

# LASER CUTTING TECHNOLOGIES

# LASER



- HAWK LASER
- THUNDERBIRD
- SPECIAL MACHINES
- LASER AUTOMATION

- FIBERMAK MOMENTUM GEN-5
- FIBERMAK MOMENTUM GEN-3
- FIBERMAK SL
- FIBERMAK RAPTOR



**ERMAKSAN**  
INNOVATIVE TECHNOLOGIES

[www.ermaksan.com.tr](http://www.ermaksan.com.tr)

Laser technologies  
that grow your business





**"Ermaksan is a global technology company that offers innovative solutions to industrial life."**



#### Who are we ?

Ermaksan produces innovative, high-quality, and high value-added products and solutions with its brands. In its journey exceeding half a century, it has been taking determined steps towards the future by maintaining its strong stance in the fields of sheet metal processing, additive manufacturing, optoelectronics, and advanced defence technologies.

Continuing its investments on the path of sustainable growth without slowing down, Ermaksan contributes to efficient production in more than 120 countries through ERMAKUSA in the USA, ERMAK Deutschland GmbH in Germany and its various other distinguished dealers around the world. In order to meet the customer expectations of today's rapidly changing world and to offer the manufacturing technologies of the future today, the company produced Turkey's first metal 3D printer with the brand ERMAKSAN ADDITIVE and offered it to the additive manufacturing industry. EON PHOTONICS brand, which has Turkey's first private sector semiconductor Optoelectronic R&D centre, continues its production and development activities of high-tech products such as laser technologies, FBG sensors, CNC controllers, and Industry 4.0 applications.

With the innovative perspective of 21st century, Ermaksan continues its activities with the aim of being among the world's leading manufacturers in the fields of technology and R&D. By constantly monitoring new trends and customer expectations, Ermaksan designs and manufactures advanced technology, high value-added, environmentally friendly and energy-saving machines, and takes firm steps towards a more sustainable future by using resources effectively and efficiently.

#### Fiber Laser Technologies

Increasing the production efficiency in laser cutting technology, Ermaksan offers the most ideal solutions to the requirements of the sector with various machine models put on the market. In addition to offering customized solutions for customer needs, Ermaksan contributes to smart production processes by developing machines suitable for automation. Today, factories are smarter, and productions are more digital and traceable with our Industry 4.0 solutions that will provide a high level of flexibility to production processes.

Ermaksan laser technology, which is used in many stages of the production sector, especially in automotive and aviation industries, contributes to the efficiency and continuity of production by meeting customer expectations with features such as high precision and cutting speed, minimum roughness, long-lasting working performance.

By constantly monitoring new trends and customer expectations, Ermaksan designs and manufactures environmentally friendly machines with state-of-the-art technologies, high added value, and energy saving, and takes firm steps forward with its stakeholders on the path of sustainable growth.





## FIBERMAK MOMENTUM GEN-5

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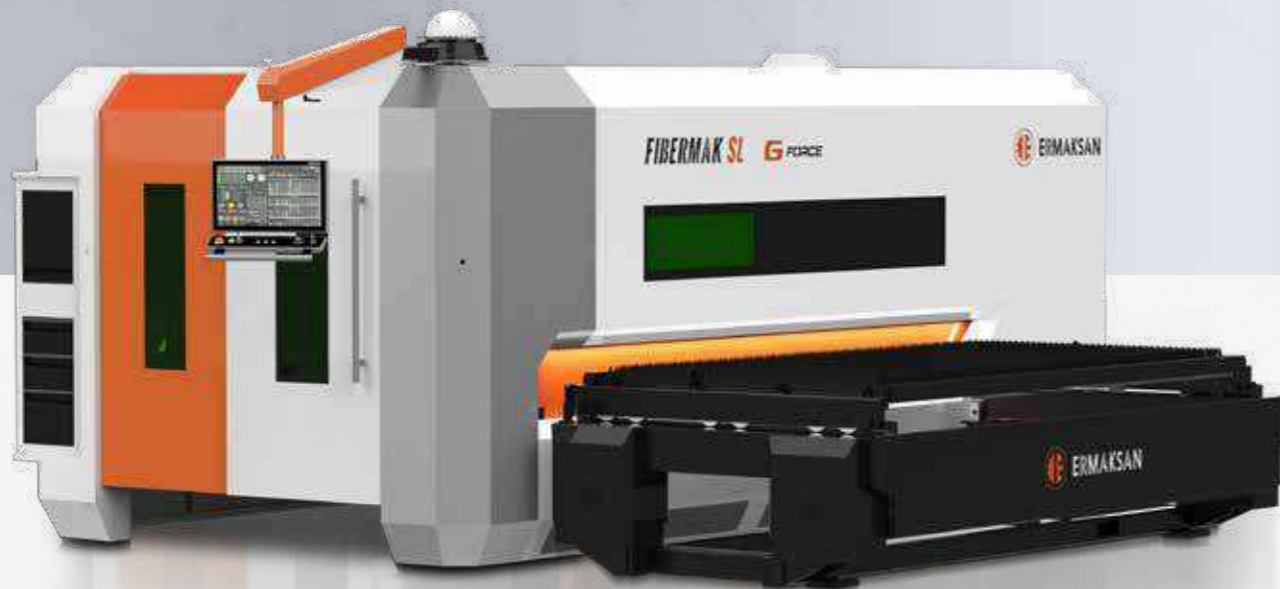
## FIBERMAK MOMENTUM GEN-3

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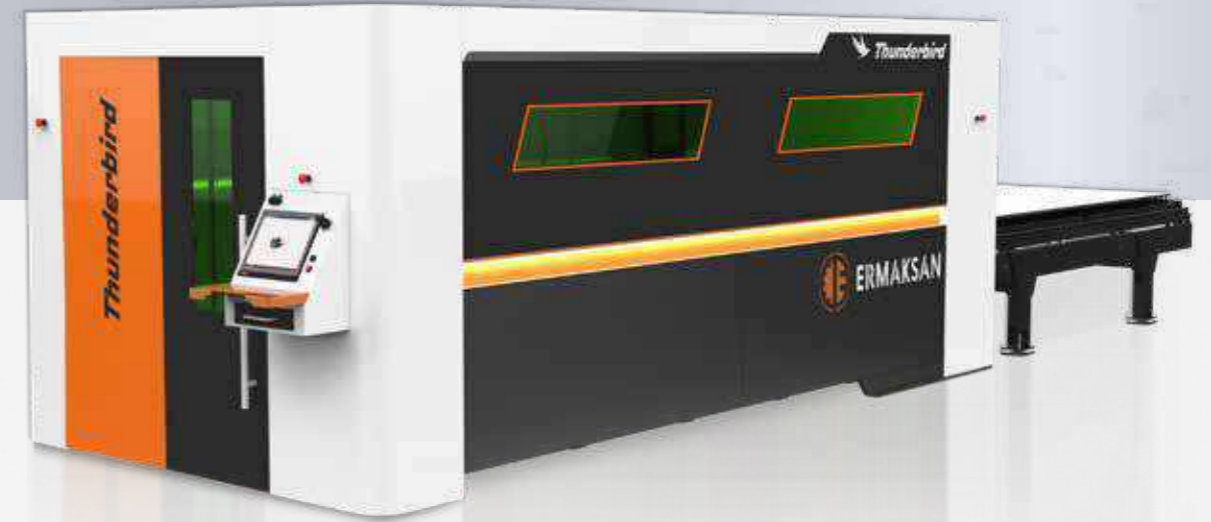
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## SPECIAL MACHINES

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## LASER AUTOMATION

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# FIBERMAK

## MOMENTUM GEN-5

Next Generation  
Laser Technology



2 kW - 15 kW  
power option

21.5" multi-touch  
control panel

Height adjustable  
CNC arm

PC-based CNC  
controller

X, U, Y and Z  
servo motor  
axes

2.5 - 4G  
acceleration  
option

## Increase Your Performance !

With its engineering designs, FIBERMAK Momentum Gen-5 offers innovative solutions to the industrial world while creating a stronger appearance with its unique stance and details embedded in its designs. With its cambered and structured body and strong curves, the new design also inspires with its unique colours.

Designed to meet all your needs, the new FIBERMAK Momentum Gen-5 servo motor and 4G acceleration options provide its users with superior performance and high efficiency at high cutting speed. The Industry 4.0 compatible control panel, with the entire software designed and developed by Ermaksan engineers, will maximize your production efficiency by making your work connected and smart with the perfect combination of technology and engineering. You'll also get a shorter return on investment while taking advantage of the latest features it has to offer.



### CAMERA LASER BEAM CENTRING

This technology eliminates the need to manually centre the laser beam inside the nozzle. Higher cutting quality is achieved by centring the beam by means of the camera in a few seconds.

### PIERCETEC CUT CONDITIONS

With its integrated sensor, PierceTec controls laser power and drilling duration in real time. PierceTec saves on cycle time and operating costs.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.



### ANTI-COLLISION SYSTEM

During cutting, possible collision between the laser cutting head and the displaced pieces is prevented, protecting the cutting head against damages. This feature ensures maximum safety while reducing downtime and hardware costs.

### AUTOMATIC PROFILE ALIGNMENT

An automatic profile alignment system has been developed for precise profile cutting with a profile cutting table in machines with Fibermak pipe and profile cutting options. This feature prevents measurement drifts that may occur in profile cuts

### SMART FACTORY SOLUTIONS

With Industry 4.0 solutions, it provides the opportunity to create a Smart Factory with a fast and flexible structure, which enables innovation by increasing productivity in businesses, improves processes, and minimizes errors.

SPECIFICATIONS/ MACHINE		SM 2,5X1,25	SM 3X1,5	SM 4X2	SM 6X2	SM 8X2	SM 9X2
<b>WORKING AREA</b>	mm	2500x1250	3000x1500	4000x2000	6150x2000	8000x2000	9000x2000
<b>MAX. LOAD CAPACITY</b>	kg	1000	1500	2500	4000	5500	6000
<b>AXIAL MOVEMENTS</b>	-	-	-	-	-	-	-
X, U AXES / SERVO MOTOR TABLE	mm	2550	3050	4050	6200	8200	9200
Y AXIS / SERVO MOTOR BRIDGE	mm	1270	1550	2050	2050	2050	2050
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	150	150	150	150	150	150
<b>ACCELERATION</b>	G	2,5	2,5	2,5	2,5	1,5	1,5
<b>SERVO MOTOR MAX. AXIS SPEEDS</b>	m/min	141 (combination speed) (X, Y single axis speed 100 m/min)					
<b>LINEAR MOTOR MAX. AXIS SPEEDS</b>	m/min	170 (combination speed) (X, Y single axis speed 120 m/min)					
<b>AUTOMATIC LOADING UNLOADING UNIT</b>	Pallet	2 (30 sec)	2 (35 sec)	2 (45 sec)	2 (65 sec)	2 (75 sec)	2 (100 sec)
<b>MACHINE DIMENSIONS (L x W x H)</b>	mm	8190x3460x2200	10360x5295x2310	12430x5900x2310	16794x5900x2310	21135x6020x2310	22250x4300x2200
<b>MACHINE WEIGHT</b>	kg	12500	14500	18500	24500	35000	37000
<b>MACHINE AXES</b>	-	4-Axis ( X, Y, Z, U )					
<b>POSITIONING ACCURACY</b>	mm	± 0,03					
<b>REPETITION ACCURACY</b>	mm	± 0,015					
<b>CNC</b>	-	BECKHOFF					
<b>CAD/CAM SOFTWARE</b>	-	METALIX, LANTEK					
<b>NETWORK CONNECTION</b>	-	Ethernet					
<b>CONTROL PANEL</b>	-	21.5-inch screen 1920 x 1080, alphanumeric keyboard, PLC keys, touchscreen keyboard					

SM 6X2,6	SM 8X2,6	SM 9X2,6	SM 10X2,6	SM 12X2,6	SM 14X2,6	SM 16X2,6	SM 18X3
6150x2600	8000x2600	9000x2600	10000x2600	12000x2600	14000x2600	16000x2600	18000x3000
5000	6500	7500	8500	10000	11500	13000	17000
-	-	-	-	-	-	-	-
6200	8200	9200	10200	12200	14200	16200	18200
2700	2700	2700	2800	2800	2800	2800	3200
150	150	150	150	150	150	150	150
1,5	1,2	1,2	1	1	1	1	1
113 (Result Speed)(X, Y Single axis speed 80m/d)				85 (Result Speed)(X, Y Single axis speed 60m/d)			
141 (resultant speed) (X, Y single axis speed 100 m/min)			-	-	-	-	-
2 (65 sec)	2 (90 sec)	2 (100 sec)	2 (130 sec)	2 (150 sec)	2 (180 sec)	2 (200 sec)	2 (220 sec)
16794x6700x2310	21078x6700x2310	22250x6700x2310	25000x5100x2200	26500x5000x2300	30500x5500x2200	35000x5100x2200	41675x7100x2310
30500	38000	45000	55000	63500	7000	75000	93000
4-Axis (X, Y, Z, U)							
± 0,03							
± 0,015							
BECKHOFF							
METALIX, LANTEK							
Ethernet							
21.5-inch screen 1920 x 1080, alphanumeric keyboard, PLC keys, touchscreen keyboard							

SPECIFICATIONS / RESONATOR		YLS 2000	YLS 3000	YLS 4000	YLS 6000
<b>RESONATOR</b>	Watt	2000	3000	4000	6000
<b>LASER BEAM QUALITY</b>	rad	2 - 2,5	2 - 2,5	2 - 2,5	2 - 4
<b>POWER STABILITY</b>	%	1 - 2	1 - 2	1 - 2	1 - 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	10	20	20	40
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	16	18	20	25
STAINLESS STEEL (AISI 304)	mm	8	10	12	15
ALUMINUM (AlMg3)	mm	6	8	10	12
BRASS (CuZn37)	mm	4	5	6	8
COPPER (Cu-ETP)	mm	4	5	6	8
<b>AVERAGE CONSUMPTION</b>	kW	18	20	22	28
<b>CUTTING HEAD</b>	-	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0
<b>PULSE FREQUENCY RANGE</b>	kHz	5			
<b>POWER RANGE</b>	%	10-105			
<b>LASER WAVELENGTH</b>	nm	1070 ± 5			
<b>EXCITATION</b>	-	laser diode			
<b>AUXILIARY GASES</b>	-	-			
STEEL	-	Oxygen (0.5-6 Bar)			
STAINLESS STEEL	-	Nitrogen ( 0.5-25 Bar)			
ALUMINUM	-	Dry Air or Nitrogen ( 0.5-25 Bar)			

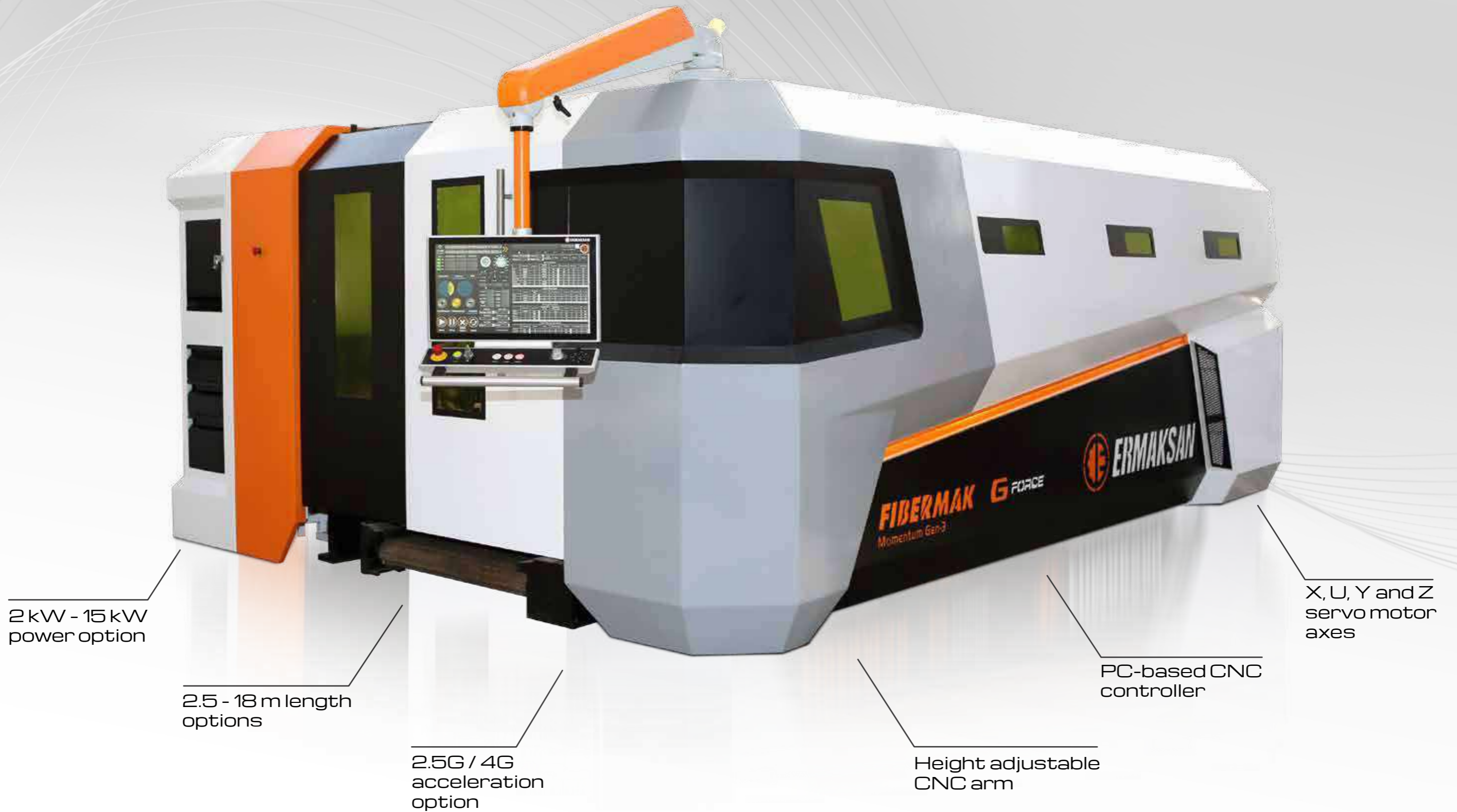
SPECIFICATIONS / RESONATOR		YLS 8000	YLS 10000	YLS 12000	YLS 15000
<b>RESONATOR</b>	Watt	8000	10000	12000	15000
<b>LASER BEAM QUALITY</b>	rad	2-4	2-4	2-4	3,5 mm
<b>POWER STABILITY</b>	%	1-2	1-2	1-2	± 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	40	60	70	150
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	25	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
STAINLESS STEEL (AISI 304)	mm	15	25(laser cut suitable sheet) 20 standards	25(laser cut suitable sheet) 25 standards	25(laser cut suitable sheet) 25 standards
ALUMINUM (AlMg3)	mm	15	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
BRASS (CuZn37)	mm	8	8	8	10
COPPER (Cu-ETP)	mm	8	8	8	10
GALVANIZED	mm	4	4	4	6
<b>AVERAGE CONSUMPTION</b>	kW	34	42	50	59
<b>PULSE FREQUENCY RANGE</b>	kHz	5	5	5	0 - 5
<b>POWER RANGE</b>	%	10-105	10-105	10-105	%10 - %105
<b>EXCITATION</b>	-	laser diode			



# FIBERMAK

## MOMENTUM GEN-3

Long Life  
Performance



## Adds Power to Your Power

GEN-3 series lasers with superior Ermaksan technology, which received numerous international awards, notably iF Design, Reddot, Good Design, and Design Turkey with their powerful and dynamic design, offer unique features for those who know what they want. These lasers were introduced to the market as engineering marvels designed to meet user expectations such as strong body structure, long-lasting performance, functionality, and precision against tough production conditions. It's engineering design features such as easy programming, simple language, shortcut keys, easy-to-use buttons, height-adjustable arm with its innovative technology approach, provide the operator with excellent comfort.

While 2.5 G acceleration is offered as standard in FIBERMAK Momentum GEN-3 series servo motor models, the machine is upgraded to the GEN-4 model with the 4G high acceleration option enabled by dynamic analyses and perfect design.



### ULTRA FAST COMMUNICATION

Thanks to the Ethercat communication protocol, the control of all machine equipment is performed at ultra-speeds. The total time between the given command and its execution is at microseconds level.

### MINIMUM CUTTING TIME

In CNC-controlled machines such as Fibermak, the flow of G codes is crucial during the execution of a process. G code flow in Fibermak is designed to reach the targeted result in the shortest way.

### SMART FACTORY SOLUTIONS

With Industry 4.0 solutions, it provides the opportunity to create a Smart Factory with a fast and flexible structure, which enables innovation by increasing productivity in businesses, improves processes, and minimizes errors.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.

### BUILDING A JOB LIST

Dozens of programs can be queued and run automatically at once by creating a job list.

### BACKUP

It is possible to restart the machine within minutes thanks to the option of system backup against possible failures.





SPECIFICATIONS/ MACHINE		SM 2,5X1,25	SM 3X1,5	SM 4X2	SM 6X2	SM 8X2	SM 9X2
<b>WORKING AREA</b>	mm	2500x1250	3000x1500	4000x2000	6150x2000	8000x2000	9000x2000
<b>MAX. LOAD CAPACITY</b>	kg	1000	1500	2500	4000	5500	6000
<b>AXIAL MOVEMENTS</b>	-	-	-	-	-	-	-
X, U AXES / SERVO MOTOR TABLE	mm	2550	3050	4050	6200	8200	9200
Y AXIS / SERVO MOTOR BRIDGE	mm	1270	1550	2050	2050	2050	2050
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	150	150	150	150	150	150
<b>ACCELERATION</b>	G	2,5	2,5	2,5	2,5	1,5	1,5
<b>SERVO MOTOR MAX. AXIS SPEEDS</b>	m/min	141 (combination speed) (X, Y single axis speed 100 m/min)					
<b>LINEAR MOTOR MAX. AXIS SPEEDS</b>	m/min	170 (combination speed) (X, Y single axis speed 120 m/min)					
<b>AUTOMATIC LOADING UNLOADING UNIT</b>	Pallet	2 (30 sec)	2 (35 sec)	2 (45 sec)	2 (65 sec)	2 (75 sec)	2 (100 sec)
<b>MACHINE DIMENSIONS (L x W x H)</b>	mm	8190x3460x2200	10360x5295x2310	12430x5900x2310	16794x5900x2310	21135x6020x2310	22250x4300x2200
<b>MACHINE WEIGHT</b>	kg	12500	14500	18500	24500	35000	37000
<b>MACHINE AXES</b>	-	4-Axis ( X, Y, Z, U )					
<b>POSITIONING ACCURACY</b>	mm	± 0,03					
<b>REPETITION ACCURACY</b>	mm	± 0,015					
<b>CNC</b>	-	BECKHOFF					
<b>CAD/CAM SOFTWARE</b>	-	METALIX, LANTEK					
<b>NETWORK CONNECTION</b>	-	Ethernet					
<b>CONTROL PANEL</b>	-	21.5-inch screen 1920 x 1080, alphanumeric keyboard, PLC keys, touchscreen keyboard					

SM 6X2,6	SM 8X2,6	SM 9X2,6	SM 10X2,6	SM 12X2,6	SM 14X2,6	SM 16X2,6	SM 18X3
6150x2600	8000x2600	9000x2600	10000x2600	12000x2600	14000x2600	16000x2600	18000x3000
5000	6500	7500	8500	10000	11500	13000	17000
-	-	-	-	-	-	-	-
6200	8200	9200	10200	12200	14200	16200	18200
2700	2700	2700	2800	2800	2800	2800	3200
150	150	150	150	150	150	150	150
1,5	1,2	1,2	1	1	1	1	1
113 (Result Speed)(X, Y Single axis speed 80m/d)				85 (Result Speed)(X, Y Single axis speed 60m/d)			
141 (resultant speed) (X, Y single axis speed 100 m/min)			-	-	-	-	-
2 (65 sec)	2 (90 sec)	2 (100 sec)	2 (130 sec)	2 (150 sec)	2 (180 sec)	2 (200 sec)	2 (220 sec)
16794x6700x2310	21078x6700x2310	22250x6700x2310	25000x5100x2200	26500x5000x2300	30500x5500x2200	35000x5100x2200	41675x7100x2310
30500	38000	45000	55000	63500	7000	75000	93000
4-Axis (X, Y, Z,U)							
± 0,03							
± 0,015							
BECKHOFF							
METALIX, LANTEK							
Ethernet							
21.5-inch screen 1920 x 1080, alphanumeric keyboard, PLC keys, touchscreen keyboard							

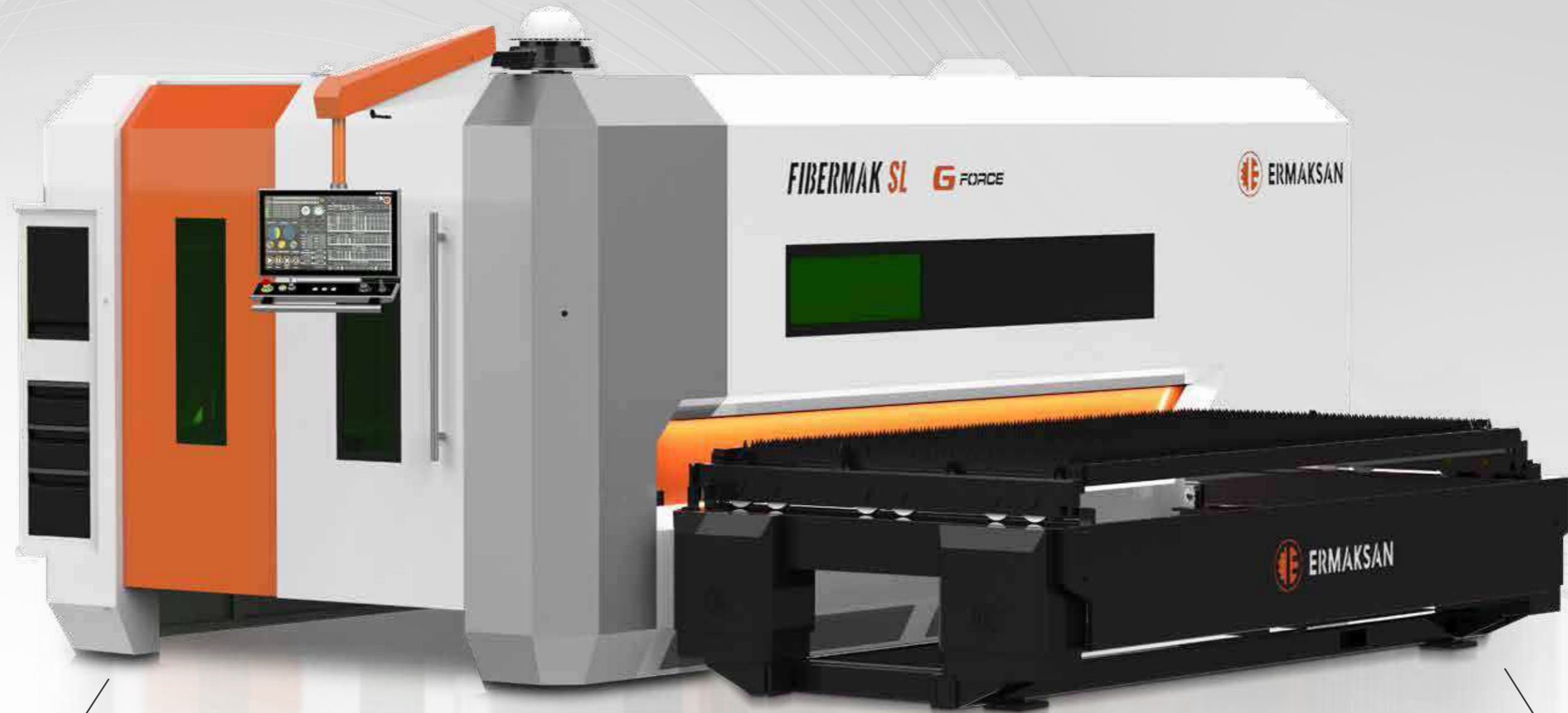
SPECIFICATIONS / RESONATOR		YLS 2000	YLS 3000	YLS 4000	YLS 6000
<b>RESONATOR</b>	Watt	2000	3000	4000	6000
<b>LASER BEAM QUALITY</b>	rad	2 - 2,5	2 - 2,5	2 - 2,5	2 - 4
<b>POWER STABILITY</b>	%	1 - 2	1 - 2	1 - 2	1 - 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	10	20	20	40
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	16	18	20	25
STAINLESS STEEL (AISI 304)	mm	8	10	12	15
ALUMINUM (AlMg3)	mm	6	8	10	12
BRASS (CuZn37)	mm	4	5	6	8
COPPER (Cu-ETP)	mm	4	5	6	8
<b>AVERAGE CONSUMPTION</b>	kW	18	20	22	28
<b>CUTTING HEAD</b>	-	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0
<b>PULSE FREQUENCY RANGE</b>	kHz	5			
<b>POWER RANGE</b>	%	10-105			
<b>LASER WAVELENGTH</b>	nm	1070 ± 5			
<b>EXCITATION</b>	-	laser diode			
<b>AUXILIARY GASES</b>	-	-			
STEEL	-	Oxygen (0.5-6 Bar)			
STAINLESS STEEL	-	Nitrogen ( 0.5-25 Bar)			
ALUMINUM	-	Dry Air or Nitrogen ( 0.5-25 Bar)			

SPECIFICATIONS / RESONATOR		YLS 8000	YLS 10000	YLS 12000	YLS 15000
<b>RESONATOR</b>	Watt	8000	10000	12000	15000
<b>LASER BEAM QUALITY</b>	rad	2-4	2-4	2-4	3,5 mm
<b>POWER STABILITY</b>	%	1-2	1-2	1-2	± 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	40	60	70	150
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	25	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
STAINLESS STEEL (AISI 304)	mm	15	25(laser cut suitable sheet) 20 standards	25(laser cut suitable sheet) 25 standards	25(laser cut suitable sheet) 25 standards
ALUMINUM (AlMg3)	mm	15	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
BRASS (CuZn37)	mm	8	8	8	10
COPPER (Cu-ETP)	mm	8	8	8	10
GALVANIZED	mm	4	4	4	6
<b>AVERAGE CONSUMPTION</b>	kW	34	42	50	59
<b>PULSE FREQUENCY RANGE</b>	kHz	5	5	5	0 - 5
<b>POWER RANGE</b>	%	10-105	10-105	10-105	%10 - %105
<b>EXCITATION</b>	-	laser diode			

# FIBERMAK

## SIDE LOADING

For Narrow  
Spaces Challenge



2 kW - 15 kW  
power option

2.5G Acceleration

21.5" touchscreen  
control panel

600 - 8000 kg  
load capacity

2.5 - 8 m length  
options

± 0.03 mm  
Positioning  
accuracy



## Compact Design Providing 20% Area Advantage

With its side-loading design, Fibermak SL is the right choice designed for workshops with limited space without sacrificing from G-Force standards and quality. It only needs 68 m<sup>2</sup> of floor space for standard 3x1.5m machines including the loading-unloading unit. If the workplace has a short hall, we recommend our customers to choose a side-loading fibre laser machine. Thanks to the high acceleration in G-Force series servo motor models, production time is reduced and productivity is increased by an average of 15% per hour.

The electric panel is now even more compact thanks to the structure developed in the side-loading machine. Thus, the number of equipment outside is also significantly reduced, providing great advantages to customers in terms of placement area, while saving installation time.



### RIGID AND STRONG BODY

Thanks to its strong body with dynamic and static rigidity, it provides a long service life and high precision machining.

### FLY-CUT FEATURE

With Fibermak SL's fly-cut feature, you can cut both circular and equilateral pieces at great speeds with great quality.

### LIFT TRANSITION TYPE

You will get maximum efficiency from your machine by providing transition at maximum speeds with Fibermak SL's lift transition type.

### FREQUENCY CUTTING

With fast piercing and the frequency modulation used in sharp corners during cutting, it allows you to cut thick materials in steep corner cuts without melting or without applying radius to the corners.

### BACKUP

It is possible to restart the machine within minutes thanks to the option of system backup against possible failures.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.

SPECIFICATIONS/ MACHINE		SL 2,5X1,25	SL 3X1,5	SL 4X2	SL 6X2	SL 8X2	SL 8X2,6	
<b>WORKING AREA</b>	mm	2500x1250	3000x1500	4000x2000	6150x2000	8100x2000	8100x2700	
<b>MAX. LOAD CAPACITY</b>	kg	1000	1500	2500	2000	3000	4000	
<b>AXIAL MOVEMENTS</b>	-	-	-	-	-	-	-	
X, U AXES / SERVO MOTOR TABLE	mm	2550	3050	4050	6200	8200	8200	
Y AXIS / SERVO MOTOR BRIDGE	mm	1270	1550	2050	2050	2050	2700	
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	150	150	150	150	150	150	
<b>ACCELERATION</b>	G	2,5	2,5	2,5	2,5	1,5	1	
<b>SERVO MOTOR MAX. AXIS SPEEDS</b>	m/min	141 (combination speed) (X, Y single axis speed 100 m/min)						113 (resultant speed) (X, Y single axis speed 80 m/min)
<b>AUTOMATIC LOADING UNLOADING UNIT</b>	Pallet	2 (20 sec)	2 (25 sec)	2 (30 sec)	Automatic (Single Pallet)			
<b>MACHINE DIMENSIONS (L x W x H)</b>	mm	5200x4200x2610	6900x4700x2610	6900x5322x2610	9000x5760x2610	11500x5760x2610	11500x6860x2610	
<b>MACHINE WEIGHT</b>	kg	11000	16000	21000	28650	42200	45100	
<b>MACHINE AXES</b>	-	4-Axis ( X, Y, Z, U )						
<b>POSITIONING ACCURACY</b>	mm/m	± 0,03						
<b>REPETITION ACCURACY</b>	mm	± 0,015						
<b>CNC</b>	-	BECKHOFF						
<b>CAD/CAM SOFTWARE</b>	-	METALIX, LANTEK						
<b>NETWORK CONNECTION</b>	-	Ethernet						
<b>CONTROL PANEL</b>	-	21.5" 1920 x 1080 display, alphanumeric keyboard, PLC keys, two touchscreens						



SPECIFICATIONS / RESONATOR		YLS 2000	YLS 3000	YLS 4000	YLS 6000
<b>RESONATOR</b>	Watt	2000	3000	4000	6000
<b>LASER BEAM QUALITY</b>	rad	2 - 2,5	2 - 2,5	2 - 2,5	2 - 4
<b>POWER STABILITY</b>	%	1 - 2	1 - 2	1 - 2	1 - 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	10	20	20	40
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	16	18	20	25
STAINLESS STEEL (AISI 304)	mm	8	10	12	15
ALUMINUM (AlMg3)	mm	6	8	10	12
BRASS (CuZn37)	mm	4	5	6	8
COPPER (Cu-ETP)	mm	4	5	6	8
<b>AVERAGE CONSUMPTION</b>	kW	18	20	22	28
<b>CUTTING HEAD</b>	-	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0	Precitec Procutter 2.0
<b>PULSE FREQUENCY RANGE</b>	kHz	5			
<b>POWER RANGE</b>	%	10-105			
<b>LASER WAVELENGTH</b>	nm	1070 ± 5			
<b>EXCITATION</b>	-	laser diode			
<b>AUXILIARY GASES</b>	-	-			
STEEL	-	Oxygen (0.5-6 Bar)			
STAINLESS STEEL	-	Nitrogen ( 0.5-25 Bar)			
ALUMINUM	-	Dry Air or Nitrogen ( 0.5-25 Bar)			

SPECIFICATIONS / RESONATOR		YLS 8000	YLS 10000	YLS 12000	YLS 15000
<b>RESONATOR</b>	Watt	8000	10000	12000	15000
<b>LASER BEAM QUALITY</b>	rad	2-4	2-4	2-4	3,5 mm
<b>POWER STABILITY</b>	%	1-2	1-2	1-2	± 2
<b>FIBER CABLE OUTPUT MEASUREMENT</b>	µm	100	100	100	100
<b>COOLANT FLOW RATE</b>	L/min	40	60	70	150
<b>CUTTING CAPACITIES (MAX)</b>	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	25	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
STAINLESS STEEL (AISI 304)	mm	15	25(laser cut suitable sheet) 20 standards	25(laser cut suitable sheet) 25 standards	25(laser cut suitable sheet) 25 standards
ALUMINUM (AlMg3)	mm	15	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards	30 (for laser cutting suitable sheet) 25 standards
BRASS (CuZn37)	mm	8	8	8	10
COPPER (Cu-ETP)	mm	8	8	8	10
GALVANIZED	mm	4	4	4	6
<b>AVERAGE CONSUMPTION</b>	kW	34	42	50	59
<b>PULSE FREQUENCY RANGE</b>	kHz	5	5	5	0 - 5
<b>POWER RANGE</b>	%	10-105	10-105	10-105	%10 - %105
<b>EXCITATION</b>	-	laser diode			



# FIBERMAK RAPTOR

Both Compact  
and Functional



1.5 G acceleration

Power option  
up to 6 kW

600 kg load  
capacity

2.5 - 6 m length  
options

X, U, Y and Z  
servo motor  
axes

$\pm 0,055$  mm  
Positioning  
accuracy

## Ergonomic and Affordable

Fibermak RAPTOR Fibre Laser Cutting machine has been produced with the goal of providing an economical solution without sacrificing from cutting quality with its compact external structure that takes up less space, favouring a modular and ergonomic design.

With 1.5 G acceleration, 80 m/min speed, single cutting trolley, auto-focused cutting head and lightened profile body structure, it is an ideal laser cutting machine manufactured in high quality standards for our customers looking for an economical solution. The LED light bar in the body adds an aesthetic illumination to the RAPTOR series lasers, introducing elegance and modernity to the external appearance of the machine.



### HIGH PRECISION CUTTING

With the ultra-fast EtherCAT communication technology, the driver, motor, and all control units apply the values determined in the most precise and fastest way. Thus, you obtain trouble-free cutting processes on time and with micron precision.

### SERVO MOTOR TECHNOLOGY

High-tech single-cable servo motors are used. Extra cable clutter is reduced and high control capability is provided.

### COMPACT CONSTRUCTION

It has a modular and ergonomic structure that has been designed in the most appropriate way for the use of operator and for physical environment in order to meet user needs in the best way.

### USER-FRIENDLY INTERFACE

Your work is now easier with the user-friendly interface designed by Ermaksan engineers. You can initiate automatic cutting processes with just a few steps, and monitor the active process before and during cutting with the NC Graphics feature.

### INDUSTRY 4.0 COMPATIBLE

Fibermak Raptor is offered as Industry 4.0 compatible. If you wish, you can maximize the efficiency of your production processes by requesting this feature, which is offered as a demo on your machine.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.





SPECIFICATIONS/ MACHINE		RAPTOR 2,5X1,25	RAPTOR 3X1,5
WORKING AREA	mm	2500x1250	3000x1500
MAX. LOAD CAPACITY	kg	600	750
AXIAL MOVEMENTS	-	-	-
X, U AXES / SERVO MOTOR TABLE	mm	2550	3050
Y AXIS / SERVO MOTOR BRIDGE	mm	1270	1550
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	150	150
ACCELERATION	G	1,5	1,5
SERVO MOTOR MAX. AXIS SPEEDS	m/min	113 (resultant speed) (X, Y single axis speed 80 m/min)	
AUTOMATIC LOADING UNLOADING UNIT	Pallet	Automatic (Single Pallet)	
MACHINE DIMENSIONS (L x W x H)	mm	8200x2450x2200	9250x4500x2200
MACHINE WEIGHT	kg	7900	9500
MACHINE AXES	-	4-Axis (X, Y, Z,U)	
POSITIONING ACCURACY	mm	± 0,055	
REPETITION ACCURACY	mm	± 0,032	
CNC	-	BECKHOFF	
CAD/CAM SOFTWARE	-	METALIX, LANTEK	
NETWORK CONNECTION	-	Ethernet	
CONTROL PANEL	-	21.5"1920x1080 display alphanumeric keyboard, PLC keys, touchscreens	

SPECIFICATIONS / RESONATOR		YLS 1000	YLS 2000	YLS 3000	YLS 4000	YLS 6000
RESONATOR	Watt	1000	2000	3000	4000	6000
LASER BEAM QUALITY	rad	1 - 2	2 - 2,5	2 - 2,5	2 - 2,5	2 - 4
POWER STABILITY	%	1 - 3	1 - 2	1 - 2	1 - 2	1 - 2
FIBER CABLE OUTPUT MEASUREMENT	µm	50	100	100	100	100
COOLANT FLOW RATE	L/min	8	10	20	20	40
CUTTING CAPACITIES (MAX)	-	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	8	16	18	20	25
STAINLESS STEEL (AISI 304)	mm	4	8	10	12	15
ALUMINUM (AlMg3)	mm	3	6	8	10	12
BRASS (CuZn37)	mm	2	4	5	6	8
COPPER (Cu-ETP)	mm	2	4	5	6	8
AVERAGE CONSUMPTION	kW	14	18	20	22	28
CUTTING HEAD	-	Precitec Light Cutter	Precitec Light Cutter	Precitec Light Cutter	Precitec Light Cutter	Precitec ProCutter 2.0
PULSE FREQUENCY RANGE	kHz	5				
POWER RANGE	%	10-105				
LASER WAVELENGTH	nm	1070 ± 5				
EXCITATION	-	laser diode				
AUXILIARY GASES	-	-				
STEEL	-	Oxygen (0,5-6 Bar)				
STAINLESS STEEL	-	Nitrogen ( 0,5-25 Bar)				
ALUMINUM	-	Dry Air or Nitrogen ( 0,5-25 Bar)				

## CONTROL PANEL

All software on the Control Panel has been developed by the ERMAKSAN engineers and you may add special features.

- 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.
- It is used as a touch screen and an external keyboard is available.
- With the speed adjustment potentiometer on the control panel, you can increase and decrease the axis speed in the working area.
- NC graphic display.



## CUTTING HEAD SPECIFICATIONS

Precitec LightCutter cutting head is used for FiberMak Raptor series lasers below 4 kW, Precitec ProCutter is used for those with 4 kW and above.

- Manually adjustable focus lens
- Precision height control
- Lower protection glass



## FILTERING SYSTEM

Ensures cleaning of smoke and small particles formed during cutting via suction. This system, which is activated automatically when the cutting starts, filters the harmful air in the cutting area and gives it back to the environment. Thus, a healthier working environment is provided.



## HANDWHEEL

It is an equipment that facilitates the positioning of the head even without staying by the control panel.

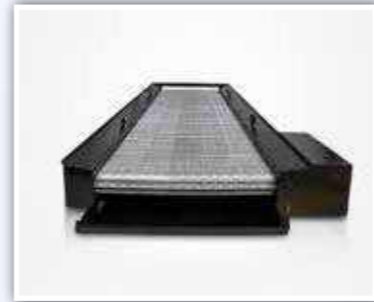
## WIRELESS HANDWHEEL

Provides wireless and manual axis movements for quick positioning of the cutting head.



## PALLET CONVEYOR

It is a system that enables the pieces falling into the machine during cutting to be brought to the operator by an automatic transport vehicle. With this system, while the workpieces reach the operator, on the other hand, the slag sticking to the workpieces is prevented by the discharge of the resulting scrap pieces.



## SIDE DISCHARGE CONVEYOR

This is a belt system that transfers the pieces and slags falling from the grills to the collection chamber after the cutting process. It is removed from the side by design in order to reduce the waiting time in larger sized machines.



## ERMAKSAN RESONATOR

State-of-the-art fibre laser resonators produced in Ermaksan Opto-electronics centre stand out with their power classes ranging from 1 to 15 kW, high beam quality, and advanced control features. Ermaksan's high strength; The fiber laser family offers users single mode and multi-mode options, while also providing excellent power; It also guarantees stability, high efficiency and beam quality.



## IPG-YLS SERIES RESONATOR

IPG-YLS Series (Cabin type) resonators, which are provided according to customer needs and requests, have significant advantages thanks to the quality of easy and on-site maintenance. Power options from 1 to 20 kW are available.



## IPG-YLR SERIES RESONATOR

Being customized according to customer needs and requests, IPG-YLR Series (Cassette type) resonators offer affordable solutions to their users. Power alternatives between 1 to 4 kW are available.



## IPG COOLING UNIT

Provides cooling of the relevant parts for continuity and precision in cutting. The laser unit is the collimation part in the cutting head and the part that provides cooling of the lens. It has a water-based cooling system. It is used with IPG - YLS series resonators.







### CUTTING HEAD

- The beams produced in the laser unit are carried by the fiber cable up to the cutting head. The cutting head transfers beams from fiber cable to the processing surface.
- The beams arranged in the collimation unit are transferred to the focusing unit.
- The laser beam is set at the desired focus with the help of 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 CUTTING HEAD



- Thanks to its motor-controlled biaxial cutting head, it can move  $\pm 45$  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.

### 3D BEVEL HEAD



- Makes 3D angled cuts possible
- It can cut up to  $\pm 45^\circ$  angle
- Easy wiring and assembly
- 360° rotation capability

### PRECITEC PROCUTTER 2.0 CUTTING HEAD

With the ProCutter 2.0 cutting head, you will no longer need to choose between high quality and high speed, because you can obtain both. The cutting head runs smoothly at high laser powers thanks to its advanced cooling concept and extended travel paths. Fluctuations in the quality of the material to be cut are resolved without any intervention of machine operator.

### PRECITEC PROCUTTER ZOOM 2.0 PIERCETEC CUTTING HEAD

The intended use of PierceTec is to confirm that the first piercing is completed and to allow the machine to start cutting without waiting for piercing time set from the CNC. This feature saves time and increases efficiency.

### PRECITEC PROCUTTER ZOOM 2.0 CUTTING HEAD

With its higher focal length and replaceable Spot Size feature, Pro-cutter enables fast cutting on thin materials and high quality cuts on thick materials.

### PRECITEC PROCUTTER THUNDER CUTTING HEAD

It offers permanently stable and precise operation. It provides highly dynamic drive and flexibility. It automatically controls the focus position and delivers outstanding results when machining different material thickness.

### PRECITEC LIGHTCUTTER AUTO FOCUS CUTTING HEAD

LightCutter is an ideal and economical solution for all laser cutting applications in low to medium power range up to 4 kW.



## CONTROLLER

- With the 21.5" Beckhoff control panel, Windows10® operating system and multi-touch screen used in Fibermak GEN-5 series laser cutting machines, it can provide all the information and parameters that the operator needs from a single screen and perform the necessary operations or changes online faster.
- All software on the control panel has been written by Ermaksan engineers. Thanks to its flexible structure, the places of the menus used can be changed according to the needs and usage habits of the operator.
- Integrated camera system helps to monitor the cutting process on the CNC screen.
- The device works more efficiently by providing information on how often and at what intervals operators should perform device and equipment maintenance.
- Thanks to Industry 4.0 integration, the working efficiency of the machine can be continuously monitored.
- Thanks to the user interface, operators are prevented from accidentally interfering with the system and high-level users can easily control this flow.
- If changes to the cutting parameters are forgotten, the cutting parameters embedded in the system can be recalled.
- It is possible to re-create cutting parameters with precise definitions for different materials and cutting types.
- With the multi-camera system option to be added to the system, online transactions can be monitored and recorded with more than one camera. Information messages can be sent to phone numbers with sim card support option integrated in the operator panel.
- By connecting the system to the internet, machine status and information can be sent to the given e-mail addresses.
- By connecting the system to the internet, machine status and information can be sent to the provided email addresses.
- With the adjustable arm added to the control panel, the control panel can be adjusted to the desired angle, inclination and height.

\*Different versions of BECKHOFF can be offered for different model machines

## BECKHOFF CONTROLLER



## ERCUT 7 CONTROL PANEL



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



## METALIX CAD/CAM

Offering a complete and comprehensive CAD/CAM solution, Metalix updates its software based on the latest developments in sheet metal processing technologies.

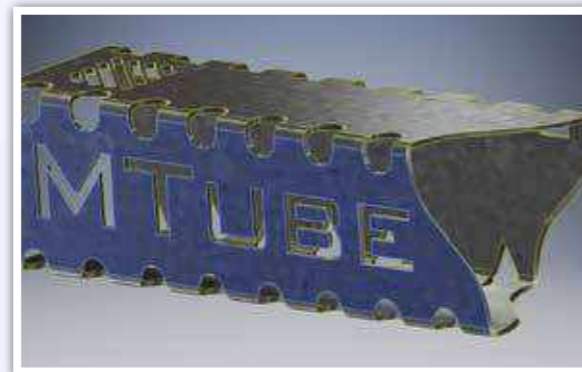


## METALIX CAD/CAM

- High accuracy Time / Cost analysis
- Nesting with minimum waste rates
- Cameraless terminal license standard
- 2D & 3D import from Solid with Cadlink
- High and effective programming speed
- Mtube in machines with pipe cutting option
- Use of multiple machines with single license

## CAD/CAM TECHNICAL SPECIFICATIONS

- All the functions of the CAD/CAM software are integrated in a single program, thus functions such as part design, call, nesting (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 cost calculation: CAD/CAM software calculates the cutting time and cost. This calculation takes into account the number of piercing, cutting length, marking, material cost, hourly operation of the machine, auxiliary material costs.
- CAD/CAM software can be used to make bevels on side surfaces.



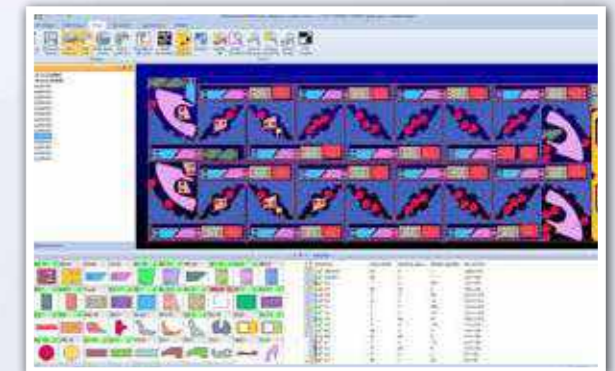
## LANTEK INSIDE CAD/CAM

Programming with Lantek Inside is as easy as using your smartphone. The operator can easily design the program and initiate the cutting process.



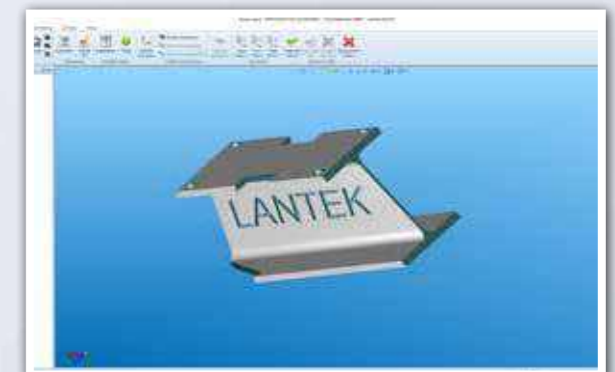
## LANTEK EXPERT CUT CAD/CAM

Lantek Expert Cut is a nesting software designed for users to simply follow the steps specified by the system. This system is a combination of automatic, semi-automatic and manual nesting that provides great flexibility and optimum performance.



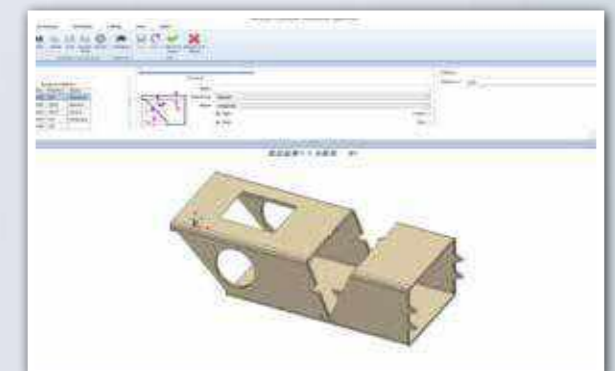
## LANTEK FLEX3D CUT CAD/CAM

It facilitates 3D CAD/CAM design and cutting of standard profiles, including square or round pipes. The automatic and semi-automatic features of 3D nesting software maximize the use of materials and optimize CNC code with anti-collision technology.



## LANTEK FLEX3D TUBE CUTTING

Lantek Flex3d Tubes is a CAD/CAM software system for designing, nesting and cutting pipes and pipe pieces. The system is a parametric system that allows the user to change the values of any previously performed operations, including changes in the initial parameters of each pipe (extension, shortening, diameter change).







**PROFILE AND PIPE CUTTING OPTION**

In our FiberMak Momentum series machines, in addition to flat bed cutting, we also offer our users the options of pipe and profile cutting.

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

One fixed chuck and one driver chuck are used during pipe, square, rectangular, "U" and "L" shaped profile materials cutting. Support clamps are also used in the material loading section and the cut material section.

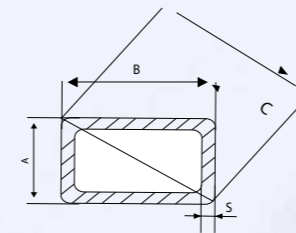
In addition to the Cad/Cam software for flat sheet cutting delivered with our machines which are provided with Pipe - Profile cutting option, a 3D Cad/Cam software is also provided where it is possible to draw and/or load drawings of the pipe and profile parts, to open the desired holes and figures, to perform nesting operations and cutting simulations.

**PIPE - PROFILE WALL THICKNESS**

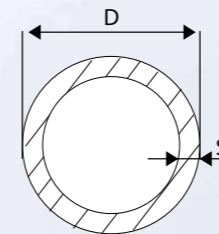
Laser Source Power	Mild Steel	Stainless steel
0,5 kW	4 mm	2 mm
1 kW	8 mm	4 mm
2-3-4-6 kW	8 mm	8 mm



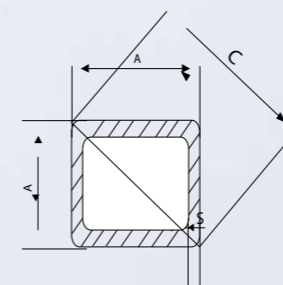
Pipe and profile cutting option to increase the production efficiency



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



	MIN	MAX
A(mm)	20	200



	MIN	MAX
A(mm)	20	140
C(mm)	36,06	180,28



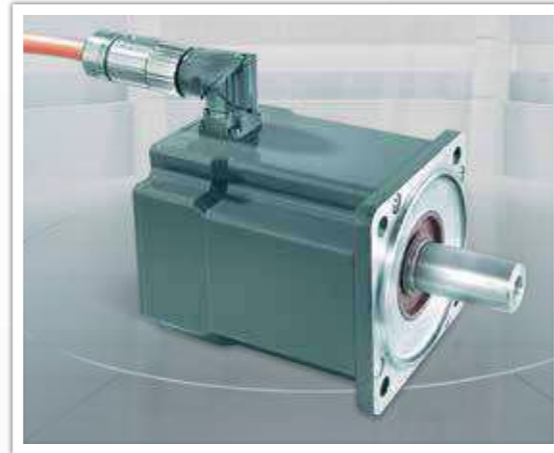
Pipe and profile cutting option allows to cut the pipe, square, rectangular, "U" and "L" shaped profiles.



## SERVO MOTOR TECHNOLOGY

Single-wire servo technology offers more precise positioning. Positioning is done 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

Fibermak uses linear motor technology in bridge motions.

## LINEAR MOTOR WORKING PRINCIPLES

In linear motors, the position information is read over the linear scale 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 may also be added.

" We know your  
sensitivity "

The machines we produce using high technology with our experience of more than half a century have been contributing to precise and efficient production all over the world for years. Along with the dynamics of digital transformation, we offer customized solutions to our customers, make production more flexible and efficient, and offer the most cost-effective solutions. Thus, we are very proud of contributing to smart production processes in the fourth industrial revolution.





# HAWK LASER

Economic and  
Flexible



1kW - 4 kW  
power option

300 kg load  
capacity

+ 0.1mm  
positioning  
accuracy

2D CAD/CAM  
software

X, U, Y and Z  
servo motor  
axes

15 inch touchscreen  
control panel

## The Perfect Combination of Price and Performance

Thanks to its easy-to-install and compact structure, it provides a fast and efficient production laser process by reducing the installation, assembly, commissioning, and transportation times. With sources between 1000 W and 4000 W, it has the ability to process flawlessly and with high precision without sacrificing from cutting quality. Moreover, you can learn the features of the machine quickly thanks to its extremely user friendly interface. You can customize the HAWK Laser series laser cutting machines, which offer high performance and economical solutions, according to your needs. For example; you can choose to have with an open or closed cabin, you can also choose to increase your productivity by stepping into digitalization in production with the Industry 4.0 option.



### LONG LIFE SPAN

Manufactured using high quality components, Hawk Lasers are suitable for working under heavy conditions for many years with their strong body and rigid structure.

### ERGONOMIC DESIGN

In addition to the stylish design, Hawk Laser also offers great convenience to the operator thanks to its ergonomic structure. The operator can safely reach the cutting area, load new sheets and collect the cut pieces.

### SAVE TIME AND MONEY

It allows you to save both time and resources thanks to the Shorter piercing times, low gas and energy consumption, and easy maintenance and repair.

### LOW INVESTMENT COST

Hawk Laser is the most economical product of our fiber laser family. It offers you low investment costs. When you assess the price and performance, you will see that the performance is way ahead.

### SERVO MOTOR

It allows you to work with low energy consumption without sacrificing from performance.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.



SPECIFICATIONS/ MACHINE		HAWK 2,5X1,25	HAWK 3X1,5
WORKING AREA	mm	2500x1250	3000x1500
MAX. LOAD CAPACITY	kg	500	700
AXIAL MOVEMENTS	-	-	-
X, U AXES / SERVO MOTOR TABLE	mm	2250	3050
Y AXIS / SERVO MOTOR BRIDGE	mm	1270	1530
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	110	110
ACCELERATION	G	1	1
SERVO MOTOR MAX. AXIS SPEEDS	m/min	106 (resulant speed) (X, Y single axis speed 75 m/min)	
AUTOMATIC LOADING UNLOADING UNIT	Pallet	-	
MACHINE DIMENSIONS (L x W x H)	mm	8865x2400x1800	9365x3748x2200
MACHINE WEIGHT	kg	5000	5500
MACHINE AXES	-	4-Axis (X, Y, Z,U)	
POSITIONING ACCURACY	mm	± 0,1	
REPETITION ACCURACY	mm	± 0,05	
CNC	-	BECKHOFF 2215	
CAD/CAM SOFTWARE	-	METALIX, LANTEK	
NETWORK CONNECTION	-	Ethernet	
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touchscreen keyboard	

SPECIFICATIONS / RESONATOR		YGL 1000 HE	YGL 2000 HE	YGL 3000 HE	YGL 4000 HE
RESONATOR	Watt	1000	2000	3000	4000
LASER BEAM QUALITY	rad	< 0,4< 1< 2,2	2 - 2,5	1 - 2	1 - 2
POWER STABILITY	%	± 1	1 - 2	± 0,5	± 0,5
FIBER CABLE OUTPUT DIAMETER	µm	20-50-100	100	100	100
COOLANT FLOW RATE	L/min	16	10	20	15
CUTTING CAPACITIES (MAX.)	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	10	16	18	20
STAINLESS STEEL (AISI 304)	mm	5	8	10	10
ALUMINUM (AIMg3)	mm	3	6	8	10
BRASS (CuZn37)	mm	2	4	5	6
COPPER (Cu-ETP)	mm	2	4	5	6
AVERAGE CONSUMPTION	kW	14	18	20	22
CUTTING HEAD	-	Precitec Light Cutter	Precitec Light Cutter	Precitec Light Cutter	Precitec Light Cutter
PULSE FREQUENCY RANGE	kHz	0 - 5			
POWER RANGE	%	5-100			
LASER WAVELENGTH	nm	1070 ± 5			
IMPULSE	-	0 - 10v			
ASSIST GASES	-	-			
STEEL	-	Oxygen (0.5-6 Bar)			
STAINLESS STEEL	-	Nitrogen ( 0.5-25)			
ALUMINUM	-	Dry Air or Nitrogen ( 0.5-25 Bar)			

## HAWK LASER CONTROL PANEL (OPEN BODY)



- 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.
- With the speed adjustment potentiometer on the control panel, you can increase and decrease the axis speed in the working area.
- NC graphic display



# THUNDERBIRD LASER

Economic in  
Every Aspect



3x1.5m table size

2-3-4-6 kW power option

2D CAD/CAM software

X, U, Y and Z servo motor axes

8500 kg Machine Weight

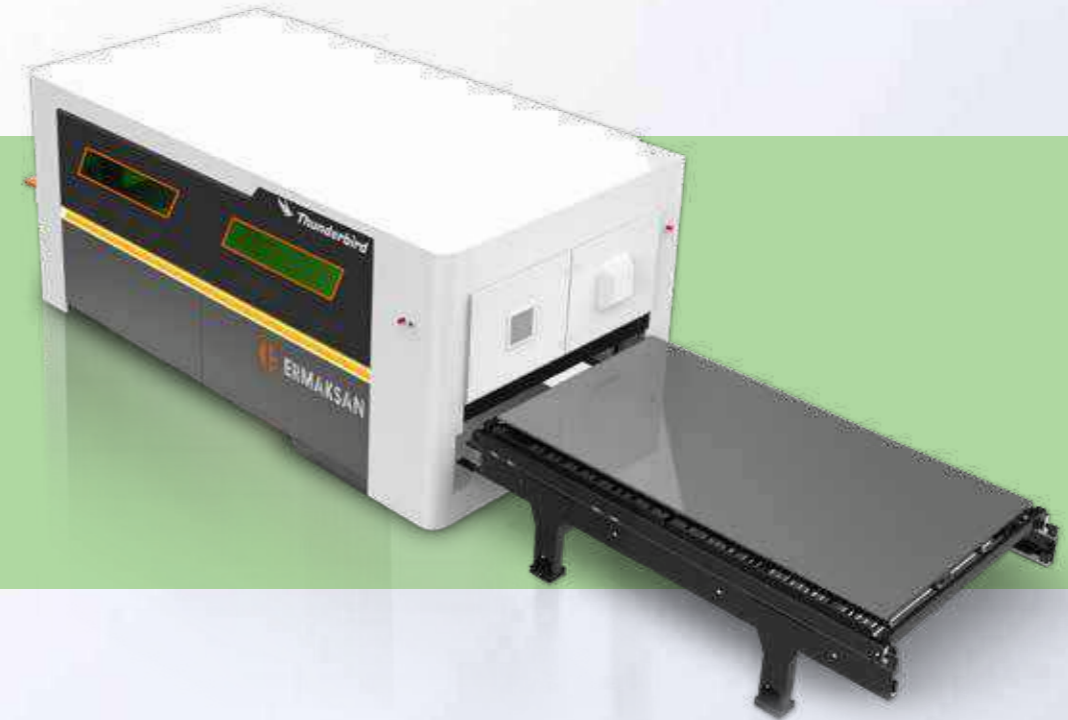
Precitec ProCutter Thunder cutting head



## Most Economically Advantageous

The new THUNDERBIRD fiber laser machine offers economical solutions with its compact structure that does not require costly equipment. Low investment costs and quality components make it a competitive laser cutting machine. While the investment cost and operating cost are the most important advantages of this machine, its efficiency is one of its other advantages. THUNDERBIRD, with a table size of 3x1.5m, has a shuttle table and does not include a lifting and hydraulic system. A longer Z axis is used instead.

Equipped with the Precitec ProCutter Thunder cutting head, which is the ideal solution for efficient and economical laser cutting in the medium power range. This automatically controls the focus position and delivers outstanding results when machining different material thicknesses. In addition, the maintenance of the head is extremely quick and easy.



### SHUTTLE TABLE

THUNDERBIRD Laser has two pallet design but without hydraulic system. A longer Z-axis can be used instead.



### LOW INVESTMENT COST

It offers an easy entry to the world of fiber laser cutting with its compact structure that does not require costly equipment. While investment cost and operating costs are the key advantages of this machine, efficiency is one of the other advantages as well.

### COMPACT CONSTRUCTION

The electric cabinet embedded inside the machine and positioning of the resonator is over the machine. Thanks to this compact structure customer will have lower transportation cost and faster installation.

### USER-FRIENDLY INTERFACE

Your work is now easier with the user-friendly interface designed by Ermaksan engineers. You can initiate automatic cutting processes with just a few steps, and monitor the active process before and during cutting with the NC Graphics feature.

### SAVE TIME AND MONEY

It allows you to save both time and resources thanks to the shortening of energy consumption, and easy maintenance and repair.

### MACHINE UPDATE

With the philosophy of continuous improvement, Ermaksan engineers offer the most up-to-date version allowing you to get the most out of your machine.



SPECIFICATIONS/ MACHINE		THUNDERBIRD 3X1,5
WORKING AREA	mm	3000x1500
MAX. LOAD CAPACITY	kg	1500
AXIAL MOVEMENTS	-	-
X, U AXES / SERVO MOTOR TABLE	mm	3050
Y AXIS / SERVO MOTOR BRIDGE	mm	1550
Z AXIS / SERVO MOTOR CUTTING HEAD	mm	300
ACCELERATION	G	1
SERVO MOTOR MAX. AXIS SPEEDS	m/min	106 (resulant speed) (X, Y single axis speed 75 m/min)
AUTOMATIC LOADING UNLOADING UNIT	Pallet	2 (35 sn)
MACHINE DIMENSIONS (L x W x H)	mm	9250X4500X2200
MACHINE WEIGHT	kg	8500
MACHINE AXES	-	4-Axis (X, Y, Z, U)
POSITIONING ACCURACY	mm/m	± 0,055
REPETITION ACCURACY	mm	± 0,032
CNC	-	BECKHOFF
CAD/CAM SOFTWARE	-	METALIX, LANTEK
NETWORK CONNECTION	-	Ethernet
CONTROL PANEL	-	15-inch screen 1024 x 768, alphanumeric keyboard, PLC keys, touch screen keyboard

SPECIFICATIONS / RESONATOR		YLR 2000	YLR 3000	YLR 4000	YLR 6000
RESONATOR	Watt	2000	3000	4000	6000
LASER BEAM QUALITY	rad	2 - 2,5	1 - 2	1 - 2	2 - 4
POWER STABILITY	%	1 - 2	± 0,5	± 0,5	1 - 2
FIBER CABLE OUTPUT MEASUREMENT	µm	100	100	100	100
COOLANT FLOW RATE	L/min	10	20	15	40
CUTTING CAPACITIES (MAX)	-	-	-	-	-
MILD STEEL ( S235JR,S355MC )	mm	16	18	20	25
STAINLESS STEEL (AISI 304)	mm	8	10	10	15
ALUMINUM (AlMg3)	mm	6	8	10	12
BASS (CuZn37)	mm	4	5	6	8
COPPER (Cu-ETP)	mm	4	5	6	8
AVERAGE CONSUMPTION	kW	18	20	22	28
CUTTING HEAD	-	Procutter Thunder	Procutter Thunder	Procutter Thunder	Procutter Thunder
PULSE FREQUENCY RANGE	kHz	5			
POWER RANGE	%	10-105			
LASER WAVELENGTH	nm	1070 ± 5			
IMPULSE	-	Laser diode			
ASSIST GASES	-	-			
STEEL	-	Oxygen (0,5-6 Bar)			
STAINLESS STEEL	-	Nitrogen ( 0,5-25)			
ALUMINUM	-	Dry Air or Nitrogen ( 0,5-25 Bar)			

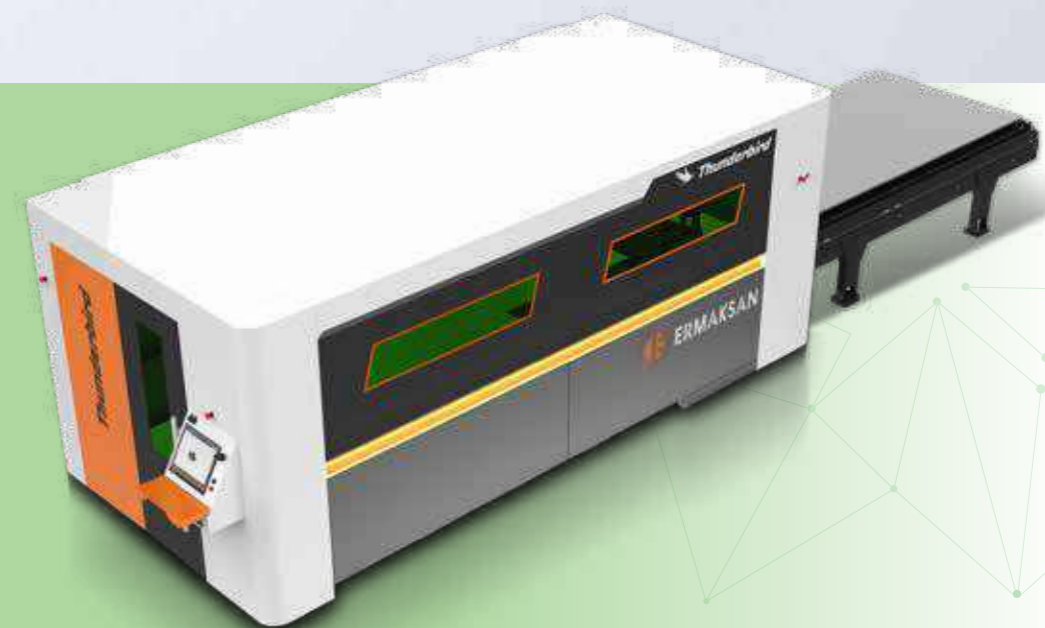
Economic

Clean Cut

Compact

Reliable

User Friendly







	GEN-5	GEN-3	SL	RAPTOR	HAWK	THUNDERBIRD
Linear Motor	○	○	—	—	—	—
CAD/CAM (Metalix)	●	●	●	●	●	●
CAD/CAM (Lantek, Almacam)	○	○	○	○	○	○
LCD Screen+Camera	●	●	●	—	—	—
Conveyor	●	●	●	○	—	—
Chiller	●	●	●	●	●	●
Light Body Guards	○	○	○	○	○	○
Pipe Cutting	○	○	—	○	—	—
Tower Automation	○	○	—	○	—	—
Handwheel	○	○	—	—	—	—
Center Beam Adjustment	○	○	○	—	—	—
Automatic Nozzle Changer	○	○	○	—	—	—
Side Opening Door	—	○	—	—	—	—
Pneumatic Lift Support System	○	○	—	—	—	—
Mobile Control Panel	○	○	○	○	○	○
Mirrored Machine	○	○	○	○	○	○
Covered Loading Unloading	○	○	—	—	—	—
4G (for Sm 3x1.5m)	○	○	—	—	—	—
Profile Cutting Trolley	○	○	—	—	—	—
Shuttle table	●	●	●	○	—	●
Central Lubrication System	●	●	●	●	●	●
Suction Unit	●	●	●	●	○	○
45° Bevel Cut	○	○	○	—	—	—
3D Bevel Head	○	○	○	—	—	—
Slag Cleaning Device	○	○	○	○	○	○
Side Conveyor	○	○	○	—	—	—
Anti-Collision System	○	○	○	○	○	○

● Standard   ○ Optional   — Not used



"We are with you in your digital transformation journey"

**ALL INTEGRATED**

Integrate your machine data with your MES and ERP applications.

**ALL THE DATA**

Record your machine historic performance data. Track your machine Job and Operator performance.

**ALL THE MACHINES**

Enable all your production line to be monitored. Retrofit you existing machines to our Industry 4.0 platform.

**ANY WHERE**

Monitor and track machine performance over the flexible easy to use WEB interface from any where

**ANY TIME**

Reach your machine performance data any time you like.

**EFFICIENCY GRAPH OF THE MACHINE FOR THE LAST WEEK**



Generates a trend graph by compiling the operational information of the machine. Operation performance for the previous week may be monitored.

**DETAILED INFORMATION OF THE LAST WORK COMPLETED**



Indicates all the details of the work done, and information such as how long it did take the operator to complete which work and in what way.

**OEE VALUES OF THE MACHINE**



Collects all the information during the stand-by, production and preparation processes to generate a general productivity chart.

**EQUIPMENT DATA**



It shows the instantaneous data of the operational elements of the machines as trend graph.

**MACHINE MONITORING SCREEN**



You may monitor your machines in different fields from a single screen.

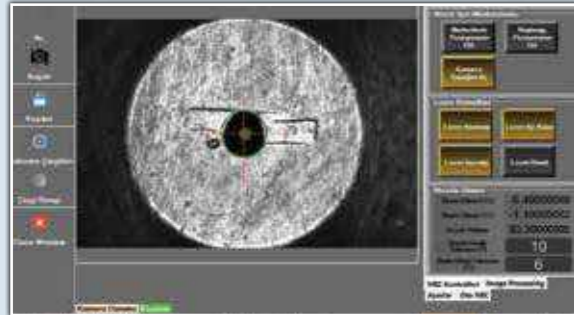
**STATUS OF THE MACHINES**



This provides the lists of the operational and non-operational machines on the field and the summary of their operation.



## AUTOMATIC BEAM CENTERING AND NOZZLE QUALITY DETERMINATION



The camera-aided laser beam centering adjustment system enables the operators to adjust the laser center effortlessly when needed.

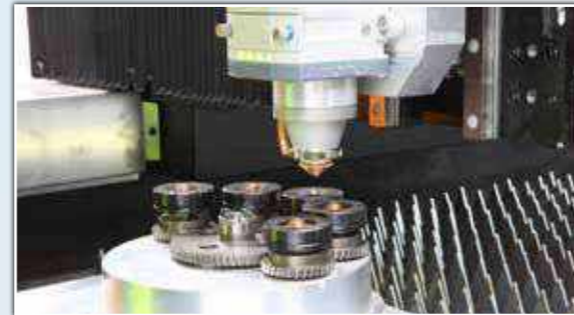
Using the image processing technique, the laser head is placed on the center adjustment camera. With the help of the camera, the status of the beam is displayed on the screen and the off-center status is reported. Thus, the center adjustment is made thanks to the declared commands. During center setting, the nozzle loses its circular shape. If this situation exceeds the tolerance that will affect the cutting, a warning will appear and a nozzle change request is made.

## ANTI CRASH SYSTEM



During cutting, possible collision between the laser cutting head and the displaced pieces is prevented, protecting the cutting head against damages. This feature ensures maximum safety while reducing downtime and hardware costs

## AUTOMATIC NOZZLE CHANGER



Different types of nozzles with different diameters must be used before cutting materials of different types and thickness. According to the selected sheet thickness and type, the system automatically selects and changes the defined nozzle.

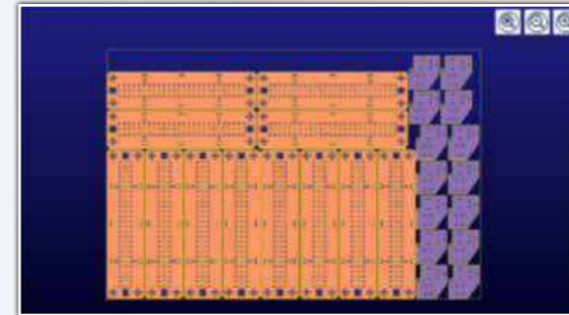
## MIXED GAS



We combine the advantages of cutting processes with a mixture of nitrogen and oxygen. We provide higher speeds and excellent quality with mixed gas and as well as lower gas cost.

"Ermaksan's smart features provide an excellent user experience by increasing the users' levels of ease, safety and comfort"

## AUTO SHEET / MULTISHEET



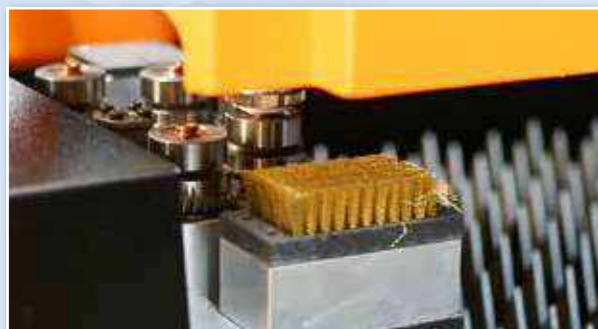
It allows the part to be cut to be sent to the cutting by selecting the sheet detected by the camera. (Auto Sheet)

By assigning the jobs added to the work list to the sheet metals detected via the camera, it allows defining which part will be cut on which sheet. (Auto MultiSheet)



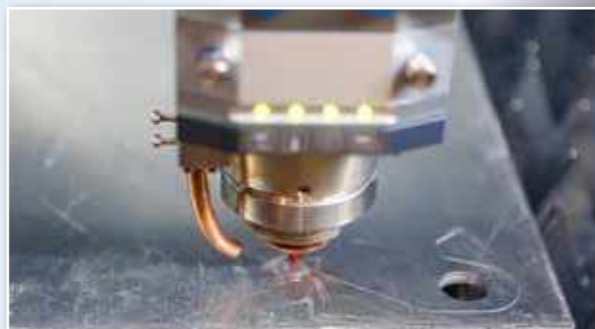
“Smart features help manufacturers minimize downtime, reduce waste, improve quality, increase output and optimize production processes. Thus helping to increase productivity”

## NOZZLE CLEANING / CALIBRATION



It is the process of automatically cleaning the slag and dirt accumulated in the nozzle used with the nozzle cleaning system, offered in standard with Fibermak series lasers, by means of a cleaning brush.

## PIERCETEC CUT CONDITION



With its integrated sensor, PierceTec controls laser power and drilling duration in real time. PierceTec saves on cycle time and operating costs.



## AUTOMATIC PROFILE ALIGNMENT



An automatic profile alignment system has been developed for precise profile cutting with a profile cutting table in machines with Fibermak pipe and profile cutting options. This feature prevents measurement drifts that may occur in profile cuts.

## IOT - SENDING SMS / E-MAIL



Machine status and information can be sent to the provided e-mail addresses by connecting the system to the internet. Information messages can be sent to phone numbers with sim card support option integrated in the operator panel. When the machine gives an error, the error code is sent via e-mail or SMS

## SHEET SORTING



Sheet metal separation is performed on the X or Y coordinate of the selected point on the image. If there is an obstacle to cutting at the point selected by the image processing method, the cutting offset is made by detecting it on the image.

## AUTOMATIC NESTING



It is the process of relocating the part with data on the image taken from the camera and decoding it.



# SPECIAL MACHINES

Special Machines  
for Special Jobs



Different size  
and power  
options

Advanced  
engineering  
studies

Bevel cutting  
options

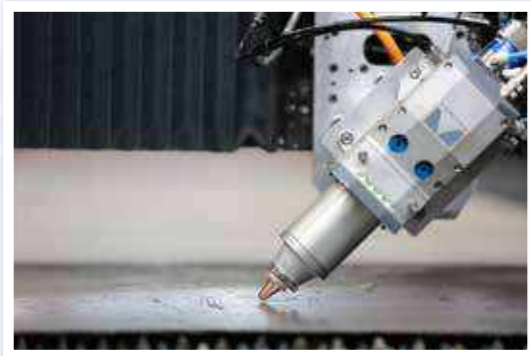
Industry 4.0

Factory automation

Customized  
configurations

**Flexible Solutions for Different Needs**

In addition to our standard product portfolio that we have introduced to laser cutting industry, we also offer turnkey solutions for machines in different sizes and configurations according to the demands. Laser cutting machines with large format are designed specifically for customer needs. These massive machines, which process long and wide sheets at one go, also save time and labour by processing multiple small workpieces. Thus, these machines significantly increase productivity and provide its users a competitive advantage. Thanks to the motor-controlled 2/ 2.5-axis cutting head provided according to the customer's request, it is possible to open the weld groove with a bevel cut by moving 45 degrees to the right and left and 360 degrees around its own axis. In addition, FIBERMAK can also perform planar bevel angle cuts in welding processes with 45 degrees or smaller angles.



**ADVANCED ENGINEERING STUDIES**

With our experience of more than half a century and our strong engineer staff, we determine the machine you need and technical requirements with scientific techniques and offer the most appropriate solution to you.

**BEVEL CUT**

Thanks to its motor-controlled 2 / 2.5-axis cutting head, it has the ability to move left and right and around itself. Thus, it can make bevel cuts in bevelled welding processes.

**MAXIMUM SAVING**

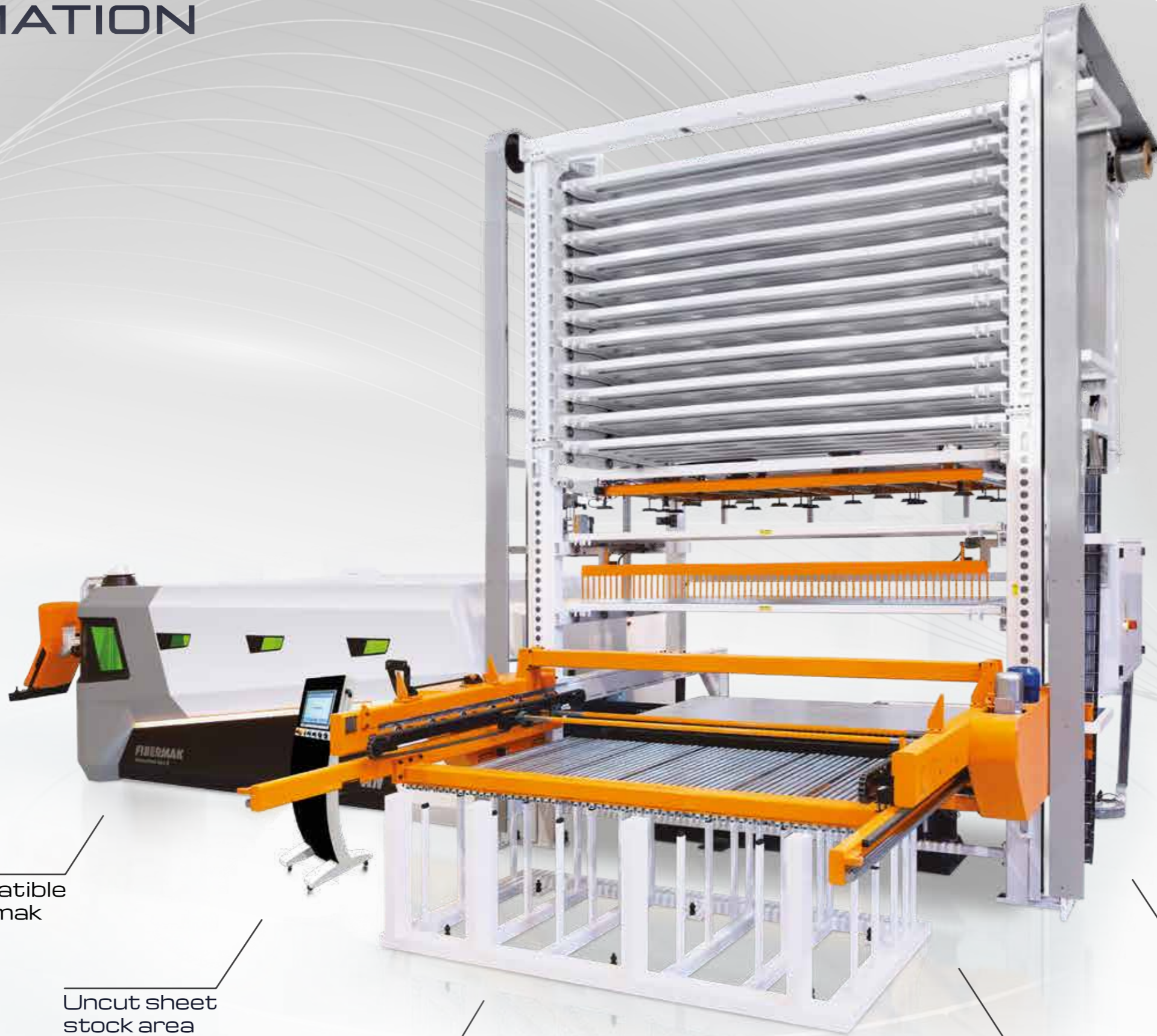
In large machines, suction covers and lateral conveyors operate according to the position of the cutting head, effectively performing vacuum suction and slag collection. Thus, significant energy savings are achieved.





# LASER AUTOMATION

Maximum  
Productivity



Fully compatible  
with Fibermak

Uncut sheet  
stock area

Cut sheet  
stock area

Fully automatic  
sheet metal loading  
and unloading

Work list and work  
repetition features

Zero time loss in  
work transitions

## TOWERMAK Tower Type Loading Unloading System

TOWERMAK is used for unmanned loading and unloading of 1500x3000 mm sheet metals for laser cutting machines. The system provides a high level of reliability, flexibility, and ease of use. With the automatic laser system, you can increase your production capacity by more than 60% depending on the type, thickness, size, nesting, etc. of the material. By incorporating smart laser automation into your metal processing departments, you streamline many functions of your factory as well as invest in savings. In order to maximize the efficiency and profitability of your business by taking advantage of TOWERMAK, Ermaksan's professional team will help you determine the right combination of machine, tower, conveyor, and loading systems. Discover the laser automation solutions that best suit your needs.



### FULLY AUTOMATED SYSTEM

The system can operate in a full-automatic manner by automatically loading the appropriate sheet metal and suitable cutting parameters for each material. Therefore, you can perform mass production and minimize time losses.

### MASS PRODUCTION

By minimizing the operator-induced errors, a high-quality production process is carried out much faster.

### FLEXIBILITY

It is designed with a flexible production focus for users who want to process different types of materials easily and without burrs.

### FACTORY AUTOMATION

Fibermak laser cutting machine, which works in full harmony with tower loading and unloading systems, increases production quality and productivity, and provides your business with a competitive advantage.

### EASE OF USE

In addition to efficient and fast operation, there are simple language options and easy programming to facilitate the operator's work. With this structure, it offers easy and reliable production management.

### INTEGRATED WITH FIBERMAK

It is possible to integrate the most suitable TOWERMAK loading and unloading system into existing FIBERMAK laser cutting machines for our customers who would like to automate their laser cutting processes.





TOWERMAK MULTIMASTER 3x1.5 (3 PALLETS)		
SHEET DIMENSIONS	mm	1500x3000
		1500x2500
		1500x2000
		1500x1500
		1250x2500
		1000x2000
		1000x1500
		1000x1000
MIN. SHEET THICKNESS	mm	0,5
MAX. SHEET THICKNESS	mm	20
MAX. HEIGHT OF SHEET STACK	mm	85
CARRYING CAPACITY OF LOADING PALET	kg	3000
LIFTER AXIS MAX. SPEED (VERTICAL)	m/min	9
SUCTION CUP AXIS MAX. SPEED (VERTICAL)	m/min	6
PALLET PULLING AXIS MAX. SPEED (HORIZONTAL)	m/min	2
COMB AXIS MAX. SPEED (HORIZONTAL)	m/min	10
CNC CONTROLOR		BECKHOFF
MACHINE DIMENSIONS ( L x W x H )	mm	5540x5560x3700
ENERGY		380V, 50Hz
TOTAL SYSTEM WEIGHT	kg	8100

TOWERMAK MULTIMASTER 4x2 (3 PALLETS)		
SHEET DIMENSIONS	mm	2000x4000
		2000x3000
		2000x2000
		1500x2500
		1500x2000
		1500x1500
		1250x2500
		1000x2000
		1000x1500
		1000x1000
MIN. SHEET THICKNESS	mm	0,5
MAX. SHEET THICKNESS	mm	20
MAX. HEIGHT OF SHEET STACK	mm	65
CARRYING CAPACITY OF LOADING PALET	kg	4000
LIFTER AXIS MAX. SPEED (VERTICAL)	m/min	9
SUCTION CUP AXIS MAX. SPEED (VERTICAL)	m/min	6
PALLET PULLING AXIS MAX. SPEED (HORIZONTAL)	m/min	12
COMB AXIS MAX. SPEED (HORIZONTAL)	m/min	10
CNC CONTROLOR		BECKHOFF
MACHINE DIMENSIONS ( L x W x H )	mm	7130x7015x4140
ENERGY		380V, 50Hz
TOTAL SYSTEM WEIGHT	kg	15000

### BRIDGE TYPE VACUUM LOADING SYSTEM

The bridge type vacuum loading system manufactured by ERMAKSAN provides great convenience to its users by allowing the raw material to be loaded easily and automatically on the shuttle table precisely and properly. It is a practical and affordable solution for mass production.



### BRIDGEMASTER VACUUM LOADING AND UNLOADING SYSTEM

Automate your material load and unload cycles with the BRIDGEMASTER. This Bridge Type Vacuum Loading and Unloading System makes your material flow flexible, reduces manual material handling and increases productivity.



### ROBOMASTER VACUUM LOADING SYSTEM

The machine performance is maximized by operating Fibermak and robot in harmony. Automatic sheet loading, collecting, and stacking processes are easily performed in this machine.



### LOADMASTER VACUUM LOADING SYSTEM

The automatic jib crane type vacuum loading system manufactured by ERMAKSAN provides great convenience to its users by allowing the raw material to be loaded easily and automatically on the shuttle table precisely and properly. It is a practical and affordable solution for mass production.



### VACUMASTER VACUUM LOADING SYSTEM

The semi-automatic jib crane type vacuum loading system manufactured by ERMAKSAN provides great convenience to its users by allowing the raw material to be loaded easily and automatically on the shuttle table precisely and properly. It is a practical and affordable solution for mass production.





"We produce the most suitable solutions for your needs with our advanced engineering approaches"



## CONSULTANCY

With our competent and friendly staff, we provide guidance to our customers in their journey from pre-sales to after-sales, from proposing the right solution to using the offered solution effectively and efficiently. Your business needs, solutions that will meet the highest efficiency with the most appropriate budget are determined with the advanced engineering studies on the customized machinery and equipment. We will present you an offer after the most suitable model for you is determined.

Promising to offer you the most suitable solutions before sales, Ermaksan also promises to provide you the highest quality support service in sales, installation, training, and after-sales processes.





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ALL CATALOGS



**ERMAKSAN**  
INNOVATIVE TECHNOLOGIES

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\* EN \* FL V1.1 / 23 / Catalogue information is subject to change without notice.