

KERN

HIGH PERFORMANCE / ENCLOSED
FIBER LASER CUTTING SYSTEMS

FiberCELL



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High Performance / Fiber Laser Systems

The FiberCELL is a compact sheet metal fabricating system capable of cutting a variety of metals such as stainless steel, aluminum, brass and copper. A Class 2 safety enclosure allows the system to be placed in high traffic areas such as busy factory floors and university classrooms. Sliding doors at the front and back as well as side sliding windows make part loading and removal an easy task. Advanced CNC laser software is available which will maximize efficiency and machine throughput using nesting and NC functions, including common-line cutting, bridge cutting, lead-in/tab generation and much more.



Model	FC50	FC100
Work Area	52" x 50"	52" x 100"
Footprint, Doors Extended (W x L x H)	115" x 114" x 77"	115" x 169" x 77"
*Footprint, Compact (W x L x H)	74" x 85" x 75"	74" x 139" x 75"
**Part Clearance	2.125"	2.125"
System Weight	3700 lbs	5500 lbs

*Doors closed and minor parts removed. Further reduction in footprint is possible with removal of complete enclosure.

**Z-axis height can be customized

FiberCELL SPECIFICATIONS

Laser Classification	Class 2 Ytterbium Fiber Laser
Laser Wattage	1kW, 2kW, 3kW
*Positioning Accuracy	+/- .002"/ft
Repeatability	+/- .0005"/ft
Max Cutting Speed	20"/sec
Electrical	230v/1ph, 230v/3ph, 415v/3ph CE, 480v/3ph
Vacuum Blower	1500 CFM or greater
Air Assist	100 – 250 PSI (9 -17 BAR)
Options Available	K-Vision Camera, Pipe Rotary, Fume Extraction w/ Spark Arrestor

*Mapped table, under controlled conditions.

STANDARD FEATURES

Laser Source

Robust, high quality fiber laser sources setup for optimum efficiency, flexibility and reliability in industrial metal cutting environments.

Motion Package

Kern's next generation HyperDual motion package features a rack and pinion design driven by powerful servo motors at each side of the table. The result is smooth cut radiuses, quick acceleration rates, and the fastest processing speeds Kern has presented to date. The x-axis is powered by high quality linear motors.

Exhaust System

A blower package will remove fumes and small debris created during laser processing. An integrated downdraft table holds material secure to the table as it is being processed.

Chilling Unit

A dual channel closed-loop chilling unit will properly cool the laser source and beam delivery, ensuring a long laser lifetime and consistent cutting and engraving results.

Computer / Software

A high-performance computer and monitor package is included with each system. KCAM laser software, CoreDRAW® and an easy-to-use PDF converter are pre-installed on the computer.

Safety

A UL certified electrical panel is placed on each laser system which turns on and shuts down components of the laser system. US CDRH compliance requirements are upheld including emergency stop buttons, interlocked access points and a 5 second safety key switch.

Beam Delivery

LaserMech FiberMini® processing head results in a compact, lightweight and user-friendly beam delivery system. The automatic focusing assembly allows the focus to be set independently for the cut and pierce. An easy-to-use optic drawer holds a protective F-Lens which prolongs the life of the lens.



FIBER 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.

LASER MECH FiberMINI® AutoFocus (AF)

is a compact, lightweight design optimized for flat sheet Fiber Laser cutting. The head is capable of processing a wide range of materials with automatic, programmable focus. 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.

3kW (3000 Watt)

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.625	15.88
Stainless Steel	nitrogen	.250	6.35
Aluminum	nitrogen	.250	6.35
Brass	nitrogen	.1875	4.76
Copper	oxygen	.150	3.81

2kW (2000 Watt)

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.500	12.70
Stainless Steel	nitrogen	.1875	4.76
Aluminum	nitrogen	.1875	4.76
Brass	nitrogen	.120	3.00
Copper	oxygen	.105	2.67

1kW (1000 Watt)

Metal Type	Assist Gas	*Metal Thickness	
		inches	mm
Mild Steel	oxygen	.3125	8.00
Stainless Steel	nitrogen	.120	3.00
Aluminum	nitrogen	.120	3.00
Brass	nitrogen	.080	2.00
Copper	oxygen	.060	1.50

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



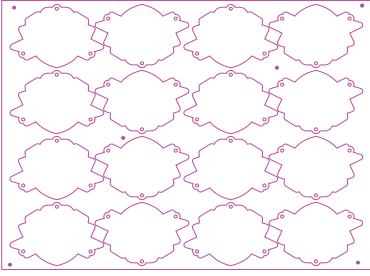
Low Operating Cost

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 designs. A laser beam cutting kerf as small as .005" allows for the most intricate of cuts to be made.



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.



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 Rotating 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 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		Roller Rotary	52" Wide X-Axis	
	inches	mm		inches	mm
Maximum Pipe Diameter	6	153	Maximum Pipe Diameter	3	76
Maximum Pipe Length	36	914	Maximum Pipe Length	52	1320



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