

## FIBER LASER

Technologies

HD-F / HD-FL

HD-FS

HD-F BH

HD-FA

HD-FO



- Easy to Use
- High Quality Cutting
- Low Energy Consuption
- Faster
- Efficient
- Winning
- Ergonomic





## **DURMA** The Winning Force







As a total supplier for sheet metal manufacturing with almost 60 years of experience, Durma understands and recognizes the challenges, requirements and expectations of the industry.

We strive to satisfy the ever higher demands of our customers by continuously improving our products and processes while r searching and implementing the latest technologies.

In our three production plants with a total of 150.000 m², we dedicate 1,000 employees to delivering high quality manufacturing solutions at the best performance-to-price ratio in the market.

From the innovations developed at our Research & Development Center to the technical support given by our worldwide distributors, we all have one common mission: to be your preferred partner.

Present Durmazlar machines with **DURMA** name to the world.





High technology, modern production lines





3
High quality
machines designed
in R&D Centre

# The Winning Force

Low operating cost and energy consumption

Globally recognized high performance components

Precise cuts and high durability

High profit margin



## Fiber Lasers provide innovative solutions

Perfect results on variety of material

Efficient and precise cuts on thick and thin material

Low investment and operating costs

Modern and compact design

Fast service with remote control



## Fiber Laser Technologies

Fiber lasers outshine with its fast cutting and energy efficiency abilities when especially its compared to  ${\rm CO_2}$  lasers. Easy use, maintenance and service has been achieved by the high technology of Fiber Lasers. Globally recognized efficient components used in *DURMA* Fiber Lasers add value to your company.

Rack & Pinion and Linear Motor Motion tecnologies allows us achieve 3G accelaration. We always strive to serve quality, performance and efficiency to our clients.

**DURMA** Fiber Laser is unrivaled with its rigid body structure, perfect filtration system, compact design, efficiency and user friendliness.

#### **Rack and Pinion Motion System (HD-F Series)**

Axes motionis achieved by rack and pinion design. There are not any intermediate load transmitting elements between the motor and the pinion which otherwise could cause precision losses. High precision two-day, hardened helical racks with low clearance make it possible to achieved very high accelaration (synchronized 91,8 ft/s².), speed (synchronized 557 ft/min.) and accuracy (0,002 inch) values.





### **Linear Motor Motion System (HD-FL Series)**

Moving axes are driven by high velocity and accelaration linear motors which are the latest deve lopment in linear technology.

These motors make it possible to achieve very high accelaration (synchronized 114 ft/s².), speed (synchronized 918 ft/min.) and accuracy (0,0015 inch) values.





## Fiber Laser Power Source

Resonator	2.0 kW	4.0 kW	6.0 kW	8.0 kW	10.0 kW	12 kW	15 kW
Product designation	YLS-2000	YLS-4000	YLS-6000	YLS-8000	YLS-10000	YLS-12000	YLS-15000
Available operation modes	CW, QCW, SM						
Polarization			Random				
Available output power	200-2000 w	400-4000 w	600-6000 w	800-8000 w	1000-10000 w	1200-12000 w	1500-15000 w
Emission wavelength	1070 -1080nm						
Feed fiber diameter	Available in single mode, 50, 100, 200, 300µm						
Ancillary Options	Options Available: Internal coupler, Internal 1x2 beam switch, Internal 50:50 beam splitter, External 1x4 or 1x6 beam switch						
Interface	Standard: La	serNet, Digital I/O, A	nalog Control Addition	nal Options: DeviceNe	et or Profibus		

Material (Cutting Capacity)	YLS 2000 (2kW)	YLS 4000 (4kW)	YLS 6000 (6kW)	YLS 8000 (8kW)	YLS 10000 (10kW)	YLS 12000 (12kW)	YLS 15000 (15kW)
Mildsteel (s235jr)	0,47 inch	0,78 inch	1 inch	1 inch	1,18 inch	1,38 inch	1,38 (1,57) inch
Stainless Steel (1.4301)	0,23 inch	0,39 inch	0,47 inch	0,59 inch	1 (1,18) inch	1,18 (1,38) inch	1,38 (1,57) inch
Aluminum (AIMg3)	0,23 inch	0,47 inch	0,59 inch	0,79 inch	1 (1,18) inch	1,18 (1,38) inch	1,38 (1,57) inch
Copper	0,12 inch	0,23 inch	0,39 inch	0,47 inch	0,59 inch	0,59 inch	0,59 inch
Brass	0,23 inch	0,39 inch	0,47 inch	0,59 inch	0,79 inch	0,79 inch	0,79 inch

Note: Values in parentheses can be cut with little burr with of these resonators power.

Factors such as rust, shell formation, paint, label, pitch shifts on the surface, rolling defects, rusts on the surface of the material, affect the black sheet cutting negatively. The top and bottom surfaces of the material to be cut must be clean. The cutting quality and cutting speeds of sandblasted sheets vary.

#### **Low Operating Costs**

- Low energy consumption
- Low cost per component
- Optimised focal distance for all thickness values
- Maintenance free operation
- Compact design, fast installation
- Rigid body structure, high durability

## **Laser Cutting Head**

The ProCutter offers a complete solution for the laser-based fusion cutting of thin and medium material thickness in the wavelenght range around 1µm. In flame cutting, greater material thicknesses can also be processed while maintaining high standards of quality. The potential of the cutting head is optimally converted into productivity, especially in the case of flatbed and pipe cutting machines, where innovative technologies are combined with proven concepts, providing the best possible performance, range of flexibility and degree of reliability.

The combination of proven technology and optimized design enables processing with up to 10 kW laser power in the nead-infraded range - and gives you reduced installation space and weight at the same time. A robust and dustproof housing ensures a long service life and allows external linear drive accelarations up to 4.5 genabling an efficient cutting operation. High-quality optics and the highest standards of quality in manufacturing and assembly ensure optimum laser beam guidance and shaping with high focal position stability, even at high laser power.

#### **Efficient**

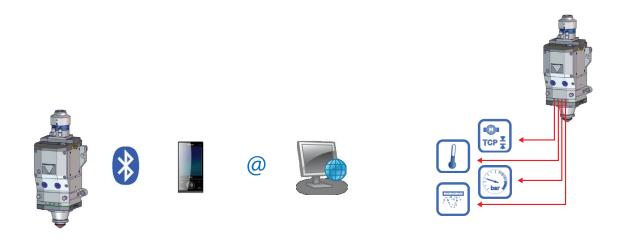
Lightweight and slim design created for fast acceleration and cutting speed Motorized focus position adjustment for automatic machine setup and piercing work Drift-free, fast-reacting distance measurement Permament protective window monitoring Values displated via bluetooth

#### **Flexible**

Selectable optical configuration, optimized for the range of applications Straight and angled design versions adapted to the machine concept Zoom lens for automatically adjusting the focus diameter Motorized or manual focal position adjustment

#### **User Friendly & Safe**

Completely dustproof beam path with protective windows
LED operating status display
Display of operating parameters via Bluetooth® and interface for machine control
Pressure monitoring in the nozzle area (gas cutting) and in the head
Monitoring of the piercing process and detection of cutting breaks with CutMonitor

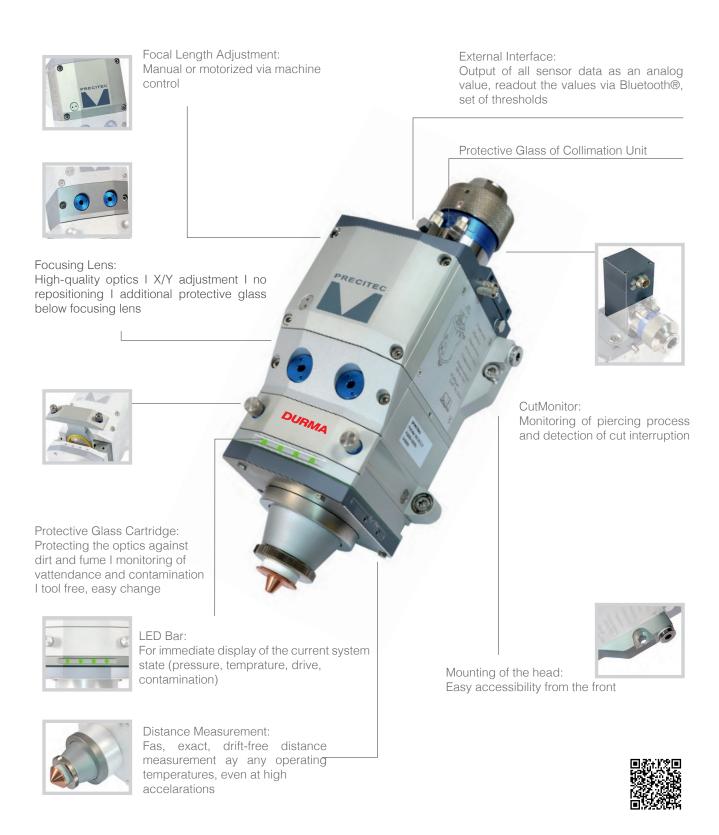


App for iOS and Android gadgets

Dynamic laser cutting machines require smart cutting heads for its operations. ProCutter offers a fully-integrated sensor system that monitors the cutting process and

provides the relevant information to the user.

The ProCutter ensures that each component can be re-manufactured at a high standard of quality.



#### **Higher Acceleration on Z-Axis**

Lighter and strongly rigid bridge does not allow it to vibrate at high speed and obtain high accurate cutting geometry.

Equipped with world's favorite head "Precitec".

During the construction of the bridge all kind of deformations analyzed and prevented.





#### **Shuttle Table**

Servo controlled shuttle table system applied to HD-F 3015 (Standard) and HD-F 4020 (Option) series machines reduces the changeover times by 40%. For 3015 series it drops down to 19 sec. and for 4020 series, to 29 sec.

The shuttle table is fully automatic and maintenance-free on all machines. Hydraulic oil is not used and changing the table is fast, soft and has low energy cost.

Table change time is 40 seconds in HD-F 4020 series. and 45 seconds in the HD-F 6020 series. Back and forth movement of all tables are performed with servo motors.





With Servo Motor : Standard HD-F 3015, Option HD-F 4020

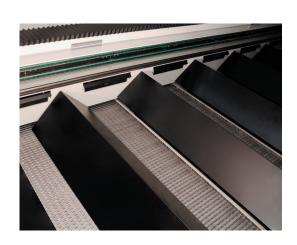


With Asynchronous Motor: Standard HD-F 4020 - 6020

#### **Multi Chambers High Efficient Suction System**

With the multi chambers high efficient system offers the ability to make an equal amount of suction during the cutting operation of the whole machine cutting area.





#### **Easy Access Side Door**

There is standart side door to access the back part of the cutting sheet and correct the cutting parts positions during the operation. This side door also used by the service team of the laser machine when the maintenance will be done.





#### **Scrap Conveyor**

The optional lateral automatic scrap conveyors allow the removal of scrap pieces from the working area without the need to interrupt the cutting process. The sideways operation of the short conveyors allow for easy maintenance and trouble-free running.





#### Bevel Head ± 45 °

Bevel Head for vertical and bevel cuts from 0  $^{\circ}$  to 45  $^{\circ}$ . Optimal results provided through the combination of 5 axis interpolation and software . Positive and negative bevel angles in one part.





## **Control Panel**

The controller has a Durma operator interface and a complete cutting database for all standard cutting applications. The database includes the cutting parameters for standard materials (steel, stainless steel, aluminum) for common thickness ranges. Based on these reference values the operator can easily improve the cutting quality for different types of materials.

- Sinumerik 840 D SL
- IFP1900 19" Touch Screen
- IPC427 E Intel İ5-6442EQ
- 8GB SD Ram DDR3VVIN7/SSD 240 GB
- Ethernetx3
- USBx4
- PCI x1
- CF Card
- DPP

#### **Durma Cloud**

Actual state of machine can be traced, Operator can leave machine when program is too long Cutted parts can be reported,

Retrospective or periodic reports can be created,

Cost calculations can be done,

Consumption calculations can be done,

Running duration, standby duration, productivity calculations can be done,

Error messages and error reasons can be inspected







#### **CAD/CAM Software**

Lantek - Metalix

- Advanced optimisation: tools optimisation
- Fast tool way collision protection. Toolway optimisation to prevent damage from possible deformed material
  Writings supported by your operating system can be applied directly on the material to be cut
- Cutting direction, clockwise or opposite is supported
- Advanced corner applications provide perfect corners and soft cutting.
- Fillets, cooling, slowing down, circulation
- Shared Cuttings: This function is especially useful for thick plates and reduces the need of marking holes during cutting
- Automatic entry point
- Fully automatic cutting
- Z-Axis control



Lantek



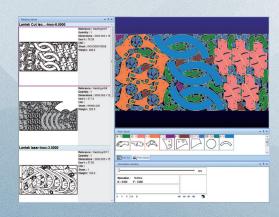
Metalix



Lantek inside

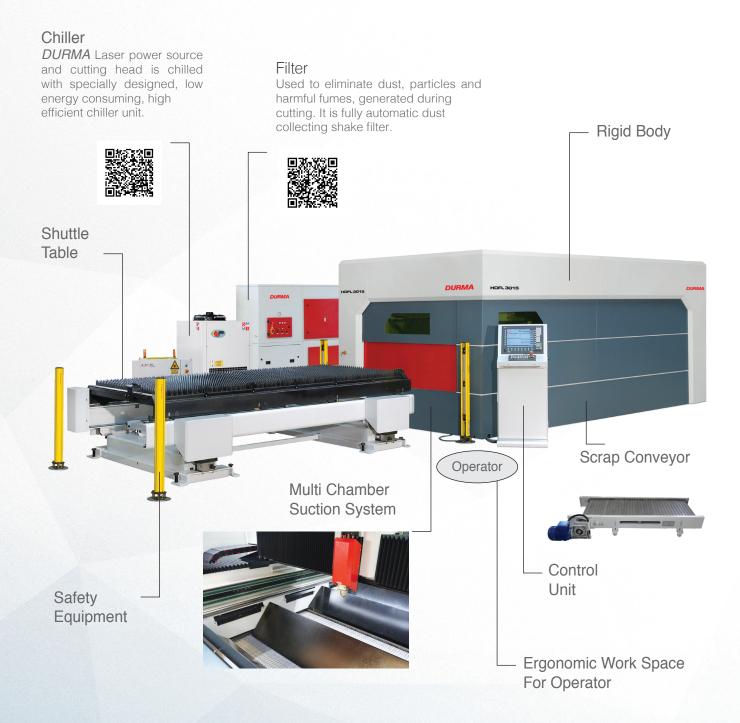


Metalix MT Software



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## Experience The Difference of DURMA HD-FL



# HD-F / HD-FL FIBER LASER

	3015	4020	6020	8020	12020	
X Axis	10'	13' 5"	20'	26' 9"	40'	ft
Y Axis	5'	6' 8"	6' 8"	6' 8"	6' 8"	ft
Z Axis	6,3	7,3	7,3	7,3	7,3	inch
Max. Sheet Size	10' x 5'	13' 5" x 6' 8"	20' x 6' 8"	26' 9" x 6' 8"	40' x 6' 8"	ft
Max. Sheet Weight	5.576	5.576	5.576	5.576	5.576	lbs/ft²

	Rack&Pinion HD-F	Lineer System HD-FL	
X Axis	393	524	ft/min.
Y Axis	393	524	ft/min.
Synchronous	557	741	ft/min.
Acceleration	91	114	ft/s²
Positional Accuracy	±0,002	±0,0015	inch
Repeatability	±0,002	±0,0015	inch



User Friendly

Ergonomic

**Efficient** 

Fast

Reliable Brand



## HD-FS FIBER LASER

	HDFS 3015	
X Axis	10'	ft
Y Axis	5'	ft
Z Axis	4,9	inch
Max. Sheet Size	10' x 5'	ft
Max. Sheet Weight	441	lbs/inch²
	Rack&Pinion	
X Axis	328	ft/min.
Y Axis	393	ft/min.
Synchronous	512	ft/min.
Acceleration	52	ft/s²
Positional Accuracy	±0,002	inch
Repeatability	±0,002	inch



## Why HD-FS Smart?

HD-FS Smart lasers are designed like HD-F series using same components. It is specifically designed for businesses that care about floor space. Loading and Unloading requires less effort in situations where shuttle table is not necessary.

HD-FS Smart Fiber Lasers make differences with speed, high quality components, efficiency and industrial design.

User Friendly Ergonomic Efficient Fast Reliable Brand



## HD-F / HD-FL BH

## Pipe and Profile Cutting







Pipe and tube profile rotation system
Pipe diameter capacity of Ø30 up to Ø400
Square profile capacity of 250x250
Fume extraction connection
Adjustable support units for pipe and tube profile

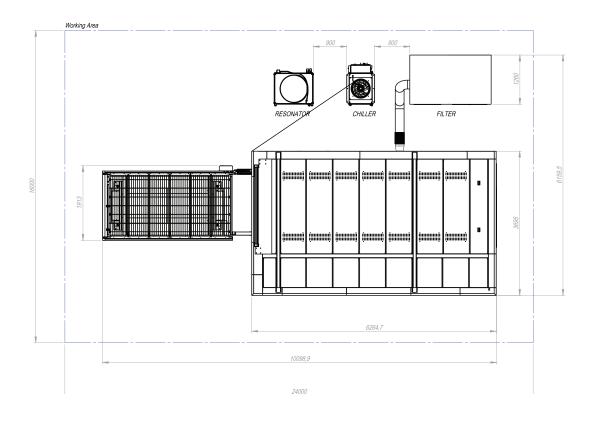


Shapely pipe cutting Shapely cutting on all faces of tube profile.



## HD-F / HD-FL BH

Laser Pipe Cutting Technical Specifications			
Cutting length	ft	9' 9" (through chuck 19' 8")	
Max pipe loading	lbs/ft	80,6	
Laser power source		1-10 kW	
Working diameter	Min/Max (inch)	Ø1,18 / Ø15,7	
Max pipe thickness	inch	Up to 0,5 inch depending on material and laser power	
Square profile cutting	Max (inch)	9,8x9,8	
Maximum positioning speed X/Y	ft/min	328	
Positioning accuracy	inch	+/- 0,007 / 39,4	
Repeatability	inch	+/- 0,004	
Materials		Mildsteel / Stainless / Aluminum / Copper / Brass	
Cutting head	-	Precitec	
Dust evacuation and filter	-	Available	
Axis motors	-	Siemens	
Electrical equipments	-	Siemens or Telemecanique	
CNC control	-	Siemens	
Software	-	Lantek Flex3D Tube	
Network Card	-	Optional	



## HD-FO FIBER LASER



User Friendly

Ergonomic

Efficient

Fast

Reliable Brand

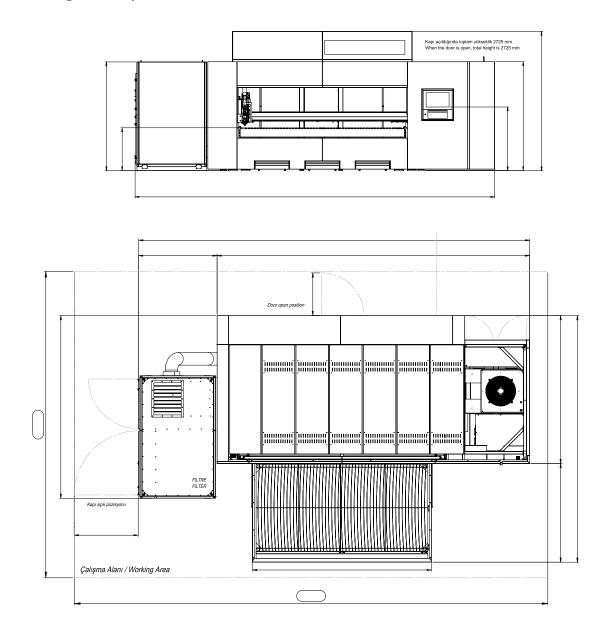




# SPECIFICALLY DESIGNED ACCORDING TO LAYOUT

HDFO fiber lasers, stand out with their speed, high quality materials, efficiency and industrial design. The loading and unloading of the material to be cut requires less effort when the shuttle table is not required.

- User Friendly
- Low Running Costs
- Quick Opening Front Door
- Easy Access To Cutting Area Compact
- Bridge Design
- Fast Packing & Delivery



## HD-FO FIBER LASER

HD-FO Technical Data					
Cutting axes					
X Axes	ft	10'	10'		
Y Axes	ft	5'			
Z Axes	inch	4.9			
Max. Sheet Dimensions	ft	10' x 5	5'		
Max. Sheet Weight	lbs	1.268			
Dynamics					
Max. Speed X Axis	ft/min.	295			
Max. Speed Y Axis	ft/min.	295	5		
Max. Speed Z Axis	ft/min.	98			
Max. Synchronized Hız (X-Y)	ft/min.	417			
Max. Synchronized Acceleration	ft/s²	45.9	)		
Positioning Tolerance	inch	± 0,002			
Repeatability	inch	± 0,0	02		
Control Unit					
CNC			SIEMENS SINUI	MERIK 840D SL	
Screen			19" Touc	h Screen	
Laser Cutting Head					
Туре			Precitec Lightcu	tter / DURMA	
Focal Distance (mm/inch)		150 / 6			
Focal Type			Au	to	
Material Cutting Thicknes	s (inch)				
Material		YLR 1000 (1kW)	YLS 2000 (2kW)	YLR 3000 (3kW)	YLS 4000 (4kW
Mild Steel		0,32	0,48	0,63	0,79
Stainless Steel		0,16	0,24	0,32	0,40
Aluminium (AIMg3)		0,16	0,24	0,32	0,48
Copper		0,08	0,12	0,20	0,24
Brass		0,16	0,24	0,32	0,40

#### **MANUAL CUTTING TABLE**

The machine is designed especially for the customers who has layout problems. Sheet loading and unloading is extremely easy in cases where no shuttle table is needed.



### COMPACT, MODERN AND ERGONOMIC LAY-OUT

Helping of the compact layout of the machine, sheet loading, cutting and unloading operations are performed by using less space and less operations





### PNEUMATIC SHUTTLE TABLE (OPTION)

As standard there is a manual cutting table. Optionally, with your 1 or 2 KW power source order, you can get a pneumatic shuttle table.



### EASY ACCES TO CUTTING AREA WITH BACK DOOR

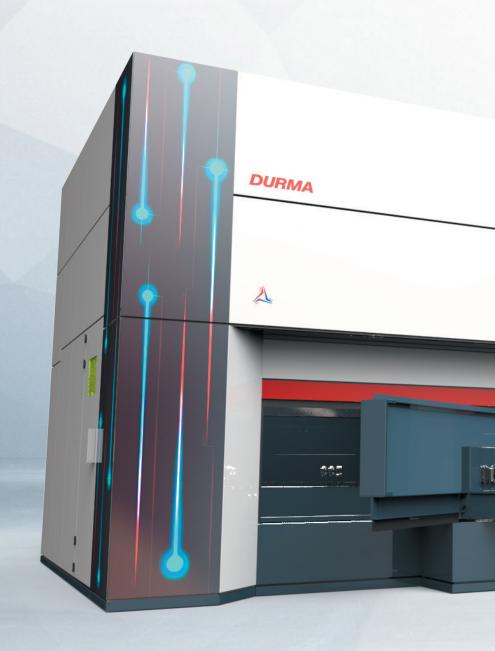
Rear door for use when cutting is required.

This rear door is also used during machine maintenance





## HD-FA 5 AXIS LASER



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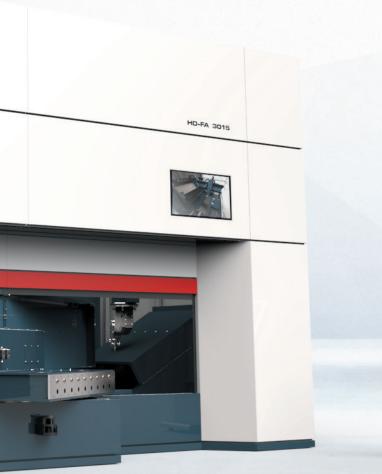
User Friendly

Ergonomic

**Efficient** 

Fast

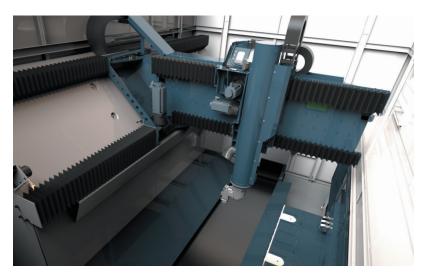
Reliable Brand



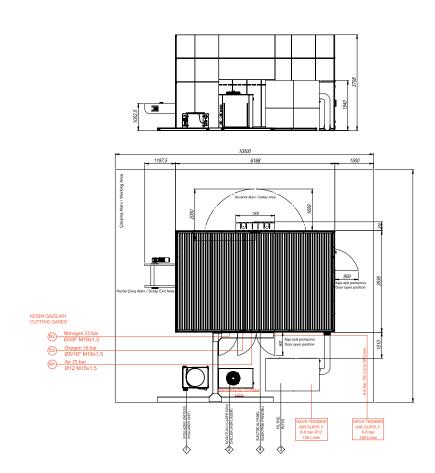


# THE 5 AXIS FIBER LASER SYSTEM FOR AUTOMOTIVE AND AEROSPACE INDUSTRY

DURMA 5 axis fiber laser system will be your best partner for automotive and any other high-sense and 3D complex part production. +%25 increased processing space due to same concept machines. For gratify cutting performance, strong machine frame and rotary table provide best quality.



- Modern and Compact Design
- Easy to use Fixture
- Globally High Performance Components
- High Quality 3D Cutting
- Low Energy Consumption
- Faster, Reliable, Efficient



HD-FA TECHNICAL SPECIFICATION	ONS	
X axis stroke (ft)	10'	
Y axis stroke (ft)	5'	
Z axis stroke	25,6 inch	
B axis	±135°	
C axis	±360°xn	
Max. Synchronous Speed	567 ft/min	
Max. Synchronous Acceleration	1,73 G	
Positional Accuracy	±0.003 inch	
Repeatability	±0.003 inch	

### **MACHINE SIZES**

Machine Size (ft)	20' 3" x 12' 11"  h= 12' 2"
Working Area (ft)	29' 6" x 32' 9" (Secure area)
Rotary Table's Door Length	13' 1"
Machine Weight	35274 lbs

CUTTING THICKNESS				
Power	2 kW	3 kW	4 kW	
Mild Steel (inch)	0,5	0,63	0,79	
Stainless (inch)	0,25	0,31	0,39	
Aluminum (AIMg3) (inch)	0,25	0,31	0,5	
Brass (inch)	0,25	0,31	0,39	
Copper (inch)	0.12	0.20	0.25	

### **CUTTING HEAD**

Туре	3D
Focus	Automatic

## **CONTROL UNIT**

CNC	SIEMENS SINUMERIK 840D SL
Screen	19" Touch panel

## FILTER

				5
Capacity	88.250 ft³/h - 4 kW			

### CHILLER

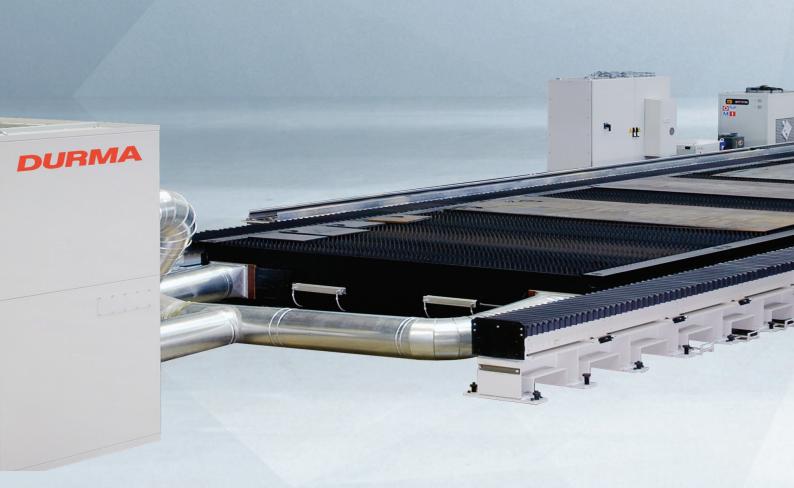
Chiller for 2 kW	IPG LG 71
Chiller for 3 kW	IPG LG 170
Chiller for 4 kW	IPG LG 171





## SPECIAL APPLICATIONS

Turkey's Biggest and Fastest Laser



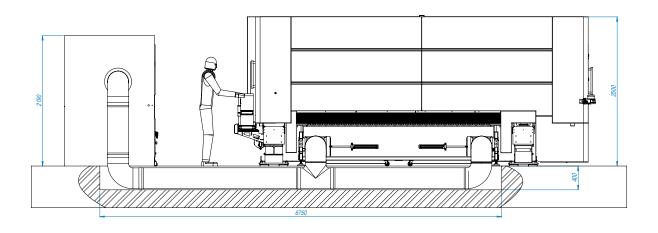
## HD-F 20030

Cutting Length 66 ft
Cutting Width 10 ft
Power Source 6 kW



## HD-F 20030

HD-F 20030 Technical Specifications		
Y Axis maximum speed	328 ft/min	
U Axis maximum speed	49 ft/min	
X axis maximum speed	328 ft/min	
Y axis maximum acceleration	1G	
U axis maximum acceleration	0,1G	
X axis maximum acceleration	1G	
Positioning accuracy	0,002 inch/60 inch	
Y axis moving bulk	110 lbs	
U axis moving bulk	7716 lbs	
X axis moving bulk	992 lbs	



# Automatic Loading – Unloading Units Solutions For Your Job

Manual loading-unloading systems

Semi automatic loading-unloading systems

Automaticloading-unloading systems

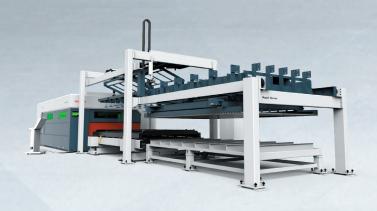


M-LOADER 3015 / 4020		
Technical Data	3015	4020
Sheet Length (Max.) (ft)	1' 6" - 10'	1' 6" - 13' 5"
Sheet Width (Max.) (ft)	1' 6" - 5'	1' 6" - 6' 8"
Sheet Thickness	0,40 inch	0,25 inch
Max. Loading Capacity	794 lbs	992 lbs
Vacuum Pad Qty.	6 sec.	8 sec.
Rotation angle ( Max. )	260°	260°
CONSUMPTION VALUES		
Elektricity	0.5 kW	0.5 kW
Compressed Air	106 ft³/h - 7 bar	106 ft³/h - 7 bar

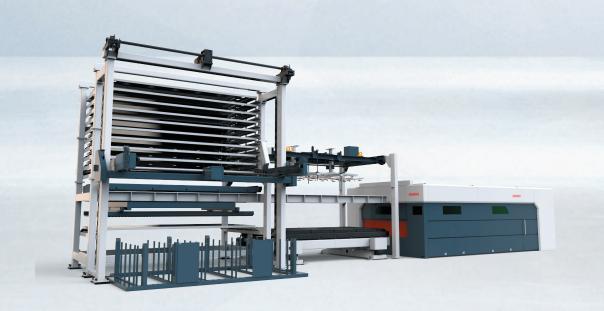
D-LOADER 3015 / 4020		
Technical Data	3015	4020
Sheet Length (Max.) (ft)	1' 6"- 10'	1' 6" - 13' 5"
Sheet Width (Max.) (ft)	1' 6" - 5'	1' 6" - 6' 8"
Sheet Thickness	0,02 - 1,00 inch	0,02 - 1,00 inch
Max. Loading Capacity	1600 lbs	3530 lbs
Vacuum Pad Qty.	12 pcs.	18 pcs.
Total Cycle Time	60-75 sec. (depends on loading height)	65-85 sec.(depends on loading height)
Working Area (ft)	13' 9" x 13' 5" h= 7' 5"	18' 1" x 17' 8" h= 8' 11"
Rotation angle (Max.)	90°	90°
Elektricity	3 kW	4 kW
Compressed Air	212 ft³/h7 bar	353 ft³/h7 bar



DURMA RAPID SERVER 3015 / 4020			
Technical Specifications	3015	4020	
Sheet Sizes (ft)	2' 7" - 2' 7"	3' 4" - 3' 4"	
Length (ft)	3' 4" - 5' - 6' 8" - 8' 2" - 10'	3' 4" - 5' - 6' 8" - 8' 2" - 10' - 11' 6" - 13' 5"	
Width (ft)	3' 4" - 4' 1" - 5'	3' 4" - 4' 1" - 5' - 6' 7"	
Thickness	0,02 - 1 inch	0,02 - 1 inch	
Max. Sheet Size (ft)	10' x 5'	13' 5" x 6' 8"	
Max. Loadable Sheet Loading Weight	11.111 lbs	13.333 lbs	
Max. Sheet Loading Height	10 inch	9 inch	
Cycle Time	50 sec.	60 sec.	
Workspace (ft)	22' 9" x 17' 1" h= 11' 2"	60' 8" h=11' 10"	
Dual Sheet Sensor	Yes	Yes	
Sheet Separation System	Yes	Yes	

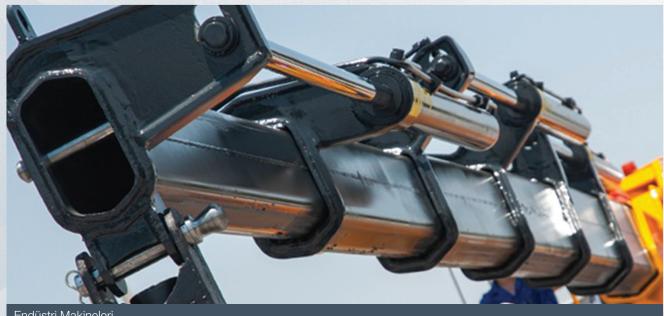


DURMA RAPID TOWER 3015 / 40	20		
Technical Specifications	3015	4020	
Sheet Sizes (ft)	2' 7" - 2' 7"	3' 4" - 3' 4"	
Length (ft)	3' 4" - 5' - 6' 8" - 8' 2" - 10'	3' 4" - 5' - 6' 8" - 8' 2" - 10' - 11' 5" - 13' 5"	
Width (ft)	3' 4" - 4' 1" - 5"	3' 4" - 4' 1" - 5" - 6' 8"	
Thickness	0,02 - 1,00 inch	0,02 - 1,00 inch	
Max. Sheet Size (ft)	10' x 5'	13' 5" x 6' 8"	
Max. Sheet Metal Loading Weight That Can Be Loaded On The Pallet	6.614 lbs	8.888 lbs	
Pallet Numbers	10	10	
Total Loadable Sheet Weight	66.138 lbs	66.138 lbs	
Max. Sheet Loading Height	3,35 inch	3,35 inch	
Cycle Time	50 sec.	60 sec.	
Workspace (ft)	28' 7" x 14' 11" h = 17' 8"	36' 9" x 20' 2" h = 18' 5"	
Dual Sheet Sensor	Yes	Yes	
Sheet Separation System	Yes	Yes	
Electric Power	23 kW	23 kW	
Compressed Air	10 m³/h 7 bar	10 m³/h 7 bar	





## SPECIAL APPLICATIONS



Endüstri Makineleri







## Fast on Service and Spare Parts

*DURMA* provides the best level of service and spare parts with qualified personnel and spare parts in stock. Our experienced and professional service personnel are always ready at your service. Our professional training and application enriched courses will give you an advantage to use our machinery.



Consultancy



Spare Parts



R&D Center



After Sales Service





Service Agreements



Software



Training



Flexible Solution



PANEL BENDER



**PUNCH** 



**PLASMA** 



L ANGLE PROCESSING CENTER



**IRON WORKER** 



POWER OPERATED SHEAR



PRESS BRAKE



VARIABLE RAKE SHEAR



TUBE LASER CUTTING



FIBER LASER



**ROLL BENDING** 



PROFILE BENDING



**CORNER NOTCHER** 



## **FIBER LASER**

Technologies

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