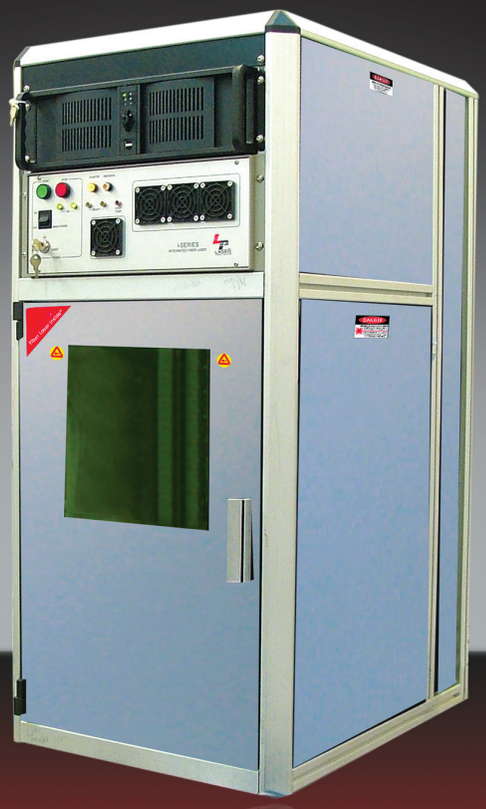


LaserTower COMPACT

3D LASER MARKING SYSTEM

LASER PHOTONICS®

LaserTower COMPACT

3D LASER MARKING SYSTEM

Industries

- Defense
- Government
- Aerospace
- Automotive
- Metal Fabrication
- Direct Parts Marking
- Medical

& Many More!

GSA Contract Holder
Contract GS-21F-0041T

The LaserTower COMPACT is a lower cost, low system height profile laser marking system placed on a table or desk with an 8" Z-axis controller to adapt to changes in application heights.

The LaserTower COMPACT is an industrial grade system designed to operate under high-vibration, shock and dust conditions with a MTBF >50,000 hours. The LaserTower Compact is maintenance-free requiring no consumables.

The system operates as a stand-alone system or with the doors removed, easily integrates into an I/O production line in a small 2ft by 2ft space saving footprint.

Each LaserTower COMPACT is optimized per our customer's unique application designed with either a Fiber Laser or CO2 Laser with wattages ranging from 20W to 70W. The LaserTower COMPACT provides a 19" by 19" material working space inside the enclosure.

The LaserTower Compact incorporates a programmable 8" Z-axis for focal height adjustments with 2 optical X'Y' axes and a portfolio of F-Theta lens options incrementally increasing the range of the marking area from 2" x 2" to 9" x 9".

All Direct Parts Marking (DPM), including UDI/UID barcodes, logos and all other service marks are permanent, legible and non-removable across the largest range of materials with special attention to highly-reflective metals. Included in the software is the company's proprietary barcode technology that presents an easily readable barcode with the use of a simple mobile phone barcode scanning application.

The LaserTowerPRO™ series produce a wide variety of Permanent, Legible and Non-Removable Direct Part Markings on a wide variety of materials.

Applications and Types of Marks		Materials	
ITO or Paint Removal	OCR Code Marking	Aluminum (Anodized/Polished/Cast)	Wood and Ceramics
Backlit Button Marking	"On-The-Fly" Marking	Stainless Steel and Mild Steel	Rubber and Silicon
Medical/Automotive Coding	Alphanumeric Marking	Titanium and Nickel	Marble and Stone
IC Chip Package Marking	Logos and Schematics	Copper and Brass	Composites and PVC
2D UDI/UID Barcoding	Sequential Serial Numbers	Carbide and Polycarbonate	Plastic and Graphite
Part Numbering	Lot Codes and Date Codes	Polypropylene	Fabrics and Leather
3D Engraving/Deep-Engraving	Ablation (Anodized, Painted or Coated)	Painted Metal Alloys	Acrylic and MDF
Surface Texturing		Chrome and Cast Iron	Galvanized Metals
			And More!

LaserTower COMPACT Design: Main Features:

- Maintenance-Free Direct Part Marking (DPM)
- Continuous operation under high-shock, vibration and dust conditions
- Long-term industrial-grade reliability with 50,000 hours MTBF
- Optimized for either a Fiber or CO^2 Laser
- Standard wall plug operation with high electrical efficiency
- Low voltage power source (110/220 VAC) 8 amps
- Laser "ON" magnetically locked front door for operator safety
- Compact design for space sensitive workspaces
- Large chamber provides a 19" by 19" material working area
- 8" Z-Axis Controller to accommodate a broad range of heights
- Class 1 or Class 4 Laser-Rated Safety Viewing Port
- PC-Based Controller, Flat Panel Monitor, Mouse and Keyboard
- Industrial-grade Extruded Frame with 19" Rack Mount Design
- Exhaust outlet for Fume Extractor
- Side Doors for longer parts (optional)

Fiber Laser: 20W-30W Options

Fiber Lasers are a great leap forward in processing all metal and coated soft material applications. Our Fiber Lasers are easily integrated into industrial processes in comparison with conventional laser due to:

- State of the art, Air-cooled, Ytterbium Q-switched Fiber Laser up to 2mJ for marking on virtually any material
- CW or Q-switched Fiber laser options with high-repetition rate
- Excellent TEM00 beam quality (M2 < 1.05)
- Exceptional High Reliability with more than 30,000 hours estimated maintenance-free operation
- Very high 50,000 hours MTBF (100,000 hours typical on diodes)
- Flexible cable-beam delivery system
- No water cooling required on select models
- Optimized for Direct Part Marking (DPM) applications including UDI/UID Barcoding and 3D Deep Engraving
- Red diode pointer for easy application setup
- Fiber delivery up to 3 meters
- Warranty – 2 years on laser components

Q-Switched Fiber Laser

The Q-switched Fiber Laser is maintenance-free. It delivers an excellent diffraction-limited (TEM00 beam quality M2 < 1.05) laser beam directly to the worksite via a metal sheathed single-mode fiber cable. These compact service-free Fiber Lasers are designed to operate under high-shock, vibration and dust conditions in relatively high humidity across wide operating temperature ranges. State-of-the-art air-cooled Ytterbium lasers have a very high MTBF of 50,000 hours (100,000 hours typical on diodes).

There is no routine replacement of parts or materials scheduling requiring only a low voltage power source. Fiber-to-Fiber architecture provides a robust, monolithic design with no optics to align, no mechanics to stabilize. The laser is engineered for optimal power and density providing responsive performance for the most demanding applications.

Fantom CO2 Slab Laser: 20W/30W/70W Options

Laser Photonics' proprietary Fantom CO2 SLAB Lasers are a leap forward in laser technology. These CO2 lasers are easily integrated into industrial processes in comparison with conventional lasers:

- Designed to operate under high shock, vibration & dust conditions
- Sealed off and RF Excited CO2 SLAB laser
- CW or Pulsed CO2 laser options
- Excellent TEM00 beam quality (M2 < 1.2)
- Exceptional Reliability with > 10,000 hours maintenance-free operation
- Sealed dust-proof design
- No need for gas refill during the warranty period
- Flexible cable-beam delivery system
- No water cooling required on select models
- Optimized for Direct Part Marking (DPM) applications including UID/UDI barcoding and engraving
- Red diode pointer for easy application setup (Optional)
- Warranty – 2 years on laser components

Fantom F20/F30/F70 CO2 SLAB Laser

Fantom Slab Lasers are completely sealed units requiring no gas connections producing a beam that processes material at an average power of 20W/30W/70W respectively. These CO2 lasers provide a low M2 (M<1.2), high quality beam that allows smaller focus spot sizes and incorporates Laser Photonics' proprietary fast-rising square wave pulsing technology with repetition rates up to 25 kHz with an output wavelength of 10.6 microns engineered for optimal power and density providing responsive performance for the most demanding applications.

Dynamic Performance Facility Requirements	
Repeatability:	< 22 µrad Operating Temperature 25°C±10°C
Offset Drift:	< 25 µrad/k Typical Air Requirements Clean, Filtered air 20 l/min. at Δp <2bar
Gain Drift:	< 80 ppm/k
Long Term Drift:	< 0.3 mrad (Over 8 hours)
Tracking Error:	0.40 ms
Optical Performance	
Focal Length:	100 – 200MM Typical Scan Angle of Scanner 1 ±0.26 rad
Zero Offset:	< 5 mrad Typical Scan Angle of Scanner 2 ±0.40 rad
Skew:	< 1.5 mrad Typical Field Size – Ellipse 80mm x 130mm
Nonlinearity:	< 2.1 mrad Typical Field Size – Square 75mm x 75mm to 110 x 110mm
Gain Error:	< 5 mrad

PC-Based Controller

The PC-Based Controller is an industrial-grade PC in an open and upgradeable configuration incorporating the latest generation mother board and data storage devices. The controller also includes an advanced Scan Head Digital Control Board and optically isolated I/O card. The unit operates on Windows™ XP or 7 Operating System with optional field correction software for demanding applications.

DSP Control Board

The PC Interface DSP Control Board provides synchronous, interference -resistant control of the scan system and laser in real time. A high performance signal processor and the supplied DLL simplify programming under Windows. Software instructions are loaded alternately in two list buffers processed by the DSP and output as 16-bit control signals every 10µs to the scan system. The processor automatically performs vital steps such as micro-vectorization and image field correction. Laser control is synchronized with the scanner movements.

Interface:	PCI bus interface
Resolution:	16-bit positioning resolution
Output Period:	10 µs

Precise, Maintenance Free Z-Axis Controller
The Z-Axis Controller with an 8″ vertical capability accommodates a variety of replaceable lenses.

Precise, F-Theta Lens Options
100mm - 160mm - 254mm - 330mm

Touch Screen Interface
(option)

IR Laser Beam Red Diode Pointer
(option for CO2 laser / Standard for Fiber laser)

Light Barriers
(option)

Dual Push Buttons for Safe Operation
(option)

Auto Focus Laser height Sensor with Controller and Software (option)

Host Communication/Database Interface
(option)

Vision System Recognition/Alignment System
(option)

Laser Equipment	Fiber Laser: LPQ 20-1.0, LPQ 30-1.0 CO^2 Laser – Fantom F30, Fantom F100
Mode of operation Programmable Z-Axis	Q-Switched or CW (Fiber laser); Pulsed or CW (CO^2 laser) 4″ or 8″ Travel
Maximum Material Weight	120 lbs
System Dimensions Weight	See envelope drawings below 285 pounds
Operating Temperature	+18 to +25° C
Relative Humidity Electrical Requirements	40 – 80% non-condensing 120 volt 8 amps
Clean Dry Air* (If Required and equipped)*	80 PSI

Fantom F20

FiberScan C3™ / FiberScan C3™ LT Software

Proprietary Software Options:

- FiberScan C3 LT is designed to operate on Windows 7 (32/64 bit) and supports Windows XP Professional (32/64 bit).
- FiberScanC3 supports remote access data base connectivity designed to operate on Windows XP Professional (32 bit) and supports Windows 7 (32 bit).

The user-friendly software entails a fully integrated driver, remote diagnostic capabilities for worldwide support and multiple hardware interfaces for the ability to execute any CO^2 or Fiber Laser marking system. File links to several internal databases make the FiberScan C3™ program flexible and powerful.

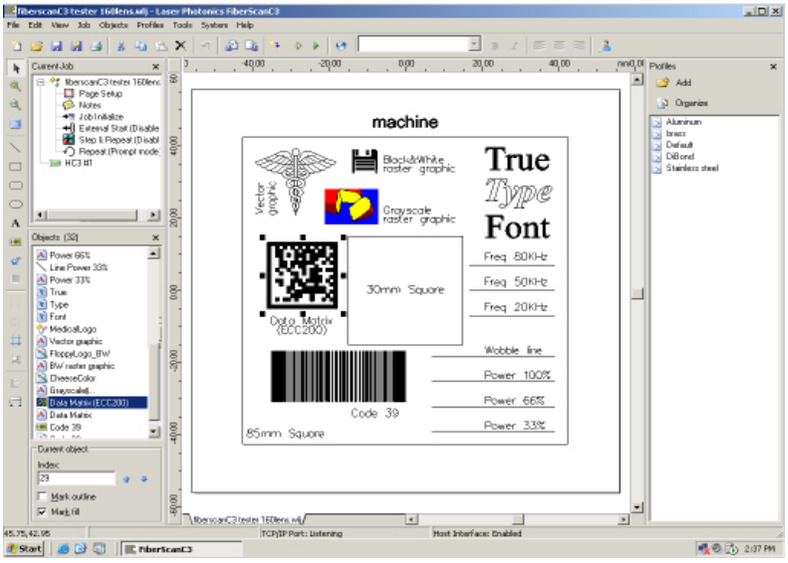
These databases include a materials application system and a fixture database. The materials application system allows a user to define a laser process, give the process a unique name and subsequently link the process to graphic programs. A process can include multiple passes using different values for power, frequency and speed on each laser pass.

The database can contain and manage many thousands of different process 'recipes'.

The fixture database allows the user to control fixture offsets and define step and repeat processes. Just like the material database, any WLJ job can use any fixture defined in the fixture database.

The link allows all appropriate graphic and process information to be automatically loaded when the operator selects the lasing file.

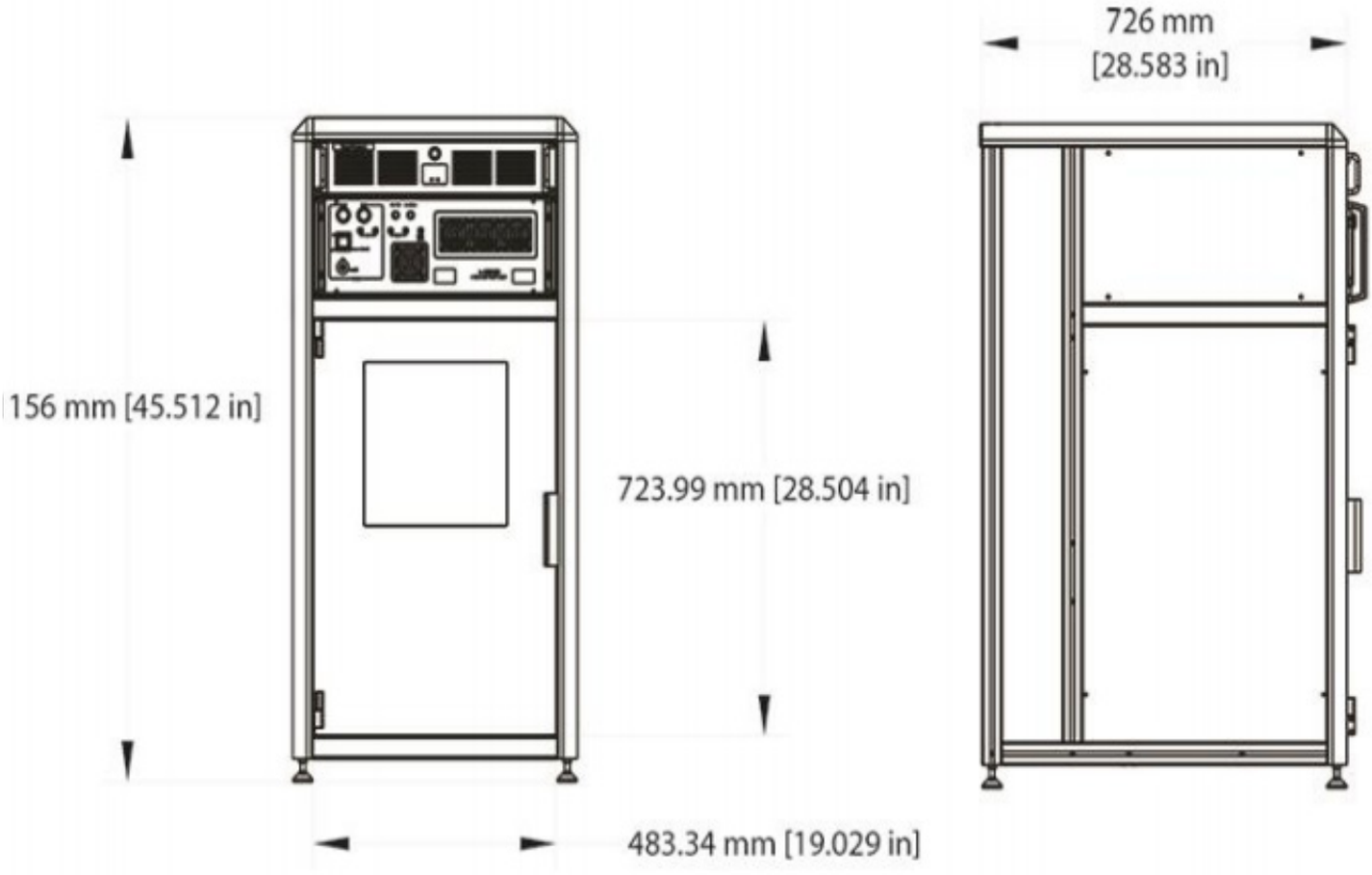
At any time the operator can change the links, for example a lasing job that is normally marked on stainless steel, can be marked on brass by selecting the brass process file prior to executing the job program file.



Operators don't have the need to remember fonts and logos for a particular job because FiberScan C3™ automatically performs all required graphic loading.

FiberScan C3™ does not require users to learn any programming languages or special codes and provides all of the flexible and graphic controls that users are accustomed to such as radial marking, aspect control, character spacing, angular rotations and full justification.

LaserTower COMPACT System Dimensions: 285 lbs



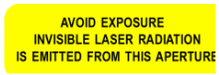
LaserTower Series Product Guide

LaserTower DESKTOP | LaserTower COMPACT | LaserTower PRO | LaserTower PRO CM | LaserTower PRO RT | LaserTower PRO DUO | LaserTower PRO MEGACENTER

LaserTower™ Series Product Guide						
	LaserTower DESKTOP	LaserTower COMPACT	LaserTower PRO	LaserTower PRO CM	LaserTower PRO RT	LaserTower PRO MEGACENTER
Q-Switched Fiber Laser						
0.5mJ @ 10kHz	☑	☑	☑	☑	☑	☑
0.5mJ @ 20kHz	☑	☑	☑	☑	☑	☑
1.0mJ @ 20kHz	☑	☑	☑	☑	☑	☑
2.0mJ @ 20kHz			☑	☑	☑	☑
CW Fiber Laser (50 Watts)						
50 Watts			☑	☑	☑	☑
F-Theta Scanning Lenses						
100mm		☑	☑	☑	☑	☑
160mm	☑	☑	☑	☑	☑	☑
254mm		☑	☑	☑	☑	☑
330mm		☑	☑	☑	☑	
330mm With Beam Expander				☑	☑	
420mm				☑	☑	
420mm With Beam Expander				☑	☑	

LaserTower Series Product Guide

	LaserTower DESKTOP	LaserTower COMPACT	LaserTower PRO	LaserTower PRO CM	LaserTower PRO RT	LaserTower PRO MEGACENTER
Z-Axis Controller						
Scissor Jack (Manual "Z" Axis Adjustment)	☑					
Programmable Z-Axis (4" Travel)		☑	☑	☑	☑	☑
Programmable Z-Axis (8" Travel)		☑	☑	☑	☑	☑
Rotary "C" Indexer (Circumference Marking)			☑	☑	☑	
X-Y Table for Extended Marking Areas or High Precision Laser Processing			☑	☑		☑



Requirements beyond those listed above will be quoted upon request. Contact Laser Photonics office or visit our website www.laserphotonics.com if you need any assistance determining which capabilities best suit your needs.

Safety Considerations during Operation: 1064 nM wavelength laser light emitted from this laser system is invisible and may be harmful to the human eye. Proper laser safety eyewear must be worn during operation at all times.

21CFR 1040.10 Compliance: Fiber Lasers are a Class 4 laser as designated by the CDRH and meet the full requirements for a stand-alone laser system as defined by 21 CFR 1040.10 under the Radiation Control for Health and Safety Act of 1968. As an added level of security, a redundantly switched safety interlock system helps preven accidental exposure to excess laser radiation. Plus the system is equipped with an electrical power manual reset, a key-locked laser power switch and a remote interlock connector. Finally, the system has audible and vislbe emission indicators with five (5) scond emission delay settings. All these features, in combinaion, constitute the laser radiation safety syste which allows the LaserTower™ Series of equipment be used in a safe and secure manner.

Tel: 407.477.5618 • Toll Free: 844.44.LASER • Fax: 407.804.1002
www.laserphotonics.com • info@laserphotonics.com