

LASER PRECISION PARTS FROM



Hudson's 110,000 sq. ft. facility in Ormond Beach, FL



Hudson produces standard and custom precision metal 3D enclosures for a variety of industries.

Hudson Technologies, Ormond Beach, FL is a leading U.S. manufacturer of deep drawn metal enclosures, or cases, and stampings, including metal diaphragms. It has always designed unique solutions for the secondary processing of its precision 3D metal parts for aerospace, medical, automotive, electronic, and a variety of other industrial applications. Employing innovative tooling, punching and CNC machining, Hudson can produce secondary holes, slots and flange cuts in their delicate 3D metal parts without adversely affecting the part integrity.

Recently, Hudson invested in a **Rofin UW1200 5-Axis Fiber Laser** to process their parts with improved efficiency, accuracy, flexibility and capability.

Paul Shacklady, Hudson Manufacturing Engineering Director, explained the benefits. "Rofin demonstrated that Hudson could process a large number of our parts with precision and quality. Using 3D models of our parts and simple fixtures, the UW1200 performed hole, slot and flange cutting with surgical accuracy of the focused fiber laser beam. We can now produce a part in one step thereby eliminating costly tooling, multiple setups and labor expense."

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- Rofin Fiber Lasers
- Hudson Capabilities
- Rofin UW1200: new workstation model

rofin LASERS FOR ANY PROCESSING CHALLENGE

Rofin-Sinar, Inc, Plymouth, MI has been the North American headquarters for the global laser company since the early 90's. Initially serving the automotive industry, Rofin has expanded its products and services to a wide range of industries and applications.

Recently, Rofin has released new models of Diffusion-Cooled CO2, Fiber, and DF Diode Lasers that provide higher power levels, enhanced performance and reliability. Many of the models can be used in Rofin's large selection of precision workstations like the UW1200.

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Rofin Fiber Lasers are now available in 100 watt to 8000 watt models.

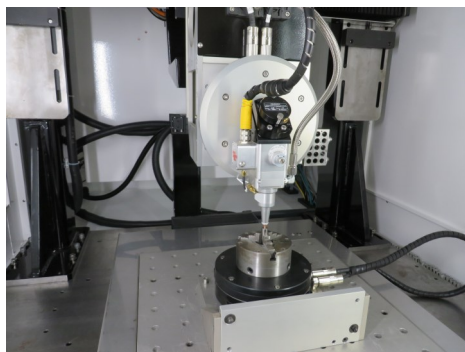
ROFIN'S UW1200 WORKSTATION: A UNIVERSAL LASER TOOL



Rofin's UW1200 is offered in 5-axis or 3-axis versions with fiber or CO2 lasers.

Rofin-Sinar, Inc, Plymouth, MI manufactures unique laser workstations for special laser applications. The UW1200 is a new model in a family that includes the UW150, UW180 and UW200 for precision processing of metals and non-metals.

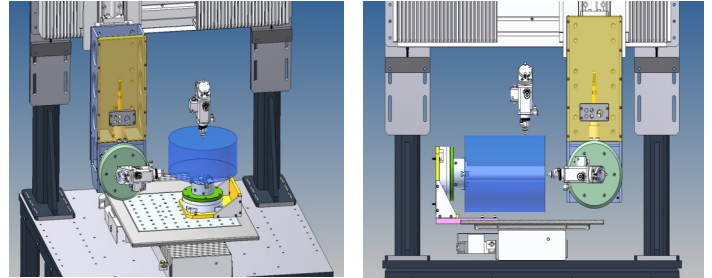
The UW1200 5-Axis Fiber Laser model is an ideal tool for cutting small precision sheet metal parts. The work zone is defined by x, y and z-axis high-speed linear motors: 600 mm, 600 mm and 300 mm travel limits respectively. Positioning accuracies are within $\pm 10 \mu\text{m}$ and repeatability is within $\pm 3 \mu\text{m}$.



Rofin utilizes precision linear and rotary drives to provide precision laser processing.

A rotary drive provides a 100° tilt range for the cutting head, while a rotary part holder offers a 360° continuous range of motion, completing the 5-axis design.

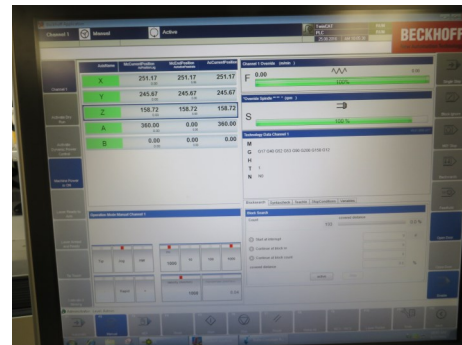
A unique feature is the rotary part holder. It can be mounted horizontally or vertically which increases the processing flexibility of the machine, as shown in this



The rotary part holder can be mounted horizontally or vertically for maximum processing flexibility.

diagram. Rofin always recommends that maximum and minimum part sizes and shapes are analyzed to insure the work zone meets application requirements.

The 19" touch screen control and user-friendly HMI operator interface provides easy-to-read screens and supports the optional CAGILA 2D/3D Advanced 5-Axis Post Processing Software.



Pendant mount control enhances machine operation and part processing.

A welded steel tubular frame provides a robust base for the precision drive components. Leveling feet on the main frame and casters on the fiber laser and chiller components enhance the ease of installation.

The ergonomic CDRH Class I Enclosure complies to all 1 micron laser safety standards. An electrically powered bi-split vertical door with viewing window and safety interlocks offers easy part load/unloading.

Finally, the FiberMini cutting head utilizes precision focal adjustment, non-contact capacitance sensing, 400 PSI rated high-pressure assist gas capability and through-the-lens camera viewing to achieve superior cutting accuracy and quality.

The UW1200 is truly a universal laser tool.

HUDSON TECHNOLOGIES PRODUCES... cont. page 1



Hudson's catalogue features over 15,000 standard parts, but special custom shapes represents its strength.

Paul added another benefit. "Hudson processes common metals such as steel, aluminum and stainless; however, the ability to laser cut copper, brass, Inconel, titanium, hastalloy and exotic shielding alloys with the UW1200 FL010 1000 Watt Fiber Laser has expanded our versatility and flexibility."

Hudson expects that its job turnaround times will improve dramatically, and their inventory of tooling and punches will be reduced greatly. Soon part numbers will be saved with their 3D models, laser cutting parameters and CAD/CAM programs. Fixtures will be cross referenced to accept universal shapes. Part sizes from approximately 1" to 12" diameters and/or lengths with material thickness ranging from .005" to .187" will be candidates for laser processing.



Paul Shacklady supervised the preparations facilitating the UW1200 installation in less than 1 week.

With Rofin's assistance and training programs, Hudson conducted a well-planned program to receive the new machine and support the Rofin Service installation. By allocating a climate controlled room with utilities for their new laser, Hudson's first UW1200 installation was completed quickly. In addition, the space was designed to easily accommodate a second machine that is planned in the future.

An example of UW1200 benefits was realized on the first parts processed with the laser.



Hudson's runoff part required challenging flange, hole and slot cutting on all surfaces and across corners achieving accuracies of under $\pm .005$ ".

The aluminum rectangular enclosure was processed in less than 90 seconds in a single setup well within the accuracy requirements. Edge quality was excellent and deburring was eliminated. In the past, processing the part required 3 setups involving costly tooling, presses and labor.

Another part demonstrated the ability to cut very fine part features with the UW1200 machine. The laser processed the stainless steel part in less than 30 seconds, but more importantly, accurately cut the flange and prongs. The old method used special tooling, but the die required frequent maintenance to prevent breaking off the prongs.



The stainless steel part with a .030" wall thickness specifies four prongs. Prong dimensions measure .060" wide x .200" length.

Hudson has initially assigned 200 part numbers for UW1200 processing, but plans to expand the number with standard and custom parts. Hudson looks forward to providing its customers with the highest quality parts and services with laser precision.

Contact Hudson Technologies for more info:

www.hudson-technologies.com/contact-us/

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rofin LASERS FOR ANY PROCESSING CHALLENGE... cont. page 1

Rofin Fiber Lasers offer 1 micron laser models from 100 watts to 8000 watts. Exclusive features include high speed electronic shutters, compact diode modules, remote diagnostics and scanner interface modules. A variety of fiber delivery options, beam switching and sharing configurations enhances the flexibility and adaptability for different applications. Rofin Fiber Lasers are found worldwide in a wide range of robotic and workstation applications performing precision cutting, welding, cladding and heat treating processes.



Rofin's SR Lasers are light weight and compact, ideal for cutting non-metals using workstations or robotic cells.



Rofin Diffusion-Cooled CO2 Laser technology leads the industry with 100 watt to 8000 watt models.

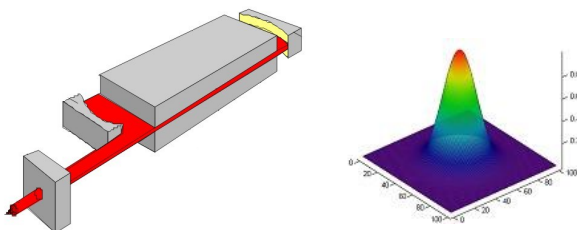
Rofin Diffusion-Cooled CO2 Lasers represent advanced laser technology that has been perfected to achieve up to 8000 watts. In the mid-1990's, Rofin moved away from the complex Fast Axial Flow (FAF) CO2 design that requires multiple glass tubes, mirrors, turbine blowers and heat exchangers, and successfully introduced the compact, diffusion-cooled slab electrode CO2 technology. Over 8,000 Rofin Slab lasers have been installed in a wide range of applications. Benefits include exceptional beam quality, low maintenance and minimal laser gas usage.

Rofin's DF Diode Lasers represent an excellent tool for heat treating, cladding and brazing operations. The unique design utilizes diode modules that are stacked and combined into a delivery fiber for 1 micron applications.



Rofin's new DF Diode Laser design utilizes plug and play diode bar modules and a simple combiner design to produce up to 6000 watts.

The unique beam profile options allow for enhanced laser processing especially for surface hardening applications. Integrating the laser with a pyrometer provides the ability to control the process with unmatched precision.



Rofin Diffusion-Cooled CO2 Slab Lasers provide superior beam quality, power stability and reliability for precision processing of metals and non-metals.

Rofin-Sinar, Inc offers its customers a wide selection of laser solutions as well as technical and application consultation, but equally important, Rofin's rapid response parts and service support represents an important benefit.

The Parts and Service Hotline, remote diagnostic laser software and other programs have been developed so customers maintain the highest degree of uptime.

Whether your application is a well-known process or an unknown one, Rofin looks forward to helping you find a laser solution with a sound return on investment.

Contact Rofin-Sinar, Inc for more info:

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Rofin SR and OEM Lasers feature a sealed laser chamber similar in design to the Slab Laser, but for applications requiring less than 1,000 watts. Because the laser gas is sealed in the chamber, the design is virtually maintenance free. It is ideal for Rofin's wide variety of workstations that process thin metals as well as non-metals that usually require 10.6, 10.25, or 9.3 micron wavelengths for optimal absorption.