KERN

CO2 SHEET METAL CUTTING

Kern laser systems can be equipped with our innovative technology which allows for accurate cutting of sheet metal. Commonly cut metals include stainless steel, mild steel, aluminum and brass.

The **Automatic Focusing Height Follower**, developed by Kern Lasers, is one of the key elements for optimal metal cutting. The cutting nozzle is controlled by a capacitance sensor and z-axis motor. The gap between the metal being cut and the cutting nozzle can be adjusted until the desired beam focus is obtained. As the cutting process begins the height follower will track the surface of the metal and adjust the nozzle in the z-axis maintaining a constant focus point while the metal is being cut.

650 Watt

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.250	6.4
Stainless Steel	nitrogen	.090	2.2
Aluminum	nitrogen	.063	1.6
Brass	oxygen	.048	1.2

500 Watt

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.1875	4.8
Stainless Steel	nitrogen	.075	1.9
Aluminum	nitrogen	.048	1.2
Brass	oxygen	.040	1

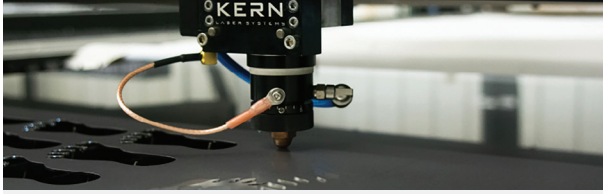
300 Watt

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.125	3
Stainless Steel	nitrogen	.040	1
Aluminum	nitrogen	.032	.6
Brass	oxygen	.016	.4

150 Watt

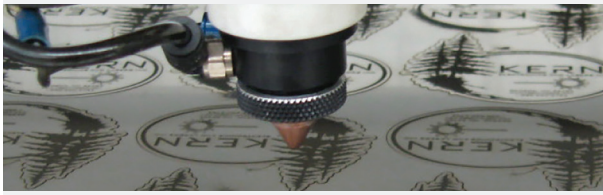
Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.090	2.3
Stainless Steel	oxygen	.075	1.9

*Due to variations in material type, alloy, and hardness, cutting thicknesses are approximations and are not guaranteed. For consistent production cutting please configure a 10-15% decrease in cutting thickness. Please review your application in detail with your sales associate.



Clean and Accurate Cut

A high pressure assist gas, such as oxygen or nitrogen is injected through the metal cutting nozzle. The result is a dross free cut edge which requires little to no deburring. A pierce dwell and variable pierce assist pressure are adjustable within the KCAM laser software. The servo motor motion system is capable of tight tolerances and accurate positioning.

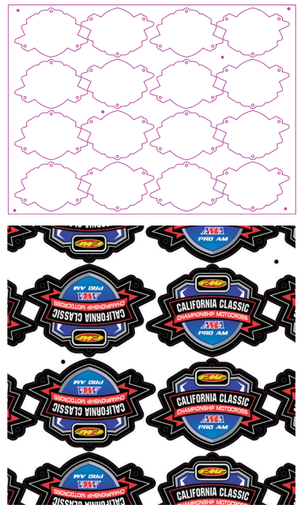


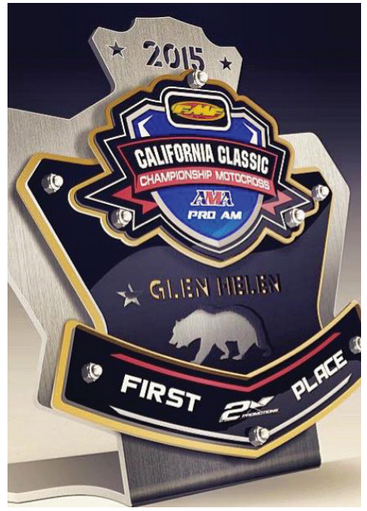
Low Operating Cost

Laser cutting is a non-contact process that eliminates the high costs of replacement die stamps, machine center re-tooling and router bits. Laser users also benefit from low electrical and maintenance costs. Our proprietary KCAM software contains money saving features such as the ability to turn off the gas assist while the laser head is moving between parts. This will ensure consumable costs are kept at a minimum.

Intricate Cutting

Kern's metal cutting machines are capable of cutting thin gauge metals with detailed precision. A laser beam cutting kerf as small as 0.005" allows for the most intricate of cuts to be made. These tasks are often difficult or impossible to perform with a high powered kW laser as most are unable to cut with a stable power level resulting in blow-outs or heat affected zones.

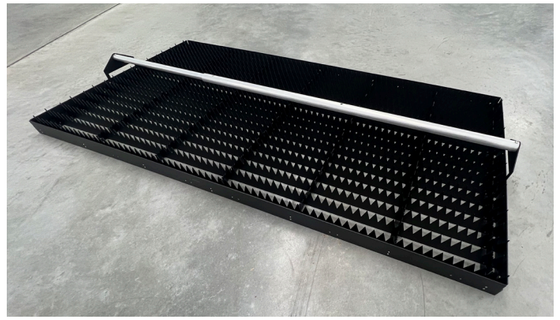


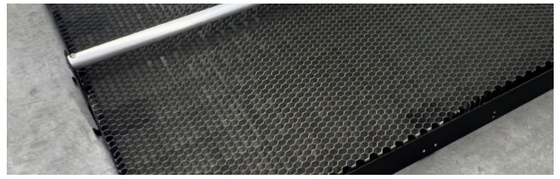


K-VISION CAMERA

The K-Vision package is a fully integrated hardware and software solution that allows for accurate cutting of digital printed graphics. This process starts with a nozzle mounted camera which automatically measures the dimensions between registration marks on printed materials. The system then uses these measurements and the registration marks of the original cutting file to compensate for distortion and rotation. The slight adjustments that k-vision makes to the cutting file results in a perfectly matched cutout in the material being processed. The entire camera system can be easily removed and stored in a protective box when not in use. The k-vision option can be integrated onto any of Kern's laser systems.

k-vision





VERSA-TRAYS

This part tray system reduces setup and laser idle time between sheet changes. Simply remove the processed tray from the laser system, load a new one in and let the laser start processing immediately. As the laser is cutting, the processed tray can be cleared out and loaded with a new sheet of material.

Crafted from durable aluminum, these trays are not only robust, but also heat resistant, ensuring they will withstand your daily production environment. The trays are designed to accommodate aluminum honeycomb, paper honeycomb, acrylic slats and metal cutting slats. The lightweight trays can be handled by a single operator with the help of an adjustable tray bar.

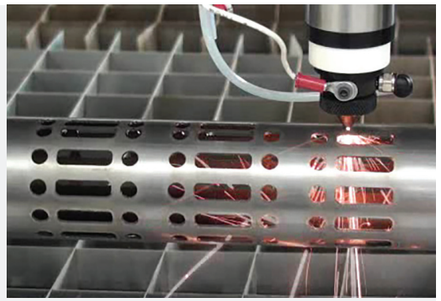
A CAD file is included which allows users to cut replacement acrylic and metal slats. These slats are easily inserted without disassembly of the tray system.

PIPE ROTARY

A rotary attachment can be added to any of Kern's laser systems for processing pipes, rods and other cylindrical items. The rotary device is driven by a high resolution servo motor resulting in smooth and accurate cutting performance. Two different rotary setups are available to choose from.

The Chuck Rotary setup implements a lathe chuck to firmly secure the pipe in place. A tailstock is pushed up against the opposite end to keep the pipe rotating on center as it is cut. The tail stock can be adjusted on a rail for different lengths of pipe. Adjustments to the rotary chuck can be made to accommodate pipes with a diameter of up to 6 inches. The pipe cutting device is commonly used by manufacturers of motorcycle exhausts, large filters and pipe joints.

Kern offers an alternative Wheel Rotary device which uses rollers to spin a cylindrical item allowing engravings to wrap around the entire outside surface. There is no chuck and tail stock holding the ends of the product. This allows the laser head full access to the extents of the cylindrical item. This rotary is ideal for engraving applications that require the entire surface of the product to be engraved. Adjustable rollers can be moved to accommodate a variety of different sized products. Common applications for this roller rotary are walking sticks, canes and flash lights.



Kern also offers custom rotary devices which are built for a variety of applications. If you have an idea for a custom rotary device please contact a friendly sales associate.

Standard Rotary Specifications

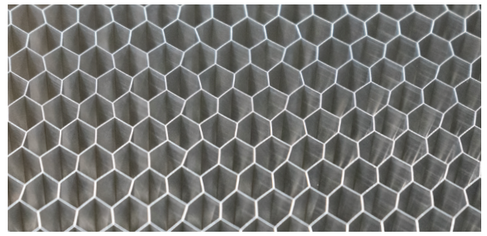
Chuck Rotary	52" Wide X-Axis		60" Wide X-Axis		80" Wide X-Axis		86" Wide X-Axis		100" Length Y-Axis		120" Length Y-Axis		144" Length Y-Axis	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
Max Pipe Diameter	6	153	6	153	6	153	6	153	6	153	6	153	6	153
Max Pipe Length	36	914	44	1117	64	1625	70	1778	100	2540	120	3048	144	3658

Roller Rotary	52" Wide X-Axis		60" Wide X-Axis		80" Wide X-Axis		86" Wide X-Axis	
	inches	mm	inches	mm	inches	mm	inches	mm
Max Pipe Diameter	3	76	3	76	3	76	3	76
Max Pipe Length	52	1320	60	1524	80	2032	86	2184.4

BED OPTIONS

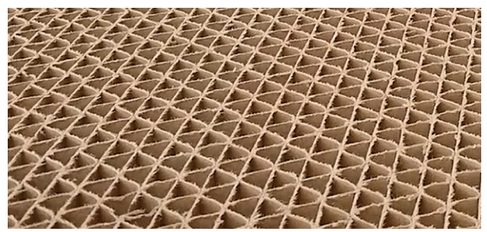
Aluminum Honeycomb

This lightweight, low-density panel is used to create a flat work surface and works great with our down draft vacuum table to remove fumes created during laser processing. The reflective qualities of the aluminum honeycomb make it a durable bed option capable of withstanding multiple rounds of laser cutting.



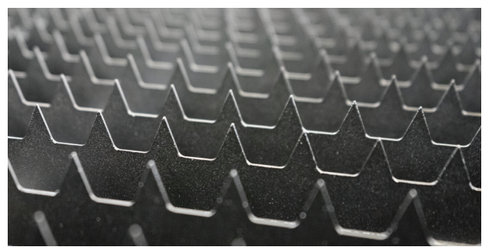
Paper Honeycomb

Paper Honeycomb is light-weight and effectively reduces tick marks on the underside of the laser cut materials. Best used for high-speed laser cutting of thin materials such as woods and acrylics. The paper honeycomb can be used multiple times before needing to be replaced when used correctly.



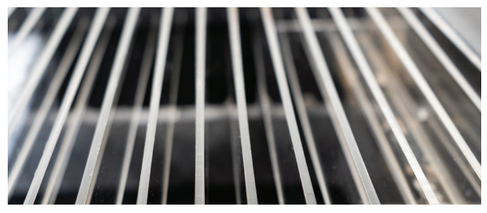
Metal Cutting Grid

The Metal Cutting Grid is a coated steel or copper structure designed to withstand metal cutting applications that require an assist gas such as oxygen. A CAD file is installed on the laser system computer allowing individual replacement grids to be cut as needed. The grid work is designed to minimize surface contact with the metal sheet being processed, resulting in a clean cut.



Acrylic Slats

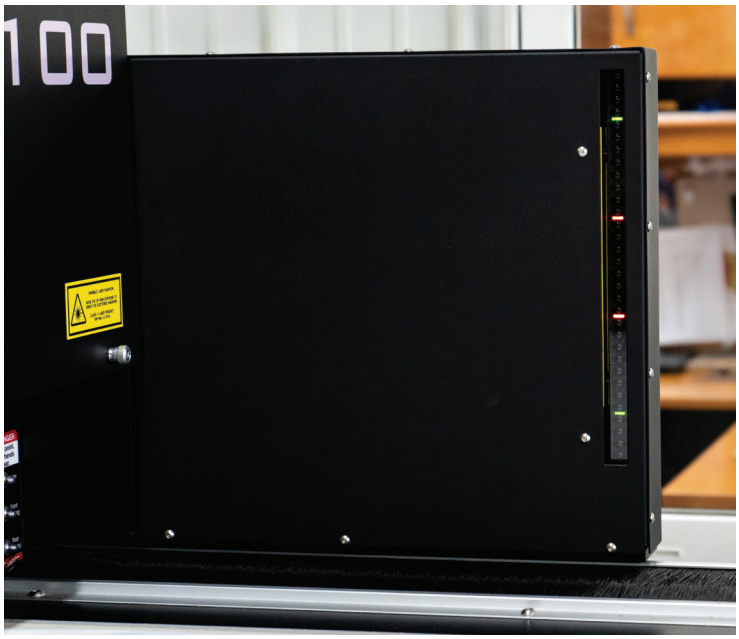
Acrylic Slats allow for acrylic cutting eliminating the flashback or tick marks on the underside of the acrylic. Replacement slats can be cut as needed utilizing the provided CAD file.



ADVANCED SAFETY PACKAGE

Gantry Bumper System

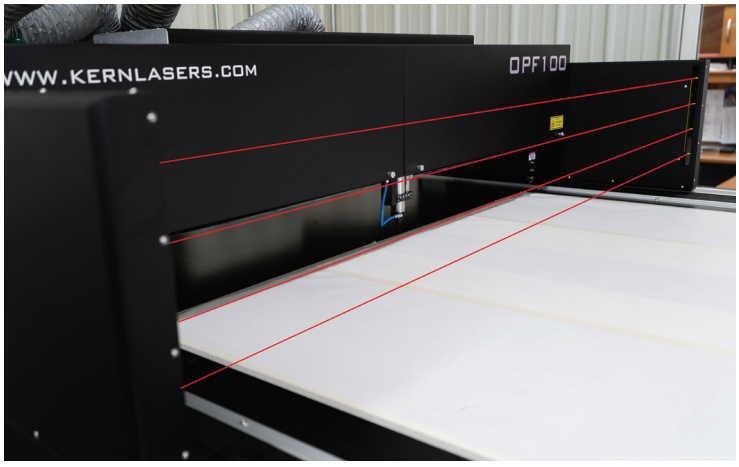
Pressure sensing bumpers mounted to the gantry of the laser system. Stop the machine, and shutdown the laser source when pressure is applied by an appendage or item that is in the way of the gantry's track.

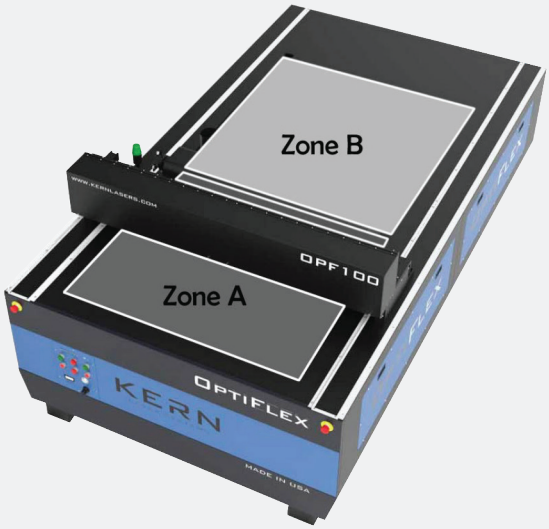


Light Curtain

The safety light curtains uses an array of photoelectric sensors that create a wall of infrared light that when interrupted by an appendage or object stops the laser system and shuts down the laser source to prevent injury from reaching with in the "Danger Zone" that is in-front of the gantry while the system is running.

Red beam in this image is for demonstration purposes only. The red beam is not visible to the eye when in-person.





MULTI-ZONE TABLE

The work table can be split in two zones, each controlled by its own blower. This allows continuous processing of materials while unloading and loading of parts on the zone that has completed its job. Each zone's blower can be easily controlled from the front control panel.

SOFTWARE

Standard Package

- CorelDRAW Graphics Suite
- KCAM
- PDF Converter

Optional

- Lead-in Pro
- Tab Pro
- Striker CNC Nesting
- E-CUT Nesting

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