

# FIBER LASER

## Technologies

HD-F / HD-FL

HD-FS

HDF-BH

HD-FA

HD-FO



- Easy to Use
- High Quality Cutting
- Low Energy Consumption
- 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 researching and implementing the latest technologies.

In our three production plants with a total of 150.000 m<sup>2</sup>, 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.

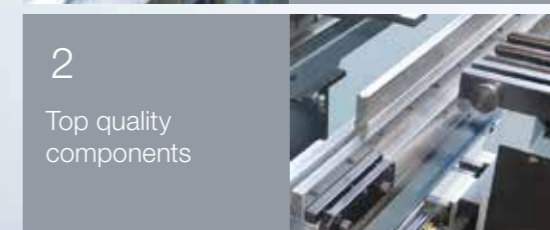
Present Durmazlar machines with **DURMA** name to the world.



1  
High technology,  
modern production  
lines



3  
High quality  
machines designed  
in R&D Centre



2  
Top quality  
components

# 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 desing
- Fast service with remote control



# Fiber Laser Technologies

Fiber lasers outshine with its fast cutting and energy efficiency abilities when especially its compared to CO<sup>2</sup> 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 technologies allows us achieve 3G acceleration. 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 acceleration (synchronized 28 m/ s<sup>2</sup>.), speed (synchronized 170 m/min.) and accuracy (0,05 mm) values.



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

Moving axes are driven by high velocity and acceleration linear motors which are the latest development in linear technology. These motors make it possible to achieve very high acceleration (synchronized 35 m/ s<sup>2</sup>.), speed (synchronized 226 m/min.) and accuracy (0,03 mm) values.



# Fiber Laser Power Source

Resonator	1.0 kW	2.0 kW	3.0 kW	4.0 kW	6.0 kW	8.0 kW	10.0 kW
Product designation	YLS-1000	YLS-2000	YLS-3000	YLS-4000	YLS-6000	YLS-8000	YLS-10000
Available operation modes	CW, QCW, SM						
Polarization	Random						
Available output power	100-1000 w	200-2000 w	300-3000 w	400-4000 w	600-6000 w	800-8000 w	1000-10000 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: LaserNet, Digital I/O, Analog Control Additional Options: DeviceNet or Profibus						

Material (Cutting Capacity)	YLS 1000 (1kW)	YLS 2000 (2kW)	YLS 3000 (3kW)	YLS 4000 (4kW)	YLS 6000 (6kW)	YLS 8000 (8kW)	YLS 10000 (10kW)
Mild Steel	8 mm	12 mm	16 mm	20 mm	25 mm	30 mm	30 mm
Stainless Steel	4 mm	6 mm	8 mm	10 mm	12 mm	14 mm	20 mm
Aluminium (AlMg3)	4 mm	6 mm	8 mm	12 mm	15 mm	18 mm	25 mm

\*Standard cutting parameters.

## 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 wavelength 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-infrared 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 accelerations 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
- Permanent protective window monitoring
- Values displated via bluetooth

## Flexible

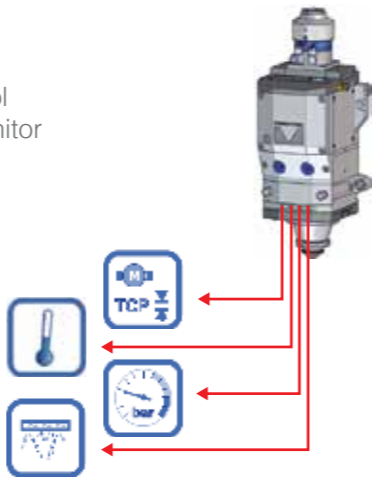
- electable optical configuration, optimized for the range of applications
- Straight and angled design versions adapted to the machine concept
- Zoom lens for automatically adjusting the focus diameter
- Motorized or manual focal position adjustment

## User Friendly

- completely dustproof beam path with protective windows
- LED operating status display
- Display of operating parameters via Bluetooth and interface for machine control
- Monitoring of the piercing process and detection of cutting breaks with CutMonitor



Apps 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.



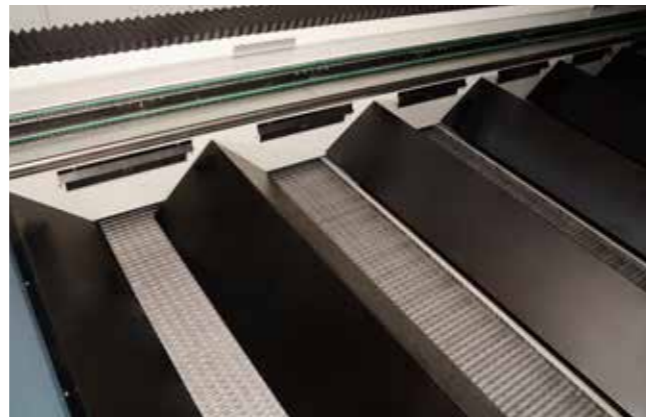
### Easy Access Side Door

There is standard 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.



### 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.



### 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.



### Shuttle Table

Integrated shuttle tables are incorporated on the laser machine to maximize the productivity and minimize the material handling times. The shuttle table and pallet change system allows convenient loading of new sheets or unloading of finished parts while the machine is cutting another sheet inside the working area.

The available shuttle tables on all machine models are fully electric and maintenance free: there are no hydraulic oils to handle and the table changes take place fast, smooth and energy-efficient.



### Bevel Head $\pm 45^\circ$

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 Sinumerik 840DSL CNC controller is an efficient 64-bit microprocessor system with an integrated PC. 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, aluminium) for common thickness ranges. Based on these reference values the operator can easily improve the cutting quality for different types of materials.

- The laser power is controlled as a function of the path, velocity, time and travel
- 6 MB expanded user memory
- External memory option



## 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



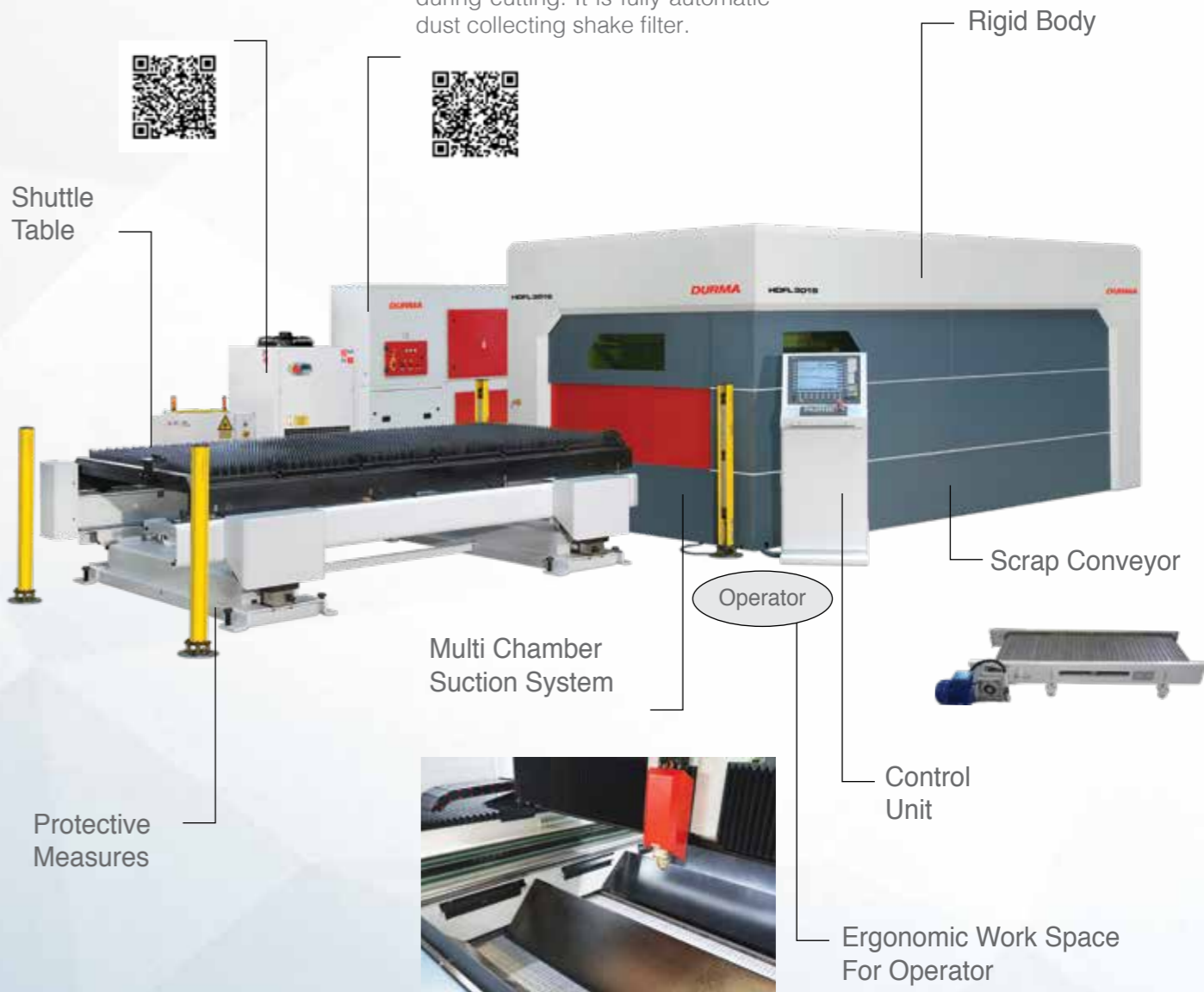
# Experience The Difference of DURMA HD-FL

## Chiller

**DURMA** Laser power source and cutting head is chilled with specially designed, low energy consuming, high efficient chiller unit.

## Filter

Used to eliminate dust, particles and harmful fumes, generated during cutting. It is fully automatic dust collecting shake filter.



# HD-F / HD-FL

## FIBER LASER

	3015	4020	6020	8020	12020	
X Axis	3060	4100	6150	8200	12200	mm
Y Axis	1530	2100	2100	2100	2100	mm
Z Axis	160	185	185	185	185	mm
Max. Sheet Size	3048 x 1524	4064x2032	6096x2032	8128x2032	12192x2032	mm
Max. Sheet Weight	200	200	200	200	200	Kg/m²
	Rack&Pinion HD-F		Lineer System HD-FL			
X Axis	120		160		m/min.	
Y Axis	120		160		m/min.	
Synchronous	170		226		m/min.	
Acceleration	28		32		m/s²	
Positional Accuracy	±0,05		±0,03		mm	
Repeatability	±0,05		±0,03		mm	

- User Friendly
- Ergonomic
- Efficient
- Fast
- Reliable Brand



# HD-FS

## FIBER LASER

	HDFS 3015	
X Axis	3100	mm
Y Axis	1550	mm
Z Axis	125	mm
Max. Sheet Size	3048x1524	mm
Max. Sheet Weight	200	Kg/m²
	Rack&Pinion	
X Axis	100	m/min.
Y Axis	120	m/min.
Synchronous	158	m/min.
Acceleration	16	m/s²
Positional Accuracy	±0,05	mm
Repeatability	±0,05	mm

## 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.

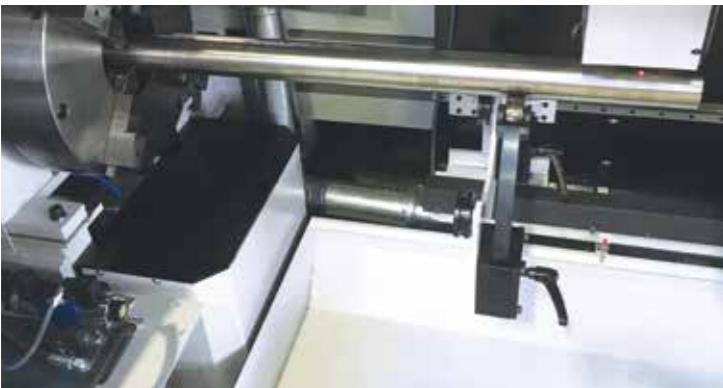
HD-FS Smart Fiber Lasers make differences with speed, high quality components, efficiency and industrial design.

- User Friendly
- Ergonomic
- Efficient
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- Reliable Brand



# HD-F / HD-FL BH

## Pipe and Profile Cutting

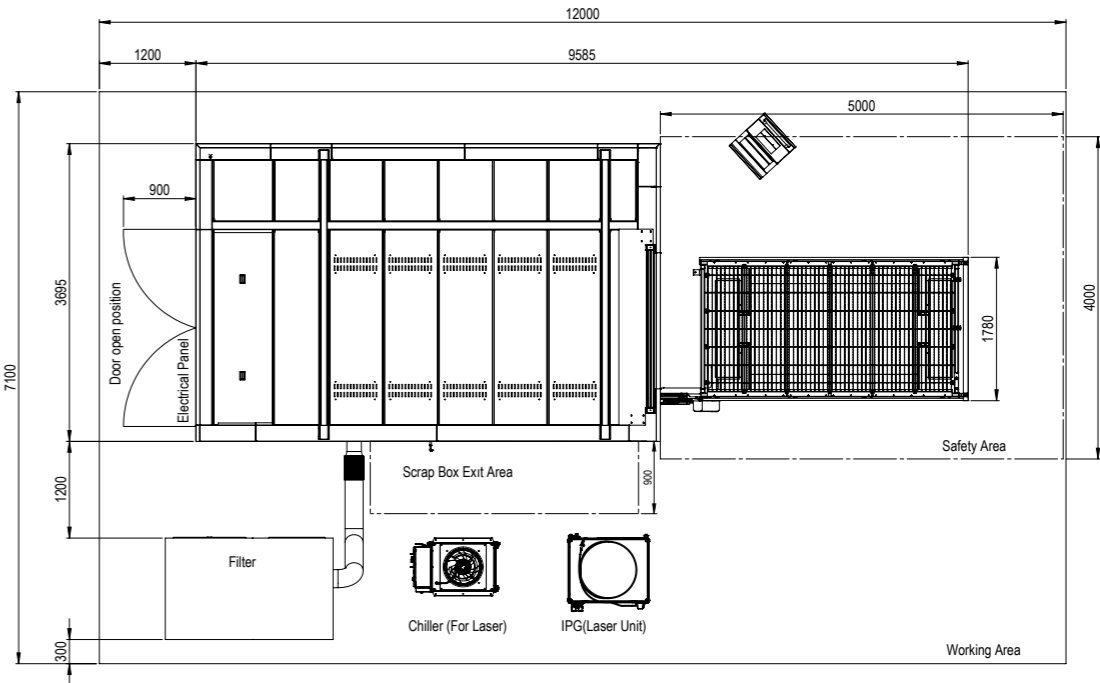


Pipe and tube profile rotation system  
 Pipe diameter capacity of Ø30 up to Ø400  
 Square profile capacity of 250x250  
 Fume extraction connection  
 Adjustable support units for pipe and tube profile



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

Tube – Profile Cutting Technical Features		
Cutting length	mm	3000mm (Chuck 6.000 mm yoluyla)
Maximum tube loading	Kg/m	120
Laser power supply	IPG	1-10 kW
Working diameter	in./max.	Ø30 / Ø400
Max. tube thickness	mm	Up to 12 mm depending on material and laser power
Square profile cutting	Max.	250x250 mm
Max. positioning speed X / Y	m/dk.	100
Positioning accuracy	mm	+/- 0,5 / 1000
Repeatability	mm	0.1
Materials		Normal Sheet/ Stainless steel / Aluminum / Virgin / Brazen
Cutting head	-	Precitec
Dust extraction and filter	-	Available
Axis motors	-	Conductivity unit
Electrical equipment	-	Siemens veya Telemecanique
CNC control	-	Conductivity unit
Software	-	Lantek Flex3d Tube
Network card	-	Optional



## SPECIAL APPLICATIONS

Turkey's Biggest and Fastest Laser

### HDF 20030

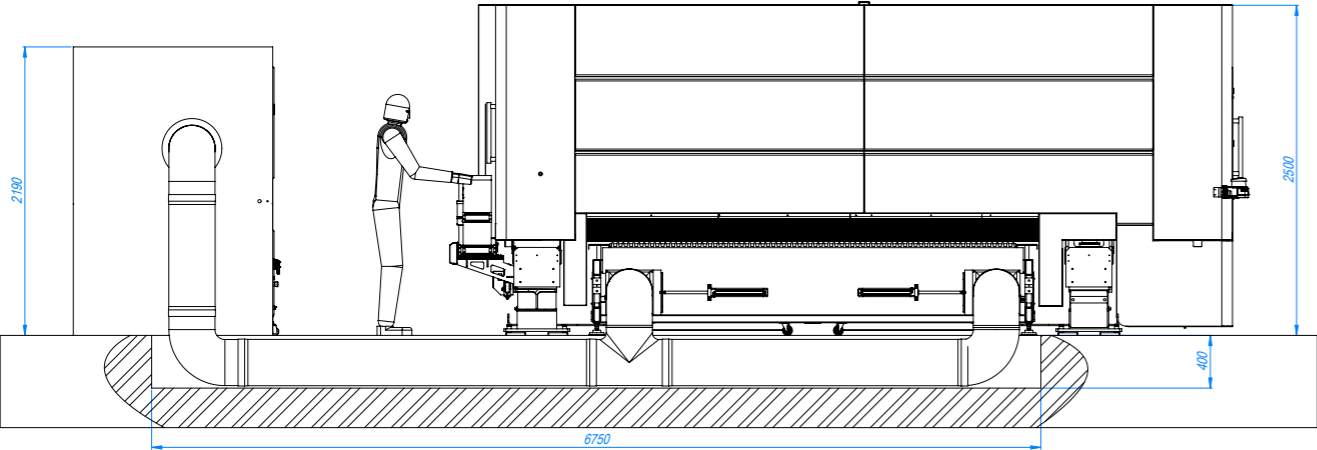
Cutting Length	20.000 mm
Cutting Width	3.000 mm
Power Source	6 kW



# Automatic Sheet Loading & Unloading Unit

## Automatic solutions for your business

HD-F 20030 Technical Specifications	
Y Axis maximum speed	100 m/min
U Axis maximum speed	15 m/min
X axis maximum speed	100 m/min
Y axis maximum acceleration	1 g
U axis maximum acceleration	0.1g
X axis maximum acceleration	1 g
Positioning accuracy 15 mt. x 3 mt.	0.05 mm/1.5m
Positioning accuracy 15 mt. x 3 mt.	0.05 mm
Y axis moving bulk	50 kg.
U axis moving bulk	3500 kg.
X axis moving bulk	450 kg.



- Manual Loading and Unloading
- Mini - Server Loading and Unloading
- Tower- Server Loading and Unloading



# HD-FA

5 AXIS LASER

User  
Friendly

Ergonomic

Efficient

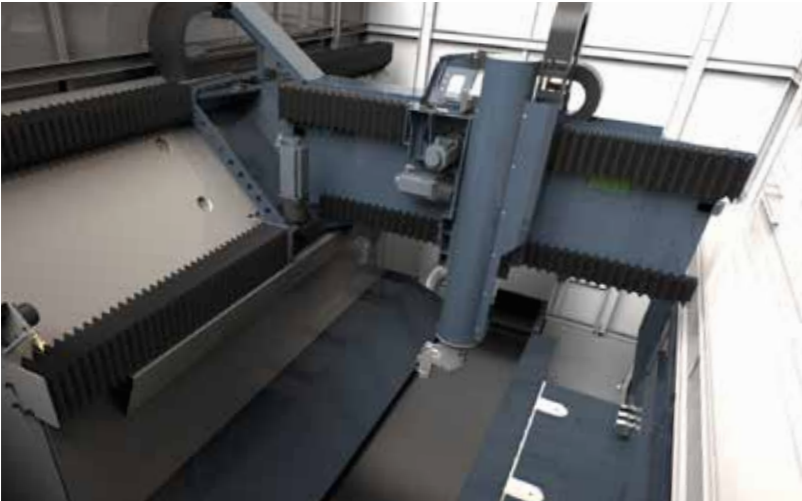
Fast

Reliable  
Brand

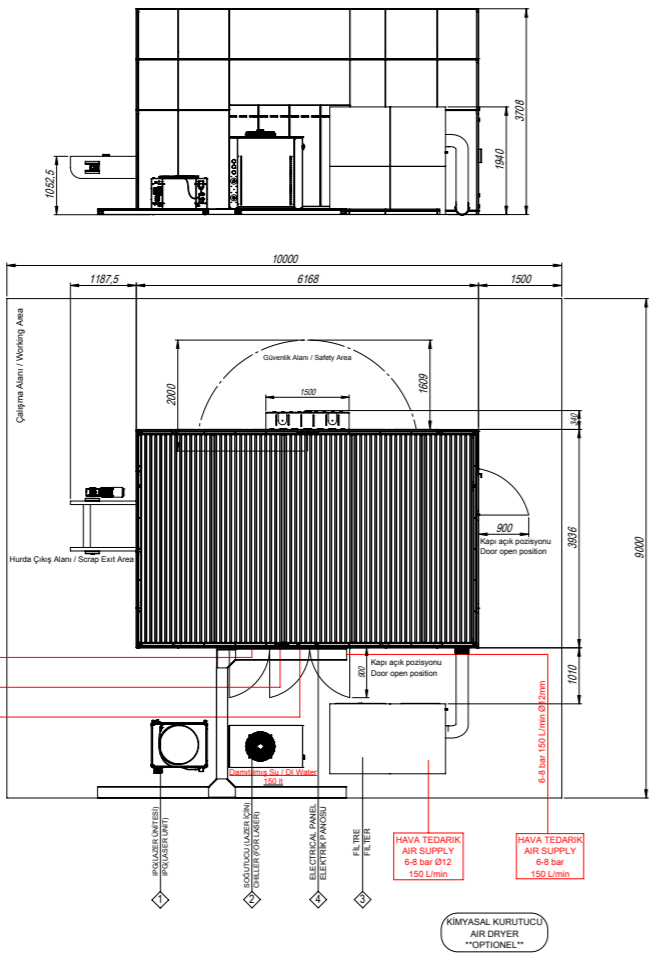


# THE 5 AXIS FIBER LASER SYSTEM FOR AUTOMOTIVE AND AEROSPACE INDUSTRY

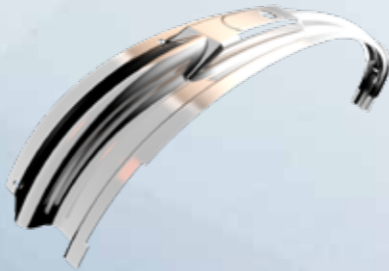
DURMA 5 axis fiber laser system will be your best partner for automotive and any other high-sense and 3D complex part production. +25% increased processing space due to same concept machines. For gratify cutting performance, strong machine frame and rotary table provide best quality.



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



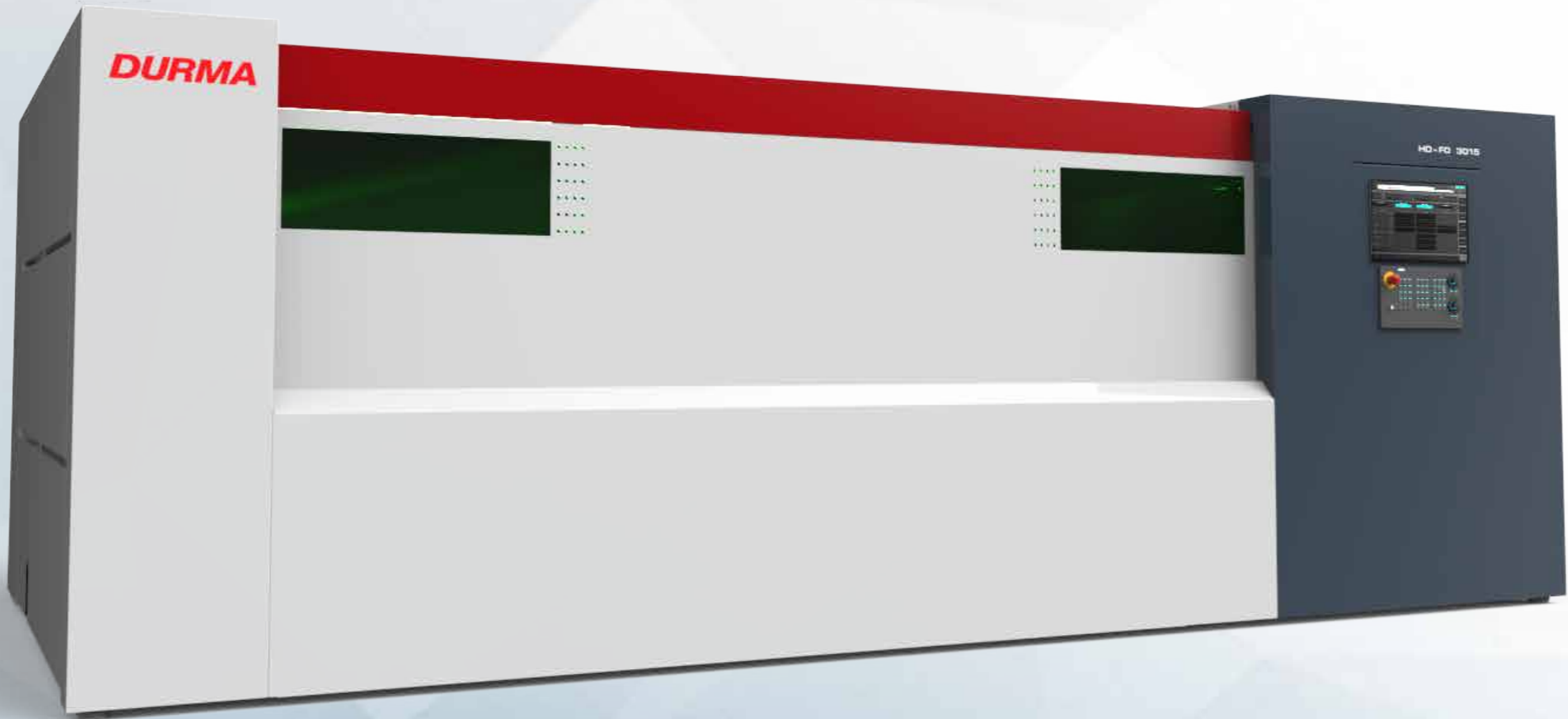
HD-FA TECHNICAL SPECIFICATIONS			
X axis stroke	3.000 mm		
Y axis stroke	1.500 mm		
Z axis stroke	650 mm		
B axis	±135°		
C axis	±360°xn		
Max. Synchronous Speed	173 m/dk.		
Max. Synchronous Acceleration	1,73 G		
Positional Accuracy	±0.08 mm		
Repeatability	±0.08 mm		
MACHINE SIZES			
Machine Size	6168 mm x 3936 mm    h= 3700 mm		
Working Area	9.000 mm x 10.000 mm (Secure area)		
Rotary Table's Door Length	4.000 mm		
Machine Weight	16.000 kg		
CUTTING THICKNESS			
Power	2 kW	3 kW	4 kW
Mild Steel (mm)	12	16	20
Stainless (mm)	6	8	10
Aluminum (AlMg3) (Mmm)	6	8	12
Brass (mm)	6	8	10
Copper (mm)	3	5	6
CUTTING HEAD			
Type	3D		
Focus	Automatic		
CONTROL UNIT			
CNC	SIEMENS SINUMERIK 840D SL		
Screen	15" Touch panel		
FILTER			
Capacity	2.500 m³/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		



# HD-FO

FIBER LASER

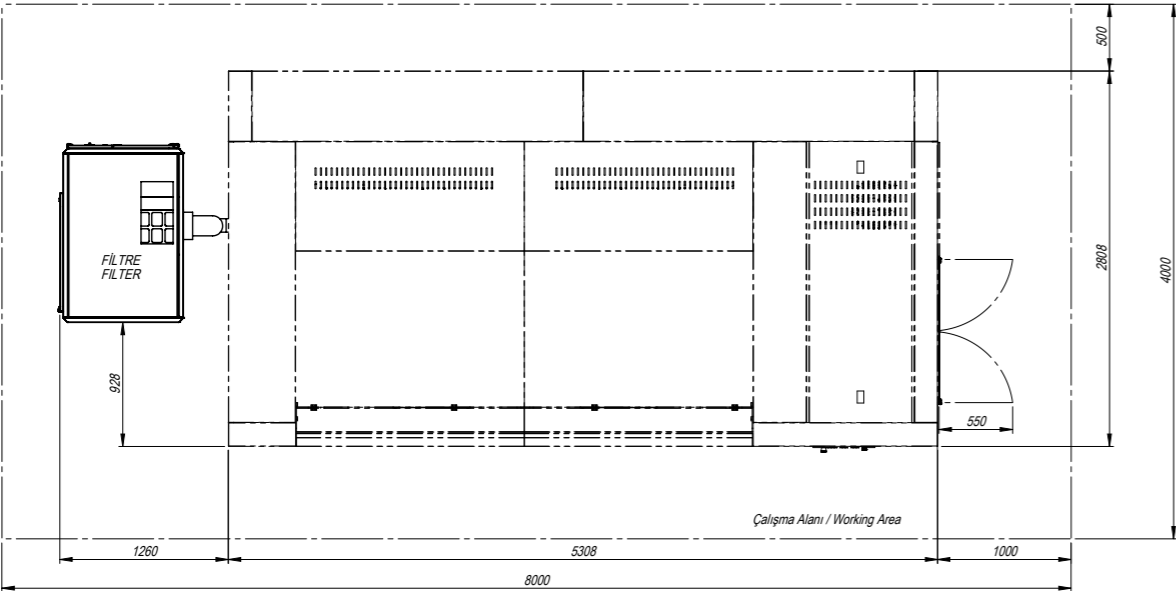
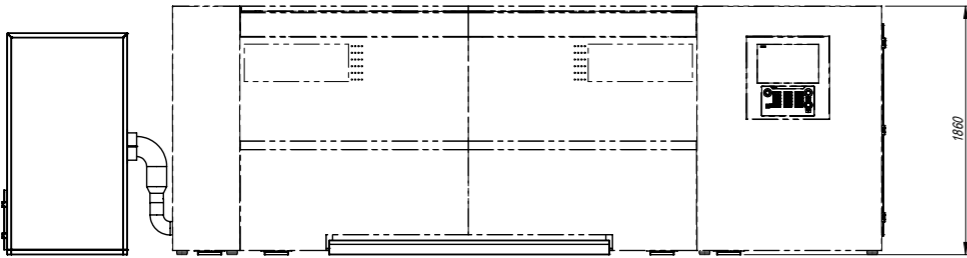
- User Friendly
- Ergonomic
- Efficient
- Fast
- Reliable Brand



# Specifically designed that care about floor space

HD-FO Fiber Lasers make differences with speed, high quality components, efficiency and industrial design. Loading and Unloading requires less effort in situations where shuttle table is not necessary.

- User Friendly
- Low Operating Costs
- Fast Movable Upper Cover
- Easy Access To Cutting Area
- Compact Bridge Design
- Easy Transport



## HD-FO TECHNICAL SPECIFICATIONS

Max. sheet size	3.048 x 1.524 mm
Max. sheet weight	200 kg/m²
Z axis stroke	125 mm
Max. Synchronous speed (X-Y)	141 m/dk.
Max. Acceleration (X-Y)	14 m/s²
Positional Accuracy	±0.05 mm
Repeatability	±0.05 mm

## MACHINE SIZES

Machine Size	5308mm x 2810mm h= 1860mm 6582mm (with filter unit)
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## CUTTING THICKNESS

Power	1 kW	2 kW
Mild Steel (mm)	8	12
Stainless Steel (mm)	4	6
Aluminum (AlMg3) (mm)	4	6
Brass (mm)	4	6
Copper (mm)	2	3

## CUTTING HEAD

Focus Distance	125 mm
Focus	Automatic /Manual

## CONTROL UNIT

CNC	SIEMENS SINUMERIK 840D SL
Screen	19" Touch panel

# SPECIAL APPLICATIONS



Industrial Machines



Steel Service Center



Damper Trailer



Lighting and Energy Poles

# 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



Software



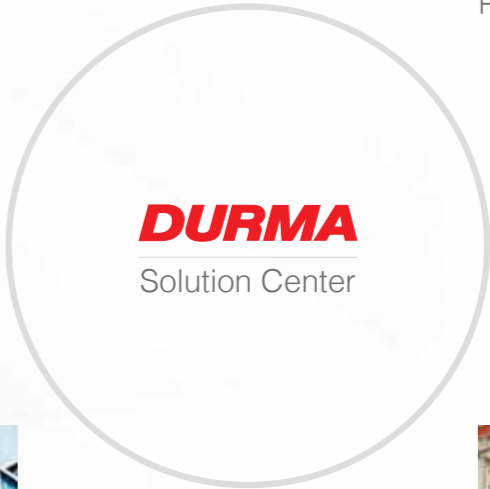
Training



Service Agreements



Flexible Solution



**DURMA**



PANEL BENDER



PUNCH



PRESS BRAKE



VARIABLE RAKE SHEAR



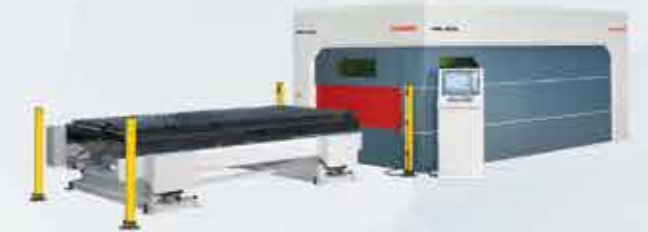
PLASMA



L ANGLE PROCESSING CENTER



TUBE LASER CUTTING



FIBER LASER



IRON WORKER



POWER OPERATED SHEAR



ROLL BENDING



PROFILE BENDING



CORNER NOTCHER

**DURMA**

# DURMA

Today, Tomorrow, Forever...

## FIBER LASER Technologies

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