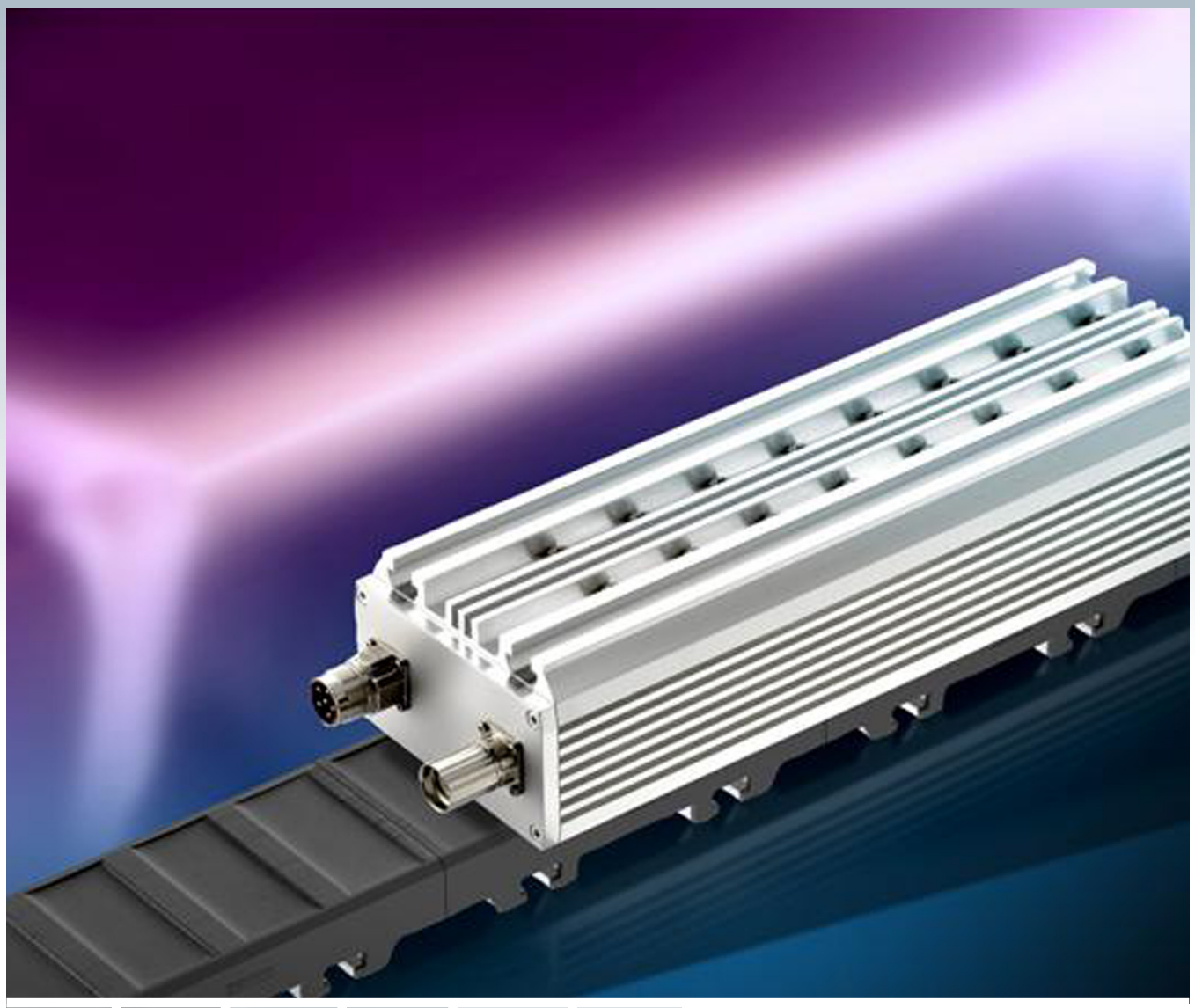

HD SERIES LASERS

BETTER PARTS >>> BETTER PROFITS

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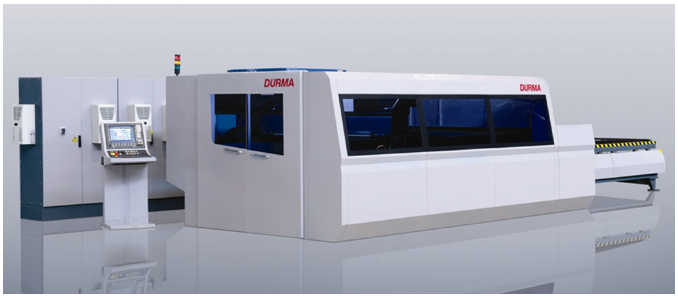
HD SERIES LASERS

Durma, with its experience and wide range of sheet metal working machines, offers also the best solutions for laser cutting processes. A dedicated Laser plant focuses on laser cutting machines for several years and garners high references in the industry. To fulfill customer expectations from a Laser, from entry level job shops to serial cutting operations for wide range of material processing, Durma has more than a single solution to offer the best solution for each customer's needs.

HD SERIES

Flying optics laser cutting machines works on constant workpiece with servo rack and pinion or linear motion systems for fast, accurate, high accelerating cutting results with Slab or Tribun laser source selection.



HD-F SERIES

Working with fiber laser source offers very high quality cutting and performance on a wide variety of material types with low energy consumption.

HD-F II SMART SERIES

Working with fiber laser source offers very high quality cutting and performance on a wide variety of material types with low energy consumption.

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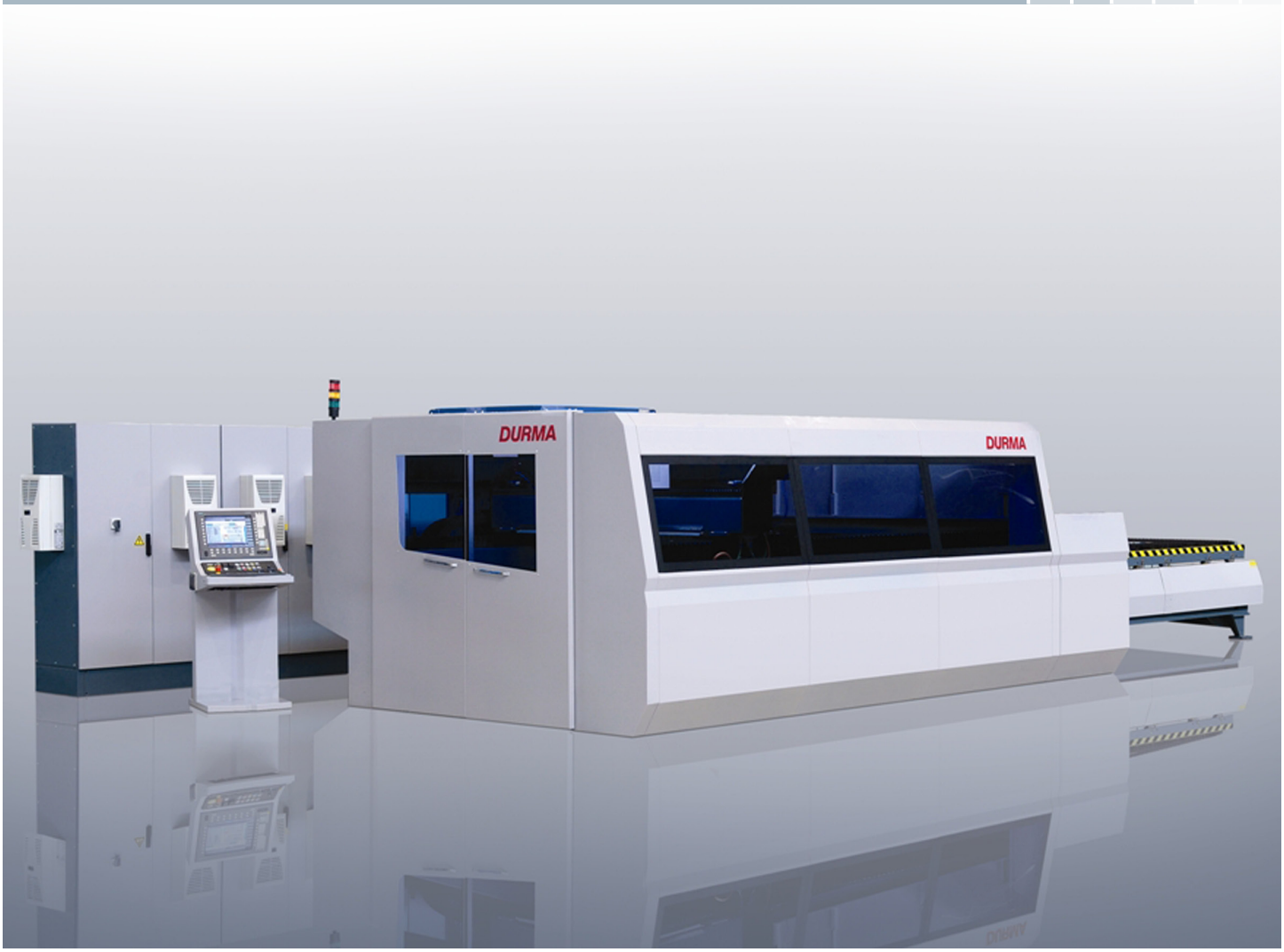
HD SERIES LASERS



STANDARD EQUIPMENT

- Siemens 840D CNC Controller
- CadCam Software
- Laser source (Resonator)
- CE safety equipment
- High pressure cutting option (25 Bar)
- Central lubrication
- Tropical Level Cooling unit
- Scrap collector
- Shuttle table (Automatic pallet changer)
- Filter
- Special laser cutting options
- Sharp corner overheat protection (Speed-Power modulation)
- Fast follow property of the head for high precision
- Simple user interface parameter page (Power-speed-pressure combination)
- Sheet identification and detection system (Ref. Point)
- Two Cutting Heads: 5” for 1-3kw, 7.5” for 4kw
- Exchangeable Lens Holder System for Different Focal lengths (1,5’’ lens)
- Under Table Small Part & Scrap Conveyor

OPTIONAL EQUIPMENT

- Dust Collection Filtration
- 3-4-5-7 kw PRC Resonator
- Transverse Mounted Scrap Conveyor
- Automation
- Siemens Linear Motion System

CAPACITIES

- 5’ x 10’
- 6’6” x 13’
- 6’6” x 20’
- 3, 4, 5 & 6 kw

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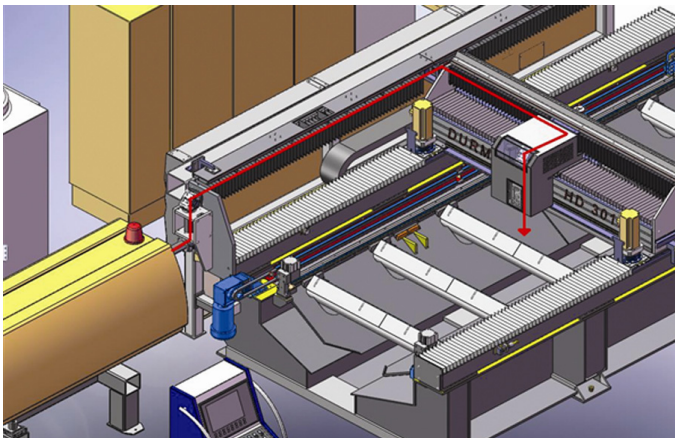
LASER PRODUCTION FACILITY

A 1,350,000 square foot facility was constructed in 2008 to produce lasers, turret presses, and plasma cutting machines.

FLYING OPTICS CONCEPT

In this concept, the raw sheet rests on the cutting table and the laser head moves in both X and Y direction. The frame and the gantry are welded and then stress-relieved to eliminate deviations in the overall structure that can occur during the welding process. All moving axis are driven by dynamic low inertia and high performance and maintainence free AC servo motors. Precise helical rack-pinion gears guarantee silent and non-vibrating movement. This manufacturing process along with a direct mounted encoder measuring system generates high speed cutting without a loss of precision or cut quality.



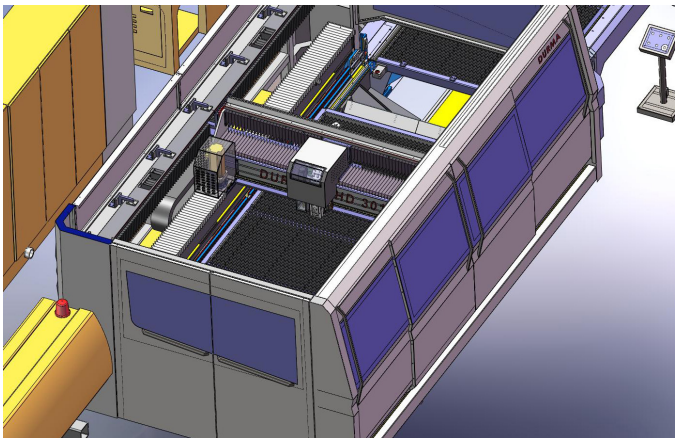
FRAME MOUNTED PRC LASER SOURCE (LINEAR SERIES ONLY)

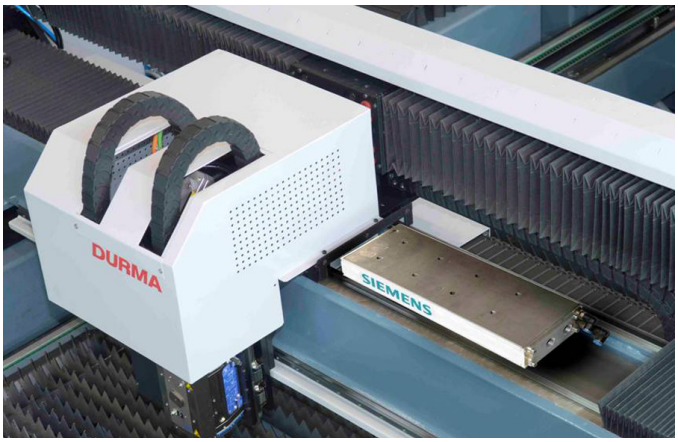
By frame mounting the resonator the system becomes more stable, compact. The beam path is also reduced in this concept. PRC FAF (Fast Axial Flow) lasers are well known, reliable, easy to operate, long life and less service required laser source in the market for a long time. PRC has delivered over 1,500 resonators in the North American market.

STS Series Lasers are engineered to operate 24 hours a day, seven days a week for months at a time, making them the perfect choice for demanding three shift applications. Other properties include:

- Patented, oil and maintenance free, turbo flow compressor
- Long lens optic life
- Microprocessor based controls with built in diagnostic routines
- Unmatched pulsing performance
- Reliable and efficient DC excitation
- Continuous operation capability

Setting industry benchmarks for power and performance, the STS series has earned worldwide recognition as the “workhorse of the laser job shops.” With the lowest operating cost on the market and all technology updates, the STS series guarantees to exceed your production expectations. The STS resonator uses superior pulsing characteristics with four distinct pulse modes. Pulsing capabilities allow for fast rise time and up to 2,5x peak power enhancement for quicker, more consistent pierce times when cutting.





SIEMENS DIRECT DRIVE RACK & PINION (STANDARD)

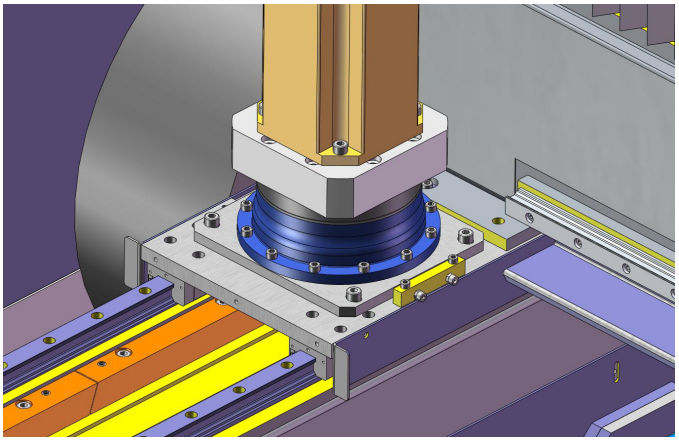
The stable construction concept allows allows extremely high acceleration values. The axes are driven by dynamic low moment of inertia and high performance Siemens AC servo motors, that require no maintenance.

There are no intermediate load transmitting elements between the motor and the pinion, which otherwise could cause loss of precision. High precison two-way, hardened helical racks with low running clearance make it possible to acheive very high acceleration and speeds of 3970 ipm.

SIEMENS LINEAR MOTION SYSTEM (OPTIONAL)

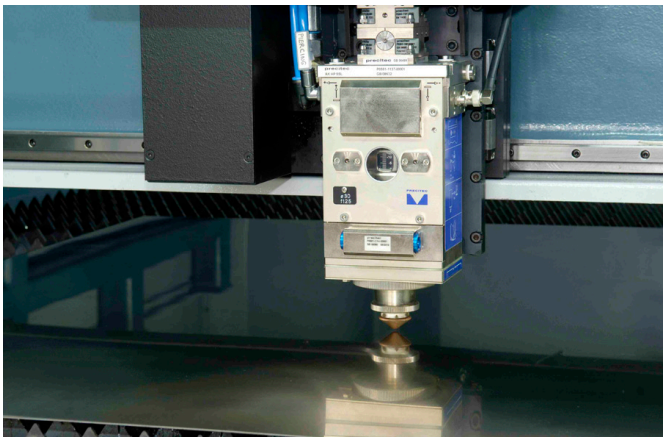
A unique design patented by Siemens, the water cooled, IP23-rated 1FN3 allocates the winding and magnets at the primary part, while the track the motor is traveling on, consists of simple steel and does not carry the magnets. The advantages of this design are:

- Lower costs for long traveling distances
- No magnetic attraction at the track
- Faster acceleration, deceleration and speeds
- Better positioning accuracy



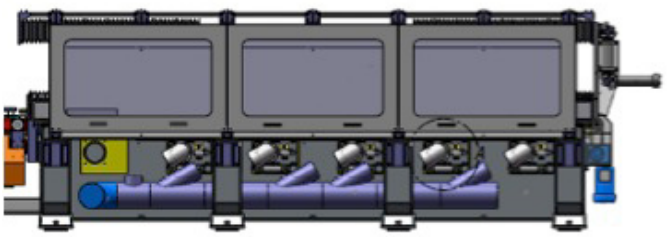
EFFICIENT BEAM PATH

The laser beam is completely encapsulated beginning at its exit from the resonator window to the laser head. Slight overpressure in the beam guidance prevents the penetration of dirt particles into the system in order to keep the mirrors clean. The angular mirrors are cooled by water. This ensures consistent beam quality and longer serviceable life for the lenses used in the beam guidance system. The mirrors are selected with a property of transferring the beam power to the cutting head, with minimum energy loss. The beam guide bellows are made from inflammable material.



INTELLIGENT AUTO FOCUS CAPACITANCE CUTTING HEAD

- Auto Focus
- Auto adjustment of the distance between the cutting
- head and the material
- Water cooled and calibrated at 16 different points
- Automatic setting of focal point
- Quick change cartridge stye lenses
- Piercing sensor detects completion of pierce and starts cutting immediately
- Fault sensors for; sheet crash, excessive temperature at head sensor.
- High pressure cutting stainless & aluminum
- ControlCut: Raw sheet is measured for deviations in terms of sheet sizes, corners and angular positioning on the table.

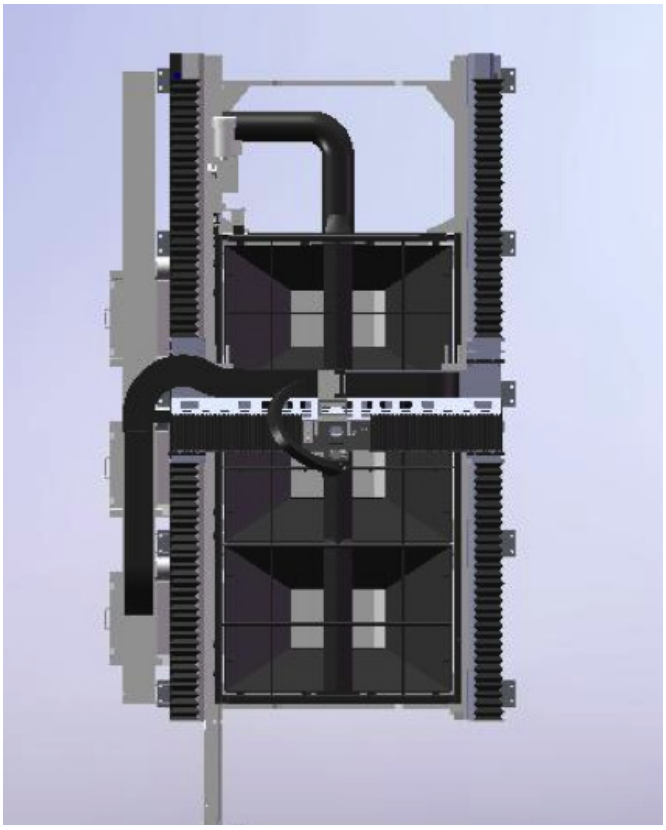


FUME EXTRACTION SYSTEM

Efficient fume extraction by means of shutters which are controlled in accordance with cutting head position results in more efficient use of the filtration system. Therefore a smaller lower cost system can be used.

The system consists of six fume extraction zones (as seen below). The improved suction flow design results in:

- Smaller air flow from the dust collector
- Low electrical consumption
- Smoke and dust free machining area



CHILLER

Used to cool the laser source, mirrors and the cutting head. For quaity cutting it is necessary that the tempera- ture of all the equipment used in beam delivery is very stable. Cooling also directly affects and increases the life of consumable parts. Proper cooling allows the mirrors, lens and nozzles to be used longer.

- Limitation of power consumption by the use of energy saving techniques.
- Closed circuit system no possibility of calcium deposits.
- Flexible adjustment of water temperature and pressure.
- Reduction of water costs to zero.
- Infinitely variable additional speed control.
- Vibration free, low noise, high efficiency scroll compressor.
- Silent running condenser and casing.
- Liquid cooled, seal free, non wearing pumps.

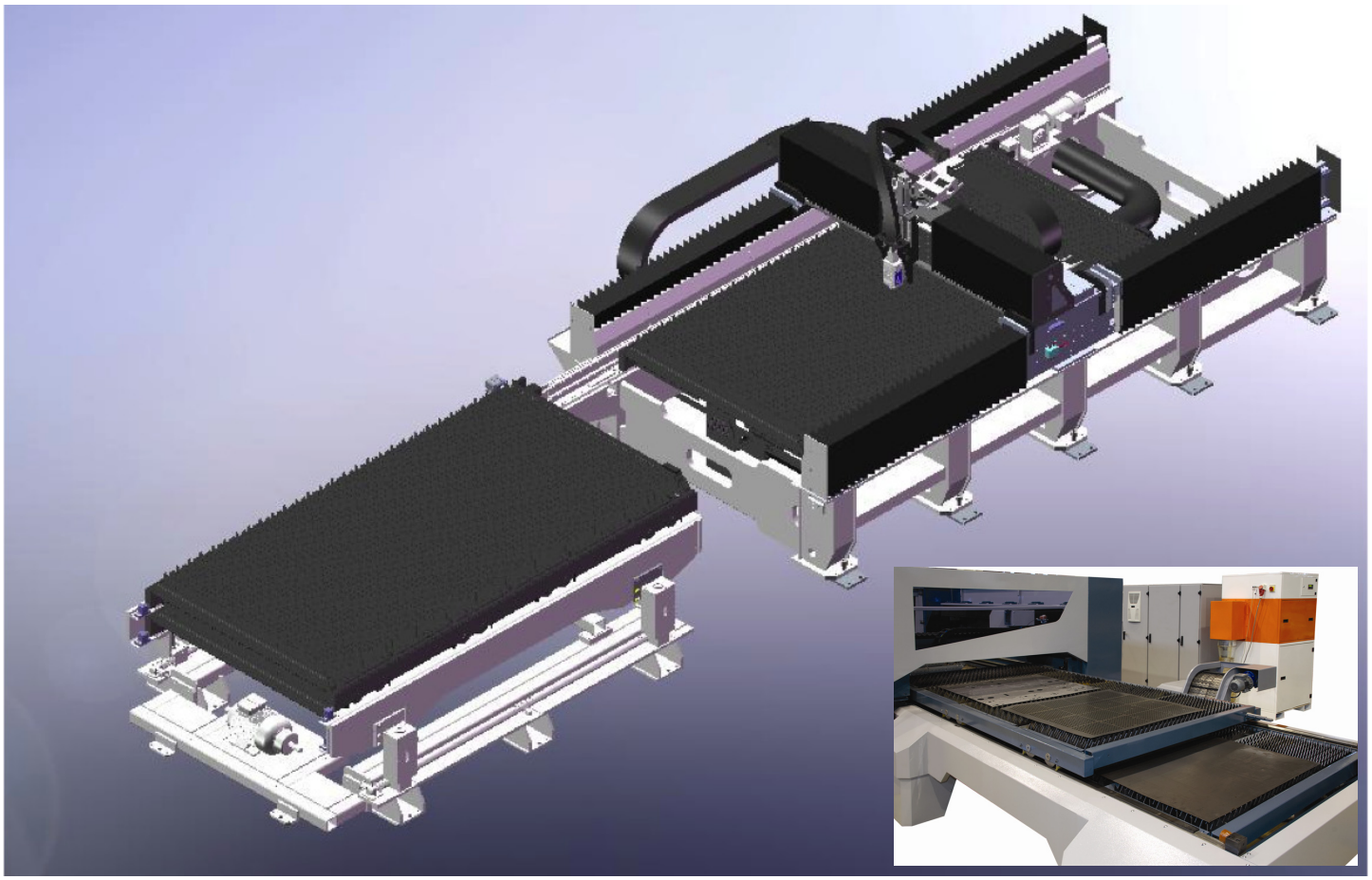
STRESS RELIEVED

Both the mainframe and gantry are are stress relieved after the welding process to eliminate deviations in metal eometry that can occur during the welding process.

SAFETY & PROTECTIVE MEASURES

The laser cutting system, machine and CNC controller are equipped with safety devices. These switches and sensors, on one hand, protect the operator from hazards and on the other hand counteract damage to the system. For example incorrect path measurement programming or collision between the workpiece and the machine. A diagnosis system keeps the operator informed about the current status of the system and allows him to intervene in the dialogue to make corrections that remedy these faults. The steps required for the solution appear as plain text on the controller screen.

The working area of the machine is guarded light guards. These guards can be interupted to gain free access for; insert a new sheet,lens and nozzle replacement, general maintenance and for other special purposes. During the laser cutting operation the safety devices are electromagnetically locked, in order to prevent an accidental triggering of the machine's EMERGENCY STOP function. The machine's safety equipment corresponds to the CE guidelines currently in force. The laser head is guarded along the Y axis by flexiglass material which allows clear vision of the cutting area.



SHUTTLE TABLE (STANDARD)

Integrated shuttle tables are incorporated to increase productivity and minimize the material handling times. This shuttle system allows loading of new sheets or the unloading of finished parts, without affecting the production cutting time of the system.

The electric powered shuttle table is fast, robust and easy to adjust. With no hydraulics, the table requires little maintenance and consumes low power. It is easily accessible from four sides, resulting in ergonomic manual loading and unloading.

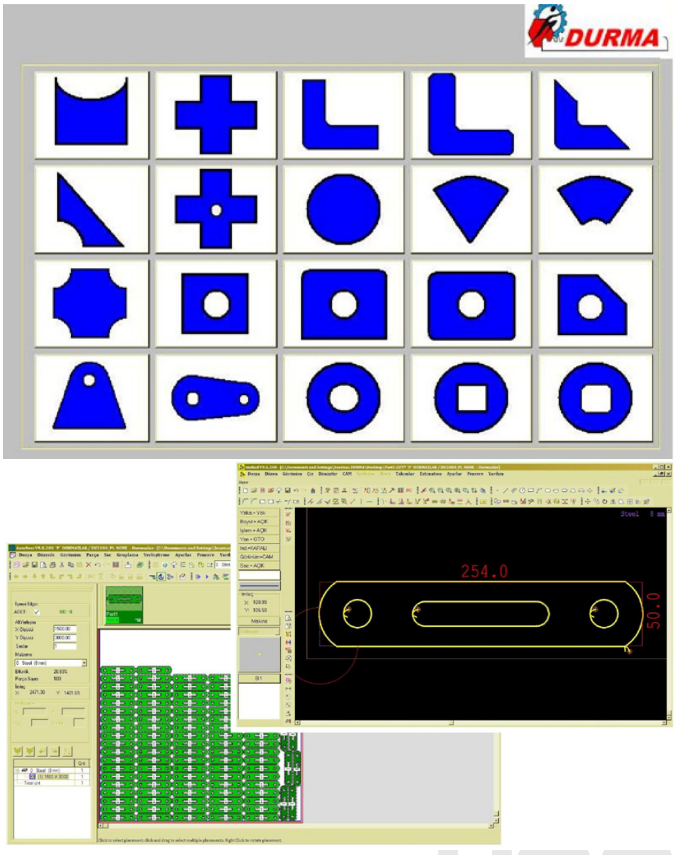
SIEMENS 840D SERIES CONTROL

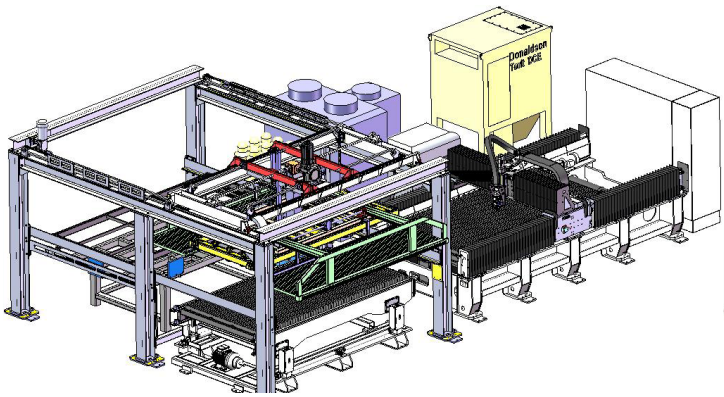
The Siemens 840D control is an open architecture design allowing for the integration of all types of sheet metal processes. Several additional features are:

CADCAM NESTING SOFTWARE

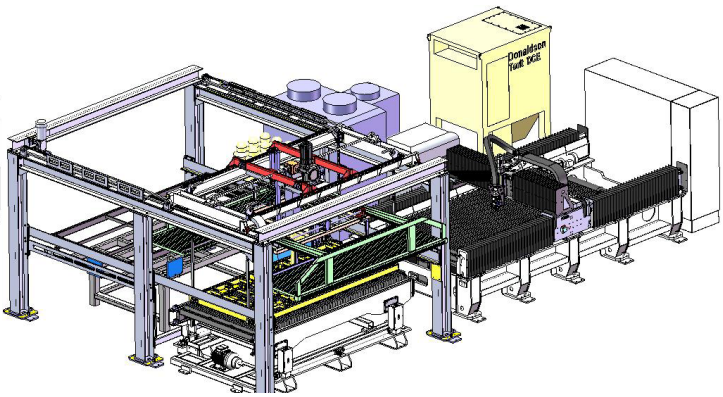
Nesting software is available and includes; parametric macro shapes, direct CAD–DXF input, true automatic nesting and re-nesting, remnant tracking bridging and chain, to reduce multiple pierces, real time statistics, remote control. A user-friendly design can be used effectively even with inexperience operators. Parameter adjustments, programming, and programs are easily stored and ready to be used. The memory capacity is virtually unlimited and popular material types and thicknesses, as well as cutting methods, are loaded by default. Advanced technology combines Design, Nest- ing, efficient NC Generation, Graphic Simulation, and detailed Data Reports. Laser Cutting Technology supports:

- Part Library for Standard Shapes
- Automatic Cutting with Corner Treatment
- Contour Check and Correction
- Beam Width definition and Auto Compensation
- Corner Loops and Corner Slow Down
- Open Contour Cutting
- Rapid Tool-Path Crash Avoidance
- Tool-Path Optimization with Auto Entry Point
- Marking Before Cutting options
- True-Type Font cutting and engraving
- Common Line cutting
- Automatic Cutting Direction (CW/CCW)





SEQUENCE 1



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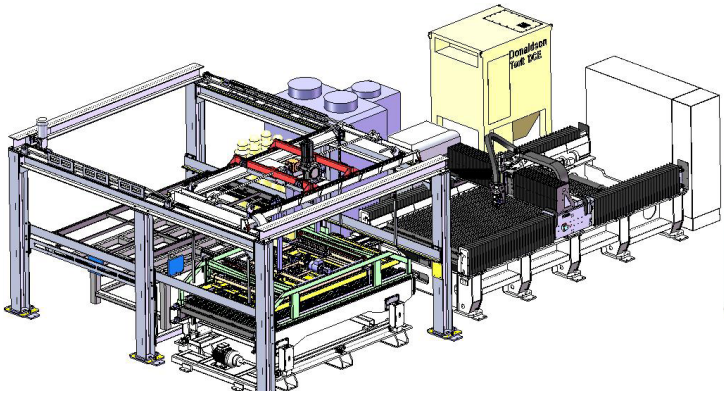

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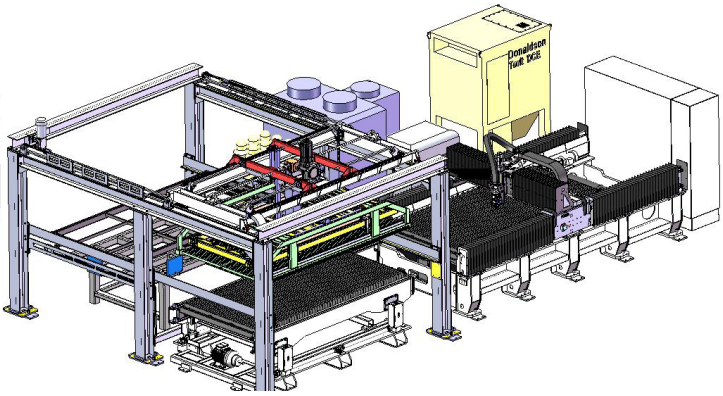

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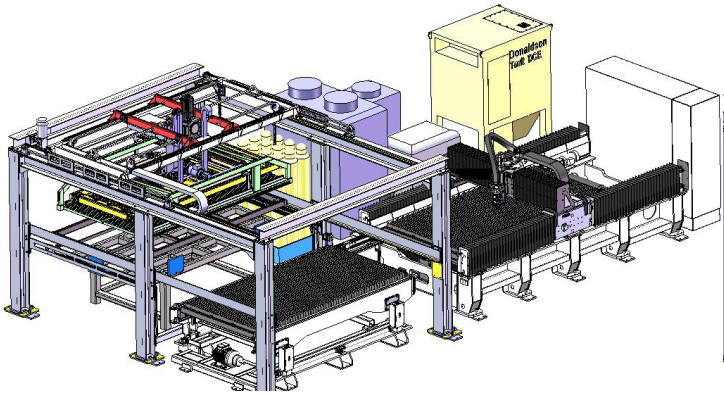
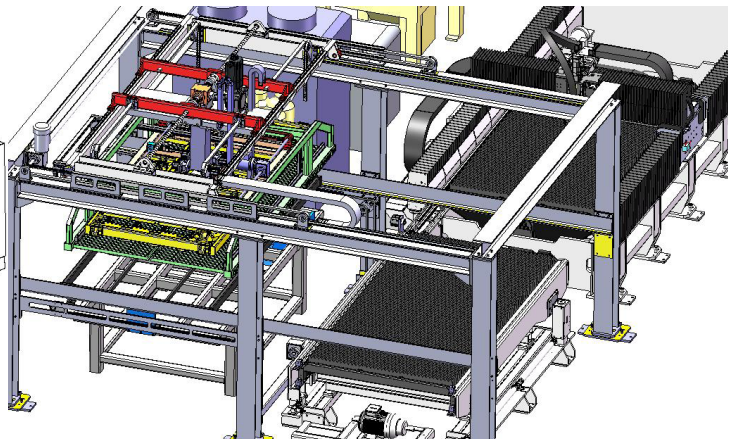


SEQUENCE 5



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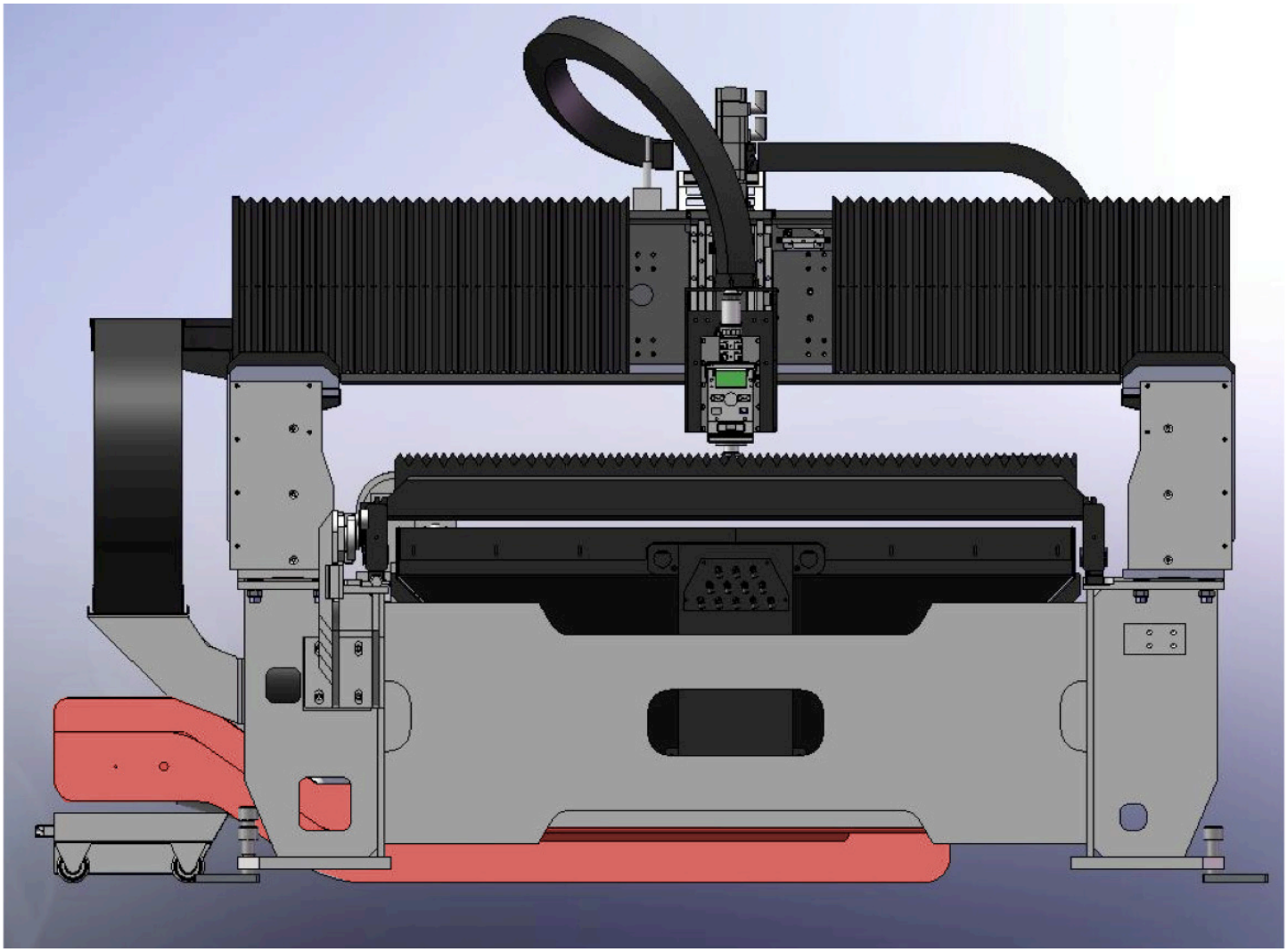
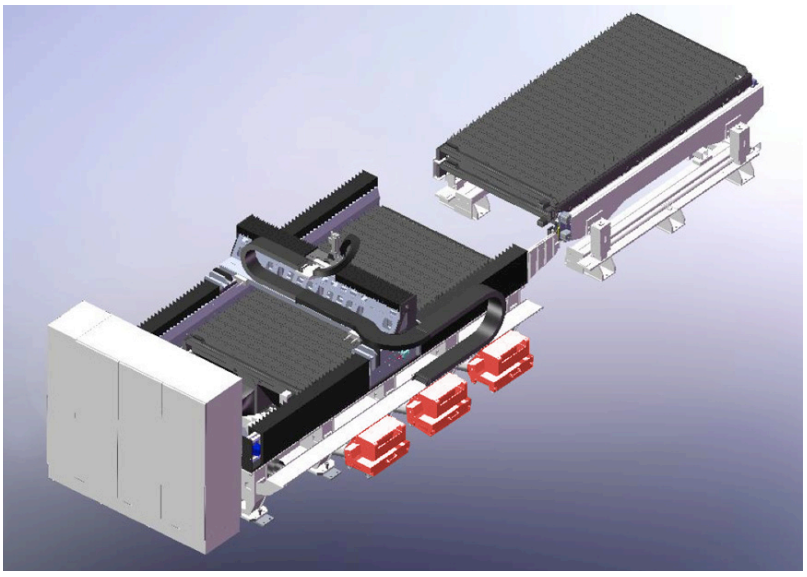
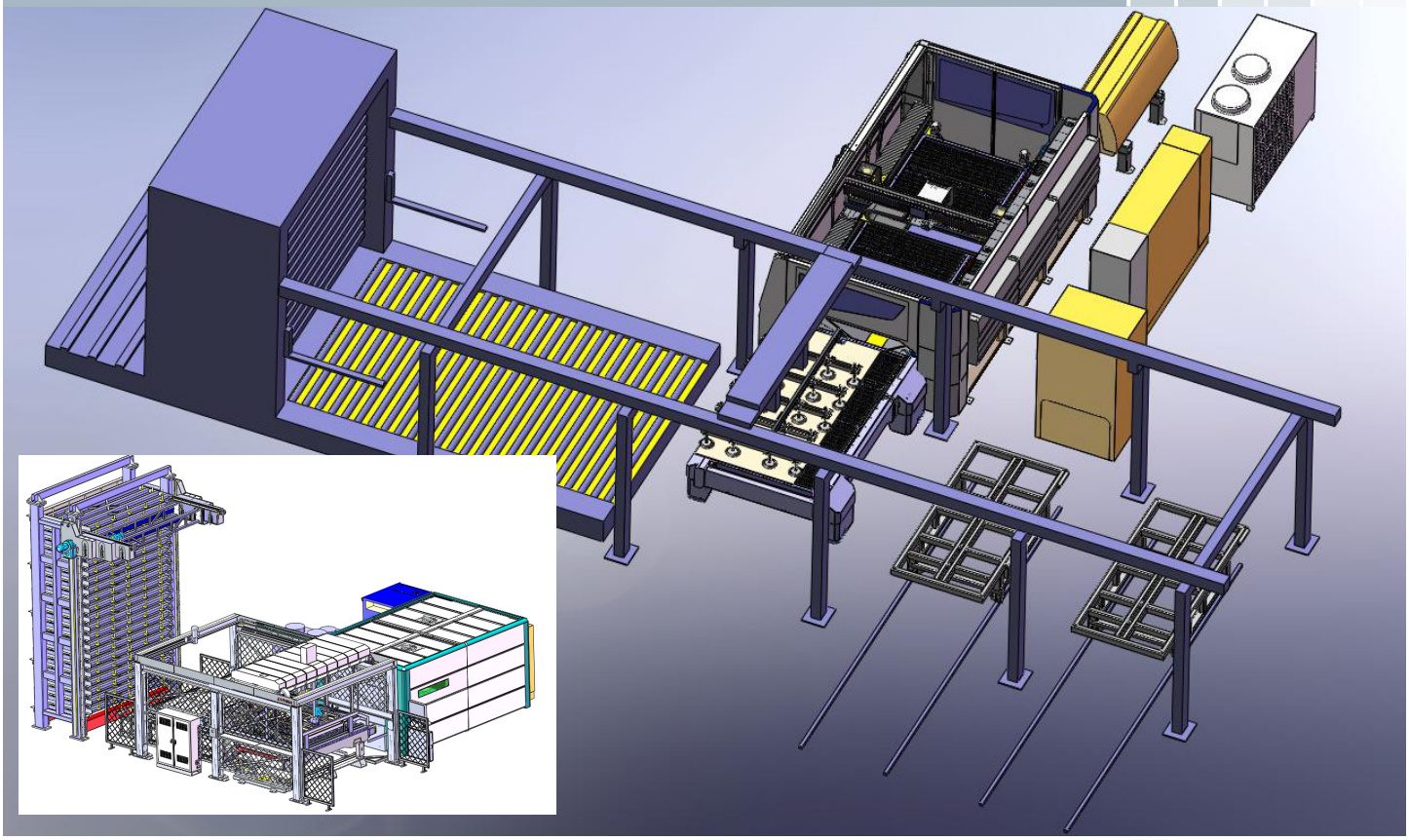


LATERAL SCRAP CONVEYORS

Three optional lateral scrap conveyors offer easy access, easy maintenance and low electrical consumption. Slide drawers are standard.





AUTOMATION

Semi-Automatic and FMS style automation systems are available, including compact automation (inset).

DUST COLLECTION & FILTRATION

Elimination of dust, particles and harmful fumes generated during cutting:

- Intelligent control by Siemens
- Self cleaning and Easy Disposal
- Free contacts for external control
- Integrated fan
- Dust load dependent automatic fitler cleaning
- Siemens CPU and PTFE membrane filter cartridges

TRANSVERSE CONVEYOR

A small parts and scrap conveyor can be mounted at a right angle to the under table conveyor to further the discharge.

HD Series		HD/L 3015		HD/L4020		HD/L6020		HD/L 12030	
Dynamics	**Unit**	**Rack & Pinion**	**Linear**	**Rack & Pinion**	**Linear**	**Rack & Pinion**	**Linear**	**Rack & Pinion**	**Linear**
X Axis	ft/min	3573	6947	3573	6947	3573	6947	3573	6947
Y Axis	ft/min	3970	6947	3970	6947	3970	6947	3970	6947
Synchronous (X+Y)	ft/min	5200	9925	5200	9925	5200	9925	5200	9925
Acceleration (starting)	39"/s^2	2G	3G	2G	3G	2G	3G	2G	3G
Positional Accuracy	in	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002	± 0.002
Repeatability	in	± 0.002	± 0.001	± 0.002	± 0.001	± 0.002	± 0.001	± 0.002	± 0.001
Cutting Axes									
X Axis	in	120	120	157.5	157.5	240	240	480	480
Y Axis	in	59	59	78.7	78.7	80	80	120	120
Z Axis	in	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
Max Sheet Size	in	118x59	118x59	157.5x78.7	157.5x78.7	236.2x78.7	236.2x78.7	480x120	480x120
Max Sheet Weight	lb	2756	2756	3307	3307	5291	5291	7900	7900
Control Unit									
CNC		840D, NCU 573.5		840D, NCU 573.5		840D, NCU 573.5		840D, NCU 573.5	
Memory		6MB User RAM Memory		6MB User RAM Memory		6MB User RAM Memory		6MB User RAM Memory	
PC:PCU50.3		Win XP pro, 2 GHz Intel Processor, 40GB HD		Win XP pro, 2 GHz Intel Processor, 40GB HD		Win XP pro, 2 GHz Intel Processor, 40GB HD		Win XP pro, 2 GHz Intel Processor, 40GB HD	
Port		2xPCI; 1xCF Card		2xPCI; 1xCF Card		2xPCI; 1xCF Card		2xPCI; 1xCF Card	
Expansion Slots		15" TFT Color Monitor		15" TFT Color Monitor		15" TFT Color Monitor		15" TFT Color Monitor	
Laser Cutting Head									
Type		Precitec		Precitec		Precitec		Precitec	
Laser Cutting Lengths		1.5" Lens (Kartridge system)		1.5" Lens (Kartridge system)		1.5" Lens (Kartridge system)		1.5" Lens (Kartridge system)	
Focal Lengths		5", 7.5" (Optional 10")		5", 7.5" (Optional 10")		5", 7.5" (Optional 10")		5", 7.5" (Optional 10")	
Filter									
Type		included							
Dimensions									
Working Area	in	433x236		512x256		630x256		870x298	
Machine Width	in	145.7		165		165		207	
Machine Height	in	78.7		78.7		78.7		78.7	
Total Length	in	409.4		488.2		590.5		830	
Colors (Protection Sheets)		Ral 7040		Ral 7040		Ral 7040		Ral 7040	
Colors (Body)		Durma Special		Durma Special		Durma Special		Durma Special	
Colors (Protection Sheets)		Ral 7040	Ral7040	Ral 7040	Ral 7040	Ral 7040	Ral 7040	Ral 7040	Ral 7040
Colors (Body)		Durma Special	Durma Special	Durma Special	Durma Special	Durma Special	Durma Special	Durma Special	Durma Special

DURMA AIMS FOR CONTINUOUS DEVELOPMENT

DURMA's large investment in machining centers and production equipment, as well as its ISO-certified factories totaling 1,350,000 square feet and 1,000 employees, make one of the world's largest, efficient and most contemporary facilities in the world.

In order to offer customer solutions and further develop patents, the Durma Research and Development center opened in 2010. Fifty engineers were added over the last two years.

Designed and engineered with modern technology, Durma products are equipped with high quality and proven readily available components.

Established in 1956, Durma has vast experience in building and supplying quality products. With over 60,000 machines delivered worldwide, Durma has earned a reputation as a supplier of innovative "value oriented" solutions.

Your partner today, tomorrow, and forever.

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