



The Power of Hot Light

**Manufacturer of Advanced
Laser Sources & Systems**



Innovative Ideas

LaserStar's R&D lab is focused on inventing new technologies that change markets and create business opportunities.

Successful Designs

LaserStar products deliver exceptional value while earning the respect and loyalty of their customers.

Superior Quality & Performance

Trained in world-class Lean manufacturing principles, LaserStar's team of experts constantly strive to improve manufacturing and business processes.

Our Mission

LaserStar Technologies Corporation is a Lean, laser manufacturing company. Our goal is to enhance the quality, performance and innovation of our products, programs and services on a continuing basis. We invite our customers, employees and friends to be an active participant in this mission.

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Our Brands



MANUAL WELDERS - HERE'S HOW IT WORKS



LASER is an acronym for “**L**ight **A**mplification by the **S**timulated **E**mission of **R**adiation” which produces a sharp, focused light beam that melts a very small area of metal. The benefit of this technology is that very little heat is generated at the weld point, allowing users to easily weld 0,05mm (.002”) away from the most complicated and intricate component parts without damaging heat sensitive materials.

Operators hold parts in their hands while viewing the application through a stereo-microscope in the welding chamber. An internal cross-hair allows the operator to easily align and weld the parts at the correct location.

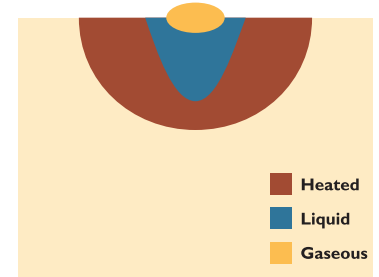
The Power of Hot Light

LaserStar Technologies’ development of the “free-moving” concept enable users to eliminate costly fixturing devices, benefit from pin-point accuracy, increase the range of assembly and repair applications and minimize the potential hazards of heat damage. The resulting weld is considerably stronger than a traditional solder joint.

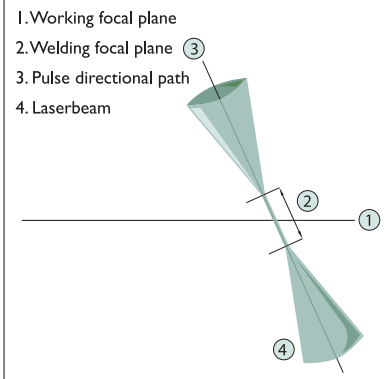
- ☆ **Easy To Use...**
- ☆ **Simple to Maintain...**
- ☆ **Incredibly Powerful!**

Bombardment Zone

Shows the zone affected by heat after laser bombardment



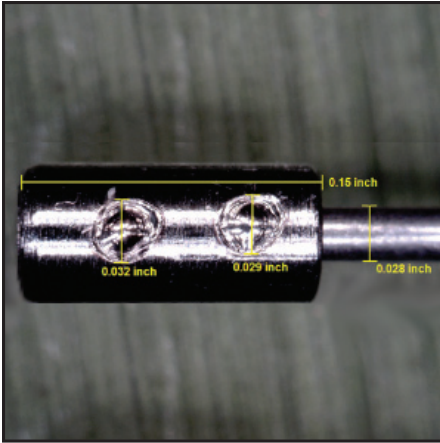
Depth of Focal Field



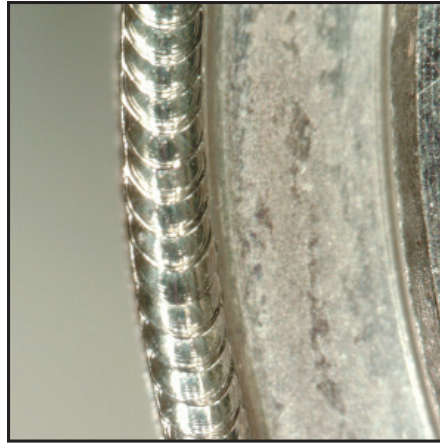
Manual Laser Welding Systems are ideal for the smallest workshop to large industrial manufacturers. Common industry applications include:

- micro industrial-medical device spot and seam welding assemblies
- electronically compatible voltage sensitive applications
- jewelry design, production and repair
- dental laboratory partial, crown & bridge, and implant fabrication and repair
- optical eyewear fabrication and repair

ADVANCED WELDING APPLICATION EXAMPLES



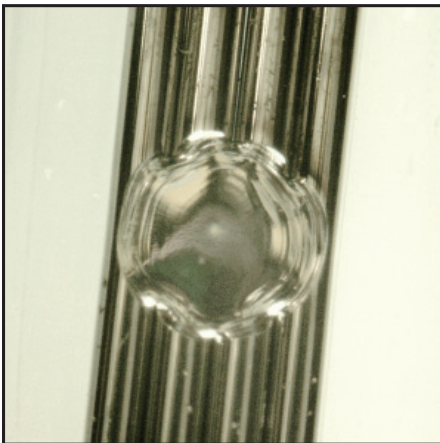
Laser Spot Weld of Tool Holder



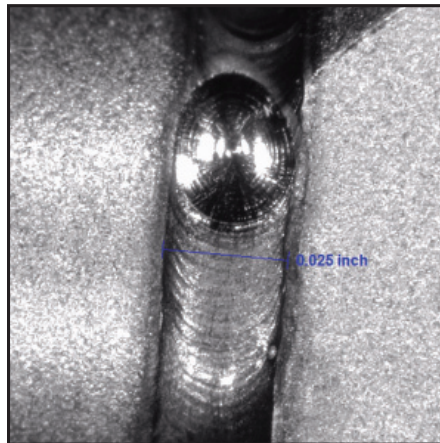
Laser Seam Weld of Pressure Cap



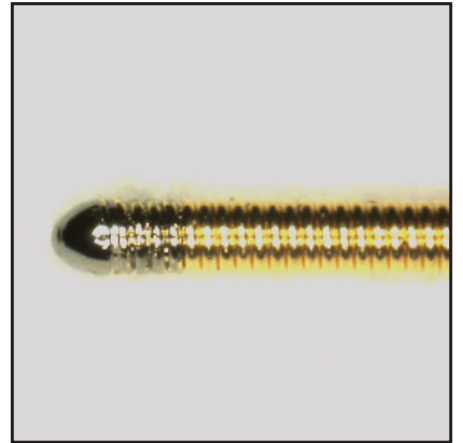
Laser Seam Weld of Dispenser



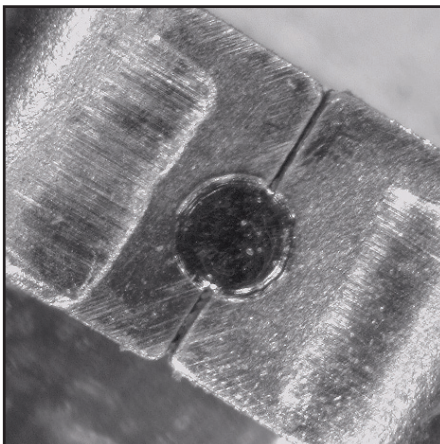
Laser Spot Weld of a Wire Bundle



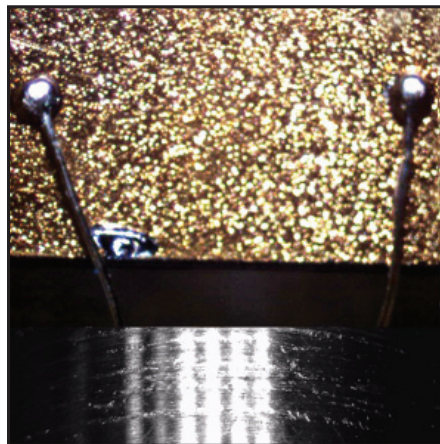
Laser Seam Weld of Tooling



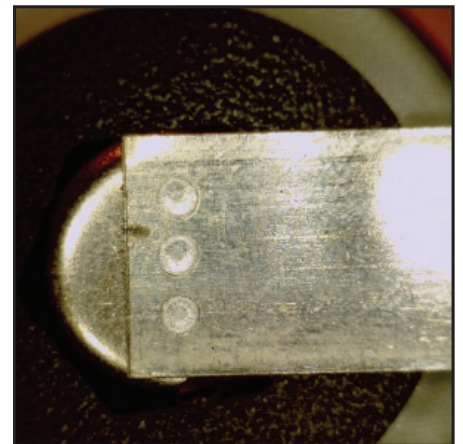
Laser Spot Weld of NiTi Wire to Tungsten Coil



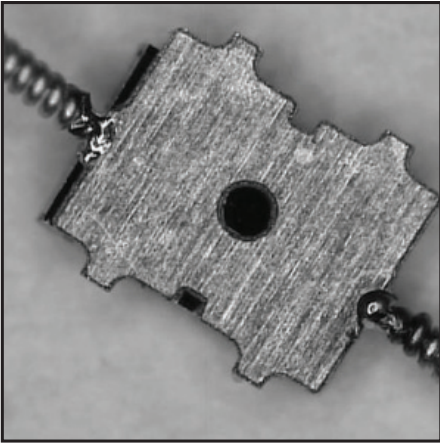
Tack Weld of Joint



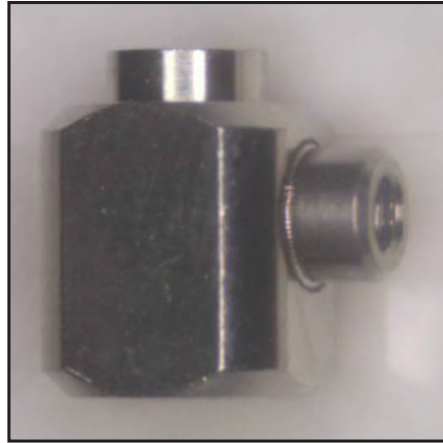
Laser Spot Weld for Solder Reflow



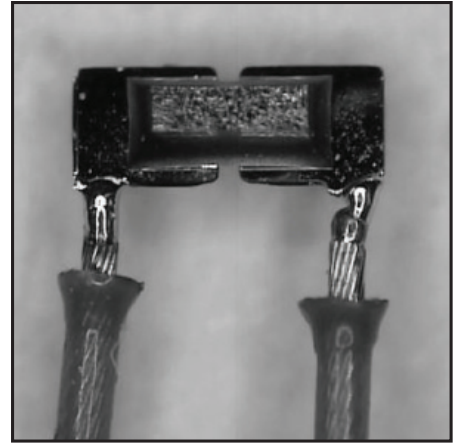
Laser Spot Weld of Tab to Battery



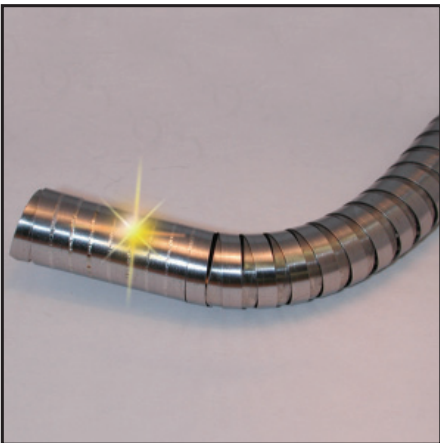
.003" Wire Welded to .003" Platinum



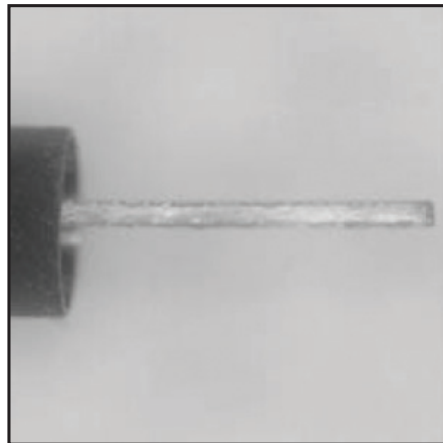
Set Screw Housing Structural Seam Weld



.0045" Cable Welded to a Ribbon



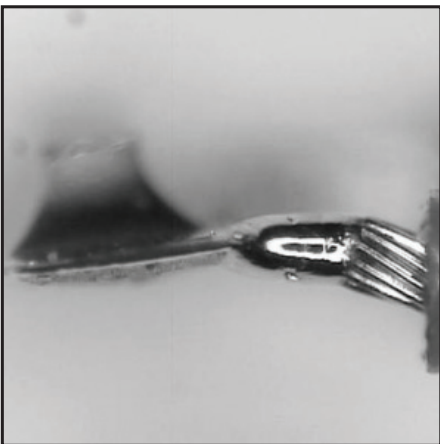
Medical Component Weld



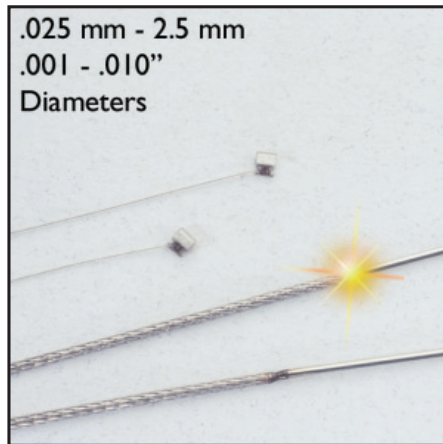
.003" Ribbon Welded to Ring Electrode



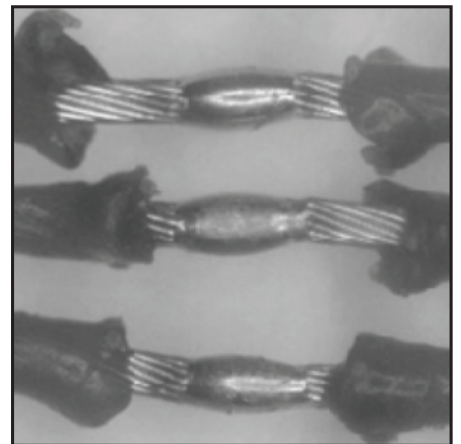
.003" Wire Welded to .003" Platinum



Cable Welded to .002" Platinum



Medical Device Small Guide Wire Welds

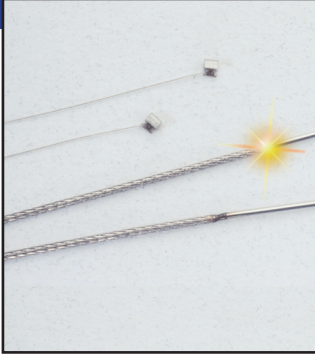


Cables Joining

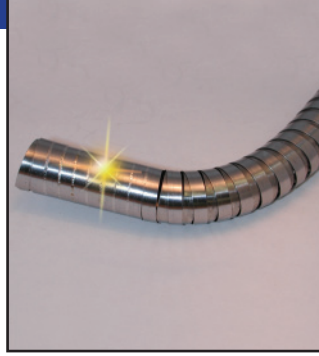
For additional application examples, please visit www.LaserStar.net.

MANUAL LASER WELDING APPLICATION EXAMPLES

MEDICAL DEVICE - DESIGN - MANUFACTURING - REPAIR



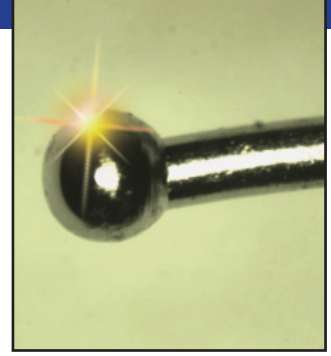
Medical Device Small Guide Wire Welds



Surgical Instrument Assembly and Repair

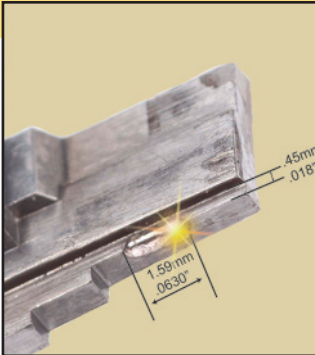


Medical Assembly Welds

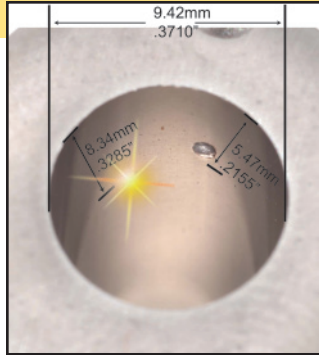


Fine Wire Lead Used in Medical Implants - 330nm Platinum Wire

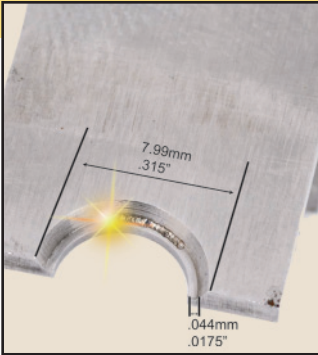
TOOL & DIE - MOLD MAINTENANCE - REPAIR



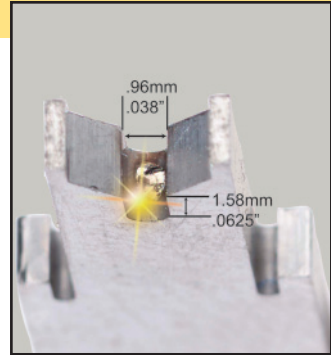
Mold Insert Repair with Filler Wire



Cylinder Inside Diameter Repair



Mold Insert Repair



Mold Insert Repair

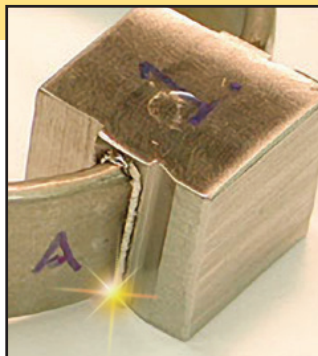
INDUSTRIAL - DESIGN - MANUFACTURING - REPAIR



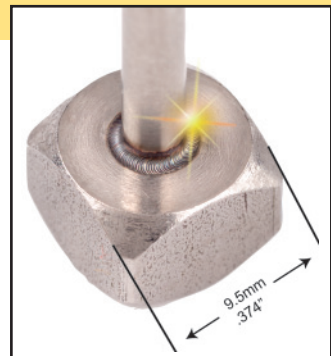
Titanium Casting Porosity Repair



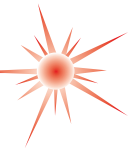
Thin to Thick Section Weld



Mechanical Assembly Weld



Automated Tube-Base Weld



JEWELRY - DESIGN - MANUFACTURING - REPAIR



One of a Kind Custom Laser Assembly



Three Stone Ring Retip Repair

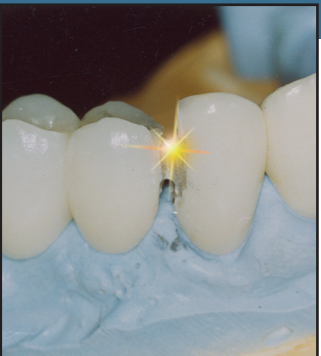


Custom Design and Laser Assembly



100% Laser Welded Custom Design

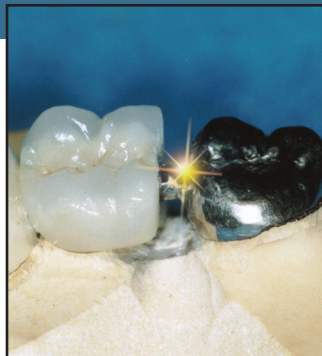
DENTAL LABORATORY - DESIGN - MANUFACTURING - REPAIR



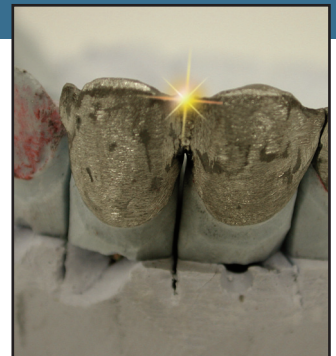
Laser Welds Complete on Master Model



Laser Welded Clasp Repair



Molar has been Laser-Attached to Bridge

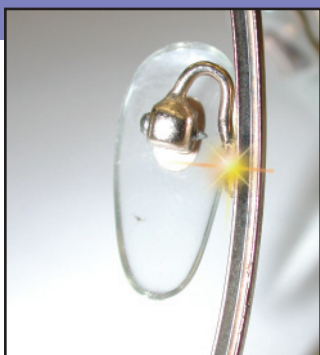


Ceramic Copings Laser Welded with Parent Metal

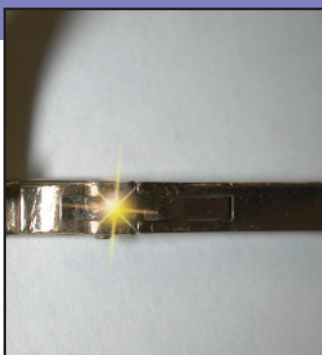
EYEWEAR - OPTICAL REPAIR



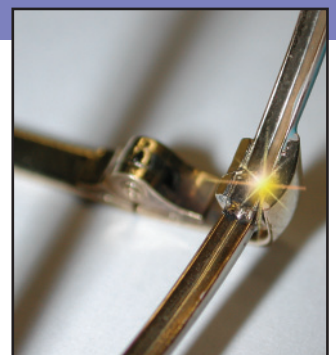
Eyewear Nose Pad Repair



Pad Arm Repair



Hinge Repair Weld



Frame Repair - Front to End Piece

For additional application examples, please visit www.LaserStar.net.

980/990 Series

Easy to use, simple to maintain and incredibly powerful, the iWeld fits neatly into any work environment. iWeld is the highest peak powered machine in its class. This machine welds SILVER along with other complex alloys.

The iWeld is ideal for a wide range of metal joining and repair applications. The system's compact, portable, space-saving design, coupled with LaserStar's well-known reputation for high quality, efficient laser sources, make the iWeld an excellent value.

Operators benefit from pin-point accuracy, increase the range of assembly and repair applications, and minimize the potential hazards of heat damage. The resulting weld is considerably stronger than a traditional solder joint. The comfortable, ergonomic design, with conveniently located operator controls and display, ensure optimal utilization with minimal operator fatigue.

LaserStar's commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the laser source through the welding chamber, while providing many hours of continuous operation without overheating. As always, the iWeld is available in the domestic USA marketplace in 120 Volts or 230 Volts.

iWeld lasers offer an excellent value for today's industry professionals looking to unleash the power of hot-light, benefit from a comfortable, compact, ergonomic design and ensure optimal platform technology.

HIGHLIGHTS

- Accurate, Powerful
- Compact, Portable
- Easy Set-Up, 40-125 Joule
- 120V-230V, 35, 60 & 80 Watt

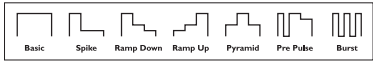
Six Models Available:

- 40 Joule, 5.5 kW, 35 Watt, 30 Hz
- 60 Joule, 10.0 kW, 60 Watt, 30 Hz
- 80 Joule, 10.0 kW, 60 Watt, 30 Hz
- 100 Joule, 10.0 kW, 60 Watt, 30 Hz
- 125 Joule, 10.0 kW, 60 Watt, 30 Hz
- 125 Joule, 10.0 kW, 80 Watt, 30 Hz



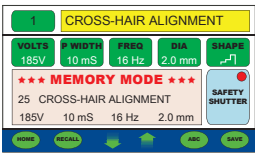
PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 980/990 Series **iWELD** Systems)



- Custom Pulse Profiling
- Pulse Suppression Software

Digital Messaging Display



- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application Parameters

More Efficient Power Supply Technology

Large Viewing Window

Removable Door

Ergonomically Designed Forearm Entry Ports

Multiple Viewing Systems



- Soft Beam™ Profile Enhancement Resonator Technology (Optional)

Side Entry Service Panels ("Easy Access" to Maintenance Tasks)

120V or 208-240V Single Phase Supply Circuit



Interior Chamber Design



- Larger Welding Chamber
- Tri-Access Chamber
- LED Natural Lighting
- Inert Gas Delivery System

MADE IN THE USA

Worldwide Safety Certification
FDA(CDRH), UL, CSA, CE



Technical specifications are provided on page 21

960/970 Series

Easy to use, simple to maintain and incredibly powerful, the iWeld Professional fits neatly into any work environment. iWeld Professional is the highest peak powered machine in its class. This machine welds SILVER along with other complex alloys.

The iWeld Professional is ideal for a wide range of metal joining and repair applications. The system's compact, portable, space-saving design, coupled with LaserStar's well-known reputation for high quality, efficient laser sources, make the iWeld Professional an excellent value.

Operators benefit from pin-point accuracy, increase the range of assembly and repair applications, and minimize the potential hazards of heat damage. The resulting weld is considerably stronger than a traditional solder joint. The comfortable, ergonomic design, with conveniently located operator controls and display, ensure optimal utilization with minimal operator fatigue.

LaserStar's commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the laser source through the welding chamber while providing many hours of continuous operation without overheating. As always, the iWeld Professional is available in the domestic USA marketplace in 120 Volts or 230 Volts.

iWeld Professional lasers offer an excellent value for today's industry professionals looking to unleash the power of hot-light, benefit from a comfortable, compact, ergonomic design and ensure optimal platform technology.

Six Models Available:

- 60 Joule, 10.0 kW, 60 Watt, 30 Hz
- 80 Joule, 10.0 kW, 60 Watt, 30 Hz
- 100 Joule, 10.0 kW, 60 Watt, 30 Hz
- 125 Joule, 10.0 kW, 60 Watt, 30 Hz
- 150 Joule, 10.0 kW, 80 Watt, 30 Hz
- 150 Joule, 10.0 kW, 60 Watt, 30 Hz

HIGHLIGHTS

Accurate, Powerful
Portable Pedestal
Easy Set-Up, 60-150 Joule
120V-230V, 60 & 80 Watt

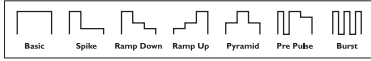
970 Series iWeld Professional



960 Series iWeld with Removable Chamber

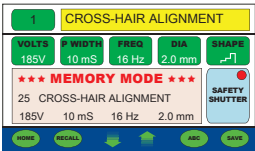
PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 960/970 Series **iWELD** Professional Systems)



- Custom Pulse Profiling
- Pulse Suppression Software

Digital Messaging Display



- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application Parameters

More Efficient Power Supply Technology

Large Viewing Window

Removable Door

Multiple Viewing Systems



- Soft Beam™ Profile Enhancement Resonator Technology (Optional)



Side Entry Service Panels
("Easy Access" to Maintenance Tasks)



120V or 208-240V
Single Phase Supply Circuit

Interior Chamber Design



- Larger Welding Chamber
- Tri-Access Chamber
- LED Natural Lighting
- Inert Gas Delivery System

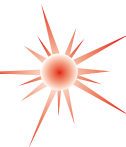
Ergonomically Designed Forearm Entry Ports

MADE IN THE USA

Worldwide Safety Certification
FDA(CDRH), UL, CSA, CE



Technical specifications are provided on page 21



7000 Series

The 7000 Series LaserStar Workstation offers a significant competitive advantage for today's operators looking to unleash the power of hot light, benefit from a comfortable, ergonomic design and ensure optimal platform technology.

Operators can benefit from pin-point accuracy, increase the range of assembly and repair applications and minimize potential hazards of heat damage. The resulting weld is considerably stronger than a traditional bonded joint.

HIGHLIGHTS

- Ergonomic Design
- Excellent Pulse Stability
- Portable Workstation
- 80-150 J, 60, 80 & 100 Watts

LaserStar workstations offer "space-saving" versatility while incorporating a state-of-the-art compact cooling system. The result - a significant pulse energy advantage while maintaining minimum water cooling temperatures and 24-hour operational performance. Our commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the LaserStar source through the welding chamber.

7000 Series LaserStar manual welding systems are available in 110V and 220V line voltage while offering up to an industry leading three year warranty.

Custom configurations are available upon request.

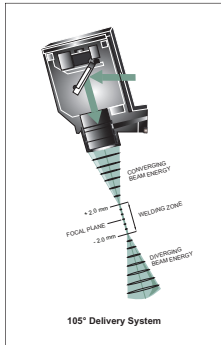


Lynx Stereo
Microscope Shown



PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 7000 Series LaserStar Workstations)

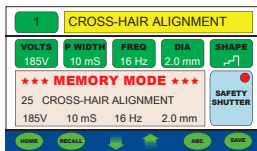


Multiple Viewing Systems



- Soft Beam™ Profile Enhancement Resonator Technology (Optional)

Digital Messaging Display



- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application

Tri-Door Chamber Design



- Side Door Entry (12" x 6.75" / 30,5cm x 17cm)
- Front Door Entry (9" x 6.25" / 22,85cm x 15,85cm)
- Chamber Capacity (1,113 cubic inches - 2,826 cubic cm)

Large Viewing Window

22.5 square inches - 145 square cm

Interior Chamber Design



- LED Natural Lighting (Quad)
- Dual Inert Gas Delivery System
- Dual Operating Logic

Ergonomically Designed Forearm Entry Ports

Automation Opportunities



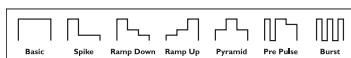
- Integrated Motion Systems
- Multi-Depth Chamber Inserts

Side Entry Service Panels

(Provides "easy access" to maintenance tasks)

120V or 208-240V
Single Phase Supply Circuit

EZ-LINK™ Software



MADE IN THE USA

Worldwide Safety Certification
(FDA(CDRH), UL, CSA, CE)

Technical specifications are provided on page 22



1900 Series (Standard Body)

LaserStar's 1900 Series Industrial Workstations are ideal for a wide range of metal joining, complex assembly, automation and repair applications for the industrial marketplace. A compact, portable design, coupled with LaserStar's well-known reputation for high quality, efficient laser sources, make the 1900 Series an excellent value.

Removable welding chambers are designed to be custom configured for the widest range of applications. High precision motion devices are engineered to integrate into the welding chamber. Five chamber platforms are available: open workspace, open workspace with adjustable shelf, standard, deluxe and automation chamber.

LaserStar Industrial Standard Body Workstations are available in 60 and 80 watt models and integrate a variety of viewing systems to meet the specific needs of our customer's applications.

Our commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the LaserStar source through the welding chamber. The result - a significant pulse energy advantage while offering end-users a custom configuration to meet their specific application requirements.

LaserStar Workstations are ideal for a wide range of complex alloys and applications including:

- Medical Device Components
- Micro & Mold Repair Welding
- Automotive & Micro Components
- Computer Components
- Spot & Seam Welding
- Aerospace & Electronics
- Battery Welding
- Many Complex Alloys

■ HIGHLIGHTS

Flexible Platforms
Motion Device Ready
Excellent Pulse Stability
60 - 100 Watt Models

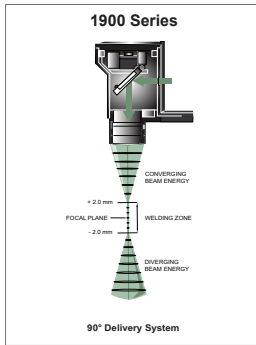


1900 Series
Standard Body
(Shown with Adjustable
Work Table)



PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 1900 Series LaserStar Welding Systems)

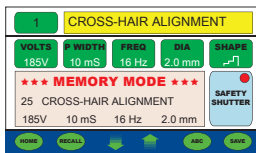


Multiple Viewing Systems



Soft Beam™ Profile Enhancement Resonator Technology (Optional)

Digital Messaging Display



- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application

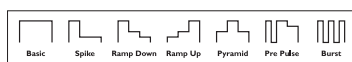
Large Viewing Window

22.5 square inches - 145 square cm

Interior Chamber Design



- LED Natural Lighting (Quad)
- Dual Inert Gas Delivery System
- Dual Operating Logic



Extension Accessories



- Extension Tube - 3, 6 or 9 inch

Removable Chamber with Three Access Panels



120V or 208-240V
Single Phase Supply Circuit

Automation Opportunities



5-Axis Rotation Module Shown

Side Entry Service Panels

(Provides "easy access" to maintenance tasks)

MADE IN THE USA

Worldwide Safety Certification
FDA(CDRH), UL, CSA, CE

Technical specifications are provided on page 23



1900 Series (XL Body)

LaserStar's 1900 XL Series Industrial Workstations are ideal for a wide range of metal joining, complex assembly, automation and repair applications for the worldwide marketplace. The XL body style provides an oversize welding workspace design coupled with high wattage output which is ideal for many different welding applications.

A removable welding chamber is designed to be custom configured for a wide range of applications. High precision motion devices are engineered to integrate into the welding chamber and enhance the systems production capabilities.

LaserStar Industrial XL Workstations are available in 60, 80, 100, 150 and 200 watt models and integrate a variety of viewing systems to meet the specific needs of our customer's applications.

Our commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the LaserStar source through the welding chamber. The result - a significant pulse energy advantage while offering end-users a custom configuration to meet their specific application requirements.

LaserStar Workstations are ideal for a wide range of complex alloys and applications including:

- Medical Device Components
- Micro & Mold Repair Welding
- Automotive & Micro Components
- Computer Components
- Spot & Seam Welding
- Aerospace & Electronics
- Battery Welding
- Many Complex Alloys

■ HIGHLIGHTS

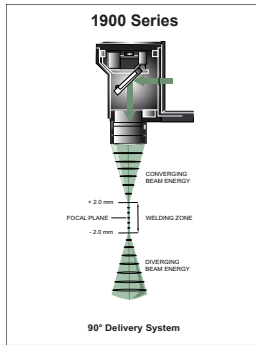
Flexible Platforms
Motion Device Ready
Excellent Pulse Stability
60 - 200 Watt Models

**1900 Series (XL Body Style)
Open Workstation**
(Shown with Adjustable Work Table)



PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 1900 XL Series LaserStar Welding Systems)

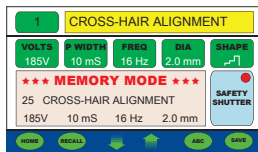


Multiple Viewing Systems



Soft Beam™ Profile Enhancement Resonator Technology (Optional)

Digital Messaging Display



- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application

Large Viewing Window

22.5 square inches - 145 square cm

Interior Chamber Design



- LED Natural Lighting (Quad)
- Dual Inert Gas Delivery System
- Dual Operating Logic

Automation Opportunities

Extension Accessories



- Extension Tube - 3, 6 or 9 inch

Removable Chamber with Three Access Panels



120V or 208-240V, Single or Three Phase Supply Circuit



X-Y-Z-Theta Motion Device

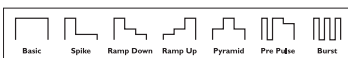
Side Entry Service Panels

(Provides "easy access" to maintenance tasks)



MADE IN THE USA

Worldwide Safety Certification
FDA(CDRH), UL, CSA, CE

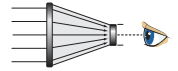


Technical specifications are provided on page 23



ClearView Binocular Microscope

This binocular stereo-microscope offers the traditional (15x) total viewing magnification with a high-level of optical clarity for the experienced microscope user.

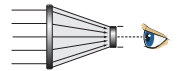


15-20mm Viewing Distance



EasyView Binocular Microscope

This binocular stereo-microscope offers the traditional (15x) total viewing magnification with a high-level of optical clarity for the experienced microscope user.

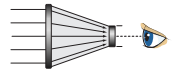


15-20mm Viewing Distance



Leica Binocular Microscope

This binocular stereo-microscope offers the traditional (15x or 40x) total viewing magnification first introduced on LaserStar Welding Systems. A high-level of optical clarity is achieved with this hardware for the experienced microscope user.

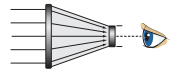


15-20mm Viewing Distance



ClearView Trinocular Microscope with Camera Tube

This binocular stereo-microscope offers the traditional (15x) total magnification with a high level of optical clarity while incorporating a third tube for video capture/inspection applications. Camera sold separately.

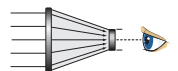


15-20mm Viewing Distance



Leica Trinocular Microscope with Camera Tube

This binocular stereo-microscope offers the traditional (15x or 40x) total magnification with a high level of optical clarity while incorporating a third tube for video capture/inspection applications. Camera sold separately.

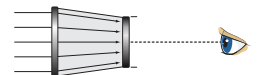


15-20mm Viewing Distance



Lynx Stereo Projection Microscope

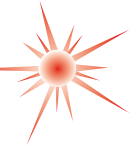
The EZ-VIEW Lynx System offers enlarged, movable eyepieces, allowing expanded ray bundles to be projected to the operator's pupils. This increases the viewing distance between the eye and eyepiece, allowing the operator to work in a more upright position without eye, neck, and back fatigue normally experienced with traditional binocular microscopes.



52mm Viewing Distance

NOTE: Custom microscope configurations are available upon request. For additional microscope accessories, please go to Page 64 and 65. In the interest of technical progress, we reserve the right to change microscope body design without notice.

PULSE PERFORMANCE PROFILE TECHNOLOGY



About P3 Technology

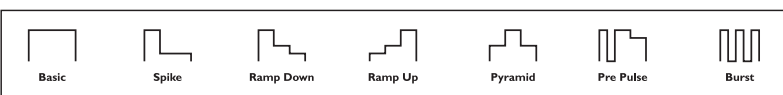
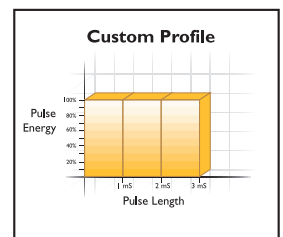
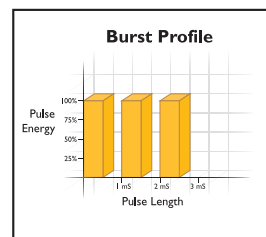
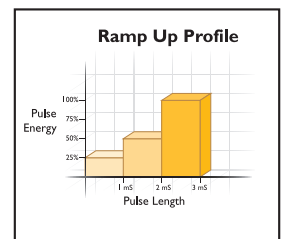
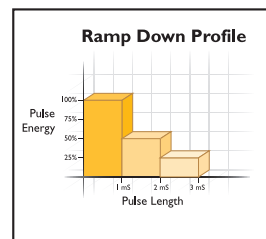
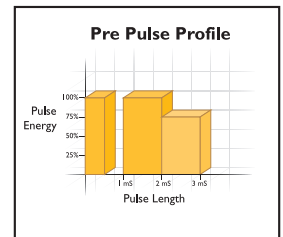
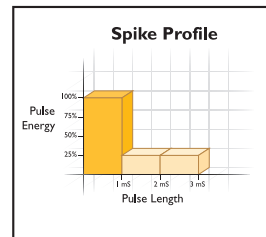
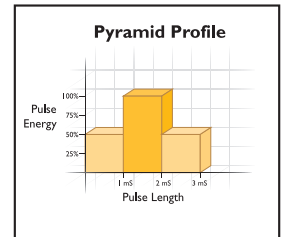
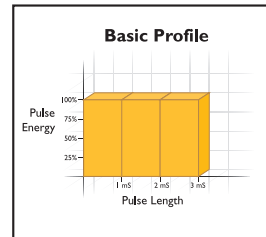
Profiling a LaserStar pulse is simply selecting the percentage of pulse energy that is released for each half millisecond (.5mS) section. Each individual section is defined at 25%, 50%, 75% or 100% of total pulse energy output. To benefit from pulse profiling, a minimum of a three millisecond (3mS) pulse duration must be employed to achieve noticeable results.

The energies required for pulsed laser welding can vary depending upon the pulse profiles selected.

If certain profiles are chosen for slower cooling or surface cleaning, then the energy is not always being used to increase penetration. Instead, it may be directed at vaporization of contaminants or bulk heating. When this is the case, the energy required (parameter selections: Voltage and Pulse-length) will increase to achieve the same weld penetration before a custom profile was applied. The parameter adjustments may reduce lamp life, reduce process speeds, and/or increase cycle times. However, it is a small price to pay and almost always worth the weld quality improvements.

Conversely, if the initial spike is increased to improve energy coupling or duty cycle, Burst Profiles are used, then the process can become much more efficient. Less energy per pulse is used with pulse profiling for the same task.

When in doubt about which pulse profile may be most beneficial, first set up a process with a Basic Profile and note the energy used (parameter selections) for a particular application. Next, select a recommended pulse profile for the same application and compare the energy used (parameter selections). Finally, compare the two different process results and choose a profile that meets your quality and process speed requirements.



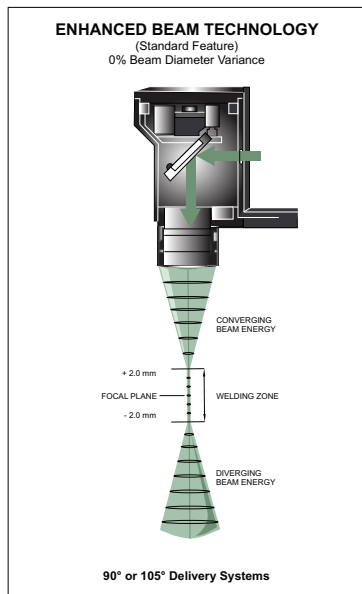
Soft-Touch™ Resonator Technology

For many years, LaserStar welding systems have provided users with a sharp, focused light beam that melts a very small area of metal. The benefit of this technology is that very little heat is generated at the weld point, allowing users to easily weld 0,05mm (.002") away from the most complicated and intricate component parts without damaging heat sensitive materials.



As the range of complex laser welding applications increases, LaserStar's research and development laboratory has continued its focus on accomplishing four major goals:

- ◆ Design the highest quality laser resonator cavity
- ◆ Produce a stable, clean, high-quality laser beam profile
- ◆ Accomplish consistent, pulse-to-pulse stability
- ◆ Optimize the laser beam shape to lower sensitivity to *thermal lensing*



High quality laser components (laser crystals, resonator reflectors, lens, lamps, etc.) continue to accomplish our goals. Nevertheless, *thermal lensing* still exists due to the nature and design of Nd:YAG laser systems.

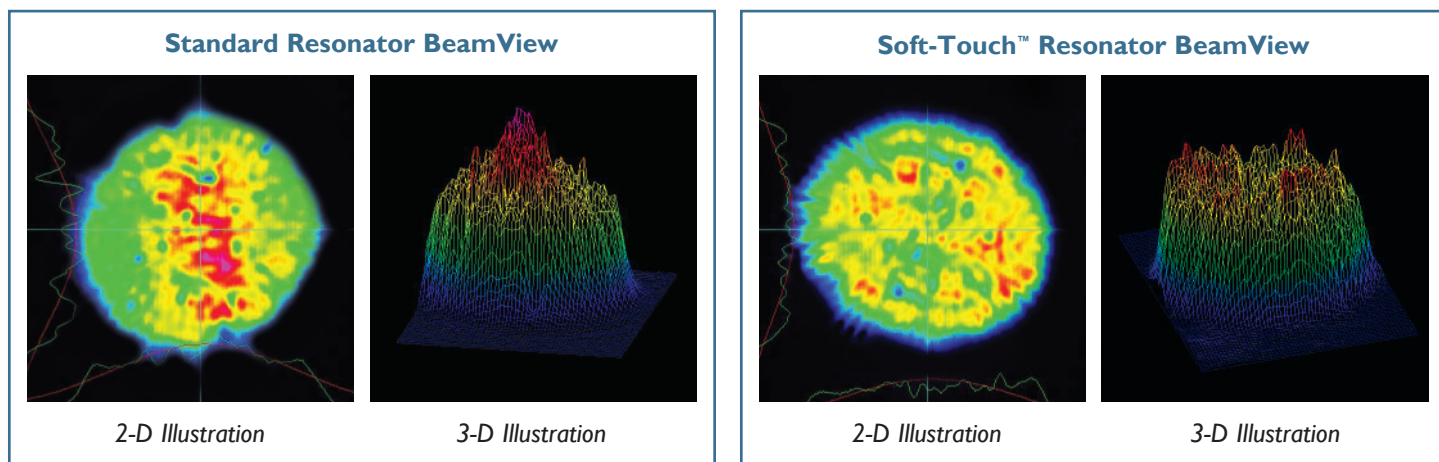
Thermal lensing is common in high-power laser systems. The heating of the gain medium (peak energy) is hotter on the beam axis compared to the outer regions. Consequently, *thermal lensing* can often cause inconsistent results when applied to small, micro-welding applications.

LaserStar's Soft-Touch™ Beam Enhancement Resonator Technology minimizes the impact of *thermal lensing* and greatly reduces the effects on the beam axis, producing an improved beam shape that can be focused to very small spot sizes while enhancing the overall weld quality.

The following BeamView Analyzer illustrations demonstrate the benefits of Soft-Touch™ Technology.

Complex Micro-Welding Energy Setting

(micro porosity, hollow parts, micro wire assembly, complex micro welding repairs, heat sensitive materials, etc.)



One can see from the Soft-Touch™ Technology image that a softer beam profile is generated, greatly reducing the effects of the peak on the beam axis which often can splash metal, blow holes or damage heat-sensitive materials.

Soft-Touch™ Technology, combined with LaserStar's other state-of-the-art features and benefits allow today's operators to unleash the power of hot light, benefit from a comfortable, ergonomic design and ensure optimal platform technology.

Please review your specific application with a LaserStar Specialist to determine if the benefit of Soft-Touch™ Technology is appropriate for your LaserStar welding system.

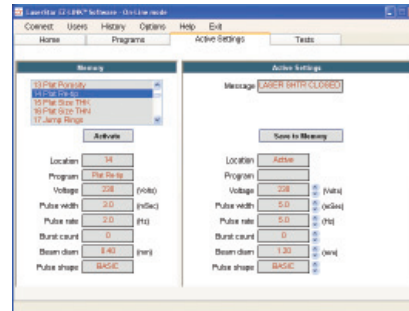
Soft-Touch™ Technology is an optional feature.

EZ-LINK™ Software

LaserStar's EZ-LINK™ Software provides direct access to your LaserStar welding system's internal operating system via a personal computer. This feature offers many advanced communication features allowing owners to perform a wide range of tasks.

Key Features of LaserStar's EZ-LINK™ Software

- ◆ Connect and Control Your LaserStar - Remotely or On-site
- ◆ Create / Edit / Save Memory Parameter Settings
- ◆ Back-Up Memory Cells (Parameters and Descriptions)
- ◆ Monitor Daily System Performance
- ◆ Download System Updates
- ◆ Create Usage History Reports
- ◆ Perform Troubleshooting
- ◆ Run System Diagnostics



How to use the EZ-LINK™ Software

Most new LaserStar welding systems have the machine's operating system configured to accept the EZ-LINK™ software connection. Existing LaserStar owners can upgrade their machine with the latest hardware requirements for a nominal fee.

Simply load the EZ-LINK™ software onto a personal computer.¹ Once the program is installed, connect the PC to the LaserStar welding system with the provided connection cable as described in the installation instructions.

Once connected, you can manage your LaserStar welding system's valuable parameter combinations, share and download settings received from LaserStar Application Specialists, monitor system performance, and most importantly have peace of mind that your system is backed up in case an unexpected memory failure occurs.

Benefits of EZ-LINK™ Software

EZ-LINK™ software allows our Technical Support Department to perform real-time LaserStar system troubleshooting and maintenance. Remote access, direct connect features empower LaserStar technicians to "view and control" your machine from a remote location.²

Ideal for the worldwide marketplace, LaserStar Technologie's EZ-LINK™ Software provides remote access solutions that connect users directly with the manufacturer.



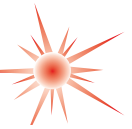
¹ Personal computer is to be supplied by the LaserStar owner. ²Some restrictions apply. Internet connection type and speed will influence remote access capabilities as well as operating system of personal computer.



Power Monitor / Energy Sampling

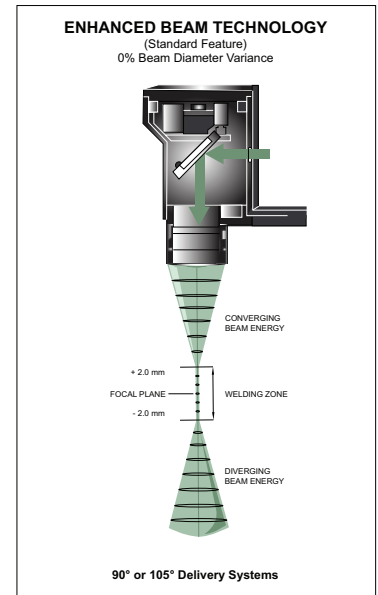
Energy Sampling is available on all LaserStar manual welding systems. This feature allows the user to measure the system's pulse energy output, validate pulse-to-pulse stability and gather statistical information for reporting purposes. The versatile power/energy display also offers many on-board features including laser tuning, data logging, graphing, normalizing, power or energy density units, attenuation scaling, max. and min. limits. All displays offer digital or analog needle screen selection.

ADDITIONAL FEATURES & BENEFITS



Enhanced Beam Technology

All manual welding devices are designed to the highest standards of laser resonator quality; produce a stable, clean, high quality beam profile; accomplish consistent pulse-to-pulse stability; and optimize the laser beam shape. An excellent welding zone range is present on all manual welding devices.



First Pulse Suppression (FPS) Technology

FPS technology minimizes the impact of thermal lensing and greatly reduces the effects on the beam axis, producing an improved beam shape that can result in excellent pulse-to-pulse stability and overall weld quality.

Speed Welding

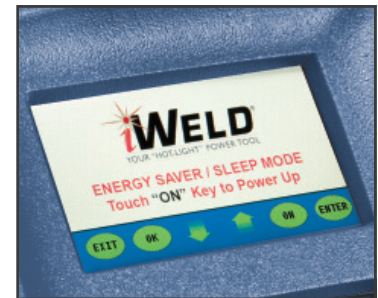
Allows the operator to select the optimal pulse rate (voltage, milliseconds, and hertz) for the application while optimizing the laser system energy values to provide maximum average power output.

Burst Mode

Allows the operator to select a predefined number of laser pulses for each foot pedal activated discharge cycle.

Energy Saver / Sleep Mode

Optimizing the best electronic practices for saving energy, Sleep Mode promptly powers down your laser device during periods of non use. With the press of a button, your laser system will automatically switch back to full power. This feature not only reduces energy consumption, but will also enhance flashlamp life.



Preventative Maintenance Alerts

Benefit from active display maintenance alerts to ensure your laser welding system is in peak performance at all times.

EZ-View® Optical Alignment

Benefit from the highest level of optical alignment with our EZ-View® optical bracket / stereo microscope alignment systems.



Whisper Series Internal Cooling Systems

Quiet, efficient cooling systems provide a significant pulse energy advantage while ensuring the highest level of hot-light energy transfer from the resonator source through the welding chamber.



LED Natural Lighting

All manual welding systems benefit from the highest quality LED natural lighting technology.

Flexible Platforms

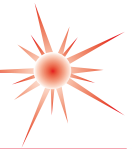
All models are available in a removable welding chamber design configured for the widest range of applications. A complete line of high precision motion devices are engineered to integrate into many of the welding chamber designs to enhance the systems production capabilities.

Options & Accessories

A wide range of beam expanders, apertures, optics, lens, and software settings are available to customize your manual welding system to ensure optimal platform performance.

(The above advanced features are available on select iWeld, LaserStar, and FiberStar Manual Welding Systems)

TECHNICAL SPECIFICATIONS



iWeld Laser Systems (980/990 Series)

System Platform	Benchtop
Welding Chamber Safety Certification	Class I
iWeld Lasing System	Class 4
Wavelength	1064nm
Output Pulse Energy	0,1 - 125 Joules
Maximum Peak Power¹	up to 10.0 kW
Internal Power Supply	400 Volt
Average Power	35 Watts / 60 Watts / 80 Watts
Pulse Length	0,1 - 30 Milli-seconds
Pulse Frequency	0,5 - 30 Hz
Burst / Speed Welding	Optimized to Energy Values
Beam Diameter¹	0,05mm - 2,00mm
Cooling System	Internal Water-To-Air
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%), 60Hz 20 Amp, Single Phase 230V (+/-10%), 50/60Hz 20 Amp, Single Phase
Binocular Microscope	15x (optional 25x, 40x)
Chamber Illumination System	LED Natural Lighting (Dual)
Soft-Touch™ Resonator Technology	Optional
Pulse Performance Profile Technology²	Exclusive Integrated Software
Automatic Sleep Mode	Exclusive Integrated Software
Programming Memory	99 text cells
Program Application Settings	Yes
Parameter Adjustment Features	External Touchscreen Internal Joystick
Preventative Maintenance Alert Software	Yes
User "Direct Connect" Software	EZ-LINK™
Language Display Options³	Yes <i>(Additional Languages Available Upon Request)</i>
Motorized Beam Expander	Yes
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Yes
Welding Chamber Dimensions	10"L x 20"W x 9"H 254mm x 508mm x 229mm
"Footprint" Dimensions	33"L x 21"W x 16"H 839mm x 534mm x 406mm
Weight (Unpackaged)	125 lbs / 50 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin (Parts & Assembly)	Made In USA



iWeld Professional Laser Systems (960/970 Series)

System Platform	Pedestal
Welding Chamber Safety Certification	Class I
iWeld Lasing System	Class 4
Wavelength	1064nm
Output Pulse Energy	0,1 - 150 Joules
Maximum Peak Power	10.0 kW
Internal Power Supply	400 Volt
Average Power	60 Watts / 80 Watts
Pulse Length	0,1 - 50 Milli-seconds
Pulse Frequency	0,5 - 30 Hz
Burst / Speed Welding	Optimized to Energy Values
Beam Diameter¹	0,05mm - 2,00mm
Cooling System	Internal Water-To-Air
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%), 60Hz 20 Amp, Single Phase 230V (+/-10%), 50/60Hz 20 Amp, Single Phase
Binocular Microscope	15x (optional 25x, 40x)
Chamber Illumination System	LED Natural Lighting (Dual)
Soft-Touch™ Resonator Technology	Optional
Pulse Performance Profile Technology²	Exclusive Integrated Software
Automatic Sleep Mode	Exclusive Integrated Software
Programming Memory	99 text cells
Program Application Settings	Yes
Parameter Adjustment Features	External Touchscreen Internal Joystick
Preventative Maintenance Alert Software	Yes
User "Direct Connect" Software	EZ-LINK™
Language Display Options³	Yes <i>(Additional Languages Available Upon Request)</i>
Motorized Beam Expander	Yes
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Yes
Welding Chamber Dimensions	10"L x 20"W x 9"H 254mm x 508mm x 229mm
"Footprint" Dimensions	33"L x 21"W x 43"H 839mm x 534mm x 1093mm
Weight (Unpackaged)	180 lbs / 82 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin (Parts & Assembly)	Made In USA



¹0,05mm Spot Size will require Aperture Assembly. ²Pulse Performance Profile Technology[®] (P) is an imbedded software feature to shape the wave profile for each laser pulse discharge. ³Additional languages available upon request. English language is default software. ⁴40 Joule platform provides 6.0 kW peak power.

TECHNICAL SPECIFICATIONS



Technical Support

Regardless of the model or style of laser machine you have purchased, our highly-skilled engineering and sales staff are always available to review new applications, share technical expertise and provide service and support for all LaserStar's laser welding, marking and cutting products.

To review specific technical matters when using any of LaserStar's laser machines, please do not hesitate to contact us.

Customer Support Help Desk

Enjoy all the convenience and reliable service you expect from LaserStar Technologies. Our customer support help desk is available to assist with spare parts orders, review recommended preventative maintenance procedures and provide answers to the most frequently asked questions.

Visit the eStore - Order Online

LaserStar Technologies is pleased to announce the opportunity to purchase spare parts, consumables and welding wire online at your convenience!

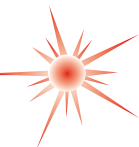


Lower prices may be available when you purchase items online. Visit www.LaserStar.net today to learn more!



7000 Series LaserStar Workstations	
System Platform	Pedestal
Welding Chamber Safety Certification	Class I
LaserStar Lasing System	Class 4
Wavelength	1064nm
Output Pulse Energy	0,01 - 150 Joules
Maximum Peak Power	10.0 kW
Internal Power Supply	400 Volt
Average Power	60 Watts / 80 Watts / 100 Watts
Pulse Length	0,1 - 50 Milli-seconds
Pulse Frequency	0,5 - 30 Hz
Burst / Speed Welding ¹	Energy Dependant (Max. 100W)
Beam Diameter ¹	0,05mm - 2,00mm
Cooling System	Internal Water-To-Air
Cooling Capacity-Run Time	24 hour / Continuous
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%), 60Hz 20 Amp, Single Phase 230V (+/-10%), 50/60Hz 20 Amp, Single Phase
Binocular Microscope	15x (optional 25x, 40x)
Lynx Stereo Microscope	Optional
Chamber Illumination System	LED Natural Lighting (Quad)
EZ-LINK™ Software	Exclusive Integrated Feature
Soft-Touch™ Resonator Technology	Optional
Pulse Performance Profile Technology ² (P ²)	Exclusive Integrated Software
Automatic Sleep Mode	Exclusive Integrated Software
Parameter Adjustment Features	External Touchscreen Internal Joysticks
Programming Memory	99 text cells
Language Display Options ³ <i>(Additional Languages Available Upon Request)</i>	Yes
Program Application Settings	Yes
Preventative Maintenance Alert Software	Yes
User "Direct Connect" Software	EZ-LINK™
Motorized Beam Expander	Yes <i>(multiple configurations available)</i>
Motion Device Compatible	Limited
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Dual - Integrated
Welding Chamber Dimensions	13.3"L x 13.6"W x 7.5"H 337mm x 346mm x 190mm
Pedestal Workstation "Footprint" Dimensions	37.5"L x 15.8"W x 44"H 952mm x 401mm x 1117mm
Weight (Unpackaged)	200 lbs / 90 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Extended Warranty Coverage	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin (Parts & Assembly)	Made In USA





1900 Series LaserStar Industrial Workstations

System Platform	Pedestal
Welding Chamber Safety Certification	Class I
LaserStar Lasing System	Class 4
Wavelength	1064nm
Output Pulse Energy	0,1 - 150 Joules
Maximum Peak Power	10.0 kW
Internal Power Supply	400 Volt
Average Power	60 Watts / 80 Watts / 100 Watts
Pulse Length	0,1 - 50 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Burst / Speed Welding[†]	Energy Dependant (Max. 100W)
Beam Diameter¹	0,05mm - 2,00mm
Cooling System	Internal Water-To-Air
Cooling Capacity-Run Time	24 hour / Continuous
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%), 60Hz 20 Amp, Single Phase 230V (+/-10%), 50/60Hz 20 Amp, Single Phase
Binocular Microscope	15x (optional 25x, 40x)
Lynx Stereo Microscope	Optional
Chamber Illumination System	LED Natural Lighting (Quad)
EZ-LINK™ Software	Exclusive Integrated Feature
Soft-Touch™ Resonator Technology	Optional
Pulse Performance Profile Technology² (P²)	Exclusive Integrated Feature
Automatic Sleep Mode	Exclusive Integrated Software
Parameter Adjustment Features	External Touchscreen Internal Chamber Joystick
Programming Memory	99 text cells
Language Display Options³ <i>(Additional Languages Available Upon Request)</i>	Yes
Program Application Settings	Available upon request
Preventative Maintenance Alert Software	Yes
Motorized Beam Expander	Yes <i>(multiple configurations available)</i>
Motion Device Compatible	Yes
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Dual - Integrated
Automation Chamber Dimensions <i>(Custom Sizes Available)</i>	20"L x 15"W x 14"H 527mm x 398mm x 355mm
Pedestal Workstation <i>"Footprint" Dimensions</i>	37.5"L x 15.8"W x 44"H 952mm x 401mm x 1117mm
Weight (Unpackaged)	200 lbs / 90Kg
Warranty Coverage (Parts & Labor)	As Quoted
Extended Warranty Coverage	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin (Parts & Assembly)	Made In USA



1900 XL Series LaserStar Industrial Workstations

System Platform	Pedestal
Welding Chamber Safety Certification	Class I
LaserStar Lasing System	Class 4
Wavelength	1064nm
Output Pulse Energy	0,1 - 150 Joules
Maximum Peak Power	10.0 kW
Internal Power Supply	400 Volt
Average Power	60-200 Watts
Pulse Length	0,1 - 50 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Burst / Speed Welding[†]	Energy Dependant (Max. 200W)
Beam Diameter¹	0,05mm - 2,00mm
Cooling System	Internal / Chiller Ready
Cooling Capacity-Run Time	24 hour / Continuous
Supply Circuit	60 & 80 Watt 100, 150 & 200 Watt
	208V (+/-5%), 60Hz 20 Amp, Single Phase 230V, (+/- 10%), 50/60 Hz 30 Amp, Three Phase
Binocular Microscope	15x (optional 25x, 40x)
Lynx Stereo Microscope	Optional
Chamber Illumination System	LED Natural Lighting (Quad)
EZ-LINK™ Software	Exclusive Integrated Feature
Soft-Touch™ Resonator Technology	Optional
Pulse Performance Profile Technology² (P²)	Exclusive Integrated Feature
Automatic Sleep Mode	Exclusive Integrated Software
Parameter Adjustment Features	External Touchscreen, O.I.T. Internal Chamber Joystick
Programming Memory	99 text cells
Language Display Options³ <i>(Additional Languages Available Upon Request)</i>	Yes
Program Application Settings	Available upon request
Preventative Maintenance Alert Software	Yes
Motorized Beam Expander	Yes <i>(multiple configurations available)</i>
Motion Device Compatible	Yes
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Dual - Integrated
Automation Chamber Dimensions <i>(Custom Sizes Available)</i>	28"L x 19"W x 12.9"H 720mm x 500mm x 328mm
Pedestal Workstation <i>"Footprint" Dimensions</i>	45.5"L x 24"W x 42"H 1155mm x 609mm x 1060mm
Weight (Unpackaged)	250 lbs / 90Kg
Warranty Coverage (Parts & Labor)	As Quoted
Extended Warranty Coverage	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin (Parts & Assembly)	Made In USA



¹0,01mm Spot Size will require Aperture Assembly. ²Pulse Performance Profile Technology² (P²) is an imbedded software feature to shape the wave profile for each laser pulse discharge. ³Additional languages available upon request. English language is default software. [†]Speed welding enables the operator to optimize the maximum power (watts) output based on the energy values (parameters) selected for short bursts of laser energy.

LASERSTAR DUAL COMPONENT WELDERS



7700 Series

LaserStar's 7700 Series Dual Component Manual Laser Welding Systems are ideal for a wide range of unique and custom integration applications to meet the various demands of metal joining, complex assembly, and repair applications for the industrial marketplace.

Solution providers can benefit from a compact, portable, dual component design, making integration quick and easy for many Class I and Class 4 configurations.

Operators hold parts in their hands while viewing the application through a stereo-microscope in the welding area. An internal cross-hair allows the operator to easily align and weld the parts at the correct location.

Many materials can be laser welded including 300 and some 400 series stainless steel, mild steels, nickel and nickel alloys, aluminum and aluminum alloys, titanium, precious metal alloys (gold, silver, and platinum), etc.

LaserStar offers three levels of power (100 Watt, 150 Watt, 200 Watt) to meet a wide variety of integration and application requirements. Complete integration assistance can be provided by LaserStar's Application and Engineering departments.

■ HIGHLIGHTS

Dual Component Design
Compact, Portable Design
100-200 Watt Models
Integration Ready



**Dual Component
Welding System**
(150 Watt Shown)

Example of Integration Solution



7700 Series LaserStar Dual Component Welders

Technical Profile	100 Watt	150 Watt	200 Watt
LaserStar Lasing System	Class 4	Class 4	Class 4
Wavelength	1,064nm	1,064nm	1,064nm
Output Pulse Energy	0,1 - 150 Joules	0,1 - 150 Joules	0,1 - 150 Joules
Maximum Peak Power	10.0 kW	10.0 kW	10.0 kW
Average Power	100 Watts	150 Watts	200 Watts
Pulse Length	0,5 - 50 Milli-seconds	0,5 - 50 Milli-seconds	0,5 - 50 Milli-seconds
Pulse Frequency	0,5 - 20 Hz	0,5 - 20 Hz	0,5 - 20 Hz
Beam Diameter	0,05mm - 2,00 mm	0,05mm - 2,00 mm	0,05mm - 2,00 mm
Cooling System	Internal / Chiller Ready	Internal / Chiller Ready	External Chiller Required
Cooling Capacity-Run Time	24 hour/Continuous	24 hour/Continuous	24 hour/Continuous
Supply Circuit	230V (+/-10%),50/60Hz 30 Amp, Single or Three Phase	230V (+/-10%),50/60Hz 30 Amp, Single or Three Phase	230V (+/-10%),50/60Hz 30 Amp, Single or Three Phase
Binocular Microscope	15x (optional 25x, 40x)	15x (optional 25x, 40x)	15x (optional 25x, 40x)
Illumination System	LED Natural Lighting	LED Natural Lighting	LED Natural Lighting
Pulse Performance Profile Technology (P3)	Exclusive Integrated Software	Exclusive Integrated Software	Exclusive Integrated Software
Programming Memory	99 Text Cells	99 Text Cells	99 Text Cells
Automatic Sleep Mode	Exclusive Integrated Software	Exclusive Integrated Software	Exclusive Integrated Software
Parameter Adjustment Features	External Touchscreen Operator Interface Terminal	External Touchscreen Operator Interface Terminal	External Touchscreen Operator Interface Terminal
Preventative Maintenance Alert Software	Yes	Yes	Yes
Motorized Beam Expander	Yes	Yes	Yes
Shield Gas Supply	Dual Nozzles	Dual Nozzles	Dual Nozzles
Pedestal Power Supply Unit "Footprint" Dimensions	25"H x 24"W x 30"L 635mm x 610mm x 762mm	25"H x 24"W x 30"L 635mm x 610mm x 762mm	25"H x 24"W x 30"L 635mm x 610mm x 762mm
Weight (Unpackaged)	250 lbs / 114 Kg	250 lbs / 114 Kg	250 lbs / 114 Kg
Warranty Coverage (Parts & Labor)	As Quoted	As Quoted	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE
Country of Origin	Made In USA	Made In USA	Made In USA

NOTE: Fatigue test data can be provided upon request.



Operator Interface Terminal (OIT)



Dual Component Rail Assembly
(Shown with Binocular Microscope)

MADE IN THE USA



7700 Series with Universal Jig

Today's mold repair micro-welding laser industry is characterized by rapidly changing, ever-evolving customer demands and intense competition. Innovative ideas, successful designs and a strong commitment to superior quality and performance are the fundamentals of LaserStar Technologies Corporation.

LaserStar's Universal Jig offers a significant, competitive advantage for today's operators looking to unleash the power of hot light, benefit from a comfortable, ergonomic design and ensure optimal platform flexibility for the widest range of on-site repair applications.

■ HIGHLIGHTS

Open Workspace Design
Portable Precision Table
Ideal for Large Parts
Motorized X / Y / Z Axis

Our commitment to electrical design efficiency ensures the highest level of hot-light energy transfer from the LaserStar source through the welding zone. The result is a significant pulse energy advantage while maintaining minimum water cooling temperatures and 24-hour operational performance.

LaserStar Workstations are ideal for a wide range of complex alloys and applications.



LaserStar welding systems are ideal for a wide range of large plastic injection mold, tool & die maintenance and repair applications.

- Lay a bead from .0025" / 0.40mm
- Repair slots, pockets, radius contours and angles
- Repair polished, textured and engraved surfaces
- Repair thin walls with little or no warping
- Repair parting line edges and heat sensitive areas
- Alloys include tool steel, aluminum, copper, titanium and powdered metals

The LaserStar produces a high quality result, reduces the amount of handwork required before polishing and practically eliminates sink lines.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 7700 Series Welding Workstations with Universal Jig)



- Soft Beam™ Profile Enhancement Resonator Technology (Optional)

X Axis
46" (1168mm)

360° Swivel

Z Axis
45" - 65"
(1143mm - 1650mm)

Operator Interface Terminal (OIT)

Adjusts to Any Angle

- Theta X & Y: +/-45°
- Head Pivot: 180°
- Illuminated Work Area with Argon Flow Nozzle

Multi Axis Travel Distances

- Motorized X-Y-Z Axis
- X Axis = 27.5" (700mm)
- Y Axis = 10.0" (260mm)
- Z Axis = 19.5" (500mm)

Magnetic Holder for Small Parts

X/Y Joystick Control (Optional Upgrade)

Compact/High Power Integrated Laser Welder (100 - 200 Watts)

3 Axis Precision Table

- Mechanical X = 5.5" (140mm)
- Mechanical Y = 3.0" (75mm)
- Motorized Z = 7.5" (195mm)

MADE IN THE USA

System Weight:
Approx. 750 lbs./193 Kg

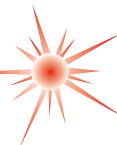
Benefits

Motorized X / Y / Z Axis • Rotates and Tilts in Almost Any Direction • Rigid Yet Mobile Frame • Complete Turnkey Solution

In the interest of technological progress, we reserve the right to make technical changes without notice.

Performance features of 7700 Series provided on page 24 & 25

OPEN WORKSPACE WELDING WORKSTATION



7800 Series

Today's precision welding marketplace specializing in laser spot welding or laser seam welding applications, have a wide range of new technologies available to enhance their ability to provide the highest level of quality, craftsmanship and service to their clients. LaserStar's 7800 Series manual welding systems are ideal for a variety of common welding applications including plastic injection mold, dies and tooling repair, complex electronic components, high-precision industrial assemblies, pressure-sensitive hermetic laser sealing, and other unique industrial applications for the automotive, aerospace, aviation, computer, medical device, mold repair and consumer product industries.

Operators hold parts in their hands while viewing the application through a stereo-microscope in the welding zone. An internal cross-hair allows the operator to easily align and weld the parts at the correct location.

Many materials can be laser welded including 300 and some 400 series stainless steel, mild steels, nickel and nickel alloys, aluminum and aluminum alloys, titanium, precious metal alloys (gold, silver, and platinum), etc.

LaserStar offers multiple power levels (80 Watt - 200 Watt) to meet a wide variety of application requirements.

LaserStar Workstations are ideal for a wide range of complex alloys and applications.

HIGHLIGHTS

Open Workspace Design
Compact, Portable Design
80-200 Watt Models
Integration Ready



**7800 Series
Open Workspace
Welding Workstation**
Shown with Magnetic Jig

7800 Series Open Workspace Welding Workstations

LaserStar Lasing System	Class 4
Wavelength	1,064nm
Output Pulse Energy	0,1 - 150 Joules
Maximum Peak Power	10.0 kW
Average Power	80 Watts - 200 Watts
Pulse Length	0,5 - 50 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Beam Diameter	0,05mm - 2,00mm
Cooling System	80, 100 & 150 Watt 200 Watt
	Internal / Chiller Ready External Chiller Required
Supply Circuit	80 Watt
	230V (+/-10%),50/60Hz 25 Amp, Single Phase
	100 & 150 Watt
	230V (+/-10%),50/60Hz, 30 Amp, Three Phase
	200 Watt
	40 Amp, Three Phase
Binocular Microscope	15x (optional 25x, 40x)
Illumination System	LED Natural Lighting
Pulse Perf. Profile Tech. (P3)	Exclusive Int. Software
Programming Memory	99 Text Cells
Automatic Sleep Mode	Exclusive Integrated Software
Parameter Adj. Features	External Touchscreen/O.I.T.
Prev. Maint. Alert Software	Yes
Motorized Beam Expander	Yes
Shield Gas Supply	Dual Nozzles
Dimensions	24"W x 46"L 609mm x 1150mm
Weight (Unpackaged)	approx. 600 lbs / 272 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification	FDA(CDRH), UL, CSA, CE
Country of Origin	Made In USA

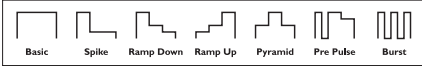
NOTE: Fatigue test data can be provided upon request.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 7800 Series LaserStar Workstations)



MADE IN THE USA



- Soft Beam™ Profile Enhancement Resonator Technology (Optional)



Benefits

Motorized X / Y / Z Axis • Rotates and Tilts in Almost Any Direction • Rigid Yet Mobile Frame • Complete Turnkey Solution



Magnetic Jig



Heavy Duty Vise (+/-45°)



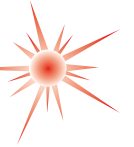
Large Rotary Device (+/-45°)



Large Rotary Device (+/-45°)

Frequently Used Accessories

LASERSTAR FIBER-COUPLED WELDING SYSTEMS



8000 Series

LaserStar 8000 Series Fiber Coupled Welding Systems are fast, efficient, portable, Nd:YAG pulse laser systems with fiber coupled optical attachment for high-speed welding applications. Ideal for non-contact welding processes which join two similar or certain dissimilar metals together. LaserStar welding systems can produce both spot welds (single pulse) and seam welds (multi-pulse overlapping spots), including hermetically sound seams.

The 8000 Series offers users the ability to easily integrate the fiber optic beam delivery into high-speed assembly operations and/or motion systems to minimize or eliminate human contact with component parts.

Many materials can be laser welded including 300 and some 400 series stainless steel, mild steels, nickel and nickel alloys, aluminum and aluminum alloys, titanium, precious metal alloys (gold, silver, and platinum), etc.

HIGHLIGHTS

- 50 - 200W Nd:YAG Laser
- Compact - Portable Device
- Excellent Pulse Stability
- Integration Ready

- Implantable Medical Devices
- Computer and Disk Drive Components
- Medical Components and Devices
- Automotive and Aerospace Electronics
- Microelectronic Assemblies
- Batteries (Seam and Tab Welds)
- Sensors and Controls
- Jewelry Chain Welding

8000 Series
Fiber Coupled
Welding Systems



80 Watt Model

200 Watt Model



8000 Series LaserStar Fiber-Coupled Welding Systems

Technical Profile	LaserStar 50 Watt	LaserStar 80 Watt	LaserStar 100 Watt	LaserStar 150 Watt	LaserStar 200 Watt
Laser Type	Nd:YAG	Nd:YAG	Nd:YAG	Nd:YAG	Nd:YAG
Wavelength	1.064nm	1.064nm	1.064nm	1.064nm	1.064nm
Average Power @ Ambient:	50 Watts @ 35° Celsius	80 Watts @ 30° Celsius	100 Watts @ 30° Celsius	150 Watts @ 30° Celsius	200 Watts @ 30° Celsius
Peak Power (kW)	10,0kW	10,0kW	10,0kW	10,0kW	10,0kW
Output Pulse Energy	0,1 - 100 Joules	0,1 - 100 Joules	0,1 - 100 Joules	0,1 - 100 Joules	0,1 - 100 Joules
Pulse Length (mS)	0,5 - 30mS	0,5 - 30mS	0,5 - 30mS	0,5 - 30mS	0,5 - 30mS
Pulse Frequency (Hz)	40Hz (2400 rpm)	40Hz (2400 rpm)	40Hz (2400 rpm)	40Hz (2400 rpm)	40Hz (2400 rpm)
Supply Circuit	208-240V (+/-5%) 12A, 50 - 60Hz/Single	208-240V (+/-5%) 30A, 50 - 60Hz/Single	208-240V (+/-5%) 30A, 50 - 60Hz/3 Phase	208-240V (+/-5%) 30A, 50 - 60Hz/3 Phase	208-240V (+/-5%) 30A, 50 - 60Hz/3 Phase
Pulse Shaping (P3)	Yes	Yes	Yes	Yes	Yes
Target Finder	Red Diode Laser Class IIIa	Red Diode Laser Class IIIa	Red Diode Laser Class IIIa	Red Diode Laser Class IIIa	Red Diode Laser Class IIIa
Fiber Optic Cables	Multi-mode / Step Index	Multi-mode / Step Index	Multi-mode / Step Index	Multi-mode / Step Index	Multi-mode / Step Index
Beam Diameter	175 - 1000nm	175 - 1000nm	175 - 1000nm	175 - 1000nm	175 - 1000nm
Memory Storage Cells	99 Cells	99 Cells	99 Cells	99 Cells	99 Cells
Diagnostic Audible Alert	Yes	Yes	Yes	Yes	Yes
Diagnostic Visual Alert	Optional	Optional	Optional	Optional	Optional
Cooling System	Air-Internal Closed Loop	Air-Internal Closed Loop	Air-Internal Closed Loop Optional Chiller	Air-Internal Closed Loop Optional Chiller	External Chiller Required
Dimensions	35"H x 10"W x 28"L 890mm x 255mm x 712mm	35"H x 24"W x 30"L 890mm x 610mm x 762mm	39"H x 24"W x 30"L 990mm x 610mm x 762mm	39"H x 24"W x 30"L 990mm x 610mm x 762mm	39"H x 24"W x 30"L 990mm x 610mm x 762mm
Weight	125lbs /56Kg	250lbs /110Kg	250lbs /110Kg	250lbs /110Kg	250lbs /110Kg
Warranty	As Quoted	As Quoted	As Quoted	As Quoted	As Quoted
Certification	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE	FDA(CDRH), UL, CSA, CE
Country of Origin	Made In USA	Made In USA	Made In USA	Made In USA	Made In USA

Chain Making Machine Integration

Chain Machine Compatible	Various Makes and Models
Cable, Focus Head and Trigger Compatible	Various Makes and Models



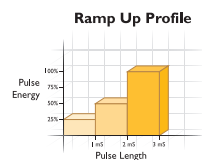
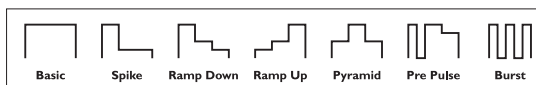
Optional Operator Interface Terminal (OIT)

Pulse Performance Profile Technology (P³)

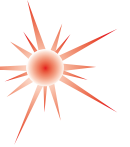
Advanced Pulse Performance Profile Technology® will provide measurable results on the quality and consistency of laser welded materials. Profiling a LaserStar® pulse is simply selecting the percentage of pulse energy that is released for each half millisecond (.5 mS) section. Each individual section is defined at 25%, 50%, 75% or 100% of total pulse energy output.



Pulse Performance Profile Technology®



MADE IN THE USA



8600 Series

FiberStar 8600 Series systems are fast, efficient, portable, fiber laser engines with fiber optic attachment for high-speed welding and cutting applications. Ideal for non-contact welding processes which join two similar or certain dissimilar metals together. FiberStar systems can produce both spot welds (single pulse) and seam welds (multi-pulse overlapping spots including hermetically sound seams), and continuous wave (CW) output.

The FiberStar Series offers users the ability to easily integrate the fiber optic beam delivery into high-speed assembly operations and/or motion systems to minimize or eliminate human contact with component parts.

Designed to the highest standards of reliability, repeatability, and user safety, all FiberStar Series systems offer a factory sealed, maintenance-free laser source. Typical applications include:

HIGHLIGHTS

- Pulse Stability $\pm 1\%$
- Maintenance Free
- Integration Ready
- Portable Workstation

- Implantable Medical Devices
- Medical Components and Devices
- Microelectronic Assemblies
- Sensors and Controls
- Industrial Components
- Computer and Disk Drive Components
- Automotive and Aerospace Electronics
- Batteries (Seam and Tab Welds)
- Solar & Solar Cell Applications

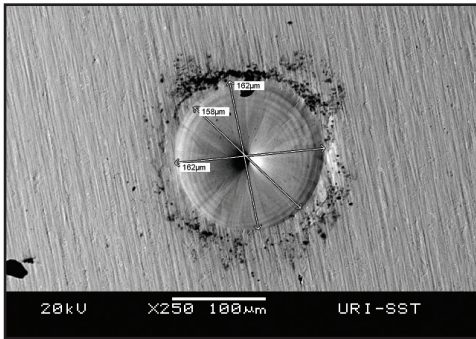
8600 Series FiberStar Compact Welding System
(150 & 300 Watt)



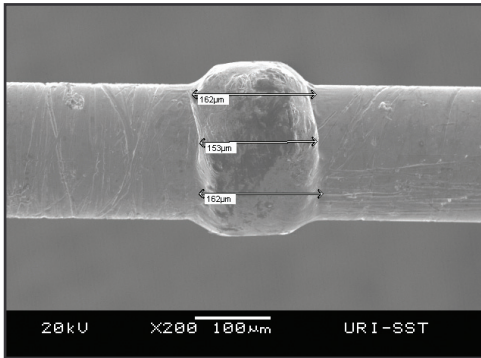
**STABLE, RELIABLE, REPEATABLE
PULSE AFTER PULSE**

ENERGY (J)	# SHOTS	DURATION	STD. DEV. (mJ)
.150	50	150 SEC.	0.90
.500	50	150 SEC.	1.29
2.00	50	150 SEC.	6.50

8600 Series FiberStar (100 Watt) - Statistical sampling subject to change based on operating conditions and environment.



250X magnification demonstrates the high level of spot size dimensional accuracy provided by the FiberStar Micro-Welding System.



200X magnification demonstrates the uniform butt weld accomplished with .007" (.18mm) diameter Nitinol wire.



Medical devices, such as this catheter kit, can benefit from the micro welding and micro cutting abilities of the fiber laser equipped FiberStar Micro-Welding System.

8600 Series FiberStar Compact Welding Systems

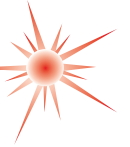
System Platform	Integration Ready
FiberStar Lasing System	Class 4
Beam Delivery Presentation	Fiber
Wavelength	1,070nm
Operating Mode	Pulse or Continuous Wave (CW)
Output Power (Average)	150 Watt / 300 Watt / 450 Watt
Polarization	Random
Output Power Stability	+/- 1%
Maximum Peak Power	1.5kW / 3.0kW / 4.5kW
M²	2.0-15.0
Pulse Length	0,5 - 250 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Burst (Count) Mode	1 - 25 pulses
Beam Diameter	> 25 micron
Cooling System	Internal Forced Air / Optional External Chiller
Cooling Capacity-Run Time	24 Hour / Continuous
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%) or 230V (+/-10%) 50/60Hz, 15 Amp, Single Phase
Parameter Adjustment Features	External Touchscreen
Pulse Performance Profile Technology	Exclusive Integrated Software
Programming Memory	99 Text Cells
Language Display Options	English
Shield Gas Supply	Outlet
Inert Gas Welding Adjust Valve	Dual - Integrated
"Footprint" Dimensions	150 Watt, 300 Watt 23"H x 12"W x 26"L 584mm x 305mm x 654mm 450 Watt 29"H x 12"W x 28"L 738mm x 305mm x 715mm
Weight (Unpackaged)	Approx. 118 lbs / 54 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin	Made in USA



Optional Operator Interface Terminal (OIT)

MADE IN THE USA

FOCUS HEADS, CABLES & METERS

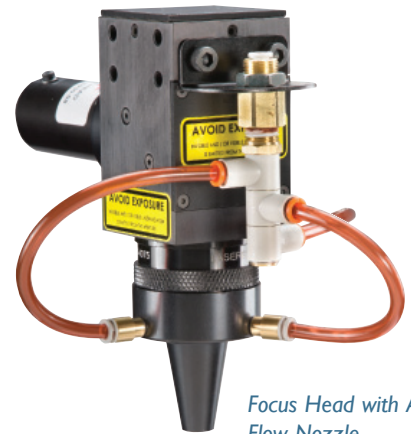


LaserStar Focus Heads provide exceptional beam quality while efficiently transferring the laser beam from the fiber cable to the focus head. Benefits include minimal spherical aberration, optimal beam spatial profile, and a precision beam diameter as small as 40 microns.

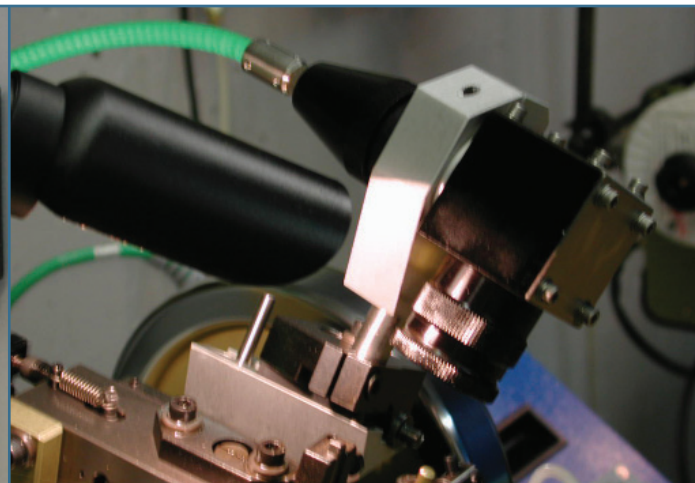
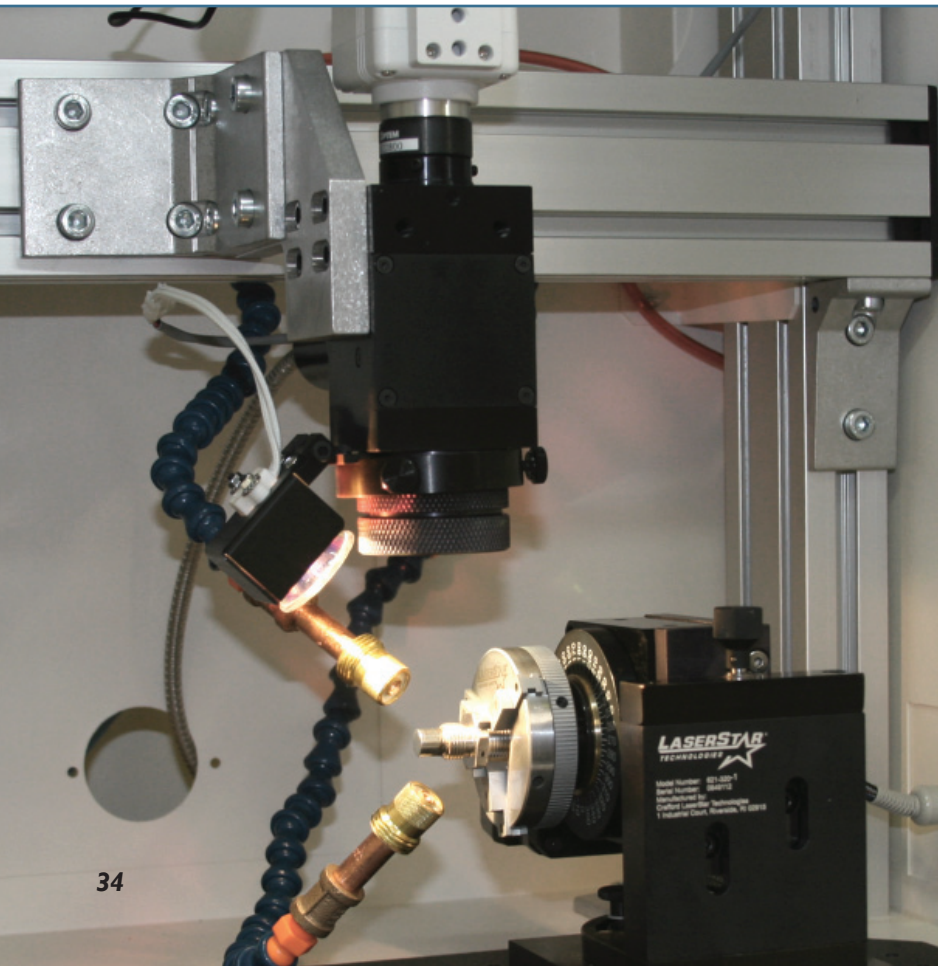
LaserStar offers a wide range of fiber diameters and focus heads to satisfy complex industrial applications. Straight, right angle (90°), power monitoring and CCTV Camera configurations, along with a wide range of focal lengths, ensure the proper solution for all precision laser welding requirements.

Features & Benefits

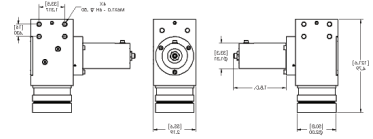
- Fiber Cable Diameters from 100 – 1000 microns
- Standard and Custom Fiber Cable Lengths
- Wide Range of Working Distances
- Ideal for Low and High Power Applications
- Industrial Mounting Bracket – Gantry Compatible
- CCTV Camera “Thru-the-Lens” Viewing
- Custom Optic and Focus Head Body Designs
- Cross-Hair Generator for Accurate Target Acquisition
- Power Monitor / Energy Sampling
- High Resolution Monitors Available



Focus Head with Argon Flow Nozzle

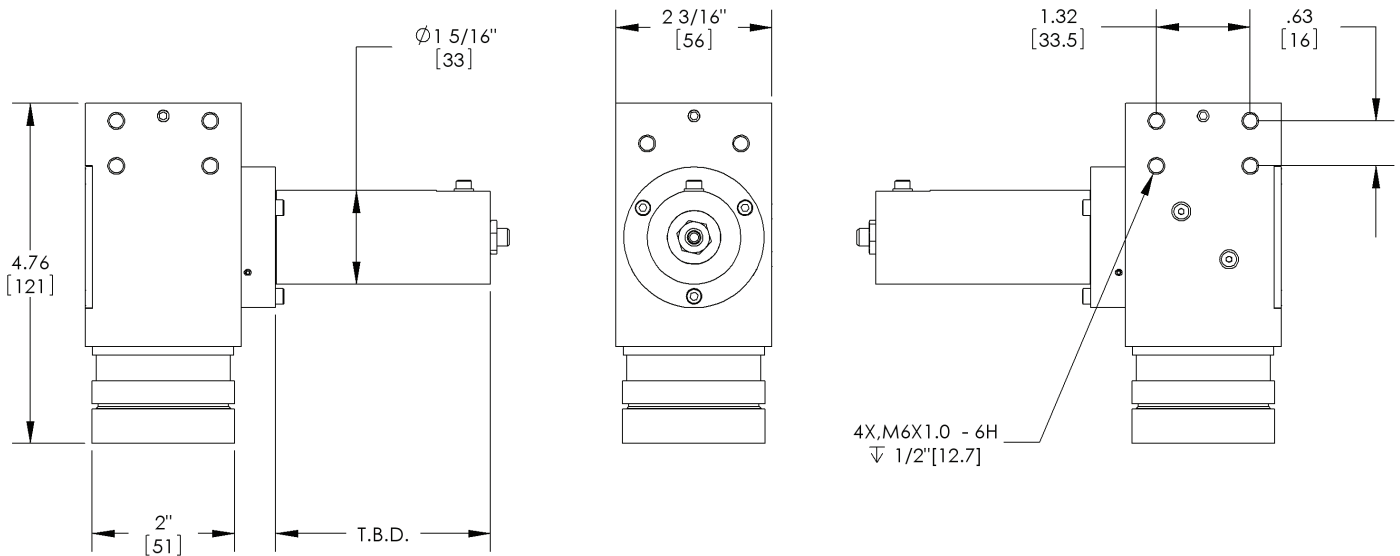


Model 3930 Spot Size Reference Chart Focus Head - Fiber Cable



Right Angle Focus Head Part #	Working Distance mm	Spot Diameter						
		Fiber Core Diameter (microns)						
		100nm	200nm	300nm	400nm	600nm	800nm	1000nm
607-3930-01	25	66	132	199	265	397	529	660
607-3930-02	25	53	107	160	213	320	426	426
607-3930-03	25	40	80	121	161	241	322	400
607-3930-04	35	83	166	249	332	498	664	830
607-3930-05	35	67	134	200	267	401	534	670
607-3930-06	35	51	101	151	202	302	403	505
607-3930-07	65	124	248	372	496	744	992	1240
607-3930-08	65	100	200	300	400	600	800	1000
607-3930-09	85	165	330	495	660	990	1320	1650
607-3930-10	85	134	267	400	533	800	1066	1335
607-3930-11	105	198	395	594	792	1188	1584	1980
607-3930-12	105	160	320	480	640	959	1279	1600

NOTES: Final Configuration Selection (Focus Head & Fiber Core Size) subject to review by LaserStar Applications Lab and Engineering.
Working Distance from the end Final Focus Lens-Tolerance +/- 2mm. Custom focus head dimensions available upon request.

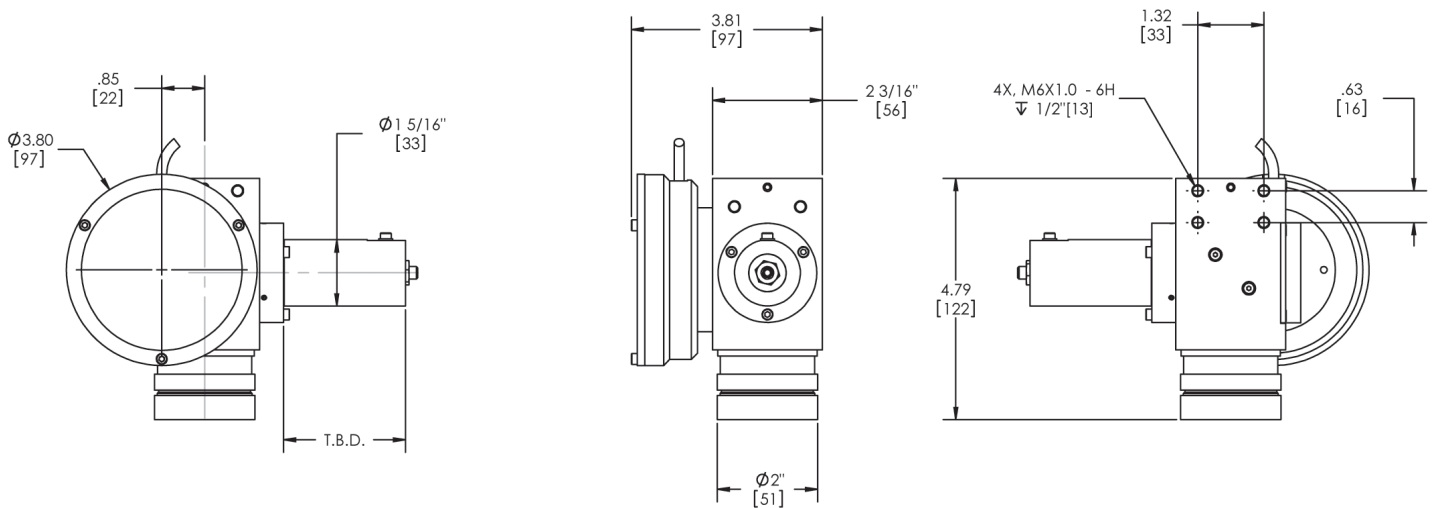




Model 393 I Spot Size Reference Chart Focus Head - Fiber Cable

Right Angle Focus Head Part #	Working Distance mm	Spot Diameter						
		Fiber Core Diameter (microns)						
		100nm	200nm	300nm	400nm	600nm	800nm	1000nm
607-3931-01	25	66	132	199	265	397	529	660
607-3931-02	25	53	107	160	213	320	426	426
607-3931-03	25	40	80	121	161	241	322	400
607-3931-04	35	83	166	249	332	498	664	830
607-3931-05	35	67	134	200	267	401	534	670
607-3931-06	35	51	101	151	202	302	403	505
607-3931-07	65	124	248	372	496	744	992	1240
607-3931-08	65	100	200	300	400	600	800	1000
607-3931-09	85	165	330	495	660	990	1320	1650
607-3931-10	85	134	267	400	533	800	1066	1335
607-3931-11	105	198	395	594	792	1188	1584	1980
607-3931-12	105	160	320	480	640	959	1279	1600

NOTES: Final Configuration Selection (Focus Head & Fiber Core Size) subject to review by LaserStar Applications Lab and Engineering.
Working Distance from the end Final Focus Lens-Tolerance +/- 2mm. Custom Focus Head dimensions available upon request.
Energy Meter Head position available as 90° offset (shown below) or in-line.



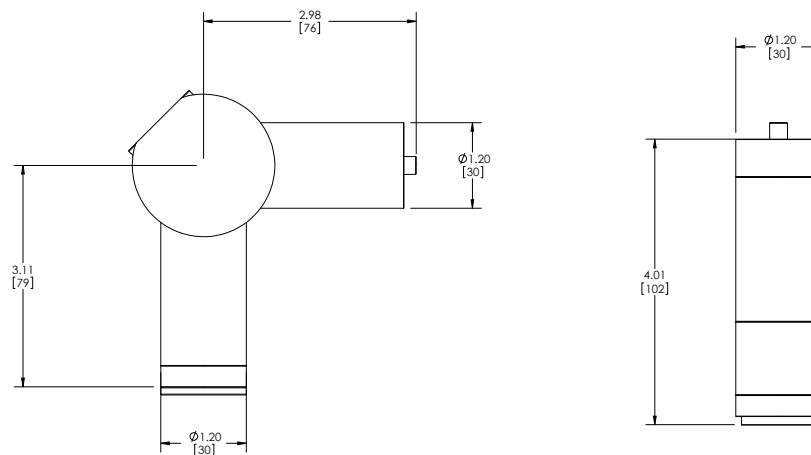


Model 30XX & 35XX Spot Size Reference Chart Basic Focus Head - Fiber Cable



Straight & Right Angle Basic Focus Head Part #	Working Distance mm	Spot Diameter						
		Fiber Core Diameter (microns)						
		100nm	200nm	300nm	400nm	600nm	800nm	1000nm
STRAIGHT								
607-3045	45	100	200	300	400	600	800	1000
607-3060	60	100	200	300	400	600	800	1000
607-3070	70	100	200	300	400	600	800	1000
RIGHT ANGLE								
607-3540	40	100	200	300	400	600	800	1000
607-3550	50	167	334	501	668	1002	1336	1670

NOTES: Final Configuration Selection (Focus Head & Fiber Core Size) subject to review by LaserStar Applications Lab and Engineering.
Working Distance from the end Final Focus Lens-Tolerance +/- 2mm. Custom Focus Head dimensions available upon request.

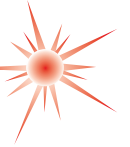


Power Monitor / Energy Sampling Kit



Energy Sampling is available on all LaserStar Model 3931 right-angle focus heads. This feature allows the user to measure the system's pulse energy output, validate pulse-to-pulse stability and gather statistical information for reporting purposes. The versatile power/energy display also offers many on-board features including laser tuning, data logging, graphing, normalizing, power or energy density units, attenuation scaling, max. and min. limits. All displays offer digital or analog needle screen selection.

FIBERSTAR WELDING WORKSTATIONS



7600 Series

FiberStar Welding Workstations offer a significant competitive advantage for today's aerospace, electronics, medical device and micro/macro component assembly marketplace subject to stringent quality requirements.

Fiber laser technology produces a sharp, focused light beam that consistently melts a very small area of metal. The benefit of the technology is that very little heat is generated at the weld point allowing users to easily weld > 0.025mm from complex, heat sensitive, intricate parts while providing unparalleled parameter flexibility from 0 – 100% duty cycle.

Designed to the highest standards of reliability, repeatability, and user safety, all FiberStar manual welding systems offer a factory sealed, maintenance-free laser source.

FiberStar Workstations are ideal for a wide range of complex alloys and applications including:

- Medical Device Components
- Micro & Mold Repair Welding
- Automotive & Micro Components
- Computer Components
- Spot & Seam Welding
- Aerospace & Electronics
- Battery Welding
- Many Complex Alloys

HIGHLIGHTS

Pulse Stability $\pm 1\%$
Maintenance Free Source
Motion Device Ready
Portable Workstation

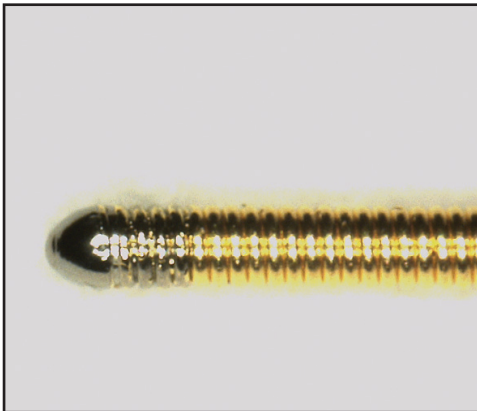
7600 Series
FiberStar Welding Workstation
(Shown with Automation Chamber)



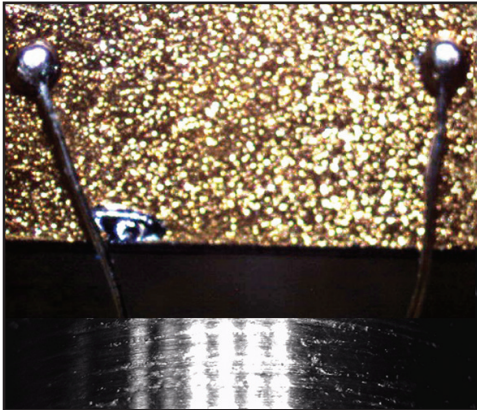
**STABLE, RELIABLE, REPEATABLE
PULSE AFTER PULSE**

ENERGY (J)	# SHOTS	DURATION	STD. DEV. (mJ)
.150	50	150 SEC.	0.90
.500	50	150 SEC.	1.29
2.00	50	150 SEC.	6.50

7600 Series FiberStar (100 Watt) - Statistical sampling subject to change based on operating conditions and environment.



Laser Spot Weld of NiTi Wire to Tungsten Coil



Laser Spot Weld for Solder Reflow

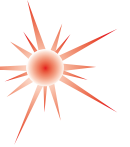


Laser Seam Weld of Pressure Cap

7600 Series FiberStar Welding Workstations

System Platform	Pedestal
Welding Chamber Safety Certification	Class I
FiberStar Lasing System	Class 4
Beam Delivery Presentation	90 degree
Wavelength	1,070nm
Operating Mode	Pulse or Continuous Wave (CW)
Output Power (Average)	150 Watt / 300 Watt / 450 Watt
Polarization	Random
Output Power Stability	+/-1%
Maximum Peak Power	1.5kW / 3.0kW / 4.5kW
M²	2.0 - 15.0
Pulse Length	0,5 - 250 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Burst (Count) Mode	1 - 25 pulses
Beam Diameter	> 25 micron
Cooling System	Internal Forced Air
Cooling Capacity-Run Time	24 Hour / Continuous
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%) or 230V (+/-10%) 50/60Hz, 15 Amp, Single Phase
Binocular Microscope (3 versions)	15x (optional 25x, 40x)
Chamber Illumination System	LED Natural Lighting (Quad)
Parameter Adjustment Features	External Touchscreen Internal Chamber Joysticks
Pulse Performance Profile Technology	Exclusive Integrated Software
Programming Memory	99 Text Cells
Language Display Options	English
Motorized Beam Expander	Yes
Shield Gas Supply	Integrated "Soft Flow" Nozzle
Inert Gas Welding Chamber Adjust Valve	Dual - Integrated
Welding Chamber Dimensions	13.3"L x 13.6"W x 7.5"H 337mm x 346mm x 178mm
Pedestal WorkStation	37.5"L x 15.8"W x 44"H
"Footprint" Dimensions	952mm x 401mm x 1117mm
Weight (Unpackaged)	220 lbs / 100 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE
Country of Origin	Made in USA

FIBERSTAR INTEGRATOR KIT WELDING SYSTEMS



8700 Series

FiberStar Integrator Kit Systems offer state-of-the-art laser resonator technology which provides high peak power, optimal performance & throughput, higher up-time, enhanced electrical efficiency, and a space saving air cooled design. Solid state diodes provide instantaneous power with no “warm up time” required.

The laser source is a permanently sealed design that protects against dust and dirt, does not require adjustment, has no consumable parts, and requires no maintenance. These features help to ensure the FiberStar systems performance resulting in stable, consistent material processing for years of operation.

Fiber laser welding technology produces a sharp, focused light beam that consistently melts a very small area of metal. The benefit of the technology is that very little heat is generated at the weld point allowing users to easily laser weld > 0.025mm from complex, heat sensitive, intricate parts while providing unparalleled parameter flexibility from 0 – 100% duty cycle.

The FiberStar Integrator Kit is an excellent solution when considering a flashlamp based laser delivery system replacement or new material process system. We offer the necessary Integration Consultation Services to ensure your laser system conversion is a smooth process. The FiberStar can interface with existing motion control packages and manage the operator interface process for semi or automatic material processing systems. Digital vision or manual stereo microscope viewing system versions are available.

FiberStar Integrator kits are available in 150, 300 and 450 Watt models.

HIGHLIGHTS

- Pulse Stability $\pm 1\%$
- Maintenance Free
- Integration Ready
- Portable Workstation

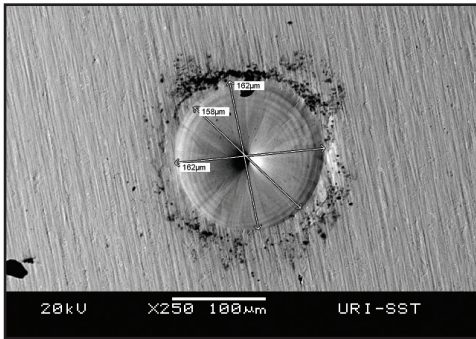
8700 Series FiberStar Integrator Kit
(150 & 300 Watt Shown)



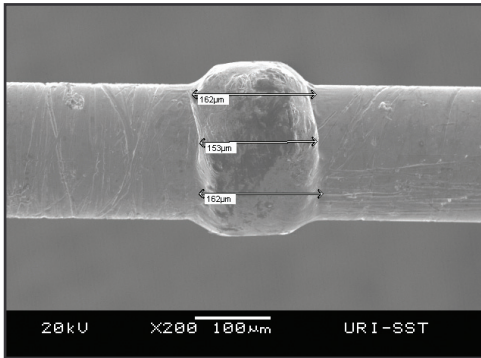
**STABLE, RELIABLE, REPEATABLE
PULSE AFTER PULSE**

ENERGY (J)	# SHOTS	DURATION	STD. DEV. (mJ)
.150	50	150 SEC.	0.90
.500	50	150 SEC.	1.29
2.00	50	150 SEC.	6.50

8600 Series FiberStar (100 Watt) - Statistical sampling subject to change based on operating conditions and environment.



250X magnification demonstrates the high level of spot size dimensional accuracy provided by the FiberStar Micro-Welding System.



200X magnification demonstrates the uniform butt weld accomplished with .007" (.18mm) diameter Nitinol wire.



Medical devices, such as this catheter kit, can benefit from the micro welding and micro cutting abilities of the fiber laser equipped FiberStar Micro-Welding System.

8700 Series FiberStar Integrator Kit

System Platform	Integration Kit
FiberStar Lasing System	Class 4
Beam Delivery Presentation	Fiber
Wavelength	1070nm
Operating Mode	Pulse or Continuous Wave (CW)
Output Power (Average)	150 Watt / 300 Watt / 450 Watt
Polarization	Random
Output Power Stability	+/- 1%
Maximum Peak Power	1.5kW / 3.0kW / 4.5kW
M²	2.0-15.0
Pulse Length	.02 - 20 Milli-seconds
Pulse Frequency	0,5 - 20 Hz
Burst (Count) Mode	1 - 25 pulses
Beam Diameter	> 25 micron
Cooling System	Internal Forced Air / Optional External Chiller
Cooling Capacity-Run Time	24 Hour / Continuous
Supply Circuit	120V (+/-10%), 50/60Hz 15 Amp, Single Phase 208V (+/-5%) or 230V (+/-10%) 50/60Hz, 15 Amp, Single Phase
Parameter Adjustment Features	External Touchscreen
Programming Memory	99 Text Cells
Language Display Options	English
Shield Gas Supply	Outlet
Inert Gas Welding Adjust Valve	Dual - Integrated
"Footprint" Dimensions	
150 Watt, 300 Watt	23"H x 12"W x 26"L 584mm x 305mm x 654mm
450 Watt	29"H x 12"W x 28"L 738mm x 305mm x 715mm
Weight (Unpackaged)	
150 Watt	120 lbs / 54 Kg
300 Watt	130 lbs / 59 Kg
450 Watt	150 lbs / 68 Kg
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification Compliance	FDA(CDRH), UL, CSA, CE



Optional Operator Interface Terminal (OIT)

MADE IN THE USA

OPEN WORKSPACE FIBER WELDING WORKSTATION



8700-2 Series with Universal Jig

Today's mold repair micro-welding laser industry is characterized by rapidly changing, ever-evolving customer demands and intense competition. Innovative ideas, successful designs and a strong commitment to superior quality and performance are the fundamentals of LaserStar Technologies Corporation.

FiberStar 8700-2 Series Fiber Laser Welding Workstations offer state-of-the-art laser resonator technology which provides high peak power, optimal performance and throughput, higher up time, enhanced electrical efficiency, and a space saving air cooled design. Solid state diodes provide instantaneous power with no "warm up time" required.

The laser source is a permanently sealed design that protects against dust and dirt, does not require adjustment, has no consumable parts, and requires no maintenance. These features help to ensure the FiberStar systems performance resulting in stable, consistent material processing for years of operation

Fiber laser welding technology produces a sharp, focused light beam that consistently melts a very small area of metal. The benefit of the technology is that very little heat is generated at the weld point allowing users to easily laser weld > 0.025mm from complex, heat sensitive, intricate parts while providing unparalleled parameter flexibility from 0 – 100% duty cycle.

The Universal Jig Fiber Laser Welding Workstation offers a significant, competitive advantage for today's operators looking to unleash the power of hot light, benefit from a comfortable, ergonomic design and ensure optimal platform flexibility for the widest range of on-site mold repair welding applications.



FiberStar laser welding systems are ideal for a wide range of large plastic injection mold, tool & die maintenance and repair applications.

- Lay a bead from .0025" / 0.40mm
- Repair slots, pockets, radius contours and angles
- Repair polished, textured and engraved surfaces
- Repair thin walls with little or no warping
- Repair parting line edges and heat sensitive areas
- Alloys include tool steel, aluminum, copper, titanium and powdered metals

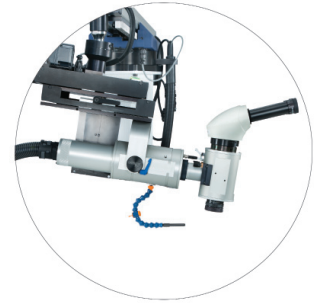
The FiberStar produces a high quality result, reduces the amount of handwork required before polishing and practically eliminates sink lines.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 8700 Series Welding Workstations with Universal Jig)



MADE IN THE USA



X Axis
46" (1168mm)

Z Axis
45" - 65"
(1143mm - 1650mm)

360° Swivel

Operator Interface Terminal (OIT)

Adjusts to Any Angle

- Theta X & Y: +/-45°
- Head Pivot: 180°
- Illuminated Work Area with Argon Flow Nozzle

Magnetic Holder for Small Parts

3 Axis Precision Table

- Mechanical X = 5.5" (140mm)
- Mechanical Y = 3.0" (75mm)
- Motorized Z = 7.5" (195mm)

Compact/High Power Integrated Laser Welder
(150 - 350 - 400 Watts)

System Weight:
Approx. 750 lbs./193 Kg

Multi Axis Travel Distances

- Motorized X-Y-Z Axis
- X Axis = 27.5" (700mm)
- Y Axis = 10.0" (260mm)
- Z Axis = 19.5" (500mm)

X/Y Joystick Control
(Optional Upgrade)

Benefits

Motorized X / Y / Z Axis • Rotates and Tilts in Almost Any Direction • Rigid Yet Mobile Frame • Complete Turnkey Solution

In the interest of technological progress, we reserve the right to make technical changes without notice.

Performance features of 8700 Series provided on page 30 & 31

OPEN WORKSPACE WELDING WORKSTATION



8800 Series

Today's precision welding marketplace specializing in laser spot welding or laser seam welding applications, have a wide range of new technologies available to enhance their ability to provide the highest level of quality, craftsmanship, and service to their clients.

The FiberStar 8800 Series manual welding systems are ideal for a variety of common welding applications including plastic injection mold, dies and tooling repair, complex electronic components, high-precision industrial assemblies, pressure-sensitive hermetic laser sealing, and other unique industrial applications for the automotive, aerospace, aviation, computer, medical device, mold repair, and consumer product industries.

Operators hold parts in their hands while viewing the application through a stereo-microscope in the welding zone. An internal cross-hair allows the operator to easily align and weld the parts at the correct location.

FiberStar 8800 Series Systems offer state-of-the-art laser resonator technology which provides high peak power, optimal performance & throughput, higher up time, enhanced electrical efficiency, and a space saving air cooled design. Solid state diodes provide instantaneous power with no "warm up time" required.

The laser source is a permanently sealed design that protects against dust and dirt, does not require adjustment, has no consumable parts, and requires no maintenance. These features help to ensure the FiberStar systems performance resulting in stable, consistent material processing for years of operation.

Many materials can be laser welded including 300 and some 400 series stainless steel, mild steels, nickel and nickel alloys, aluminum and aluminum alloys, titanium, precious metal alloys (gold, silver, and platinum), etc.

FiberStar offers multiple power levels (150, 300, 450 Watts) to meet a wide variety of application requirements.

**8800 Series
Open Workspace
Fiber Welding Workstation**
Shown with Magnetic Jig



8800 Series Open Workspace Welding Workstations

LaserStar Lasing System	Class 4 / Fiber
Wavelength	1,070nm
Operating Mode	Pulse or Continuous
Output Power	150 Watt / 300 Watt / 450 Watt
Minimum Peak Power	1.5kW / 3.0 kW / 4.5 kW
M²	2.0 - 15.0
Pulse Length	0.2 - 50 Milli-seconds
Pulse Frequency	0.5 - 20 Hz
Burst (Count) Mode	>25 Micron
Cooling System	Internal Forced Air / Optional Chiller Ready
Cooling Capacity	24 Hour Continuous
Supply Circuit	120V (+/- 10%), 50/60 Hz 15 Amp, Single Phase 208V (+/- 5%) or 230V (+/- 10%) 50/60 Hz, 15 Amp, Single Phase
Binocular Microscope	15x (optional 25x, 40x)
Illumination System	LED Natural Lighting
Programming Memory	99 Text Cells
Parameter Adj. Features	External Touchscreen/O.I.T.
Motorized Beam Expander	Yes
Shield Gas Supply	Dual Nozzles
Dimensions	24"W x 48"L 609mm x 1150mm
Warranty Coverage (Parts & Labor)	As Quoted
Laser Safety Certification	FDA(CDRH), UL, CSA, CE
Country of Origin	Made In USA

NOTE: Fatigue test data can be provided upon request.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 8800 Series FiberStar Welding Workstations)



MADE IN THE USA



Benefits

Motorized X / Y / Z Axis • Rotates and Tilts in Almost Any Direction • Rigid Yet Mobile Frame • Complete Turnkey Solution



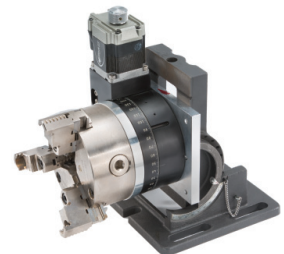
Magnetic Jig



Heavy Duty Vise (+/-45°)



Large Rotary Device (+/-45°)



Large Rotary Device (+/-45°)

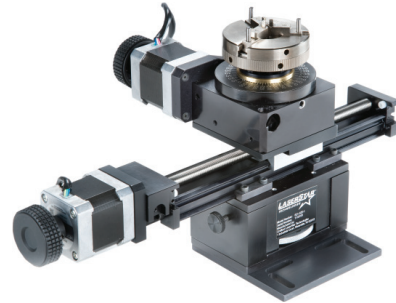
Frequently Used Accessories

COMPACT MOTION DEVICES - WELDING SYSTEMS

HI-PRECISION ROTARY MODULE



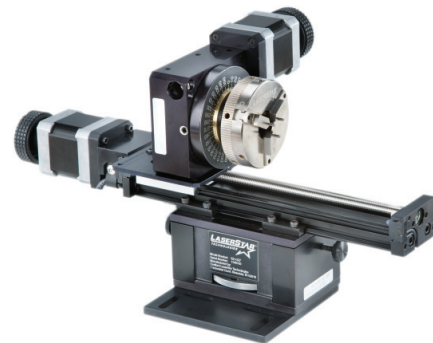
LINEAR MOTION DEVICE WITH ROTARY



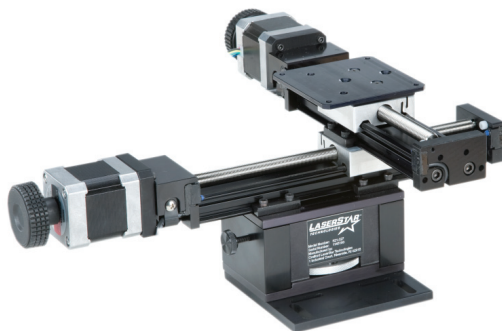
LINEAR MOTION DEVICE



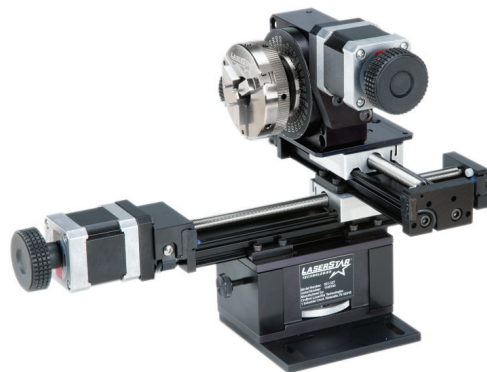
LINEAR MOTION DEVICE WITH ROTARY



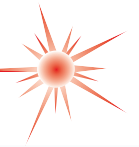
X-Y MOTION WITH MECHANICAL Z AXIS



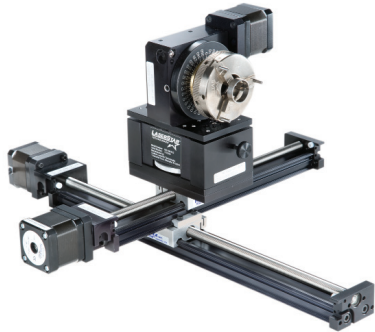
X-Y MOTION WITH ROTARY (MECHANICAL Z AXIS)



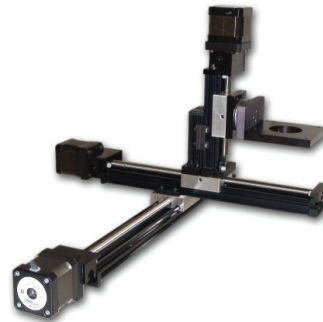
In the interest of technical progress, we reserve the right to make technical changes without notice. Other Motion Device configurations are available upon request. Not all configurations are displayed. Motion device performance specifications can be found at www.LaserStar.net.



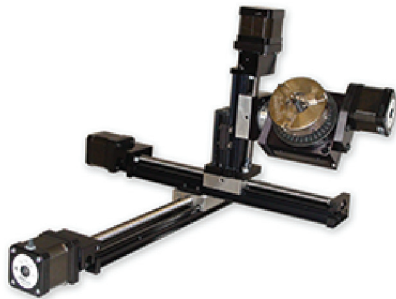
**X-Y MOTION WITH ROTARY
(MECHANICAL Z AXIS)**



X-Y-Z MOTION WITH STAGE



X-Y-Z MOTION WITH ROTARY



**X-Y MOTION DEVICE
(HEAVY DUTY)**



**X-Y-Z MOTION DEVICE
(HEAVY DUTY)**



**X-Y-Z MOTION WITH ROTARY
(HEAVY DUTY)**



In the interest of technical progress, we reserve the right to make technical changes without notice. Other Motion Device configurations are available upon request. Not all configurations are displayed. Motion device performance specifications can be found at www.LaserStar.net.

MOTION DEVICE CONTROLLER

Manage up to 4 Axis' - PID compensation with velocity and acceleration feed forward, synchronizing motion, point-to-point positioning, jogging, linear and circular interpolation, contouring. Ethernet 10 Base-T Port; (1) RS232 Port; 8 TTL Inputs and 8 Outputs.

***TECHNICAL REQUIREMENTS FOR MOTION DEVICES REQUIRING A COMPUTER:** Customer to provide suitable PC or Laptop with the following minimum specifications: Pentium/Celeron 300MHz CPU, 128 MB RAM, 1.5GB Hard Disc Space, Super VGA (800 x 600) Graphics, CD-ROM or DVD Drive, RS232 Port (or USB to RS232 Converter), Keyboard and Mouse.

LASER MARKING - HERE'S HOW IT WORKS

LaserStar fiber marking and engraving systems are a fast and clean technology that is rapidly replacing older laser technologies. Direct laser marking has become a common process in many industries today. It offers a non-contact, abrasion-resistant, permanent laser mark onto almost any type of material. High speed, high precision, micro laser marking and/or laser engraving of part information, readable alpha-numerics, barcodes or data-matrix™, serial numbers, corporate logos, etc. are possible on a wide range of component parts.

Fiber Laser Marking Basics

With fiber laser marking, focused light from a laser interacts with a material to produce a high quality, permanent mark on an object. A laser marking system is usually made up of a fiber laser engine, scan head assembly (commonly known as galvos) and control software. The software also provides the interface to manage multi axis motion systems if required. Frequently, fiber laser marking systems not only mark, but offer laser engraving and laser machining capabilities, including thin material cutting, scribing and material removal.

The fiber laser is equipped with software that enables the laser marking of text, graphics, logos, barcodes and data-matrix codes. Automation features enable part serialization, date coding, variable text inputs, remote programming, input/output control and many other programming features.

Laser Marking Software

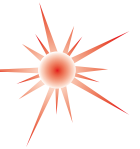
LaserStar's CAD2 Software runs on most of the latest Windows® operating systems. Installing the software is quick and easy, and only takes a few minutes. Once installed, the software will automatically detect your FiberStar® Marking System via USB connection. We also offer ProLase 7 Laser Marking Software as an alternative to CAD2 for current ProLase users.

Features & Benefits

- Maintenance Free Laser Engine
- Air-Cooled, Compact System
- Motorized or Manual Z-Adjustment
- Integrated PIP Camera (optional)
- Focus Diode Kit Assembly
- Multiple F-Theta Lens Options
- Easily Integrated Footprint
- Complete Turnkey Solutions
- Multiple Class I Chamber Options

- ★ **Easy To Use...**
- ★ **Simple to Maintain...**
- ★ **Very Low Cost of Ownership!**

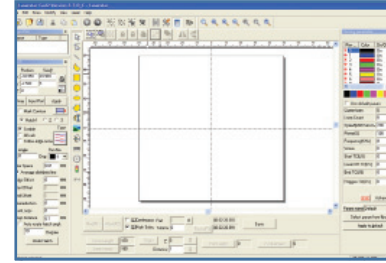




Laser Marking Software Is Fast and Easy To Use

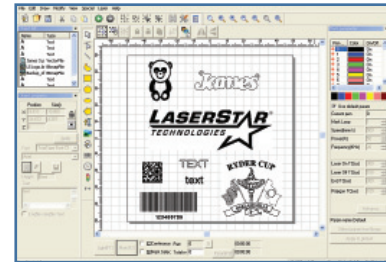
1. Create a New File

Setting up a new file page in LaserStar's marking software is easy. Simply open a new file in our Windows® based software. LaserStar's software makes it easy to import a variety of image and graphic file formats, benefit from a vast library of True Type fonts, and customized fill patterns directly on the screen.



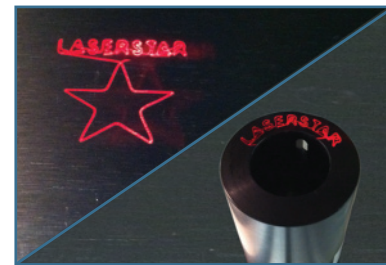
2. Image, Graphics, Text Layout

Select the images or graphics needed and import them into the layout template. Add text, titles, headers and other descriptive phrases to complete your objective. Themes can be easily combined to create a finished layout.



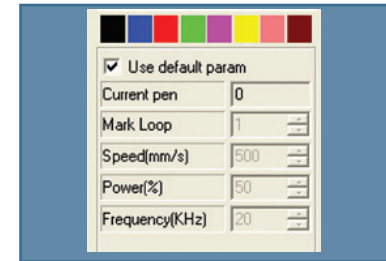
3. Set Up The Marking Field

Turn the red focus diodes "ON" to bring your marking surface into position. Next, the layout profile feature assists in scaling and positioning your layout onto the marking surface.



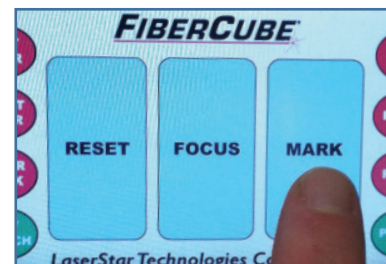
4. Select the Power Settings

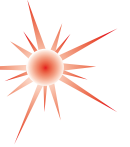
Individually identify or group your marking layout with the software parameter (power and speed) settings to produce the desired marking/engraving results. A wide range of customizable parameters are available to optimize material types, fill or hatch patterns, texturing, and radius surfaces.



5. Start Marking

Once the above steps are completed, simply press MARK and your new layout will be laser marked/engraved in seconds. The process is clean and quick!

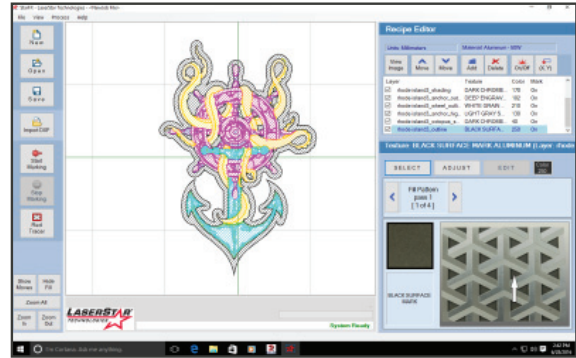




STARFX™ SOFTWARE

FiberStar advanced laser engraving systems empower today's manufacturers, retailers, wholesalers, dealers and enthusiasts to custom engrave, brand and personalize a wide range of personal and professional items.

Our proprietary StarFX™ Advanced Laser Engraving Software provides a level of complex layer engraving and surface texturing never before available in today's marketplace. Convert any sketch, drawing, or graphic image into a custom engraved work-of-art on multiple alloys including: Aluminum, Stainless Steel, Titanium, Copper, Iron, Brass, Precious Metals, Exotic Metals, Composites, etc. Each image can be laser engraved before or after custom coating (including hard coat anodize, custom color or Cerakote processes) to optimize the color fill, natural shadowing and polishing effects of the final result.

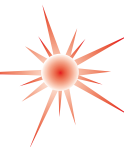


FiberStar Laser Engraving Systems are an effective tool for direct part marking, traceability, branding and product adornment. Built to the highest standards of quality, the robust design is an excellent solution for both short and long run production cycles.

- Multiple workstation platforms for specific size and space requirements
- Increase and streamline work flow with automatic serialization software
- Mark on curved, flat, round, coated or bare surfaces
- 2D and 3D Matrix markings for government compliance
- Multi-axis motion and rotation devices available
- Configured to metric dimension standards for the highest level of accuracy



LASER MARKING APPLICATIONS GUIDE



Compare the key features and optimal application and industry suitability of our FiberStar Product Line: Single Mode, Low Mode, High Mode. Choose the one that best suits your needs.

SUITABILITY KEY

✓ Optimal ✓ Good x NA

APPLICATIONS	SINGLE	LOW	HIGH
Ablation	✓	✓	✓
Cleaning	✓	x	✓
Drilling	✓	✓	✓
Engraving, Deep	✓	✓	✓
Engraving, Fine	✓	✓	x
Marking, Anodized & Painted Materials	✓	✓	✓
Marking, General	✓	x	✓
Marking, Metal	✓	✓	✓
Marking, Night and Day	✓	✓	✓
Marking, Plastic	✓	✓	✓
Micro-machining	x	✓	x
Precision Cutting	x	✓	✓
Scribing	✓	✓	x
Solar Cell Processing	✓	✓	✓
Thin Film Patterning	✓	✓	✓
INDUSTRIES			
Medical	✓	x	✓
Jewelry	✓	✓	✓
Automotive	✓	x	x
Consumer Goods	✓	✓	✓
Electronics	✓	✓	x
Energy	x	✓	✓
Engineering, General	✓	✓	✓
Manufacturing, General	✓	x	✓
Giftware	✓	x	✓
Semiconductor	✓	✓	x
Solar	✓	✓	x
Animal Tagging	✓	x	✓



LASER MARKING & ENGRAVING EXAMPLES

Precious Metals



Novelty Items





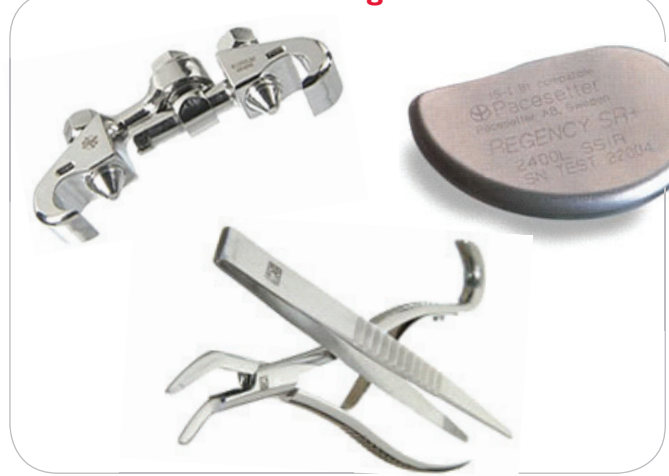
Plastics



Stainless & Tool Steels



Medical Devices/Surgical Tools



Titanium



Aluminums



Firearm Custom Engraving



FIBERSTAR "INTEGRATOR" MARKING SYSTEMS



3500 Series (Pulsed Fiber Laser)

FiberStar Marking Sources offer the benefits of a Direct Metal Marking, non-contact, abrasion-resistant, permanent laser marking onto almost any type of material. High-speed, high precision, micro-marking, engraving and cutting FiberStar systems are ideal for a wide range of industries and integration applications.

FiberStar Systems offer state-of-the-art technology with the highest laser beam quality and more than 50,000 hours of maintenance-free operation. High precision markings are achievable on almost any type of material including gold, platinum, silver, brass, stainless steel, carbide, copper, titanium and aluminum, as well as a wide variety of medical-grade alloys and plastics.

HIGHLIGHTS

- Air-Cooled, No Chiller Req'd
- Very Low Cost of Ownership
- Easily Integrated Footprint
- Easy to Use Software

Identification text, serial numbers, corporate logos, 2-D data matrix, bar coding, graphic and digital images, or any individual process data can be produced with laser marking.

- Logos, certification symbols, bar codes, serial codes, and 2-D data matrix code
- Simple custom text, serial numbers, bitmaps, graphic and CAD-files (HPGL)
- Marking and cutting of foils and light-gauge steel sheets (i.e., labels) in one cycle
- Rapid marking on precious metals with heat-sensitive materials
- Plastic materials: day & night design for items such as mobile phone keyboards, dashboards, and other illumination components for aerospace and automotive markets

**3500 Series
FiberStar Integrator System**
(Also available in rack mountable kit)



**3500 Series
FiberStar "Open Workspace"
Laser Marking System with
Manual Z-Stage**



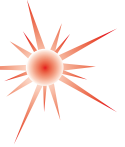
3500 Series FiberStar "Integrator" System

Laser Type	Pulse Fiber Laser
Platform	Class 4
Wavelength	1062 nm (Nominal)
Beam Diameter (focus)	< 30 nm
Pulse Frequency	1 - 500 kHz
Laser Peak Power	> 10 kW
Output Power	10 - 100 Watt
Output Fiber Length	3.0 meters
Cooling System	Fully air cooled, heat-sink
Marking Field Size	Variable
Focusing Optics (mm)¹	100, 163, 254, 330 & 420
Profile Laser (optional)	Visible, red-beam pilot laser for easy positioning of the work piece
Electrical Connection	110 - 230 V (+/-10%) 16 A, 50/60Hz
Weight (unpackaged)	190 lbs / 86 Kg
Warranty Coverage	As Quoted
Laser Safety Compliance	FDA(CDRH), UL, CSA, CE

¹Additional F-Theta Flat Field Lenses available upon request.

NOTE: In the interest of technical progress, we reserve the right to make technical changes without notice.

FIBERSTAR OPEN MARKING SYSTEMS



3600 Series (Pulsed Fiber Laser)

FiberStar Open Marking Systems offer the benefits of a Direct Metal Marking, non-contact, abrasion-resistant, permanent laser marking onto almost any type of material. High-speed, high precision, micro-marking, engraving and cutting FiberStar systems are ideal for a wide range of industries and integration applications.

FiberStar Systems offer state-of-the-art technology with the highest laser beam quality and more than 50,000 hours of maintenance-free operation. High precision markings are achievable on almost any type of material including gold, platinum, silver, brass, stainless steel, carbide, copper, titanium and aluminum, as well as a wide variety of medical-grade alloys and plastics.

HIGHLIGHTS

Air-Cooled, No Chiller Req'd
Very Low Cost of Ownership
Easily Integrated Footprint
Easy to Use Software

Identification text, serial numbers, corporate logos, 2-D data matrix, bar coding, graphic and digital images, or any individual process data can be produced with laser marking.

- Logos, certification symbols, bar codes, serial codes, and 2-D data matrix code
- Simple custom text, serial numbers, bitmaps, graphic and CAD-files (HPGL)
- Marking and cutting of foils and light-gauge steel sheets (i.e., labels) in one cycle
- Rapid marking on precious metals with heat-sensitive materials
- Plastic materials: day & night design for items such as mobile phone keyboards, dashboards, and other illumination components for aerospace and automotive markets

**3600 Series
FiberStar Open
Laser Marking System**



3600 Series FiberStar Open Marking System

Laser Type	Pulse Fiber Laser
Platform	Class 4
Wavelength	1062 nm (Nominal)
Beam Diameter (focus)	< 30 nm
Pulse Frequency	1 - 500 kHz
Laser Peak Power	>10 kW
Output Power	10 - 100 Watt
Output Fiber Length	3.0 meters
Cooling System	Fully air cooled, heat-sink
Marking Field Size	Variable
Focusing Optics (mm)¹	100, 163, 254, 330 & 420
Profile Laser (optional)	Visible, red-beam pilot laser for easy positioning of the work piece
Electrical Connection	110 - 230 V (+/-10%) 16 A, 50/60Hz
Weight (unpackaged)	215 lbs / 97 Kg
Warranty Coverage	As Quoted
Laser Safety Compliance	FDA(CDRH), UL, CSA, CE

¹Additional F-Theta Flat Field Lenses available upon request.

NOTE: In the interest of technical progress, we reserve the right to make technical changes without notice.



380I FiberCube® Series

The FiberCube® is a compact, turnkey marking, engraving and cutting system that offers the benefits of a non-contact, abrasion-resistant, permanent laser mark, engraving, or cut onto almost any type of material. These systems offer the speed, reliability and flexibility required to meet stringent quality control and process certification standards.

FiberCube® Systems integrate the FiberStar marking source (see page 52) and provide controllable pulse rates that can be adjusted from continuous wave to single pulse for deep marking, cutting, or fast throughput thermal mark applications at up to 200 characters per second.

FiberCube® Systems are ideal for a wide range of applications including flat surfaces, advanced integrated XYZ motion for step-and-repeat laser marking, or coordinated rotary motion for seamlessly marking around a circumference. LaserStar's CAD2 operating software provides complete coordination of all integrated systems. (See page 48 for more details).

As a turnkey solution provider, LaserStar's Applications Specialists will evaluate your marking or engraving requirements, define the application goals and objectives, specify and verify the correct marking platform, and define a complete system configuration to accomplish the desired results.

Jewelry Engraving & Cutting • Solar & Semiconductor • Bio Sensor Production
Thin Film Polymers • General Marking & Engraving Automotive (Parts and Displays)
ID Cards & Mobile Phones • Medical Devices & Implants • Electronics & Sensors/Instruments
Industrial Components • Manufacture of Processed Parts

HIGHLIGHTS

Air-Cooled, No Chiller Req'd
Very Low Cost of Ownership
Complete Turnkey Solutions
Easy to Use Software

380I Series
FiberCube®
Laser Marking System



380I Series FiberCube Marking System

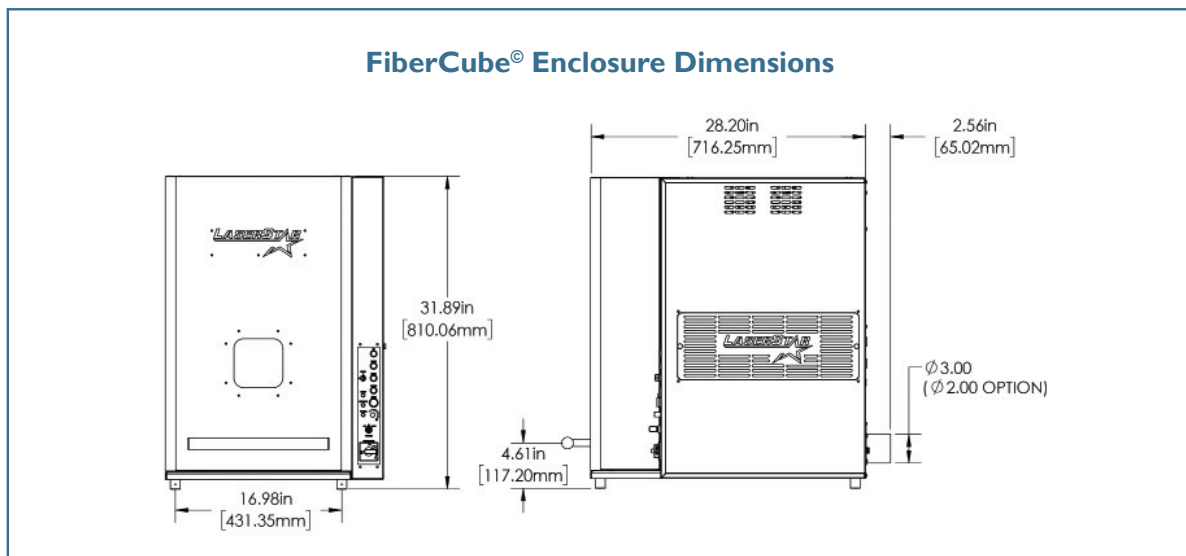
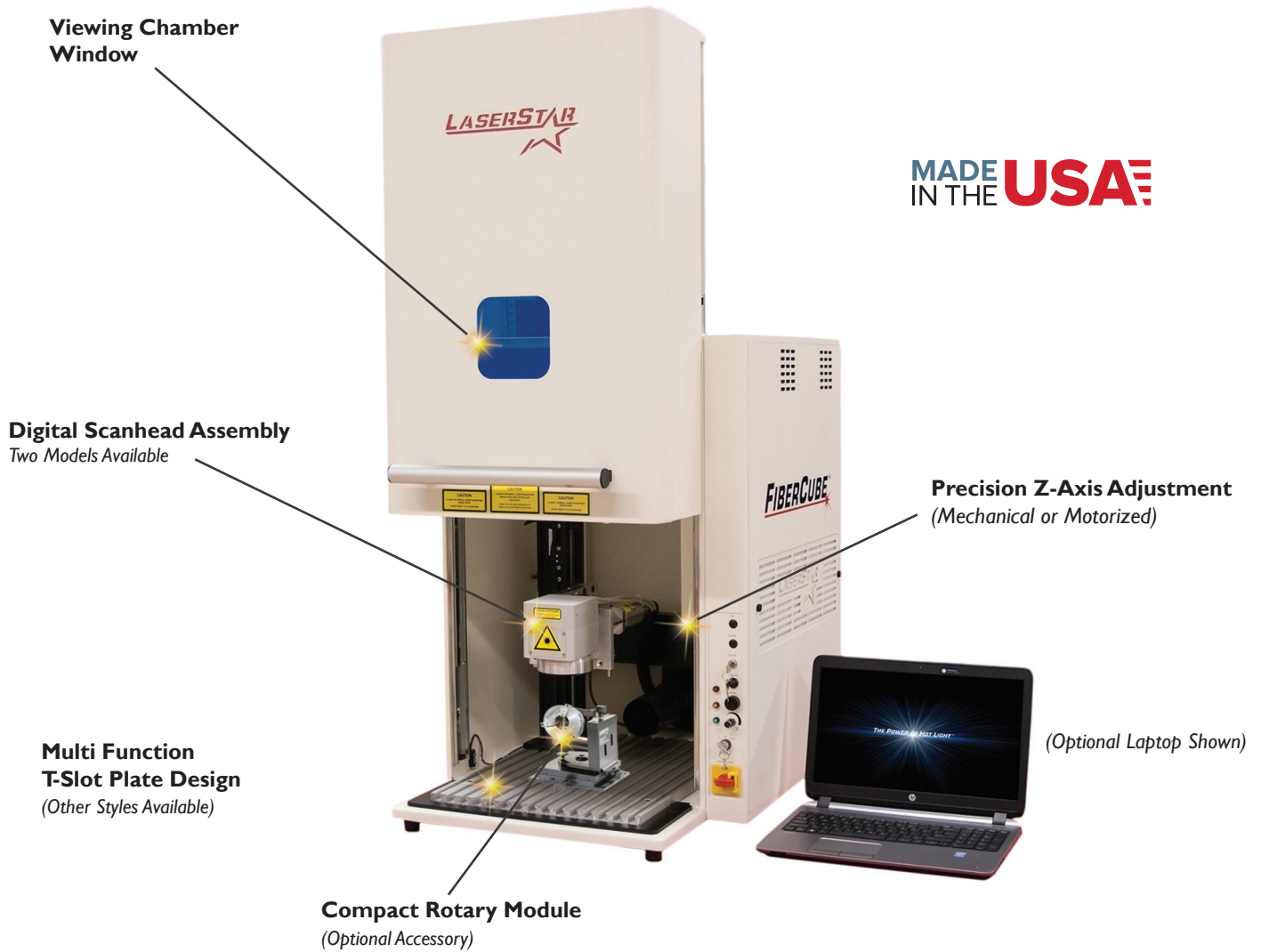
Laser Type	Pulse Fiber Laser
Platform	Benchtop System
Wavelength	1062 nm (Nominal)
Beam Diameter (focus)	< 30 nm
Pulse Frequency	1 - 500 kHz
Laser Peak Power	>10 kW
Output Power	10 - 100 Watt
Output Fiber Length	3.0 meters
Cooling System	Fully air cooled, heat-sink
Marking Field Size	Variable
Focusing Optics (mm)¹	100, 163, 254, 330 & 420
Profile Laser (optional)	Visible, red-beam pilot laser for easy positioning of the work piece
Electrical Connection	110 - 230 V (+/-10%) 16 A, 50/60Hz
Weight (unpackaged)	270 lbs / 122 Kg
Warranty Coverage	As Quoted
Laser Safety Compliance	FDA(CDRH), UL, CSA, CE

¹Additional F-Theta Flat Field Lenses available upon request.

NOTE: In the interest of technical progress, we reserve the right to make technical changes without notice.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 3801 Series FiberCube® Marking Systems)





3805 Series

The FiberStar Industrial Marking Workstation is a robust, turnkey industrial laser marking platform that offers the benefits of a non-contact, abrasion-resistant, permanent laser mark, laser engraving, or cut onto almost any type of material. These systems offer the speed, reliability and flexibility required to meet stringent quality control and process certification standards.

FiberStar Laser Marking Systems integrate the FiberStar laser marking source and provide controllable pulse rates that can be adjusted from continuous wave to single pulse for deep laser marking, cutting, or fast throughput thermal mark applications at up to 200 characters per second.

FiberStar Industrial Laser Marking Workstations are ideal for a wide range of applications including flat surfaces, advanced integrated XYZ motion for step-and-repeat laser marking, or coordinated rotary motion for seamlessly laser marking around a circumference. LaserStar's laser marking operating software provides complete coordination of all integrated systems.

As a turnkey solution provider, LaserStar's Applications Specialists will evaluate your laser marking or laser engraving requirements, define the application goals and objectives, specify and verify the correct laser marking platform, and define a complete laser marking system configuration to accomplish the desired results.

Jewelry Engraving & Cutting • Solar & Semiconductor • Bio Sensor Production
Thin Film Polymers • General Marking & Engraving Automotive (Parts and Displays)
ID Cards & Mobile Phones • Medical Devices & Implants • Electronics & Sensors/Instruments
Industrial Components • Manufacture of Processed Parts

**3805 Series
FiberStar Industrial
Laser Marking Workstation**



3805 Series FiberStar Industrial Marking System

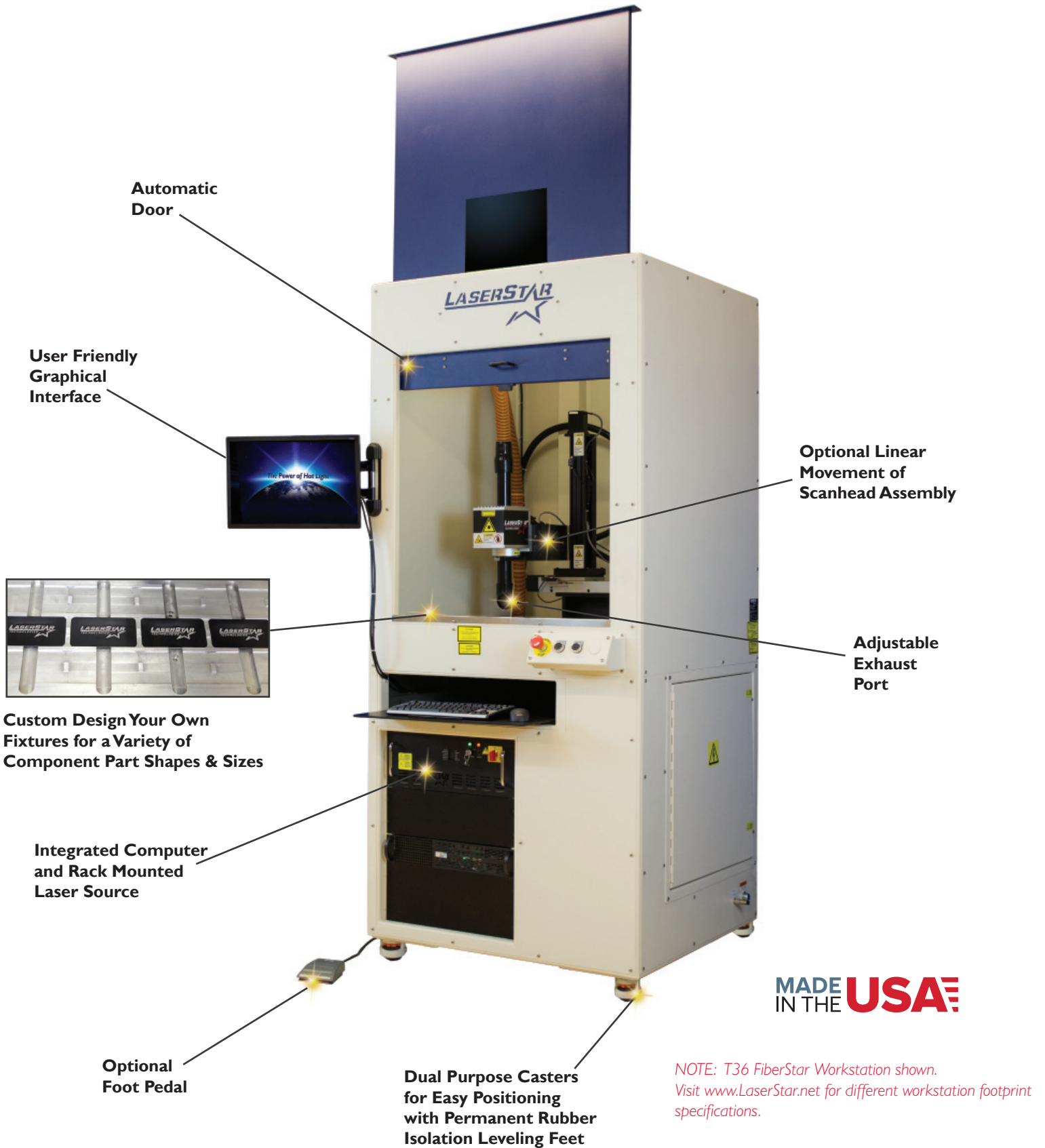
Laser Type	Pulse Fiber Laser
Platform	Highly Flexible Workstation
Wavelength	1062 nm (Nominal)
Beam Diameter (focus)	< 30 nm
Pulse Frequency	1 - 500 kHz
Laser Peak Power	> 10 kW
Output Power	10 - 100 Watt
Output Fiber Length	3.0 meters
Cooling System	Fully air cooled, heat-sink
Marking Field Size	Variable
Focusing Optics¹ (mm)	100, 163, 254, 330 & 420
Profile Laser (optional)	Visible, red-beam pilot laser for easy positioning of the work piece
Electrical Connection	110 - 230 V (+/-10%) 16 A, 50/60Hz
Weight (unpackaged)	approx. 2000 lbs /907 Kg
Warranty Coverage	As Quoted
Laser Safety Compliance	FDA(CDRH), UL, CSA, CE

¹Additional F-Theta Flat Field Lenses available upon request.

NOTE: In the interest of technical progress, we reserve the right to make technical changes without notice.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 3805 Series FiberStar Industrial Marking Workstations)



MOTION DEVICES - MARKING SYSTEMS

HI-PRECISION ROTARY MODULE



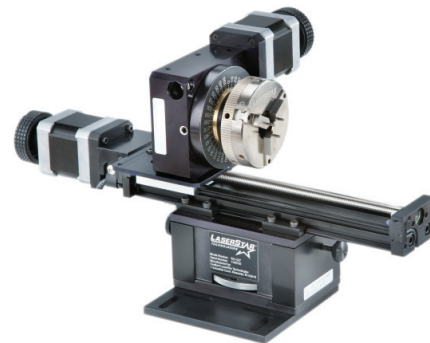
ROTARY MODULE WITH REMOVABLE CHUCKS



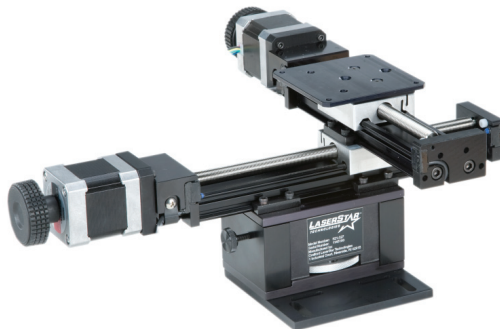
LINEAR MOTION DEVICE



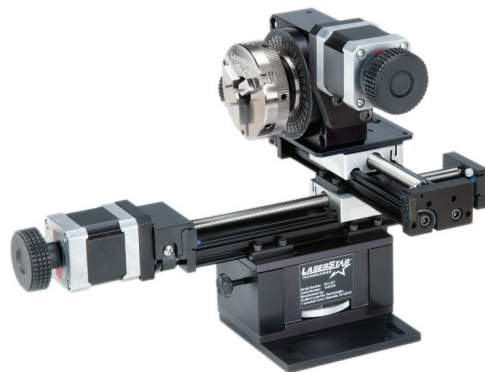
LINEAR MOTION DEVICE WITH ROTARY



X-Y MOTION WITH MECHANICAL Z AXIS



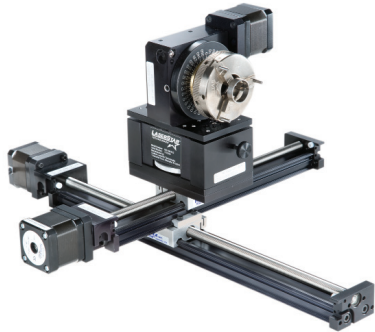
X-Y MOTION WITH ROTARY (MECHANICAL Z AXIS)



In the interest of technical progress, we reserve the right to make technical changes without notice. Other Motion Device configurations are available upon request. Not all configurations are displayed. Motion device performance specifications can be found at www.LaserStar.net.



X-Y MOTION WITH ROTARY (MECHANICAL Z AXIS)



X-Y-Z MOTION WITH STAGE



X-Y-Z MOTION WITH ROTARY



X-Y MOTION DEVICE (HEAVY DUTY)



X-Y-Z MOTION WITH ROTARY (HEAVY DUTY)



MECHANICAL Z-STAGE ASSEMBLY



In the interest of technical progress, we reserve the right to make technical changes without notice. Other Motion Device configurations are available upon request. Not all configurations are displayed. Motion device performance specifications can be found at www.LaserStar.net.



3900 FiberStar Series

The FiberStar CNC Machining Center for Laser Cutting or Welding Applications offer a significant competitive advantage for today's marketplace by enabling the user to configure the core system as a cutting or welding production workstation. The platform produces high quality, dimensionally accurate laser cuts or welds for a wide range of applications.

The Workstation is available in different platform dimensions based on the end user's application and part size. System features include a programmable 4-Axis (X/Y/Z and optional Rotary) precision CNC system controller, integrated computer with Windows operating system, LaserStar machining software and DXF2 to G-CODE Conversion Software. The state-of-the-art, fully integrated laser source provides excellent beam quality while producing many years of reliable performance.

The highly flexible, all-purpose Laser Cutting or Welding Workstation provides superior edge quality, tight dimensional tolerances and precision patterns on a wide range of materials. Designed to the highest standards of reliability, repeatability, and user safety, all Workstations offer a factory sealed, maintenance free laser source.

As a turnkey solution provider, LaserStar's Applications Specialists will evaluate your requirements, define the application goals and objectives, specify and verify the correct technology, and define a complete system configuration to accomplish the desired results.

- Medical Devices and Instruments
- Aerospace and Electronics
- Automotive and Micro Components
- Prototyping Components
- Jewelry (Gold, Silver, Platinum, Titanium)
- Semiconductor Industry
- General Parts Manufacturing
- Other Complex Industrial Applications

**3900 Series
FiberStar CNC Machining Center
Laser Cutting Workstation**



3900 Series CNC Machining Workstation	
Lasing Platform	Workstation/FiberStar Engine
Output Power	150, 300, 450 Watt
Software	FiberStar CNC Machining Software with G-Code
Motion Controller	Aerotech - 4 Axis Capable
Cantilever Motion	Increases Weight Load of Part
Laser Head Options	Cutting Head or Welding Head
Tech Mode Capable	Standard Feature
User Interface	Keyboard / Mouse
Operating System	Integrated Computer
Overall Dimensions	Visit www.LaserStar.net
XYZ Table	Semi-sealed Axes for more flexible material choices Ball Screw Drives Circulating Ball Linear Guides Cable Management 4th Axis Roatry Capable with Order
Linear Drive: Travel X/Y/Z	300mm x 300mm x 150mm (11.8" x 11.8" x 5.9")
Repeat Accuracy	+/- 0,001mm (.00039")
Processing Speed	200mm (7.87") / sec (Material & Laser Dependent)
Acceleration	Maximum .3g (Process Dependant)
Assist Gas Features	Support for 2 External Gas Tanks One supply with Oxygen-ready Components
Electric/Manual Door	546 x 660 mm (21.5" x 26")
Warranty	As Quoted
Laser Safety Cert.	FDA(CDRH), UL, CSA, CE
Country of Origin	Made / Assembled in USA

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 3900 Series FiberStar CNC Machining Centers)

Automatic Door

Internal Chamber Monitoring System

User Friendly Graphical Interface



Aerotech Multi-Axis Precision Motion Package

Integrated Computer and Rack Mounted Laser Source

Dual Purpose Casters for Easy Positioning with Permanent Rubber Isolation Leveling Feet

MADE IN THE USA

NOTE: T24 Machining Workstation Shown.
Visit www.LaserStar.net for different workstation footprint specifications.



3806 FiberStar® Series

The FiberStar Rotary Dial Marking or Welding Workstation is a robust, turnkey industrial laser platform that offers the benefits of a non-contact, abrasion-resistant, permanent laser mark, laser engraving, or cut onto almost any type of material. These systems offer the speed, reliability and flexibility required to meet stringent quality control and process certification standards.

FiberStar Rotary Dial Workstations integrate the FiberStar laser source and provide controllable pulse rates that can be adjusted from continuous wave to single pulse for deep laser marking, cutting, or fast throughput thermal mark applications at up to 200 characters per second.

The FiberStar Rotary Dial Laser Marking Workstation is a high volume production workstation that is ideal for a wide range of applications. The system is designed to allow an operator to rapidly load/unload components, “quick release” load/unload of preloaded fixtures, or single component marking in the manual mode. Advanced integrated motion for step-and-repeat laser marking, or coordinated rotary motion for seamlessly laser marking around a circumference is also possible. Operators can trigger the cycle using the dual trigger switches or a foot pedal. A safety light curtain option is also available. LaserStar’s marking operating software provides complete coordination of all integrated system components.

As a turnkey solution provider, LaserStar’s Applications Specialists will evaluate your laser marking or laser engraving requirements, define the application goals and objectives, specify and verify the correct laser marking platform, and define a complete laser marking system configuration to accomplish the desired results.



3806 Series FiberStar Rotary Dial Workstation

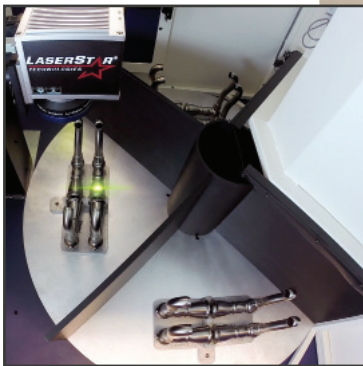
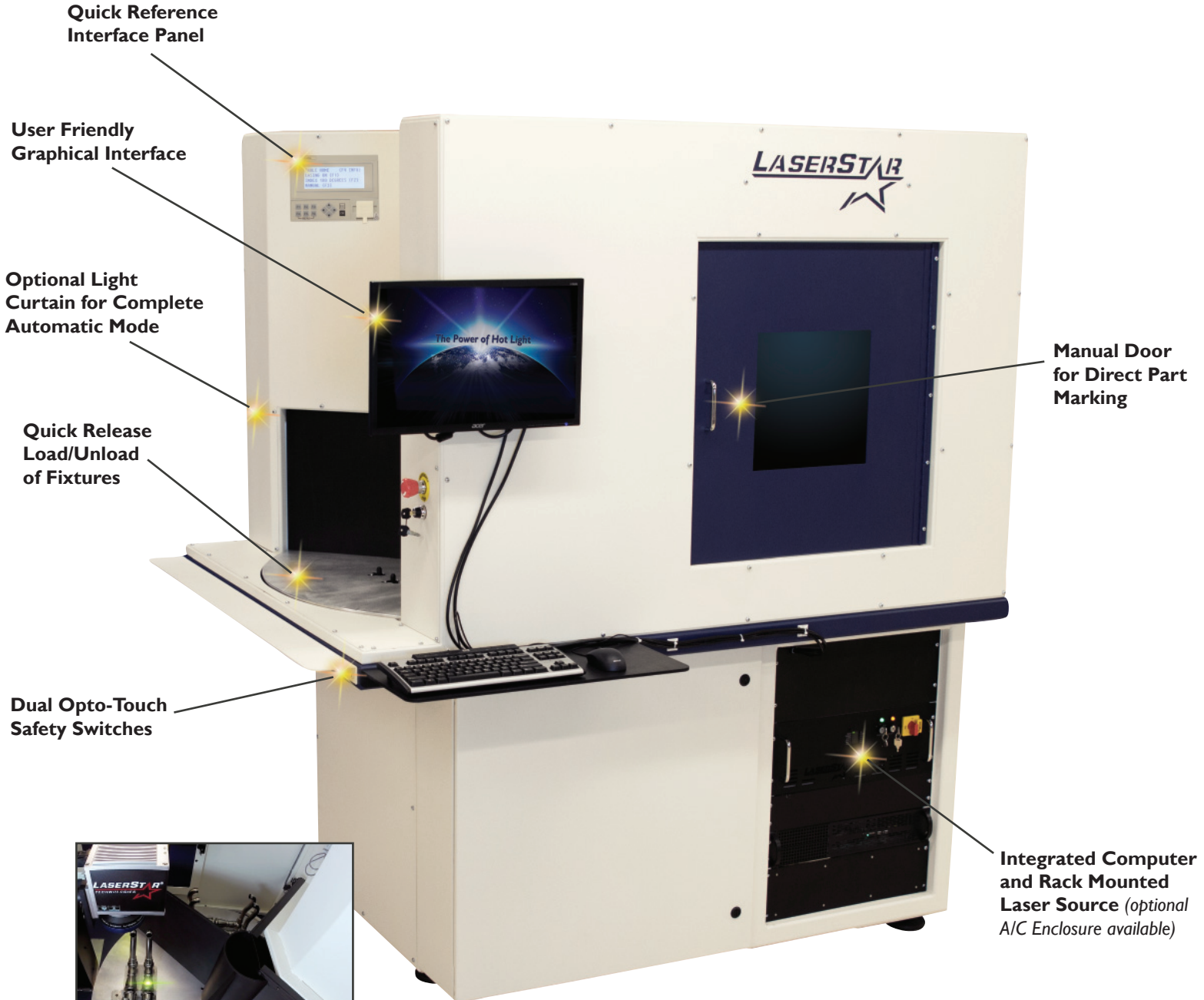
Laser Type	Pulse Fiber Laser
Platform	Rotary Dial Workstation
Wavelength	1062 nm (Nominal)
Beam Diameter (focus)	< 30 nm
Pulse Frequency	1 - 500 kHz
Laser Peak Power	>10 kW
Output Power	10 - 100 Watt
Output Fiber Length	3.0 meters
Cooling System	Fully air cooled, heat-sink
Marking Field Size	Variable
Focusing Optics (mm)	100, 163, 254, 330 & 420 ¹
Profile Laser (optional)	Visible, red-beam pilot laser for easy positioning of the work piece
Electrical Connection	110 - 230 V (+/-10%) 16 A, 50/60Hz
Weight (unpackaged)	approx. 2000 lbs /907 Kg
Warranty Coverage	As Quoted
Laser Safety Compliance	FDA(CDRH), UL, CSA, CE

¹Additional F-Theta Flat Field Lenses available upon request.

NOTE: In the interest of technical progress, we reserve the right to make technical changes without notice.

PERFORMANCE FEATURES AND BENEFITS

(The following advanced features are available on select 3806 Series FiberStar Rotary Dial Workstations)



Available with Programmable X and Z Axis

Available Workstation Configurations
36" or 48"
Rotary Dial System
Available in 2 or 4 Stations

MADE IN THE USA

OPTIONS AND ACCESSORIES



Argon Regulator Kit



Power Monitor Kit



Extension Tubes for Laser Welding



High Resolution Camera



Cross Hair Generator



Chamber Color Video Camera



Bar Code Scanner

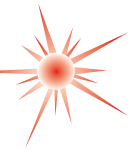


Fume Exhaust System



Safety Glasses

Above is a sampling of our more popular Options and Accessories.



Adjustable Wedge



Fixed Wedge



Aperture Kit



Lab Jack Stand



Magnetic Stand



Black Stage (5 Axis)



Adjustable Work Table



iWeld Compact Stand



Saddle Stool

In the interest of technical progress, we reserve the right to make changes without notice.



LaserStar's Application Specialists are experienced in all facets of microscopic joint design, process development, materials handling, lean manufacturing, and turnkey solutions that are subject to stringent quality requirements.

Our Applications Laboratory is a valuable resource to test and verify a laser's "fitness for the application" for many welding, marking and cutting opportunities.

Take advantage of this resource by requesting a Complimentary Application Evaluation. LaserStar's Application Specialists will discuss your specific requirements, test your application, generate a Sample Evaluation Report, and recommend the proper system configuration.

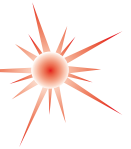
LaserStar has years of experience in welding, marking and cutting a wide range of materials, including:

Nitinol • Monel • Titanium • Stainless Steel • Steel Alloys • Nickel Alloys • Aluminum
Gold • Platinum • Silver • Kovar • Beryllium • Niobium • Iridium
Inconel • Tungsten Carbide



Benefits of Laser Technology

- *NON-CONTACT PROCESS*
- *MINIMAL DISTORTION*
- *EXCELLENT REPEATABILITY*
- *NO TOOLING WEAR*
- *SUPERIOR QUALITY RESULTS*
- *SMALL HEAT-AFFECTED ZONE*
- *HIGH PROCESS SPEEDS*
- *JOINING VARIABLE PART THICKNESSES*
- *LOW NOISE LEVELS*
- *INTEGRATION – AUTOMATION READY*

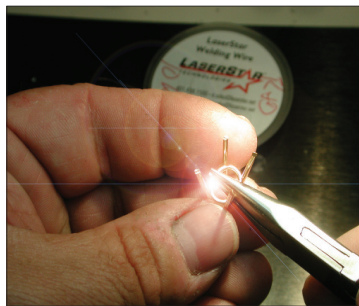


LaserStar is Your Partner for Success!

At LaserStar Technologies, we have a passion for better ideas. Whether pushing the limits of technology and design or bringing LaserStar' users together to share new and innovative application concepts. We work to approach every challenge with ingenuity and care.

Our education courses are designed to provide you with a solid foundation of fundamental laser skill sets to immediately gain a revenue impact with your new or existing iWeld, LaserStar, FiberStar or FiberCube System.

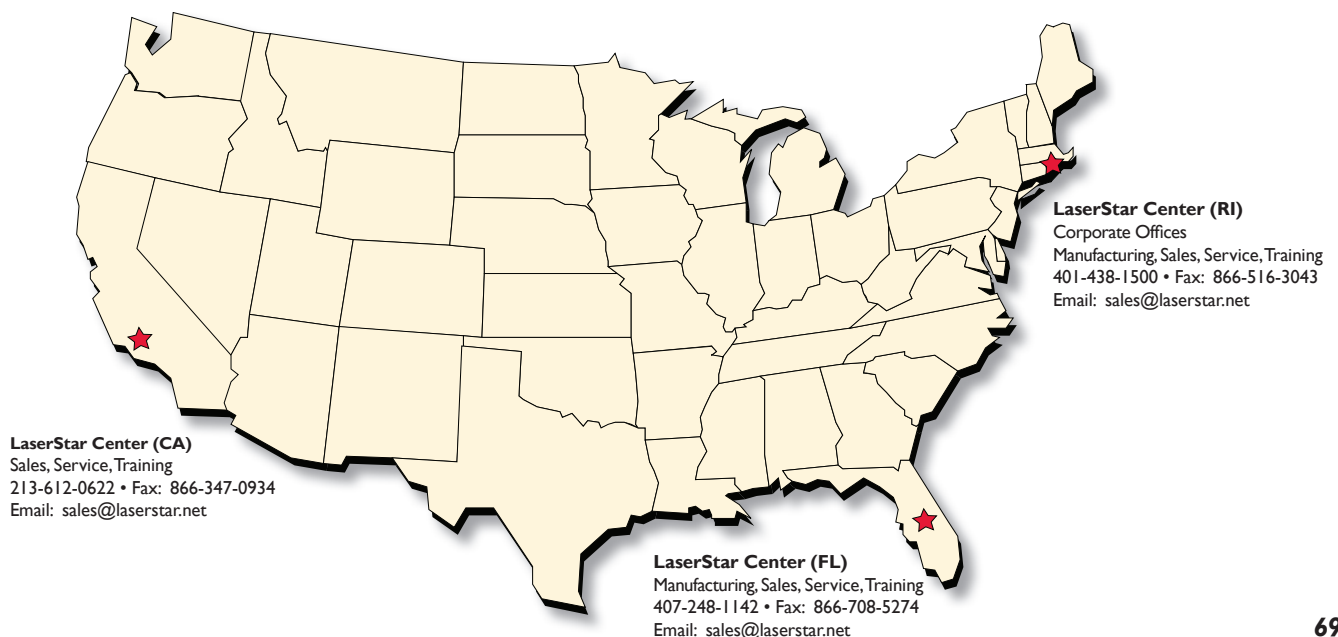
LaserStar's Application Specialists are highly-trained, seasoned professionals with more than 60 years combined experience in laser applications. Our experts will demonstrate techniques and share real examples of how LaserStar's technology will impact your business in regard to time, money and artistic approach.



"Thank you for your time and patience during our recent laser training. Breaking everything down into the basics and then layering on the more advanced information was very helpful. Now that I have completed my training, I could not imagine spending the money to buy a laser without it. I would have been completely lost when the laser showed up at my store. My training was awesome!"

– Jim Hary, Wild West Jewelry & Loan, Winnecum, NV

LaserStar Learning Center Locations



Manufacturer of Advanced Laser Sources & Systems



Innovative Solutions from the Laser Experts

- Laser Welding Systems
- Laser Cutting Systems
- Multi-Axis Motion Devices
- Education & Training
- Laser Marking Systems
- Custom Laser Systems
- Application Laboratory
- Technical Service & Support

WWW.LASERSTAR.NET

RHODE ISLAND

One Industrial Court
Riverside, Rhode Island 02915 USA
401-438-1500 • Fax: 866-516-3043
Email: sales@laserstar.net

FLORIDA

2453 Orlando Central Parkway
Orlando, Florida 32809 USA
407-248-1142 • Fax: 866-708-5274
Email: sales@laserstar.net

CALIFORNIA

7 North Fifth Avenue
Arcadia, California 91006 USA
213-612-0622 • Fax: 866-347-0934
Email: sales@laserstar.net

MADE IN THE USA



FOLLOW LASERSTARTV

