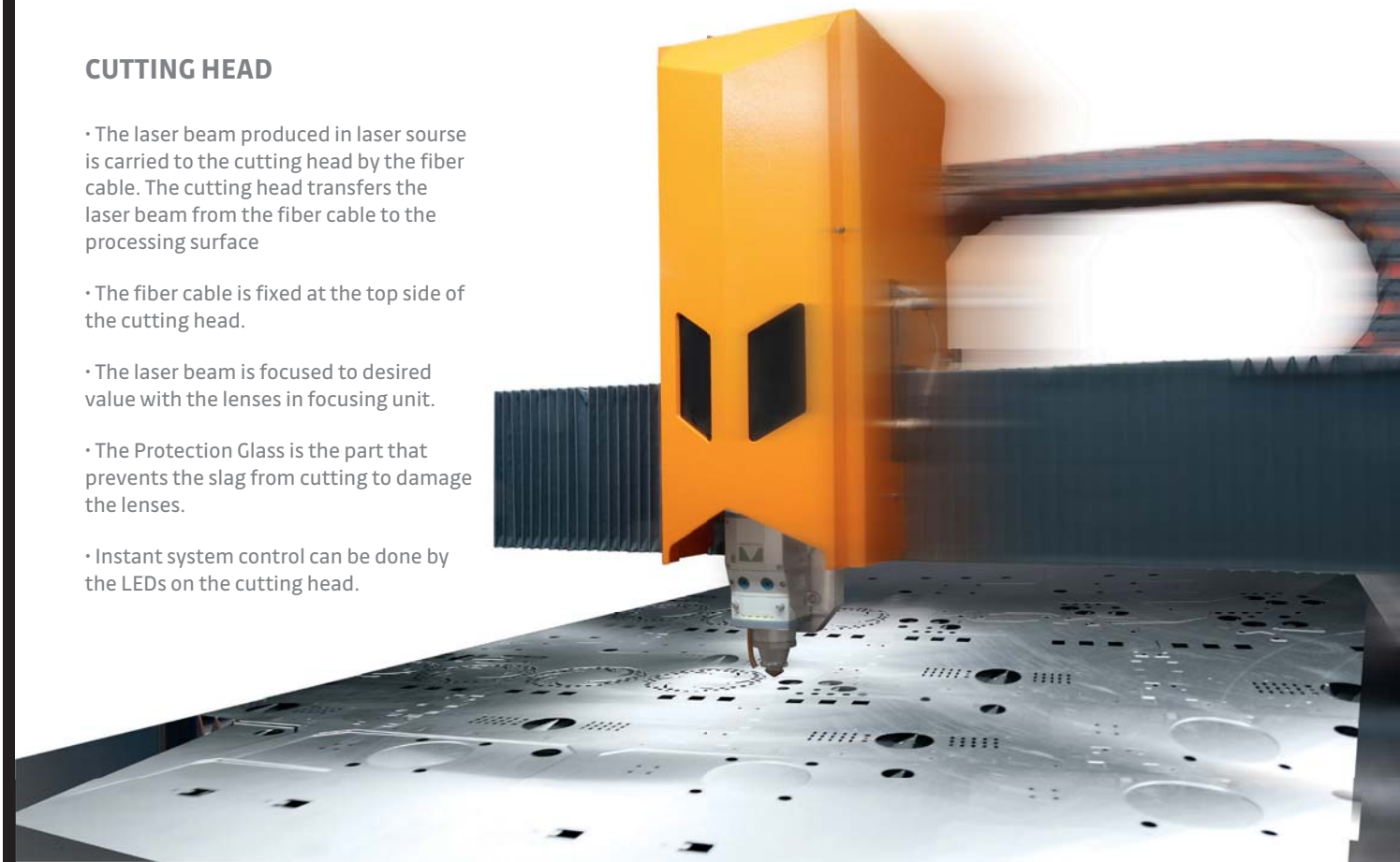
· The laser beam produced in laser sourse is carried to the cutting head by the fiber cable. The cutting head transfers the laser beam from the fiber cable to the processing surface

· The fiber cable is fixed at the top side of the cutting head.

· The laser beam is focused to desired value with the lenses in focusing unit.

· The Protection Glass is the part that prevents the slag from cutting to damage the lenses.

· Instant system control can be done by the LEDs on the cutting head.



TECHNICAL
SPECIFICATIONS

SPECIFICATIONS/ MACHINE		SL 2,5x1, 25	SL 3x1.5	SL 4x2	SL 6x2	SL 8x2	SL 8x2,6
WORKING AREA	mm/inc	2500 x 1250/98,4x49,2	3000x1500/118,1x59,1	4000x200/157,5x78,7	6150x 2000/242,1x78,7	8100x2000/318,9x78,7	8100x2700/318,9x106,3
MAX. LOAD CAPACITY	kg	600	1500	2500	4000	6000	8000
AXIAL MOVEMENTS	-	-	-	-	-	-	-
X, U AXIS/ Servo Motor Table	mm/inc	2550/100	3050/121	4050/159	6200/244	8300/327	8300/327
Y AXIS / Servo Motor Bridge	mm/inc	1270/50	1550/61	2050/81	2050/81	2050/81	2700/106
Z AXIS / Servo Motor Cutting Head	mm/inc	150/6	150/6	150/6	150/6	150/6	150/6
ACCELERATION	G	2,5	2,5	2,5	2,5	2,5	1
MAX. AXIS SPEEDS	m/min	141 (compound speed) (X, Y single axis speed 100 m/min)				ı) ı 100	110 (compound speed) (X, Y single axis speed 80 m/min)
AUTOMATIC LOADING UNLOADING UNIT	Pallet	2 (20 sec)	2 (25 ses)	2 (30 sec)	Automatic (Single Pallet)	Automatic (Single Pallet)	Automatic (Single Pallet)
MACHINE DIMENSIONS (L x W x H)	mm/inc	5200X4200X2610/ 205x165x103	5700X4700X2610 224x185x103	6800X5760X2610 374x241x103	9000X5760X2610 354x227x103	11500X5760X2610 453x227x103	11500X6860X2610 789x201x87
MACHINE WEIGHT	kg	10400	13500	15800	21100	26500	29300
MACHINE AXES		4-Axis [X, Y, Z, U]					
POSITITIONING ACCURACY	mm/inc	± 0,03/0,001					
REPETITION ACCURACY	mm/inc	± 0,015/0,0006					
CNC	-	BECKHOFF					
CAD/CAM SOFTWARE	-	LANTEK EXPERT CUT					
NETWORK CONNECTION	-	Ethernet					
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard PLC keys, touch screen keyboard					

SPECIFICATIONS/RESONATOR		YLR 500	YLS 1000	YLS 2000	YLS 3000	YLS4000	YLS 6000
RESONATOR	Watt	500	1000	2000	3000	4000	6000
LASER BEAM QUALITY	rad	0,37	1 - 2	2 - 2.5	2 - 2.5	2 - 2.5	2 - 4
POWER STABILITY	%	± 0,5	1 - 3	1 - 2	1 - 2	1 - 2	1 - 2
FIBER CABLE DIAMETER	µm	50	50	100	100	100	100
COOLING WATER FLOW RATE	l/min	6	8	10	20	20	40
CUTTING CAPACITY (Max.)	-						
MILD STEEL (S235JR, S355MC)	mm/inc	4/ 5/32"	8/ 5/16"	16/ 5/8"	18/ 23/32"	20/ 51/64"	25/ 1"
STAINLESS STEEL (AISI 304)	mm/inc	2 / 5/64"	4/ 5/32"	8/ 5/16"	10/ 3/8"	12/ 1/2"	15/ 5/8"
ALUMINIUM (ALMG3)	mm/inc	2 / 5/64"	3/ 1/8"	6 / 1/4"	8/ 5/16"	10/ 3/8"	12 / 1/2"
COPPER (CU-ETP)	mm/inc	1/ 3/64"	2/ 5/64"	4/ 5/32"	5/ 3/16"	6/ 1/4"	8/ 5/16"
BRASS (CUZN37)	mm/inc	1/ 3/64"	2/ 5/64"	4/ 5/32"	5/ 3/16"	6/ 1/4"	8/ 5/16"
AVERAGE CONSUMPTION	kW	15	17	21	31	33,7	38
CUTTING HEAD	-	Precitec LightCutter	r			Precitec ProCutter	
POWER RANGE	%	10-105					
PULSE FREQUENCY RANGE	kHz	50	5	5	5	5	5
LASER WAVE LENGTH	nm	1070 ± 5					
EXCITATION		Laser diod					
AUXILIARY GASES	-	-					
OXYGEN	-	0,5-6 Bar					
NITROGEN	-	0,5-25 Bar					
DRY AIR	-	0,5-25 Bar					

· All Specifications are Subject to Change Without Notice.

· Sheet cutting speeds and thicknesses may vary when factors such as material quality, gas quality, ambient conditions, parameter settings, original spare parts usage, periodic maintenance, optical cleaning are not suitable.

· Cutting quality at the upper limit thickness depends on the desired geometry, material quality and the operating conditions of the system. There may be burrs at the lower edge during cutting at a limit value.

· For high thickness, cutting surface roughness increases in the fiber laser technology.

FIBERMAK
RAPTOR

RAPTOR Fiber Laser Cutting machine has been produced to be an alternative solution without compromising the cutting quality by observing a more modular and ergonomic design compared to the standard Fibermak, with its outer structure that takes less space. It is offered to our customers as an economical solution with 0.5 G acceleration, 50 mt/min speed, single cut table, manual focus cutting head and relieved body structure.

FIBERMAK RAPTOR

GENERAL SPECIFICATION

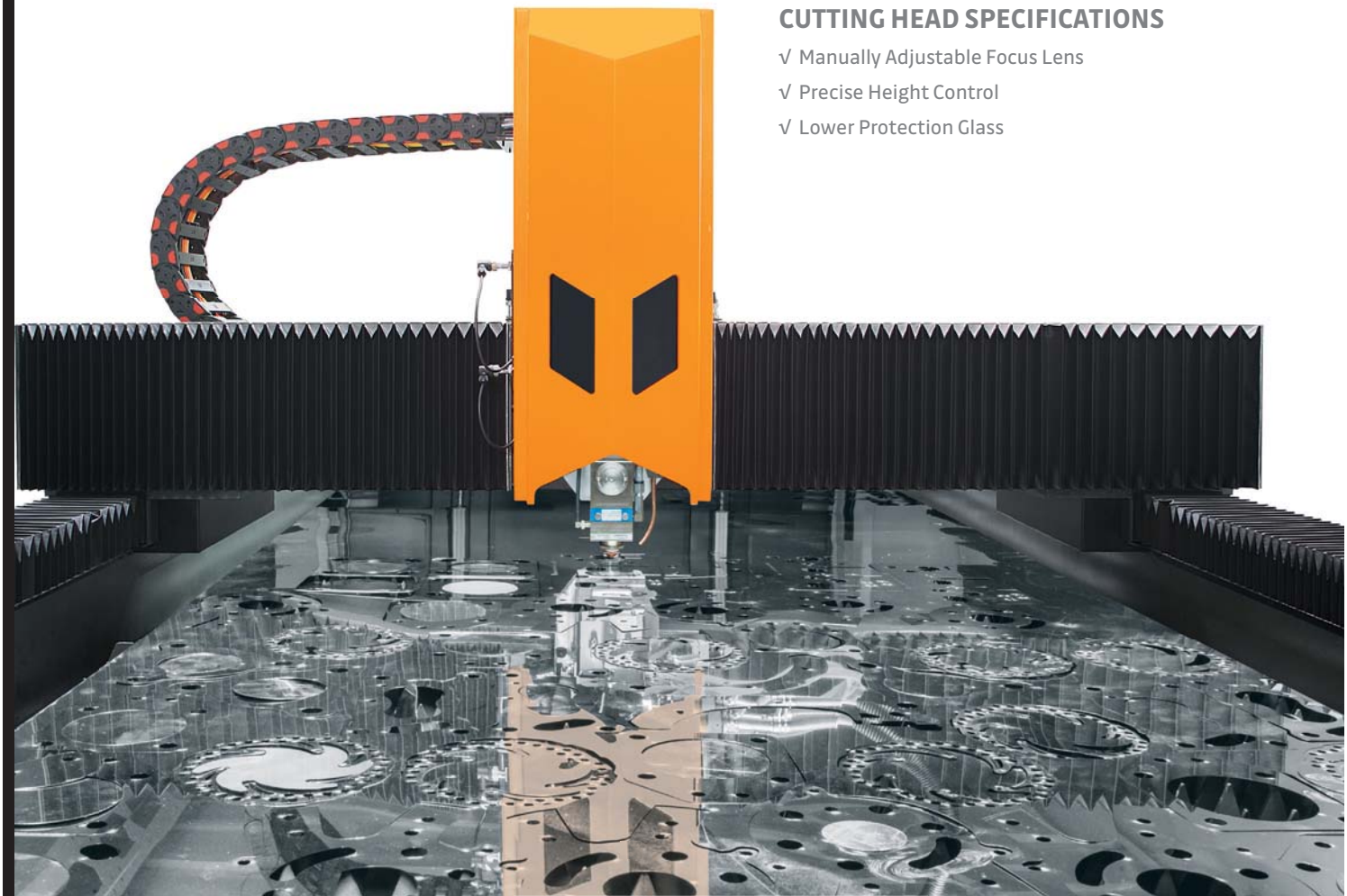
- Modular and ergonomic design
- 0.5 G acceleration has been designed as 50mt/min.
- Suction unit
- Conveyor
- Loading unit
- 15 inch touch screen controller
- Servo motor technology
- Cutting head with high precision
- 500 W, 1 kW or 2 kW laser source option.

GENERAL
SPECIFICATIONS

CONTROL PANEL

All software on the Control Panel has been developed by the Ermaksan engineers and special additions can be made.

- Control panel is the unit which controls the system and sends the user commands to the machine.
- Control panel is resistant to various environmental conditions.
- Shock, dirt, humidity, temperature, etc.
- Touch screen and an external keyboard is available.
- The axis speed can be controlled with the speed adjustment potentiometer on the control panel.
- NC graphic display.



CUTTING HEAD SPECIFICATIONS

√ Manually Adjustable Focus Lens

√ Precise Height Control

√ Lower Protection Glass

TECHNICAL
SPECIFICATIONS

SPECIFICATIONS/ MACHINE		RAPTOR 2,5X1,25	RAPTOR 3X1,5
WORKING AREA	mm/inc	2500 x 1250/ 98,4x49,2	3000x1500/118,1x59,1
MAX. LOAD CAPACITY	kg	600	750
AXIAL MOVEMENTS	-	-	-
X, U AXES / Servo Motor Table	mm/inc	2550/100	3050/120
Y AXIS / Servo Motor Bridge	mm/inc	1270/50	1550/61
Z AXIS / Servo Motor Cutting Head	mm/inc	150/6	150/6
ACCELERATION	G	0,5	0,5
MAX. AXIS SPEEDS	m/min	70 (Compound Speed) (X, Y Single axis speed 50m/min)	
AUTOMATIC LOADING UNLOADING UNIT	Pallet	Automatic (Single Pallet)	
MACHINE DIMENSIONS (L x W x H)	mm/inc	8200X2450X2200 / 323x96x87	8700X2700X2200 / 343x106x87
MACHINE WEIGHT	kg	7900	8200
MACHINE AXES		4-	4-Axis [X, Y, Z, U]
POSITITIONING ACCURACY	mm/inc	± 0,1 / 0,004	
REPETITION ACCURACY	mm/inc	± 0,05/ 0,002	
CNC	-	BECKHOFF	
CAD/CAM SOFTWARE	-	LANTEK EXPERT CUT	
NETWORK CONNECTION	-	Ethernet	
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard	

SPECIFICATIONS/RESONATOR		YLR 500	YLS 1000	YLS 2000
RESONATOR	Watt	500	1000	2000
LASER BEAM QUALITY	rad	0,37	1 - 2	2 - 2.5
POWER STABILITY	%	± 0,5	1 - 3	1 - 2
FIBER CABLE DIAMETER	µm	50	50	100
COOLING WATER FLOW RATE	l/min	6	8	10
CUTTING CAPACITY (Max.)	-			
MILD STEEL (S235JR, S355MC)	mm/inc	4 / 3/16”	8 / 5/16”	16 / 5/8”
STAINLESS STEEL (AISI 304)	mm/inc	2 / 5/64”	4 / 5/32”	8 / 5/16”
ALUMINIUM (ALMG3)	mm/inc	2 / 5/64”	3 / 1/8”	6/ 1/4”
COPPER (CU-ETP)	mm/inc	1 / 3/64”	2 / 5/64”	4 / 5/32”
BRASS (CUZN37)	mm/inc	1 / 3/64”	2 / 5/64”	4 / 5/32”
AVERAGE CONSUMPTION	kW	13	15	21
CUTTING HEAD	-	Precitec LightCutter	Precitec LightCutter	Precitec ProCutter
POWER RANGE	%		10-105	
PULSE FREQUENCY RANGE	kHz	50	5	5
LASER WAVE LENGTH	nm		1070 ± 5	
EXCITATION			Laser diod	
AUXILIARY GASES	-			
OXYGEN	-		0,5-6 Bar	
NITROGEN	-		0,5-25 Bar	
DRY AIR	-		0,5-25 Bar	

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· Cutting quality at the upper limit thickness depends on the desired geometry, material quality and the operating conditions of the system. There may be burrs at the lower edge during cutting at a limit value.

· For high thickness, cutting surface roughness increases in the fiber laser technology.

FIBERMAK
HAWK

Eco-solution for low budget – high performance expecting customers.

Cutting capabilities of 6 mm MS by Ermak 500 W, 10 mm MS by Ermak 1000 W resonators.


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YGL - 1000 / HE
ERMAKSAN

GENERAL SPECIFICATIONS

CONTROL PANEL

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- Control panel is the unit which controls the system and sends the user commands to the machine.
- Control panel is resistant to various environmental conditions.
- Shock, dirt, humidity, temperature, etc.
- Touch screen and an external keyboard is available.
- The axis speed can be controlled with the speed adjustment potentiometer on the control panel.
- NC graphic display.

CUTTING HEAD SPECIFICATIONS

√ Manually Adjustable Focus Lens
√ Precise Height Control
√ Lower Protection Glass

TECHNICAL
SPECIFICATIONS

TECHNICAL SPECIFICATIONS		HAWK 500.3x1.5	HAWK 1000.3x1.5
RESONATOR	Watt	FSM 500	YGL 1000
POWER RANGE	%	10-105	10-105
LASER BEAM QUALITY	rad	0,89	2 - 3
POWER STABILITY	%	± 0,5	1
PULSE FREQUENCY RANGE	kHz	10	10
LASER WAVE LENGTH	nm	1070	1070 ± 5
FIBER CABLE DIAMETER	µm	50	100
EXCITATION	-	Laser diod	Laser diod
COOLING WATER FLOW RATE	l/min	14	16
CUTTING CAPACITY (Max.)	-	-	-
MILD STEEL (S235JR, S355MC)	mm/inc	6	10
STAINLESS STEEL (AISI 304)	mm/inc	2	4
ALUMINIUM (ALMG3)	mm/inc	2	3
COPPER (CU-ETP)	mm/inc	1	2
BRASS (CUZN37)	mm/inc	1	2
WORKING AREA	mm/inc	3000x1500/98,4x49,2	3000x1500/ 118,1x59,1
MAX. LOAD CAPACITY	kg	300	300
MACHINE AXES	-	4-Axis [X, Y, Z, U]	4-Axis [X, Y, Z, U]
AXIAL MOVEMENTS	-	-	-
X, U AXIS/ Servo Motor Table	mm/inc	3050/ 100	3050/120
Y AXIS / Servo Motor Bridge	mm/inc	1530 / 50	1530 / 60
Z AXIS / Servo Motor Cutting Head	mm/inc	110 / 4	110 / 4
ACCELERATION	-	-	-
X, U AXIS/ Servo Motor Table	G	1	1
Y AXIS / Servo Motor Bridge	G	1	1
Z AXIS / Servo Motor Cutting Head	G	1	1
MAX. AXIS SPEEDS	m/min	106 (Compound Speed) (X, Y single axis speed 75m/min)	106 (Compound Speed) (X, Y single axis speed 75m/min)
POSITITIONING ACCURACY	mm/inc	± 0,1 / 0,004	± 0,1/ 0,004
REPETITION ACCURACY	mm/inc	± 0,05 / 0,002	± 0,05 / / 0,002
AUTOMATIC LOADING UNLOADING UNIT	pallet	-	-
AUXILIARY GASES	-	-	-
OXYGEN	-	0,5-6 Bar	0,5-6 Bar
NITROGEN	-	0,5-25 Bar	0,5-25 Bar
DRY AIR	-	0,5-25 Bar	0,5-25 Bar
CUTTING HEAD	-	Precitec Light Cutter	Precitec Light Cutter
CNC	-	BECKHOFF 2215	BECKHOFF 2215
CAD/CAM SOFTWARE	-	LANTEK EXPERT CUT	LANTEK EXPERT CUT
NETWORK CONNECTION	-	Ethernet	Ethernet
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard
AVERAGE CONSUMPTION	kW	10	12
MACHINE DIMENSIONS (L x W x H)	mm/inc	5100x2650X1800/ 181x94x71	5100x2650X1800 / 201x104x71
MACHINE WEIGHT	kg	5300	5300

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· For high thickness, cutting surface roughness increases in the fiber laser technology.

FIBERMAK TOWER

LOADING AND UNLOADING SYSTEMS

Produced by Ermaksan and providing precise cutting, Fibermak allows serial production with Momentum Gen-3, Tower system.

TOWER is used to make unmanned loading and unloading of the sheet metal of 1500x3000 mm for laser cutting machines. The system ensures high level of reliability, high flexibility and ease of use.

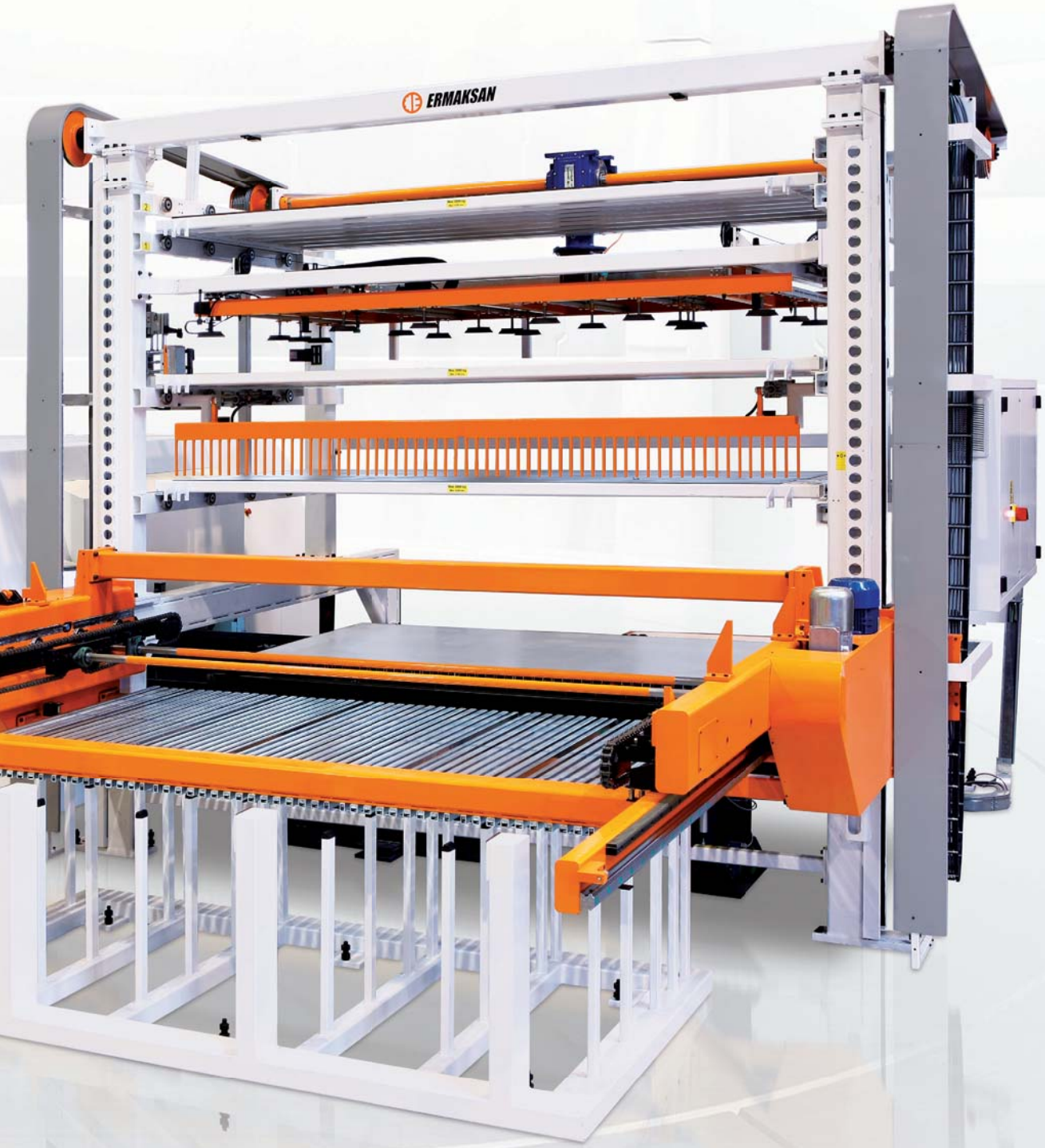
ADVANTAGES OF THE TOWER FULL AUTOMATIC SHEET METAL LOADING AND UNLOADING SYSTEM;

- 24/7 working capability,
- Elimination of halting losses,
- Competitive advantage brought by unit cost advantages
- Protection of sensitive steels against shocks and scratches,
- Capability to process all the sheet metals with a single start
- The most ideal solution against the area losses in the businesses with tower type multi-pallet piling system
- Low stock area

TOWER CAN BE PRODUCED IN 2 DIFFERENT MODELS OPTIONALLY.;

- Mini Server: Stock area is standard 2-pallet. Only one type of sheet metal can be stored during the process.

- Compact Tower: Stock area is at least 3-pallet. Only two types of sheet metal can be stored during the process. The number of pallets can be increased based on customer's desire, each pallet can be loaded 300 kilograms. Processed sheet metals can be stored in the unloading area.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FIBERMAK TOWER
LOADING - UNLOADING SYSTEMS

TOWERMAK CONSISTS OF SEVERAL SECTIONS;

• STOCK AREA: This is the area where the pallet is located depending on the number of the sheet metals that will be processed based on customer demand.

• LIFTING UNIT: It is the unit that performs the transfer between the stock area, loading area, processed sheet metal area and laser cutting machine.

• LOADING AREA: The sheet metal pallet needed by the laser cutting machine is brought to the loading area with the help of a lift. The sheet metal to be cut in the loading area is separated from the other sheet metals in the pallets by means of pressurized air. Its thickness is controlled and it is taken by the lift from the loading area and loaded onto the laser machine for the cutting process.

• MACHINED SHEET-METAL AREA: This is the area where the cut sheet-metal is taken from the laser machine by a lift and loaded.

CONTROLLER

28 different materials can be programmed into the controller.

• Open system for robot configuration.
• 5.7 inch touch screen and keyboard
(the system can be operated via screen or keyboard).

TECHNICAL SPECIFICATIONS

TECHNICIAL SPECIFICATIONS	
Standard Sheet Metal	:up to 1500x3000mm
Sheet metal thickness	: min: 0.5mm max.: 20mm
Load per pallet	:3000 Kg
Loading height	: max 150 mm
Unloading height	: max 150 mm
General dimension	: 2460x4400x3000 (h) mm
Z-axis stroke	: 1200mm
Z-axis speed	: 11.0 m/min
Horizontal comb stroke	: 1600mm
Comb speed	: 10.0 m/min
Vacuum lifter vertical stroke	: 350 mm
Vacuum speed	: 2.5 m/min
Duty cycle	: 120 sec. (Loading - Unloading)

X REFERENCE ARM:

This is a mechanism that ensures correct reference taking while loading sheet metal.

STOCK AREA:

The automatic system takes the sheet metal and

TO LIFT UNPROCESSED SHEET METAL VACUUM LIFTERS:

Places into the suitable stock area.
Long-life vacuum lifter system for loading sheet-metal.

FIBERMAK
LOADING SYSTEMS

BRIDGE TYPE VACUUM LOADING SYSTEM

Ermaksan production bridge type vacuum loading system provides the users with great convenience by ensuring that the raw material can be easily and automatically loaded onto the shuttle table precisely and smoothly. It is a practical and also an economical solution for mass production.

• A carrier bridge between raw material piling table and shuttle table

• Takes the sheet metal to be cut from the piling table and moves it onto the shuttle table.

• Vacuum lifter group to lift the raw material

• Powerful pneumatic vacuum lifters lift the sheet metal into the air with suction force.

• X and Z axes for vacuum lifter group

• They enable forward - backward and up - down movement of the vacuum lifter group

• With the automatic separation system, during the lifting movement of the vacuum lifter's lifting movement, two sheets are separated from each other by means of the air blown underneath.

• The thickness of the sheet is measured before it is transported to the shuttle table. This guarantees accurate operation of the system during operation without operator. If the measured thickness is different from the cutting thickness defined in Fibermak, it is perceived as it has lifted double or more cohesive sheets and the process of automatic separation of sheet piling is repeated.

TECHNICIAL SPECIFICATIONS

Sheet Metal Dimension	:	max. 1500 mm x 3000 mm
Single Sheet Metal Thickness	:	min. 0.5 mm – max. 15 mm
Raw Material Pile Height	:	max. 100 mm
General Dimensions	:	W = 3000 mm x Size =7000 mm x H.= 3000mm
Unloading height	:	max. 150 mm
Z Axis Stroke	:	330 mm
Z Axis Speed2.	:	82 m/min.
Carrier Horizontal Stroke	:	3700 mm
Carries Speed	:	12 m/min
Vacuum Lifter Vertical Stroke	:	50 mm
Vacuum Suction duration max.	:	1 sec.
Working Circulation	:	90 sec.

LOADMASTER VACUUM LOADING SYSTEM

Ermaksan production automatic compass crane type vacuum loading system provides the users with great convenience by ensuring that the raw material can be easily and automatically loaded onto the shuttle table precisely and smoothly. It is a practical and also an economical solution for mass production.

• Between the raw material piling table and the shuttle table, the carrier arm picks up the sheet to be cut from the piling table and carries it onto the shuttle table.

• To remove the raw material, the strong pneumatic vacuum lifters of the vacuum lifter group lift the sheet metal into the air with the suction force.

• A and Z axes for vacuum lifter group
They enable rotation and up - down movement of the vacuum lifter group

VACUMASTER VACUUM LOADING SYSTEM

Ermaksan production semi-automatic compass crane type vacuum loading system provides the users with great convenience by ensuring that the raw material can be easily and automatically loaded onto the shuttle table precisely and smoothly. It is a practical and also an economical solution for mass production.

• Between the raw material piling area and the shuttle table, the carrier arm picks up the sheet to be cut from the piling area and carries it onto the shuttle table.

• Vacuum lifter group to lift the raw material
Powerful pneumatic vacuum lifters lift the sheet metal into the air with suction force.

• The thickness of the sheet metal is measured before it is transported to the shuttle table. This guarantees accurate operation of the system during operation without operator.

ROBOMASTER VACUUM LOADING SYSTEM

Machine performance is maximized by operating the Fibermak and robot in harmony. In this system, sheet metal loading, collecting the finished works and piling are automatically done easily.

FIBERMAK
G-FORCE

FIBERMAK
SL G-FORCE

FIBERMAK
RAPTOR

FIBERMAK
HAWK

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