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## UL Series CO2 Laser Engraving and Cutting Machines

Universal Laser Systems, Inc. is an industry pioneer and highest volume manufacturer of computer-controlled CO2 laser systems used for laser marking, engraving and cutting operations. We have designed, manufactured and shipped thousands of CO2 laser systems worldwide. Universal is also one of the world's largest suppliers of CO2 lasers. In 1998 we introduced the industry's first complete line of air-cooled, RF-excited CO2 lasers. Since then, we have consistently outpaced the market with new state-of-the-art technological advancements in CO2 lasers and laser systems. We are authorized as the representative in Asian.

Universal Laser Systems, Inc. manufactures computer controlled laser engraving, laser cutting and laser marking systems. Our laser processing systems transform images or drawings on your computer screen into real items made out of an amazing variety of materials... wood, plastic, fabric, paper, glass, leather, stone, ceramic, rubber... and they are as easy to use as your printer.

There are series of CO2 lasers used in the machines. The powers range from 10W to 400W. Power benefits:

- **10 Watts** – Low power level for light engraving and thin material cutting.
- **25-35 Watts** – Entry-level production power level for standard engraving and cutting operations at moderate speed and high speed low power engraving. Not recommended for thick cutting or dual head applications.
- **40-60 Watts** – Medium production power level for deeper, high speed engraving and thick cutting operations at moderate speed.
- **65-80 Watts** – High production power level provides increased throughput, deep engraving and cutting.
- **85-120 Watts** – Very high production power level that is ideal for heavy cutting and deep, higher throughput engraving. Ideal for use with dual head. In a dual laser system (X2-SuperSpeed only), turning one laser off is helpful for precision engraving of very low power materials.
- **200-400 Watts** – Extremely high production power level for deep engraving at high speeds; faster cutting for very thick materials; direct marking on stainless steel with 400 watts. Not recommended for light engraving and marking or cutting applications.

## 1. PLS Series Laser Engraving and Cutting Machines

The entire Professional Series laser system – including the CO2 laser cartridge, platform chassis, electronics and software interface – is designed and manufactured by Universal Laser Systems. Every aspect of the system has been tuned to work together in perfect harmony to provide the best possible cutting, marking and engraving quality. Universal's superior engineering and innovative technology result in systems that provide years of profitable, reliable and productive service.



- The Professional series is designed for new and experienced users with demanding production requirements.
- The advanced Laser Interface+ materials-based print allows user to choose between automatic and manual settings.
- Systems are available with 10 to 120 watts of air-cooled laser power.
- Field upgradeable firmware and software and flash upgradeable electronics extend the useful life of the system.
- Four focusing modes are available, including motorized manual focus, auto focus, focusing

from front LCD panel and through the print driver.
- A 2.0" (50mm) focal length lens is standard; optional lenses are available.
- Users can set and run multiple focus settings in same job.
- Users can save, store and load material job settings on the fly.
- Run time estimator provides an estimate of the time needed to run a job.
- Relocatable origin resets the home position origin to work with your graphic software with 0.001" resolution.
- Proportional pulse control (patented) provides userdefinable spacing between laser pulses for better engraving or cutting quality.
- Multiple language support is available for ease of operation.
- The system auto-detects the rotary fixture, cutting table and air compressor upon installation.
- Shielded, interchangeable focusing optics stay cleaner for a longer period of time.

|  | PLS3.60 | PLS4.60 | PLS6.60 | PLS6.120 |
|---|---|---|---|---|
| Work Area | 24" x 12" (610mm x 305mm) | 24" x 18" (813mm x 457mm) | 32" x 18" (813mm x 457mm) | 32" x 18" (813mm x 457mm) |
| Table Size | 29" x 17" (737mm x 432mm) | 29" x 23" (737mm x 584mm) | 37" x 23" (940mm x 584mm) | 37" x 23" (940mm x 584mm) |
| Maximum Part Size | 29"W x 17"H x 9"D 737x432x229mm | 29"W x 23"H x 9"D 737x584mmx229mm | 37"W x 23"H x 9"D 940x584x229mm | 37"W x23"H x 9"D 940x584x229mm |
| Overall Dimensions | 36"W x 38"H x 30"D 914x965x762mm | 36"Wx39"Hx36.5"D 914x991x927mm | 44"Wx39"Hx37.5"D 1118x991x953mm | 44"Wx39"Hx37.5"D 1118x991x953mm |
| Laser Power Options | 10, 25, 30, 35, 40, 45, 50, 55, 60 watts | 10, 25, 30, 35, 40, 45, 50, 55, 60 watts | 10, 25, 30, 35, 40, 45, 50, 55, 60 watts | 10, 25, 30, 35, 40, 45, 50, 55, 60 Select any two lasers for up to 120 watts combined power |
| Weight | 235 lbs. (107 kg) | 270 lbs. (123 kg) | 325 lbs. (148 kg) | 345 lbs. (156 kg) |
| User Interface | Keypad and LCD | Keypad and LCD | Keypad and LCD | Keypad and LCD |
| Printer Control / Connection | Windows XP/ Vista; USB 2.0* | Windows XP/Vista; USB 2.0* | Windows XP/ Vista; USB 2.0* | Windows XP/Vista; USB 2.0* |
| Power Requirements | 110V/10A or 220V/5A; 50/60Hz | 110V/10A or 220V/5A; 50/60Hz | 110V/10A or 220V/5A; 50/60Hz | 220V/15A; 50/60Hz |
| Exhaust Connection | External exhaust required: Port is 4 inches in diameter | External exhaust required: Port is 4 inches in diameter | External exhaust required: 2 ports (4 inches in diameter) | External exhaust required: 2 ports (4 inches in diameter) |



PLS3.60                    PLS4.60
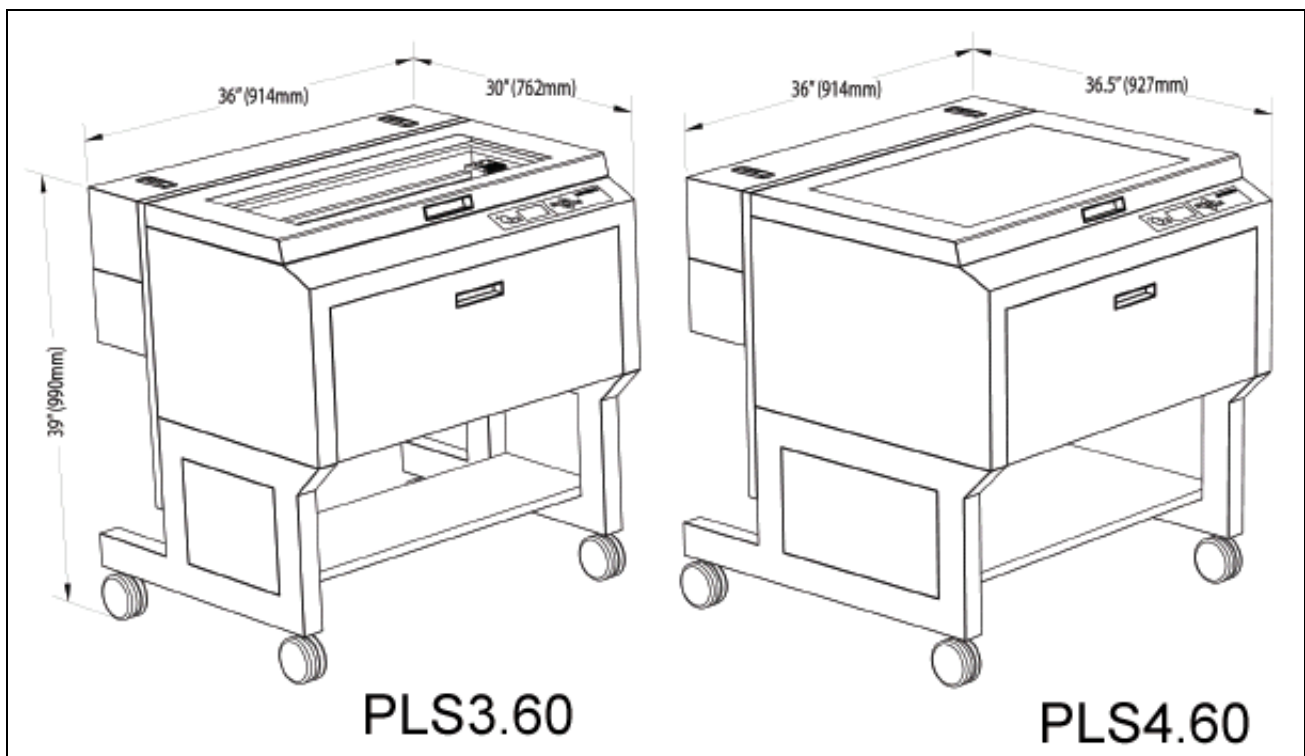
## 2. Desktop VLS Series Laser Engraving and Cutting Machines

VersaLaser functions like a true plug and play computer peripheral. It has a friendly, materials-based print driver that eliminates complex power, speed and materials calculations. Affordable, easy to use and easy to install, VersaLaser is a great first step to expanding into the laser market. Available in 16"x12" or 24"x12" engraving areas and five laser power options.

- 16"x12" or 24"x12" Work Area
- Cross-Platform Compatibility With All ULS Air-Cooled Quick Change Laser Cartridges™ (Patented)
- 10 or 25 watts - VLS2.30
- 10, 25, 30, 40 or 50 watts - VLS3.50
- Auto Focus and Red Dot Pointer standard

|  | VLS2.30 | VLS3.50 |
|---|---|---|
| Work Area | 16" x 12" (406mm x 305mm) | 24" x 12" (610mm x 305mm) |
| Table Size | 18.75" x 14.5" (476mm x 368mm) | 26.75" x 14.5" (679mm x 368mm) |
| Maximum Part Size | 18.75"Wx14.5"Hx4"D(476x368x102mm) | 26.75"Wx14.5"Hx4"D(679x368x102mm) |
| Overall Dimensions | With cart:26"Wx44"Hx25"D 661x1118x635mm Without cart:26"Wx14.5"Hx25"D 661x368x635mm | With cart:34"Wx44"Hx25"D 864x1118x635mm Without cart:34"Wx14.5"Hx25"D 864x368x635mm |
| Laser Power Options | 10, 25, 30 watts | 10, 25, 30, 35, 40, 45, 50watts |
| Weight | 85-92 lbs. (39-42 kg) | 110-123 lbs. (50-56 kg) |
| User Interface | Five button keypad | Five button keypad |
| Printer Control | Windows XP/ Vista; USB 2.0* | Windows XP/Vista; USB 2.0* |
| Power Requirements | 110-220V/5A; 50/60Hz | 110-220V/10A; 50/60Hz |
| Exhaust Connection | One 3" port | One 3" port |
| Optional accessories | • Downdraft honeycomb cutting table<br>• Computer controlled compressor air unit<br>• Air assist back sweep<br>• Air assist cone<br>• Integrated cart<br>• Rotary fixture<br>• High power density focusing optics<br>• Lens kit (1.5" or 2.0") | • Downdraft honeycomb cutting table<br>• Computer controlled compressor air unit<br>• Air assist back sweep<br>• Air assist cone<br>• Integrated cart<br>• Rotary fixture<br>• High power density focusing optics<br>• Lens kit (1.5" or 2.0") |

## 3. Platform VLS Series Laser Engraving and Cutting Machines

VersaLASER® platform series processes multiple materials and diverse applications with speed, detail and accuracy. Available in three platform sizes, the VersaLASER VLS3.60, VLS4.60 and VLS6.60 deliver laser power up to 60 watts with a work area up to 32x18in (813x457mm).

The VersaLASER systems utilize Universal's patented Rapid Reconfiguration™ technology, which enables customers to change laser power within seconds and without tools. The VersaLASER platform series is designed with seamless integration of Universal's CO2 laser, laser system and advanced Laser Interface+™ materials-based Windows print driver that optimizes the customer's workflow process, improves operation efficiencies and expands customized application offerings.

**Available Accessories:**
Downdraft cutting table;
Focusing lens kits;
High Power Density Focusing Optics™
Rotary Fixture
Coaxial Air Assist
Computer Controlled Compressed Air Unit

**Specifications:**
24"x12", 24"x18" or 32"x18" Work Area
Cross-Platform Compatibility With All ULS Air-Cooled Quick Change Laser Cartridges™
(Patented)
10, 25, 30, 40, 50 or 60 watts
Red Dot Pointer standard

| | VLS3.60 | VLS4.60 | VLS6.60 |
|---|---|---|---|
| Work Area | 24 x 12 in<br>610 x 305 mm | 24 x 18 in<br>610 x 457 mm | 32 x 18 in<br>813 x 457 mm |
| Table Size | 29 x 17 in<br>737 x 432 mm | 29 x 23 in<br>737 x 584 mm | 37 x 23 in<br>940 x 584 mm |
| Rotary Travel | 360 degrees (max 8 inches diameter) | | |
| Maximum Part Size (WxHxD) | 29 x 17 x 9 in<br>737 x 432 x 229 mm | 29 x 23 x 9 in<br>737 x 584 x 229 mm | 37 x 23 x 9 in<br>940 x 584 x 229 mm |
| Overall Dimensions (WxHxD) | 36 x 38 x 30 in<br>914 x 965 x 762 mm | 36 x 39 x 36.5 in<br>914 x 991 x 927 mm | 44 x 39 x 37.5 in<br>1118 x 991 x 953 mm |
| Print Driver | Laser Interface+™ (automatic and manual control) | | |
| Interconnection | USB 2.0 Hi-Speed compliant | | |
| Control | Requires dedicated computer to operate. Requires Windows XP/Vista (32-bit Windows operating system). Minimum reguirements: 2.0 GHz processor; 1 GB of RAM; Hard drive with 15 GB free space VGA monitor (minimum 1024 x 768 resolution); CD-ROM drive/burner; mouse and keyboard. | | |
| Laser Power Options | 10, 25, 30, 40, 50, 60 watts | | |
| Weight | 235 lbs. (107 kg) | 270 lbs. (122 kg) | 325 lbs. (147 kg) |
| Power Requirements | 110V/10A; 220V/5A; 50/60Hz | | |
| Exhaust Connection | External exhaust required; one port is 4 inches (100 mm) in diameter | External exhaust required; one port is 4 inches (100 mm) in diameter | External exhaust required; two ports each 4 inches (100 mm) in diameter |

## 4. Platform ILS Series Laser Engraving and Cutting Machines

The Industrial Laser Series is a powerful and flexible tool that is ideal for demanding applications that require high speed cutting, deep engraving, precision scribing, intricate scoring and permanent marking. These capabilities are currently in great demand in the automotive, aerospace, electronics, packaging, manufacturing and printing industries.

The market for laser cutting, marking and engraving services is growing stronger every year. With an Industrial Laser Series, you can launch a new business, bring outsourced work house, or expand your current business into profitable new markets. It is an affordable investment that involves relatively low risk and can generate new profits and increased revenues for you.

**Innovative pass-through side doors can accommodate oversize work pieces of virtually any length.**

Universal's Industrial Laser Series is a line of high performance, large format, fully-customizable CO2 laser systems that are available with an extended range of platform and power options. It is custom-manufactured to the highest specifications using ULS-manufactured and designed parts and lasers. The basic platform is modular in design and can be upgraded by the user to meet changing production needs. The Industrial Laser Series features opening side doors for convertible pass-through capability.

The Industrial Laser Series features the world's most advanced materials-based print driver: Laser Interface+™. This powerful feature allows you to choose between automatic material based operation or manual control over power, speed, pulses per inch and other system settings. Additional standard ILS features include carriage mounted, non-contact, auto-focus, interchangeable shielded focusing optics, covered stretch-free belts, self-adjusting and permanently-lubricated motion system bearings, red dot pointer and patented Rapid Reconfiguration™ and Quick Change Laser™ technology.
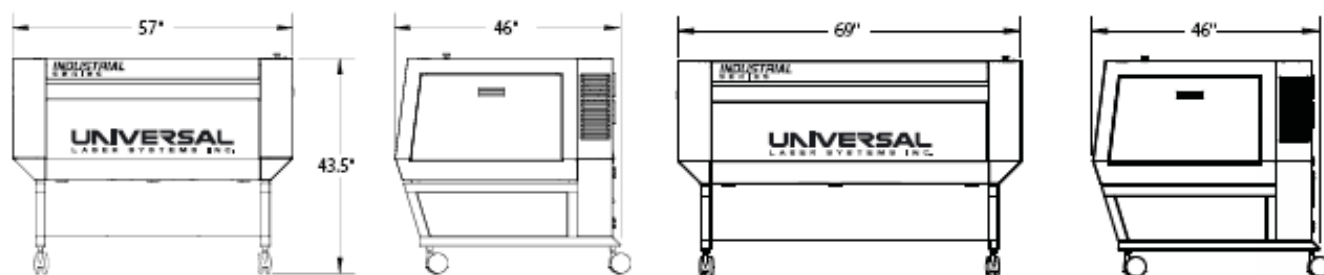
|  | ILS9.150D | ILS12.150D |
|---|---|---|
| Work Area | 36 x 24 in<br>914 x 610 mm | 48 x 24 in<br>1219 x 610 mm |
| Table Size | 40.5 x 30 in<br>1029 x 762 mm | 52.5 x 30 in<br>1334 x 762 mm |
| Maximum Part<br>Size (WxHxD) | 40.5 x 30 x 12 in<br>1029 x 762 x 305 mm | 52.5 x 30 x 12 in<br>1334 x 762 x 305 mm |
| Max. Clearance (WxHxD) for<br>Pass-Through1 | 23.75x8 in<br>603 x 203 mm | 23.75x8 in<br>603 x 203 mm |
| Overall Dimensions<br>(WxHxD) | 57 x 43.5 x 46 in<br>1448 x 1105 x 1168 mm | 69 x 43.5 x 46 in<br>1753 x 1105 x 1168 mm |
| Laser Power Options | 10, 25, 30, 35, 40, 45, 50, 55, 60, 75 watts (select any two lasers<br>for up to 15W combined power) | |
| Weight | 400 lbs. (118 kg) | 430 lbs. (215 kg) |
| User Interface | Keypad & PCD | |
| Printer Control & Connection | Windows XP/Vista, USB 2.0, high speed connection | |
| Power Requirements | 220V/16A; 50/60Hz | |
| Exhaust Connection | External exhaust required; 2 port (4 inches (100 mm) in diameter | |

# Accessories

Being able to custom configure your own laser system is yet another innovative philosophy that Universal Laser Systems has adopted to service the needs of its customer base. We believe that the customer should purchase only what is needed. It is also important that owners of ULS systems have the confidence in knowing that they can easily expand the capabilities of their laser system(s) as their business needs expand.

### Air Cleaner/Cart:
**Purpose**: To provide a convenient and stylish enclosure for air cleaner.
**Advantage**: VersaLaser sits atop air cleaner and locks in place.  Controlled through USB port and activated only when jobs are in process.  Locking casters for moving convenience.
**Compatibility**: VersaLaser only.

### Auto Focus:
**Purpose**: Sets work table to proper height for laser processing.
**Advantage**: Simplifies setup process by assuring proper in-focus position for items placed on the work table. This also eliminates wasted material common when one forgets to focus with a manual focus system.
**Compatibility**: Standard on all M, V & X laser platforms.

### Backsweep:
**Purpose**: To blow high pressure air at the point of laser interaction with the material to be cut or engraved.
**Advantage**: High PSI (pressure) design with user-adjustable pressure regulator can be configured for many applications. Back sweep design reduces flaming and cools material and directs smoke and fumes toward the exhaust, thus keeping engraving and cutting materials cleaner.
**Common Uses**: All types of engraving and cutting applications.

### Coaxial Air Assist with Optics Protection (Computer Controlled)
**Purpose**: Suppresses flaming and assists with optics protection.
**Advantage**: The Computer Controlled Air Assist is controlled by the print driver and allows up to two air sources or one air and one gas source. One air source is used to protect the moving mirrors and lens. The same air source or another source of air or gas can be forced directly in line with the laser path through a nozzle below the lens to assist in engraving or cutting. Air or gas can be turned on to high or low pressure or off during the job, all controlled by commands from the computer. Directing air onto the optics instead of using gas saves the expense of gas. The computer control only turns on the gas flow when necessary saving the expense of gas that would be wasted in a simple on/off system. Computer control also shuts off the ULS compressor pump when it is not needed.
**Compatibility**: Professional Series laser platforms (M360, V, X & XL Platforms). Requires an external air and/or gas supply. The External Compressor Unit for Air Assist is highly recommended. Any air or gas supply not provided by ULS must have a regulator set to no higher than 60 PSI and air must be oil free, dried and filtered air.
**Installation**: Must be factory installed.
**Common Uses**: Higher power engraving and cutting or any rubber engraving.

### Coaxial Air Assist with Optics Protection (Non-Computer Controlled):
**Purpose**: Suppresses flaming and assists with optics protection.
**Advantage**: The Non-Computer Controlled Air Assist provides the same lens and mirror protection and flame suppression (using a nozzle) as the more sophisticated Computer Controlled Air Assist but with a single gas and no computer control. Turning the compressor pump or gas supply on lets air or gas flow. Turning the compressor pump or gas supply off stops the air or gas flow.

**Compatibility**: All M, V & X laser platforms. Requires an external air supply. The External Compressor Unit for Air Assist is highly recommended. Any air or gas supply not provided by ULS must have a regulator set to no higher than 60 PSI. Filtered air from a compressor using oil is not acceptable. Air must be oil free, dried and filtered.
**Installation**: Must be factory installed.
**Common Uses**: Higher power engraving or cutting and any rubber engraving.

### Dual Head Option:
**Purpose**: The Dual Head Option allows laser processing of two identical jobs at the same time. It does this by splitting the work area into two identical work areas and the beam into two beams. Because splitting the beam reduces each beams power by approximately 50%, it is usually necessary to reduce processing speed.
**Advantage**: Production rate increases from 0-100% depending on application. Advantages typically increase with higher power and larger engraving areas.
**Compatibility**: Professional Series (M360, X & V platforms)
**Installation**: Under one minute.
**Common Uses**: High volume production of large identical items.

### External Compressor for Air Assist:
**Purpose**: Air source for Air Assist.
**Advantage**: Though other air sources can be used, the External Compressor was designed to provide the appropriate air supply from a compact, reasonably quiet and easy to use package. The unit consists of an oil-free compressor, an in-line filter and all required hoses, fittings and connections.
**Compatibility**: All platforms with Air Assist.
**Installation**: Quick connector connection to the machine and standard electrical hookups.
**Common Uses**: Recommended as an air source for the Air Assist.

### Focus Lens Options:
**Purpose**: Special applications.
**Advantage**: For most $CO_2$ applications, the standard or universal 2.0" focal length lens is the best choice. For very specialized applications, lenses are available with either a smaller spot size or are longer to give more clearance between the lens and the work.
**Compatibility**: All laser platforms. The lens and the third mirror are mounted on a quick install holder assembly.
**Installation**: Less than ten seconds with no tools required.
**Common Uses**: To give more clearance or reduce beam spot size for very special applications.

### High Power Density Focusing Optics™:
**Purpose**: Extremely detailed engraving or fine cutting.
**Advantage**: HPDF Optics achieves dramatically improved resolution for applications requiring extremely fine detail (small font sizes) or photos.
**Compatibility:** All Professional and XL Series laser systems; field retrofit kits are available for older machines (call factory or representative for information).
**Common Uses**: To provide improved resolution, finer, more detailed engraving and increased cutting depth.

### High Torque Rotary Fixture
**Purpose**: The High Torque Rotary Fixture was developed to allow laser processing around cylindrical surfaces. It holds the part between two cones that adapt to a variety of common shapes. It also can accommodate tapered items because it

allows raising one end of the fixture. The fixture is computer controlled and can engrave an entire 360 degrees around an object or more if overlap is needed.

**Advantage**: Ability to process cylindrical objects

**Compatibility:** All M, V and X laser platforms.

**Working Range**: Items up to 8 inches in diameter and up to 16 inches long.

**Installation:** Less than 30 seconds. All Compatible systems are shipped from the factory rotary ready.

**Common Uses**: Glassware, sporting goods, mugs and most cylindrical objects.

## Honeycomb Cutting Table:

**Purpose**: Supports materials being laser cut and provides some vacuum hold down.

**Advantage**: Minimizes burning of the back side of materials being cut all the way through by supporting materials above the reflective work table in the machine. The honeycomb design supports even small cut parts. The cutting table is designed to draw air through it to remove smoke and cutting vapors as they are generated which aids in keeping the cut parts and the machine cleaner. The table has ruler guides similar to the work table it is installed onto to aid in positioning materials.

**Compatibility**: All M, V and X laser platforms.

**Common Uses**: Wood and paper cutting.
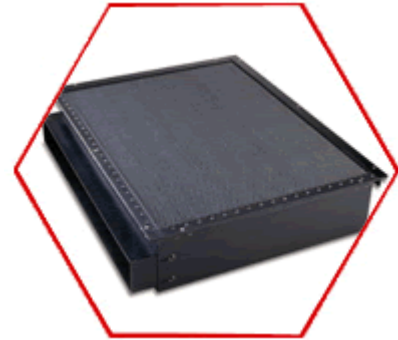
## Red Laser Pointer:

**Purpose**: Visible red beam material positioning tool.

**Advantage**: Simplifies and speeds setup by verifying exact position of odd shaped items on the work table. The position on the work table that the beam points to is displayed in X-Y coordinates to allow proper job setup. The beam can also be turned on in a simulated machine run to point to where the processing laser beam will be during an actual production run.

**Compatibility:** Standard on all laser platforms

**Common Uses**: Most critical positioning on the table. Recommended for all machines.
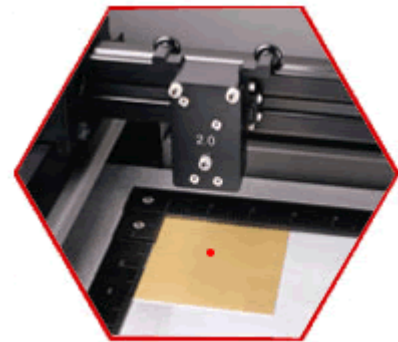
# X-650Y LARGE FIELD: YAG LASER SYSTEM

This is simply the most advanced large area direct metal marking system made. Our military and industrial customers love this machine.

Examples of Applications:
Marking:
▶ Part Identification
▶ Medical Instruments
▶ Tools
▶ Electronic Components
▶ Aerospace and Automotive Parts

Engraving:
▶ Control Panels
▶ Specialty Items
▶ Identification Tags
▶ Schematic and Diagram Tags

Materials Include:
▶ Metals
▶ Plastic

Designed for versatility and ease of use, the X-650Y Large Field Diode Pumped Nd:YAG Laser Marking & Engraving System is well-suited for marking a wide variety of products. This computer-controlled laser system can permanently identify parts with logos, dates, serial numbers, etc. The system is directly compatible with popular Windows™ based CAD and graphics programs, so there is no need for proprietary conversion software in order to engrave graphic images and logos.

With an engraving area of 32" x 18", the Nd:YAG system has the largest marking field in the industry. The laser beam remains perpendicular to the table, so marking is uniform over the full 32" x 18" field. Spot size and resolution also remain the same over the entire field.

This system is convenient to use with large top and front loading doors for easy access to the work area. And the stationary work table eliminates the need for clamping materials during processing. The compact size of this system allows it to fit easily into any facility. The system is completely enclosed and meets CDRH Class 1 safety requirements.

**Design**:
Free-standing unit with integrated cart, motorized Z-axis, auto focus, X-Y beam positioning system with RACER™ motion technology, self-aligning spring loaded sealed bearings, stationary processing table, shielded optics, flash upgradable electronics, job complete indicator and system status indicator.

**Laser Source**:
Diode pumped 50 watt, Q-Switched, Nd:YAG Laser.

**Laser Control**:
Laser control through Windows printer driver.

**Work Area**:
32" x 18" (812 x 457mm)

**Table Size**:
37" x 23" (940 x 584mm) Max. Part Size: 37" wide by 23" deep x 9" thick (940 x 584 x 228mm).

**Computer Interface**:
Parallel port standard. USB and ethernet optional.

**Operating Modes**:
Optimized raster or vector processing or combined vector/raster processing.

**Dimensions**:
Laser system: 39" high x 44" wide x 37.5" deep (990 x 1117 x 952mm). Laser power unit: 33" high x 23" wide x 24" deep (838 x 584 x 609mm).

**Weight**:
System: Approximately 350 pounds (158kg).
Laser power unit: Approximately 250 pounds (113kg).

**Safety**:
Class 1 interlocked safety enclosure.
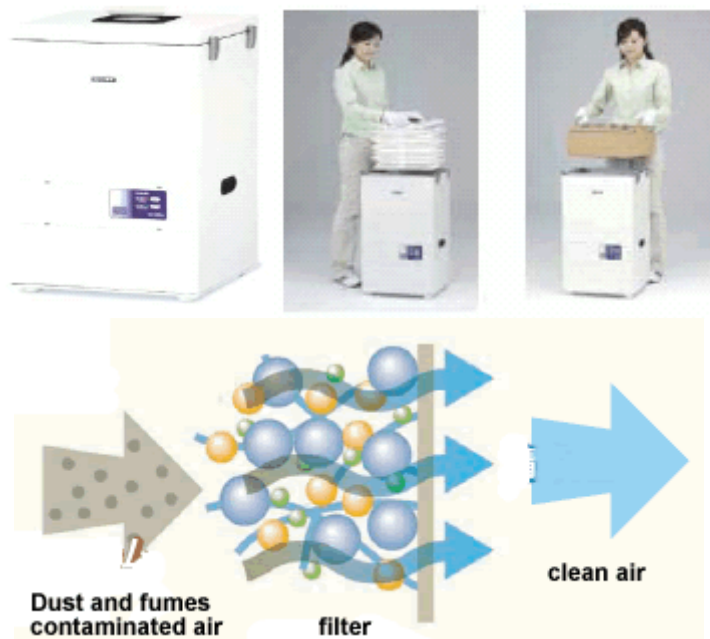
**Facility Requirements**

**Electrical**:
Single phase 220 VAC, 15 amp, 50/60 Hz

**Exhaust**:
Outside exhaust required. Two 4" (102mm) connections requiring 300 CFM total (150 at each connection) air flow and high pressure blower

| | |
|---|---|
| Compatible with Windows 2000/XP. | capable of 6 inches of water (425m3/hr at 1.5kPa). |
| **Memory Buffer**:<br>Intelligent buffer with automatic data compression stores up to 99 files with all settings; files are addressable and repeatable in any order and may be deleted after completion to free memory; buffer can be switched to a single file mode. | **Cooling**:<br>Water-cooled with built-in chiller. No external connections required. |
| **Display Panel**:<br>LCD display shows current file name, laser settings, engraving speed, run time, files loaded into memory buffer, setup and diagnostic menus. | |

# Deodorisation Fumes Collector



| Model | STVF-5HN |
|---|---|
| Power Supply | 3-Phase 50/60Hz or Single-Phase 50/60Hz |
| Output (kW) | 0.4 |
| Capacity (m3/min) | 3.6±0.2 |
| Static pressure (kPa) | 2.65 |
| Filter | Noise (dB[A]) | 65±2 less than |
| | Area (m3) | 2.3 |
| | Quantity | 1 |
| | Material | Electret |
| Capacity (L) | 15 |
| Deodorant (activated carbon) | 10kg |
| Power cord (m) | 2.3m |
| Selected air intake diameter (mm) | 65 / 75 / 100 |
| Dimensions W x D x H (mm) | 400 x 400 x 780 |
| Mass (kg) | 53 |

Laser Process Fumes

| Material | Collecting efficiency | Odour eliminating efficiency | durability |
|---|---|---|---|
| Resin | Very goods | Very good | Very goods |
| Paper | Very goods | Good | Very goods |
| Wood | Very goods | Very goods | Very goods |
| Rubber | Very goods | Possible | Very goods |
| Metal | Very goods | Very goods | Very goods |

Air Intake Capacity
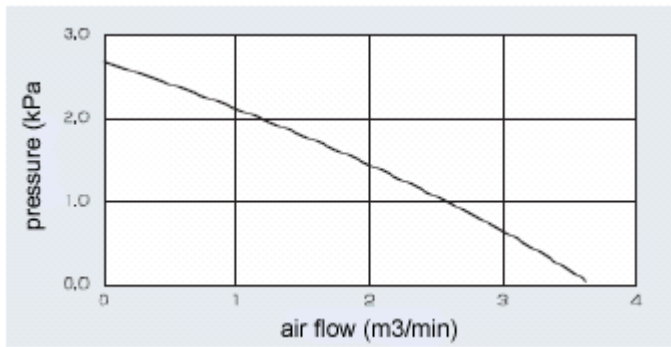
## Example of Application
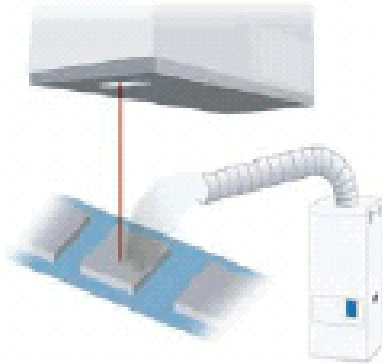


Electret Filter          Activated Carbon

# Laser Processing Materials

**Cutting & Marking or Engraving:**
Fabric & Leather
Paper & Cardboard
Plastic (sheet, film & molded)
Rubber (natural, synthetic & foam)
Wood

**Marking Only:**
Glass & Ceramic
Metal (coated & bare)
Stone (natural & synthetic)