

The Winning Force

***DURMA***

# HD-TC SERIES

## Laser Tube Cutting



- 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.



	<b>1</b> High technology, modern production lines	
<b>2</b> Top quality components		<b>3</b> High quality machines designed in R&D Centre

# HD-TC

## LASER TUBE CUTTING

Laser tube cutting is specifically designed for businesses that care about high quality tube ( max Diameter 170 mm ) and profile ( max Square 120 mm and Rectangle 100 x 150 mm ) cutting. Using a laser cutting power of up to 3 kW, pipes and profile materials of thicknesses from 0.8 mm to 8 mm are cut. Full automatic Loading and Unloading requires less effort and time save for the operator.

The moving axes operate via maintenance-free, dynamic and high-performance AC servo motors. Suction system is used to vacuum the dust generated during laser cutting to the dust collection filter. Automatic pipe and profile loading system is designed in accordance with the principle of reducing the material preparation time and automatic pipe and profile unloading system to collect the cut materials without stopping the machine. Thanks to the compact layout of the machine, all pipe and profile loading / cutting / unloading actions are performed with less space and less processing.

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

**User  
Friendly**

**Ergonomic**

**Efficient**

**Fast**

**Reliable  
Brand**



## 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 pipe cutting applications.

The database includes the cutting parameters for standard tubes and profiles (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.



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

Axes motions achieved by rack and pinion design. There are low backlash gears 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 (10 m/s<sup>2</sup>), speed (100 m/min.) and accuracy (0,05 mm) values.



Resonator	1.0 kW	2.0 kW	3.0 kW
Product designation	YLS-1000	YLS-2000	YLS-3000
Available operation modes	CW, QCW, SM		
Polarization	Random		
Available output power	100-1000 w	200-2000 w	300-3000 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)
Mild Steel	4 mm	8 mm	10 mm
Stainless Steel	2 mm	4 mm	6 mm
Aluminium (AlMg3)	3 mm	6 mm	8 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

## CAD/CAM Software

Lantek - Metalix

- The laser power is controlled as a function of the path, velocity, time and travel.
- Close-loop working.
- Optionel functions.
- 6 MB expanded user memory, external memory option.
- 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

## Chiller

The cooler is a device that provides cooling of the laser power source, optics in the cutting head. It has a water based cooling system.

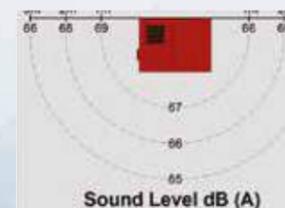
Thanks to the dual circuit system, cooling water is sent at different temperatures, which are needed for optics and laser power supply.



## Filter

It provides a healthy working environment by absorbing smoke, dust and small particles formed during cutting. The vibrating dust collection filter is fully automatic. It runs automatically when cutting is started.

Filter cartridges are a compact unit with integrated fan motor assembly and jet-pulse (back blow) cleaning system.



Low noise level



Easy access to filters and dust bins

# LIGHTCUTTER 2.0 MOTORIZED

## THE NEW GENERATION OF EFFICIENT CUTTING HEADS

Whether for flatbed or bevel cutting systems : The cutting head LightCutter 2.0 is the perfect solution for efficient and cost-effective laser cutting .The new generation of our Light Cutter family is designed for cutting applications in the medium power range up to 4 kW and is characterized by a high cutting quality for all metals – especially mild steel, stainless steel and aluminum.

Thanks to an automated motor – driven adjustment of the axial focus position, the cutting head Works precise and stable at all times, even at accelerations of up to 3g. The display of the set focus position on the front of the cutting head makes commissioning much easier. The LightCutter 2.0 Motorized covers a large focus position range of 23 mm.

The flexible cutting head is available in 2D and 3D versions: While the 2D version is suitable for integration in flatbed and simple tube and profile cutting systems, the 3D version is ideal for use in professional tube and profile cutting systems as well as in demanding free-form applications. The narrow contour of the 3D cutting head's lower section enables even complex cuts on tubes, profiles and free-form parts with an inclination angle of up to 45 degrees.

## EFFICIENT & STABLE

- Excellent value for Money
- Very high cutting speed and optimal edge quality
- Sealed beam path
- Temperature and plasma – resistant distance control

## USER FRIENDLY

- Simple setting of focal position in lateral / vertical direction
- Rapid changing of protective glass cartridge (no tools required)
- Additional protective glass in collimation module
- Slim and sturdy design

## FLEXIBLE

- Customized configurations for all applications
- Straight or angled versions
- Different fiber plugs (QBH, D, etc.)
- Motorized or manual focus adjustment



## Flatbed Cutting (2D)



## applications

## fiber socket

## laser power

## Bevel Cutting (3D)



TECHNICAL DATA				
75 mm 100 mm	100 mm	Focal lengths (collimation)	100 mm	100 mm
100 mm 125 mm 150 mm 200 mm	125 mm 150 mm 200 mm	Focal lengths	150 mm	150 mm
0.16 - FC75, 0.12 - FC100	0.12 - FC100	NAmax	0.12 - FC100	0.12 - FC100
75 X 69 mm	130 x 69 mm	Dimensions	75 X 69 mm	130 x 69 mm
from 3.3 kg	from 4.0 kg	Weight	from 3.3 kg	from 4.0 kg
+3 mm / -5 mm	+11 mm / -8 mm	Vertical adjustment range	+3 mm / -5 mm	+11 mm / -8 mm
25 bar	25 bar	Max. cutting gas pressure	25 bar	25 bar

### Auto Loading System

Profiles taken from bundle one by one to the chain, system moves the profile up and grippers clamps the profile and move it to the chuck axis and chuck holds the profile.



### Measuring Profile Length

With servo motor on it measures profile length and send the data to the system.



### Tube Transfer System

Tube transfer system ensures that tubes are taken to cutting line with right position.



### Hydraulic Profile Holder

It can hold variety of profiles by 4 clamps working independently as 2+2. Adjust hydraulic pressure automatically according to profile material thickness.



### Chain Transfer System

Chain transfer system is used with the principle of loading stainless steel aluminium brass etc. tubes without scratching.



### Z Axis

Z axis allows faster cutting process with its high dynamic performance. Laser head with automatic focusing eliminates time loss in the preparation phase before cutting.



### Automatic Loading Gripper System

Tubes which come from loading unit are transferred to cutting zone and centered automatically.



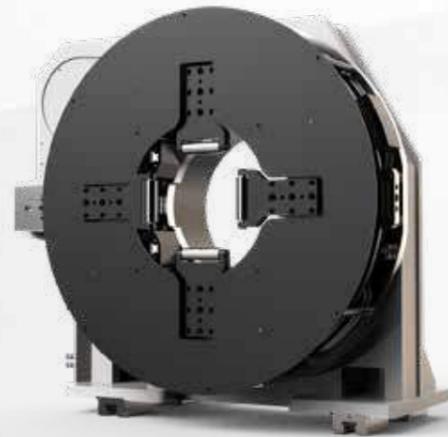
### Profile Support system

4 pieces support arms with servo motors obtain the loading to be the same level with hydraulic chuck. As hydraulic chuck move forward the profile at X1 axis, supports arms close down one by one to open the front of hydraulic chuck.



### Centering Chuck Tube

To get cutting precision, centers the profile as close as possible to cutting head. Driver turn synchronized with chuck.  
4 independent clamps come to position automatically before profile comes.



### Spatter Protection System

The Spatter Protection system is used to prevent the slag coming out at the cutting edge from sticking to the opposite surface of the profile. The burrs adhering to the inner surface of the profile disrupt both the cutting quality and cause some cleaning of the inner surface of the work pieces. All these problems can be prevented by Spatter Protection system.



### Tube Centering Mechanism

Tubes centering mechanism which is on the first support takes tubes to the chuck axis.



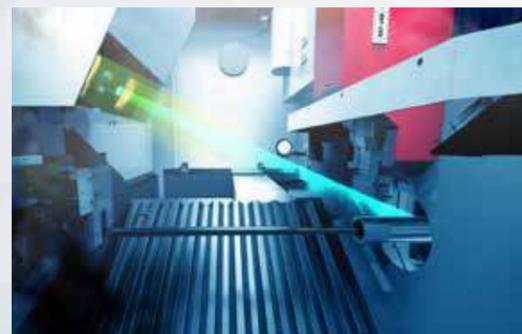
### Automatic Unloading System

Unloading unit support mechanism height controlled by servo motor and keep supporting profile during cutting.

- 4 m and 6 m options.
- Front and back side options.
- Unloading table can remove the cut tubes by taking out of cabin with its in-out movement.

### Seam Detection Sensor

The Seam Detection sensor attached to the HDTC machines detects the stitched surface when the pipe is loaded on the machine and provides the ability to rotate the operator's cut holes at any angle.



### Centering System with Laser Sensors

With the newly added laser sensor centering option added to the HDTC machines, it is possible to control the size and irregular structure of the profile during cutting or before cutting with the help of sensors to ensure that the internal contours to be cut are at the right point.



For smaller parts than 800 mm, unloading table stays in outside and another small unloading system unloads the parts.



For longer parts than 800 mm, unloading table enters the cabin and unloads the parts.



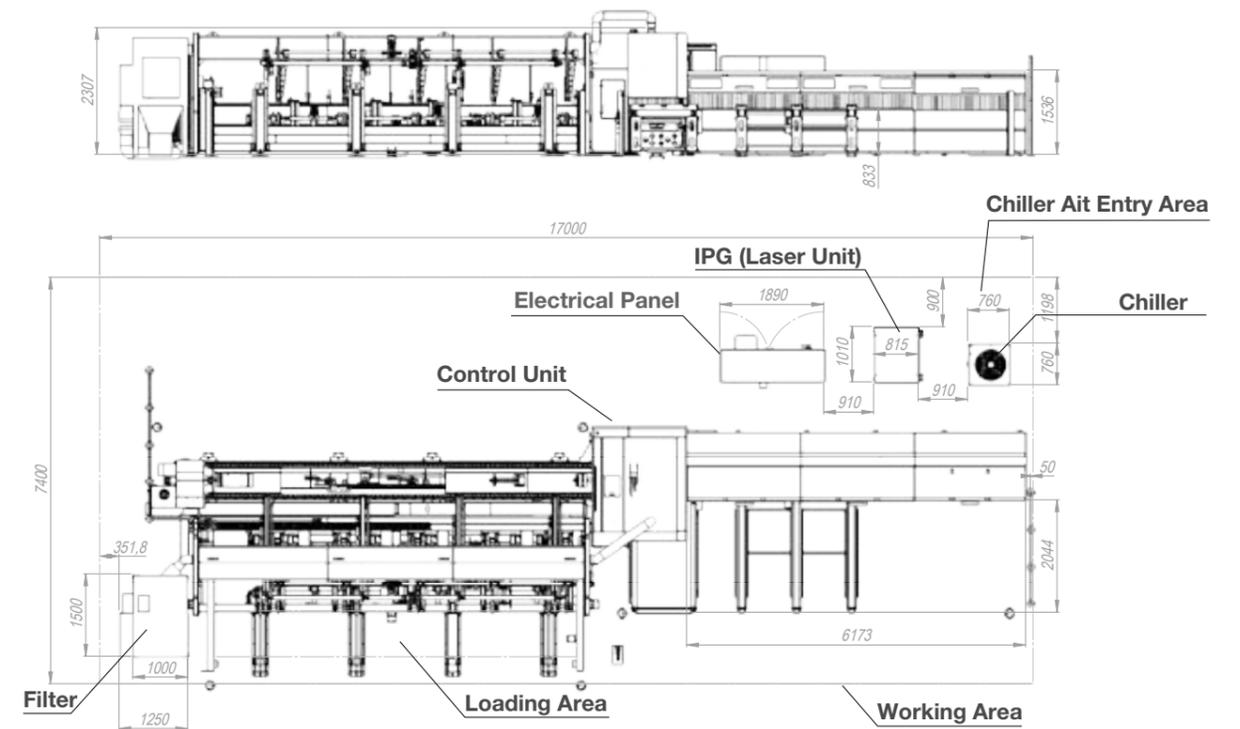
Tube-Cutting Technical Specifications	
Max Diameter (mm)	Ø170
Max Square Tube Dimension(mm)	120x120
Max Rectangular Tube Dimension (mm)	150x100
Min. Diameter (mm)	Ø20 (Ø12 Option)
Max. Tube Length (mm)	6500
Min. Tube Length (for automatic loading)	3000
Max. Tube Weight (kg/m)	37,5
Max. Material Thickness (mm) (for 2 kW )	8
Min. Material Thickness(mm)	0,8
Automatic Loading	Yes
Automatic Unloading	Yes
Cutting Head	2D (Option 3D)
Amount of Chuck	1
Centering Chuck	Yes
Last Cut Tube Length (mm)	185
Velocity of Driver Chuck (m/dk.)	90
Acceleration of Driver Chuck (m/s <sup>2</sup> )	10
Accuracy (mm)	±0,20
Positioning Accuracy (mm)	±0,05
Tube Types	Pipe, Square, Rectangular, Eliptic H, C, U, L



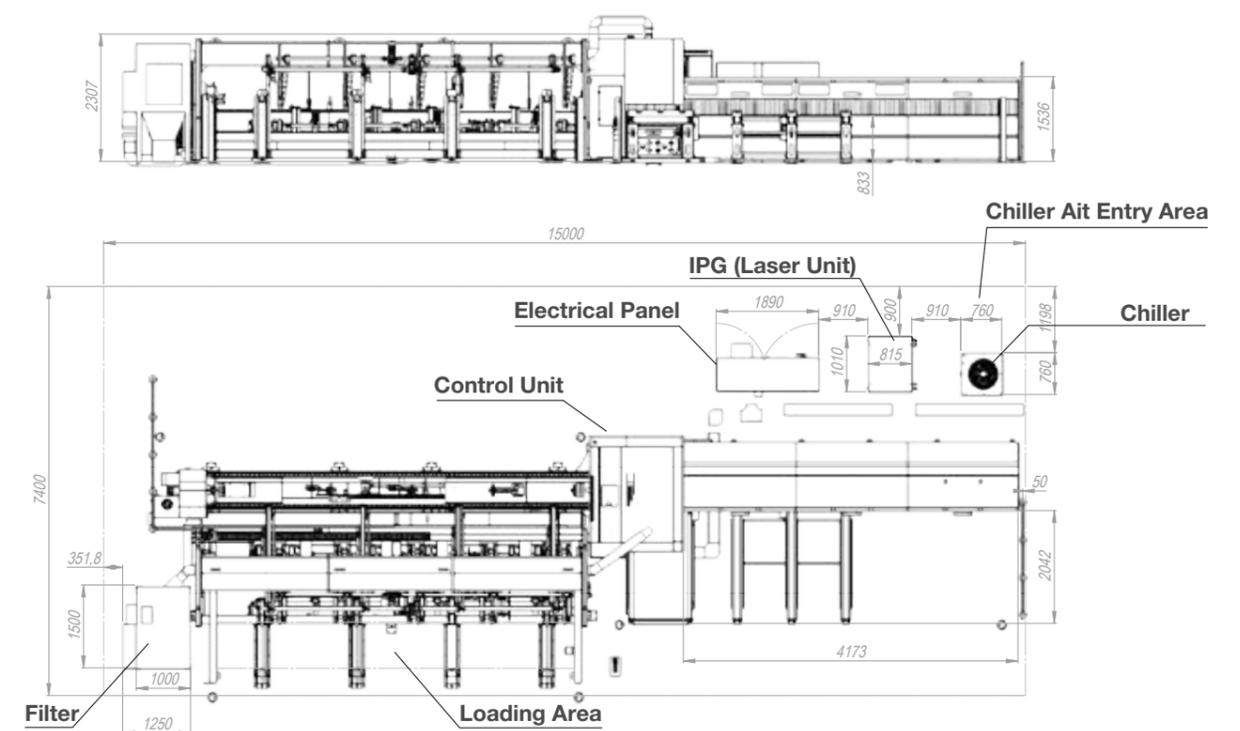
Tubes up to 6 m of length are removed by automatic unloading system with conveyor.



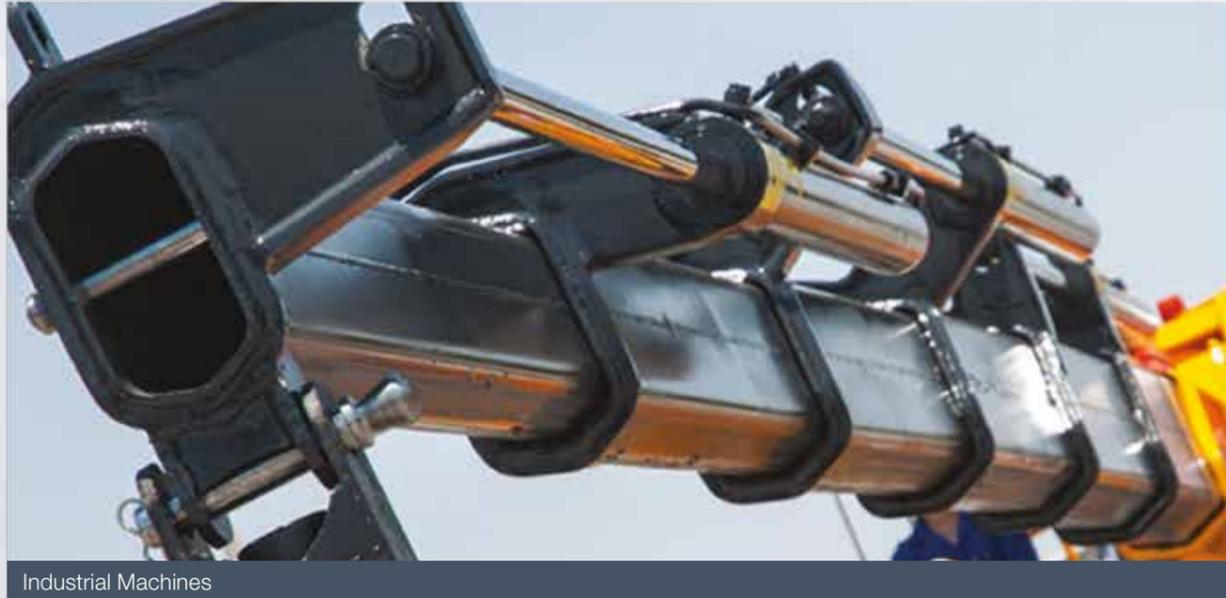
Layout (6 m Unloading System With Conveyor)



Layout(4 m Unloading System)



# 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



Service Agreements



Software



Training



Flexible Solution

**DURMA**

**DURMA**



PANEL BENDER



PUNCH



PRESS BRAKE



VARIABLE RAKE SHEAR



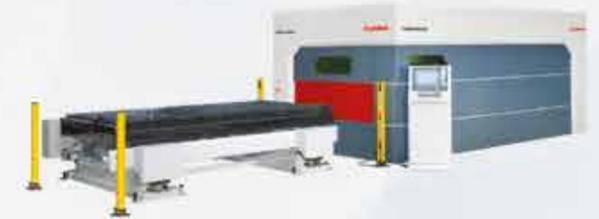
PLASMA



L ANGLE PROCESSING CENTER



TUBE LASER CUTTING



FIBER LASER



IRON WORKER



POWER OPERATED SHEAR



ROLL BENDING



PROFILE BENDING



CORNER NOTCHER

# DURMA

Today, Tomorrow and Forever With You...

**HD-TC** SERIES  
Laser Tube Cutting

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