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

© 2015 LaserStar Technologies Corporation. All rights reserved. iWeld®, iWeld Professional®, FiberStar®, FiberCube®, LaserStar®, Pulse Performance Profile Technology®, Soft-Touch™ Resonator Technology and EZ-LINK® Software are registered trademarks of LaserStar Technologies Corporation. In the interest of technological progress, we reserve the right to make technical changes without notice.
**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!

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

.025 mm - 2.5 mm
.001 - .010"
Diameters

Medical Device Small Guide Wire Welds

Cables Joining
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 - 330μm 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

4
JEWELRY - DESIGN - MANUFACTURING - REPAIR

One of a Kind Custom Laser Assembly
Three Stone Ring Repair
Tennis Bracelet Clasp Repair
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
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.

Four Models Available:

- 40 Joule, 6.0 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

HIGHLIGHTS

- Accurate, Powerful
- Compact, Portable
- Easy Set-Up, 40-100 Joule
- 120V-230V, 35 & 60 Watt
PERFORMANCE FEATURES AND BENEFITS

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

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

**Digital Messaging Display**
- Custom Pulse Profiling
- Pulse Suppression Software
- Automatic Energy Save Mode
- Integrated Preventative Maintenance Alerts
- Multi-Language System Display
- 99 Memory Settings
- Pre-Programmed Application Parameters

**Multiple Viewing Systems**
- Cross-View Binocular Microscope
- Easy-View Binocular Microscope
- Zeta Binocular Microscope
- Lynx Stereo Projection Microscope

**Side Entry Service Panels**
- “Easy Access” to Maintenance Tasks

**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.

Four Models Available:
- 60 Joule, 10.0 kW, 60 Watt, 30 Hz
- 100 Joule, 10.0 kW, 60 Watt, 30 Hz
- 80 Joule, 10.0 kW, 60 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 Watt

970 Series iWeld Professional
PERFORMANCE FEATURES AND BENEFITS

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

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

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

**Multiple Viewing Systems**
- Soft Beam® Profile Enhancement Resonator Technology (Optional)
- EasyView Binocular Microscope
- Leica Binocular Microscope
- Lyx Stereo Projection Microscope

**Side Entry Service Panels**
- (“Easy Access” to Maintenance Tasks)

**Large Viewing Window**

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

**MADE IN THE USA**

**More Efficient Power Supply Technology**

**Removable Door**

**Ergonomically Designed Forearm Entry Ports**

**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.

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.
**Performance Features and Benefits**

*(The following advanced features are available on select 7000 Series LaserStar Welding Systems)*

- **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)

- **Interior Chamber Design**
  - LED Natural Lighting (Quad)
  - Dual Inert Gas Delivery System
  - Dual Operating Logic

- **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

- **Multiple Viewing Systems**
  - *Side View:*
    - Low Power Soft Beam™ Profile Enhancement Resonator Technology (Optional)

- **Automation Opportunities**
  - Integrated Motion Systems
  - Multi-Depth Chamber Inserts

- **Device Supports**
  - Ez-Link™ Software
  - Resonator Technology (Optional)
  - Soft Beam™ Profile Enhancement

- **Technical Specifications**
  - 120V or 208-240V Single Phase Supply Circuit
  - Pulse Performance Profile Technology®

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

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*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 (see page 42) 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
- Aerospace and Electronics
- Automotive and Micro Components
- 300 Series Stainless Steel
- Nitinol, Titanium, Platinum
- Many Complex Alloys
**Performance Features and Benefits**

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

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

- **Large Viewing Window**
  - 14.4 square inches - 32.6 square cm

- **Interior Chamber Design**
  - LED Natural Lighting (Quad)
  - Dual Inert Gas Delivery System
  - Dual Operating Logic

- **Multiple Viewing Systems**
  - SoftView Binocular Microscope
  - EasyView Binocular Microscope
  - Leica Binocular Microscope
  - ClearView Trinocular Microscope with Camera
  - Leica Trinocular Microscope with Camera
  - Lynx Stereo Projection Microscope

- **Extension Accessories**
  - Extension Tube - 3, 6 or 9 inch
  - Removable Chamber with Three Access Panels

- **Automation Opportunities**
  - 5-Axis Rotation Module Shown

- **Side Entry Service Panels**
  - Provides “easy access” to maintenance tasks

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

Technical specifications are provided on page 23
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 (see page 42) 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
- Aerospace and Electronics
- Automotive and Micro Components
- 300 Series Stainless Steel
- Nitinol, Titanium, Platinum
- Many Complex Alloys
**Performance Features and Benefits**

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

- **Multiple Viewing Systems**
  - ClearView Binocular Microscope
  - EasyView Binocular Microscope
  - Leica Binocular Microscope
  - ClearView Trinocular Microscope with Camera
  - Leica Trinocular Microscope with Camera
  - Lynx Stereo Projection Microscope

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

- **Large Viewing Window**
  - 14.4 square inches - 32.6 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**

- **Side Entry Service Panels**
  - Provides “easy access” to maintenance tasks

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

**Technique Technology**

- Soft Beam - Profile Enhancement Resonator Technology (Optional)

**Technology**

- Soft Beam - Profile Enhancement Resonator Technology (Optional)

**Automation Opportunities**

- X-Y-Z-Theta Motion Device

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

Technical specifications are provided on page 23

**Made in the USA**
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.

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.

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 a 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.

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.

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.

NOTE: Custom microscope configurations are available upon request. For additional microscope accessories, please go to Page 60 and 61. In the interest of technical progress, we reserve the right to change microscope body design without notice.
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, therefore greatly reducing the effects of the peak energy 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. 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.

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. 2 Some 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.
**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)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Platform</td>
<td>Benchtop</td>
</tr>
<tr>
<td>Welding Chamber Safety Certification</td>
<td>Class I</td>
</tr>
<tr>
<td>iWeld Lasing System</td>
<td>Class 4</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1.064µm</td>
</tr>
<tr>
<td>Output Pulse Energy</td>
<td>0.1 - 100 Joules</td>
</tr>
<tr>
<td>Maximum Peak Power</td>
<td>up to 10.0 kW†</td>
</tr>
<tr>
<td>Internal Power Supply</td>
<td>400 Volt</td>
</tr>
<tr>
<td>Average Power</td>
<td>35 Watts / 60 Watts</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>0.1 - 30 Milli-seconds</td>
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<tr>
<td>Pulse Frequency</td>
<td>0.5 - 30 Hz</td>
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<td>Burst / Speed Welding</td>
<td>Optimized to Energy Values</td>
</tr>
<tr>
<td>Beam Diameter†</td>
<td>0.05mm - 2.00mm</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Internal Water-To-Air</td>
</tr>
<tr>
<td>Supply Circuit</td>
<td>120V (+/-10%), 50/60Hz</td>
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<tr>
<td></td>
<td>15 Amp, Single Phase</td>
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<tr>
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<td>208V (+/-5%), 60Hz</td>
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<td>20 Amp, Single Phase</td>
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<td></td>
<td>230V (+/-10%), 50/60Hz</td>
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<td>20 Amp, Single Phase</td>
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<tr>
<td>Binocular Microscope</td>
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</tr>
<tr>
<td>Chamber Illumination System</td>
<td>LED Natural Lighting (Dual)</td>
</tr>
<tr>
<td>Soft-Touch™ Resonator Technology</td>
<td>Optional</td>
</tr>
<tr>
<td>Pulse Performance Profile Technology†</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Automatic Sleep Mode</td>
<td>Exclusive Integrated Software</td>
</tr>
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<td>Programming Memory</td>
<td>99 text cells</td>
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<td>Program Application Settings</td>
<td>Yes</td>
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<tr>
<td>Parameter Adjustment Features</td>
<td>External Touchscreen</td>
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<td>Internal Joystick</td>
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<tr>
<td>Preventative Maintenance Alert Software</td>
<td>Yes</td>
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<tr>
<td>User “Direct Connect” Software</td>
<td>EZ-LINK™</td>
</tr>
<tr>
<td>Language Display Options†</td>
<td>Yes (Additional Languages Available Upon Request)</td>
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<tr>
<td>Motorized Beam Expander</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield Gas Supply</td>
<td>Integrated “Soft Flow” Nozzle</td>
</tr>
<tr>
<td>Inert Gas Welding Chamber Adjust Valve</td>
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<tr>
<td>Welding Chamber Dimensions</td>
<td>10”L x 20”W x 9”H</td>
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<tr>
<td></td>
<td>254mm x 508mm x 229mm</td>
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<td>“Footprint” Dimensions</td>
<td>33”L x 21”W x 16”H</td>
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<td>Country of Origin (Parts &amp; Assembly)</td>
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#### iWeld Professional Laser Systems (960/970 Series)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Platform</td>
<td>Pedestal</td>
</tr>
<tr>
<td>Welding Chamber Safety Certification</td>
<td>Class I</td>
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<tr>
<td>iWeld Lasing System</td>
<td>Class 4</td>
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<tr>
<td>Wavelength</td>
<td>1.064µm</td>
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<td>Output Pulse Energy</td>
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<tr>
<td>Maximum Peak Power</td>
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<td>Internal Power Supply</td>
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<td>Average Power</td>
<td>60 Watts</td>
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<tr>
<td>Pulse Frequency</td>
<td>0.5 - 30 Hz</td>
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<tr>
<td>Burst / Speed Welding</td>
<td>Optimized to Energy Values</td>
</tr>
<tr>
<td>Beam Diameter†</td>
<td>0.05mm - 2.00mm</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Internal Water-To-Air</td>
</tr>
<tr>
<td>Supply Circuit</td>
<td>120V (+/-10%), 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>15 Amp, Single Phase</td>
</tr>
<tr>
<td></td>
<td>208V (+/-5%), 60Hz</td>
</tr>
<tr>
<td></td>
<td>20 Amp, Single Phase</td>
</tr>
<tr>
<td></td>
<td>230V (+/-10%), 50/60Hz</td>
</tr>
<tr>
<td></td>
<td>20 Amp, Single Phase</td>
</tr>
<tr>
<td>Binocular Microscope</td>
<td>15x (optional 25x, 40x)</td>
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<tr>
<td>Chamber Illumination System</td>
<td>LED Natural Lighting (Dual)</td>
</tr>
<tr>
<td>Soft-Touch™ Resonator Technology</td>
<td>Optional</td>
</tr>
<tr>
<td>Pulse Performance Profile Technology†</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Automatic Sleep Mode</td>
<td>Exclusive Integrated Software</td>
</tr>
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<td>Programming Memory</td>
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<td>Program Application Settings</td>
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<tr>
<td>Parameter Adjustment Features</td>
<td>External Touchscreen</td>
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<td></td>
<td>Internal Joystick</td>
</tr>
<tr>
<td>Preventative Maintenance Alert Software</td>
<td>Yes</td>
</tr>
<tr>
<td>User “Direct Connect” Software</td>
<td>EZ-LINK™</td>
</tr>
<tr>
<td>Language Display Options†</td>
<td>Yes (Additional Languages Available Upon Request)</td>
</tr>
<tr>
<td>Motorized Beam Expander</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield Gas Supply</td>
<td>Integrated “Soft Flow” Nozzle</td>
</tr>
<tr>
<td>Inert Gas Welding Chamber Adjust Valve</td>
<td>Yes</td>
</tr>
<tr>
<td>Welding Chamber Dimensions</td>
<td>10”L x 20”W x 9”H</td>
</tr>
<tr>
<td></td>
<td>254mm x 508mm x 229mm</td>
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<td>839mm x 534mm x 1093mm</td>
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<td>Weight (Unpackaged)</td>
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<td>Warranty Coverage (Parts &amp; Labor)</td>
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<tr>
<td>Country of Origin (Parts &amp; Assembly)</td>
<td>Made In USA</td>
</tr>
</tbody>
</table>

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1. 0.05mm Spot Size will require Aperture Assembly. 2. Pulse Performance Profile Technology® (P3) is an imbedded software feature to shape the wave profile for each laser pulse discharge. 3. Additional languages available upon request. English language is default software. 4. 40 Joule platform provides 6.0 kW peak power.
**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!

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1. 0.01mm Spot Size will require Aperture Assembly.
2. Pulse Performance Profile Technology® (P3) is an imbedded software feature to shape the wave profile for each laser pulse discharge.
3. Additional languages available upon request.

---

**7000 Series LaserStar Advanced Workstations**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Pedestal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welding Chamber Safety Certification</td>
<td>Class 1</td>
</tr>
<tr>
<td>LaserStar Lasing System</td>
<td>Class 4</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1.064µm</td>
</tr>
<tr>
<td>Output Pulse Energy</td>
<td>0.01 - 150 Joules</td>
</tr>
<tr>
<td>Maximum Peak Power</td>
<td>10.0 kW</td>
</tr>
<tr>
<td>Internal Power Supply</td>
<td>400 Volt</td>
</tr>
<tr>
<td>Average Power</td>
<td>60 Watts / 80 Watts</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>0.1 - 50 Milli-seconds</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>0.5 - 30 Hz</td>
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<tr>
<td>Burst / Speed Welding†</td>
<td>Energy Dependant (Max. 100W)</td>
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<tr>
<td>Beam Diameter†</td>
<td>0.05mm - 2.00mm</td>
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<tr>
<td>Cooling System</td>
<td>Internal Water-To-Air</td>
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<tr>
<td>Cooling Capacity-Run Time</td>
<td>24 hour / Continuous</td>
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<tr>
<td>Supply Circuit</td>
<td>120V (+/-10%), 50/60Hz</td>
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<tr>
<td></td>
<td>15 Amp, Single Phase</td>
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<tr>
<td></td>
<td>208V (+/-5%), 60Hz</td>
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<tr>
<td></td>
<td>20 Amp, Single Phase</td>
</tr>
<tr>
<td></td>
<td>230V (+/-10%), 50/60Hz</td>
</tr>
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<td></td>
<td>20 Amp, Single Phase</td>
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<tr>
<td>Binocular Microscope</td>
<td>15x (optional 25x, 40x)</td>
</tr>
<tr>
<td>Lynx Stereo Microscope</td>
<td>Optional</td>
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<tr>
<td>Chamber Illumination System</td>
<td>LED Natural Lighting (Quad)</td>
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<tr>
<td>EZ-LINK™ Software</td>
<td>Exclusive Integrated Feature</td>
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<tr>
<td>Soft-Touch™ Resonator Technology</td>
<td>Optional</td>
</tr>
<tr>
<td>Pulse Performance Profile Technology</td>
<td>Exclusive Integrated Software</td>
</tr>
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<td>(P)</td>
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<td>Automatic Sleep Mode</td>
<td>Exclusive Integrated Software</td>
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<td>Parameter Adjustment Features</td>
<td>External Touchscreen</td>
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<td>Internal Joysticks</td>
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<tr>
<td>Programming Memory</td>
<td>99 text cells</td>
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<td>Language Display Options†</td>
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<tr>
<td>Program Application Settings</td>
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<tr>
<td>Preventative Maintenance Alert Software</td>
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<tr>
<td>User “Direct Connect” Software</td>
<td>EZ-LINK™</td>
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<tr>
<td>Motion Device Compatible</td>
<td>Limited</td>
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<tr>
<td>Shield Gas Supply</td>
<td>Integrated “Soft Flow” Nozzle</td>
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<tr>
<td>Inert Gas Welding Chamber Adjust Valve</td>
<td>Dual - Integrated</td>
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<td>Welding Chamber Dimensions</td>
<td>13.3”L x 13.6”W x 7.5”H</td>
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<td>337mm x 346mm x 190mm</td>
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<td>Pedestal Workstation</td>
<td>37.5”L x 15.8”W x 44”H</td>
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<tr>
<td>“Footprint” Dimensions</td>
<td>952mm x 401mm x 1117mm</td>
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<td>Weight (Unpackaged)</td>
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<td>Warranty Coverage (Parts &amp; Labor)</td>
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<tr>
<td>Extended Warranty Coverage</td>
<td>Upgrade to 3 Years</td>
</tr>
<tr>
<td>Laser Safety Certification Compliance</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
<tr>
<td>Country of Origin (Parts &amp; Assembly)</td>
<td>Made In USA</td>
</tr>
</tbody>
</table>
**1900 Series LaserStar Industrial Workstations**

- **System Platform**: Pedestal
- **Welding Chamber Safety Certification**: Class 1
- **LaserStar Lasing System**: Class 4
- **Wavelength**: 1.064µm
- **Output Pulse Energy**: 0.1 - 150 Joules
- **Maximum Peak Power**: 100 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**: Energy Dependant (Max. 100W)
- **Beam Diameter**: 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
  - 400 Volt
- **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™ (P3)**: Exclusive Integrated Feature
- **Automatic Sleep Mode**: Exclusive Integrated Software
- **Parameter Adjustment Features**: External Touchscreen, Internal Chamber Joystick
- **Programming Memory**: 99 text cells
- **Language Display Options**: Yes
  - (Additional Languages Available Upon Request)
- **Program Application Settings**: Available upon request
- **Preventative Maintenance Alert Software**: Yes
- **Motorized Beam Expander**: Yes (multiple configurations available)
- **Motion Device Compatible**: Yes
- **Shield Gas Supply**: Integrated “Soft Flow” Nozzle
- **Inert Gas Welding Chamber Adjust Valve**: Dual - Integrated
- **Automation Chamber Dimensions** (Custom Sizes Available):
  - 20”L x 15”W x 14”H
  - 527mm x 398mm x 355mm
- **Pedestal Workstation “Footprint” Dimensions**:
  - 37.5”L x 15.8”W x 44”H
  - 952mm x 401mm x 1117mm
- **Weight** (Unpackaged): 200 lbs / 90Kg
- **Warranty Coverage (Parts & Labor)**: 2 Years
- **Extended Warranty Coverage**: Upgrade to 3 Years
- **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 1
- **LaserStar Lasing System**: Class 4
- **Wavelength**: 1.064µm
- **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 - 30 Hz
- **Burst / Speed Welding**: Energy Dependant (Max. 200W)
- **Beam Diameter**: 0.05mm - 2.00mm
- **Cooling System**: Internal / Chiller Ready
- **Cooling Capacity-Run Time**: 24 hour / Continuous
- **Supply Circuit**: 60 & 80 Watt
  - 120V (+/-10%), 50/60Hz
  - 208V (+/-5%), 60Hz
  - 230V, (.+/- 10%), 50/60 Hz
  - 30 Amp, 3 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™ (P3)**: Exclusive Integrated Feature
- **Automatic Sleep Mode**: Exclusive Integrated Software
- **Parameter Adjustment Features**: External Touchscreen, O.I.T.
- **Programming Memory**: 99 text cells
- **Language Display Options**: Yes
  - (Additional Languages Available Upon Request)
- **Program Application Settings**: Available upon request
- **Preventative Maintenance Alert Software**: Yes
- **Motorized Beam Expander**: Yes (multiple configurations available)
- **Motion Device Compatible**: Yes
- **Shield Gas Supply**: Integrated “Soft Flow” Nozzle
- **Inert Gas Welding Chamber Adjust Valve**: Dual - Integrated
- **Automation Chamber Dimensions** (Custom Sizes Available):
  - 28”L x 19”W x 12.9”H
  - 720mm x 500mm x 328mm
- **Pedestal Workstation “Footprint” Dimensions**:
  - 45.5”L x 24”W x 42”H
  - 1155mm x 609mm x 1060mm
- **Weight** (Unpackaged): 250 lbs / 90Kg
- **Warranty Coverage (Parts & Labor)**: 2 Years
- **Extended Warranty Coverage**: Upgrade to 3 Years
- **Laser Safety Certification Compliance**: FDA(CDRH), UL, CSA, CE
- **Country of Origin (Parts & Assembly)**: Made In USA

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1. 0.01mm Spot Size will require Aperture Assembly.
2. Pulse Performance Profile Technology™ (P3) is an imbedded software feature to shape the wave profile for each laser pulse discharge.
3. Additional 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.

Additional languages available upon request.

Language Display Options: Yes

(Additional Languages Available Upon Request)

Program Application Settings: Available upon request

Preventative Maintenance Alert Software: Yes

Motorized Beam Expander: Yes (multiple configurations available)

Motion Device Compatible: Yes

Shield Gas Supply: Integrated “Soft Flow” Nozzle

Inert Gas Welding Chamber Adjust Valve: Dual - Integrated

Automation Chamber Dimensions (Custom Sizes Available):

- 28”L x 19”W x 12.9”H
- 720mm x 500mm x 328mm

Pedestal Workstation “Footprint” Dimensions:

- 45.5”L x 24”W x 42”H
- 1155mm x 609mm x 1060mm

Weight (Unpackaged): 250 lbs / 90Kg

Warranty Coverage (Parts & Labor): 2 Years

Extended Warranty Coverage: Upgrade to 3 Years

Laser Safety Certification Compliance: FDA(CDRH), UL, CSA, CE

Country of Origin (Parts & Assembly): Made In USA
FiberStar 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
- Aerospace and Electronics
- Automotive and Micro Components
- Many Complex Alloys
- 300 Series Stainless Steel
- Nitinol, Titanium, Platinum
- Industrial Components
- Tool & Die Components
STABLE, RELIABLE, REPEATABLE PULSE AFTER PULSE

<table>
<thead>
<tr>
<th>ENERGY (J)</th>
<th># SHOTS</th>
<th>DURATION</th>
<th>STD. DEV (mJ)</th>
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<td>.150</td>
<td>50</td>
<td>150 SEC.</td>
<td>0.90</td>
</tr>
<tr>
<td>.500</td>
<td>50</td>
<td>150 SEC.</td>
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<tr>
<td>2.00</td>
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<td>150 SEC.</td>
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</table>

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 Workstations (90°)

- **System Platform**: Pedestal
- **Welding Chamber Safety Certification**: Class 1
- **FiberStar Lasing System**: Class 4
- **Beam Delivery Presentation**: 90 degree
- **Wavelength**: 1.070µm
- **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
  952mm x 401mm x 1117mm
- **“Footprint” Dimensions**: 220 lbs / 100 Kg
- **Weight (Unpackaged)**: 2 Years
- **Warranty Coverage (Parts & Labor)**: FDA(CDRH), UL, CSA, CE
- **Laser Safety Certification Compliance**: Made in USA
- **Country of Origin**: Made in USA

MADE IN THE USA
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.

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 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 LaserStar Welding Systems)

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

- **3 Axis Precision Table**
  - Mechanical X = 5.5" (140mm)
  - Mechanical Y = 3.0" (75mm)
  - Motorized Z = 7.5" (195mm)

- **X/Y Joystick Control** (Optional Upgrade)

- **Remote for Z Axis Control**

- **7700 Series Dual Component Laser Welder**
  - Base Measurements: 25" x 25" (635mm x 635mm)
  - System Weight: 425 lbs./193 Kg

- **Soft Beam™ Profile Enhancement Resonator Technology (Optional)**

- **X Axis** 46" (1168mm)

- **Z Axis**
  - 45° - 65°
  - (1143mm - 1650mm)

- **360° Swivel**

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

- **Operator Interface Terminal (OIT)**

- **Magnetic Holder for Small Parts**

- **X/Y Joystick Control** (Optional Upgrade)

- **Operator Interface Terminal (OIT)**

- **Magnetic Holder for Small Parts**

- **Base Measurements:**
  - 25" x 25" (635mm x 635mm)

- **System Weight:**
  - 425 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 30 & 31*
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.

### 7800 Series LaserStar Laser Welding System

<table>
<thead>
<tr>
<th>LaserStar Lasing System</th>
<th>Class 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>1.064µm</td>
</tr>
<tr>
<td>Output Pulse Energy</td>
<td>0.1 - 150 Joules</td>
</tr>
<tr>
<td>Maximum Peak Power</td>
<td>10.0 kW</td>
</tr>
<tr>
<td>Average Power</td>
<td>80 Watts - 200 Watts</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>0.5 - 50 Milli-seconds</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>0.5 - 20 Hz</td>
</tr>
<tr>
<td>Beam Diameter</td>
<td>0.05mm - 2.00 mm</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Internal / Chiller Ready</td>
</tr>
<tr>
<td></td>
<td>External Chiller Required</td>
</tr>
<tr>
<td>Supply Circuit</td>
<td>80 Watt</td>
</tr>
<tr>
<td></td>
<td>230V (+/10%),50/60Hz</td>
</tr>
<tr>
<td></td>
<td>25 Amp, Single Phase</td>
</tr>
<tr>
<td></td>
<td>100 &amp; 150 Watt</td>
</tr>
<tr>
<td></td>
<td>230V (+/10%),50/60Hz,</td>
</tr>
<tr>
<td></td>
<td>30 Amp, Three Phase</td>
</tr>
<tr>
<td></td>
<td>200 Watt</td>
</tr>
<tr>
<td></td>
<td>40 Amp, Three Phase</td>
</tr>
<tr>
<td>Binocular Microscope</td>
<td>15x (optional 25x, 40x)</td>
</tr>
<tr>
<td>Illumination System</td>
<td>LED Natural Lighting</td>
</tr>
<tr>
<td>Pulse Perf. Profile Tech. (P3)</td>
<td>Exclusive Int. Software</td>
</tr>
<tr>
<td>Programming Memory</td>
<td>99 text cells</td>
</tr>
<tr>
<td>Automatic Sleep Mode</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Parameter Adj. Features</td>
<td>External Touchscreen/OI.T.</td>
</tr>
<tr>
<td>Prev. Maint. Alert Software</td>
<td>Yes</td>
</tr>
<tr>
<td>Motorized Beam Expander</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield Gas Supply</td>
<td>Dual Nozzles</td>
</tr>
<tr>
<td>Dimensions</td>
<td>24”W x 48”L, 609mm x 1150mm</td>
</tr>
<tr>
<td>Weight (Unpackaged)</td>
<td>250 lbs / 114 Kg</td>
</tr>
<tr>
<td>Warranty Coverage</td>
<td>Two Years</td>
</tr>
<tr>
<td>Laser Safety Certification</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
<tr>
<td>Country of Origin</td>
<td>Made In USA</td>
</tr>
</tbody>
</table>

**NOTE:** Fatigue test data can be provided upon request.
Performance Features and Benefits

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

- 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

Frequently Used Accessories

Magnetic Jig

Heavy Duty Vise (+/-45°)

Large Rotary Device (+/-45°)

Large Rotary Device (+/-45°)
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 1 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.

Example of Integration Solution

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

HIGHLIGHTS
### 7700 Series LaserStar Dual Component Welders

<table>
<thead>
<tr>
<th>Feature</th>
<th>100 Watt</th>
<th>150 Watt</th>
<th>200 Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technical Profile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LaserStar Lasing System</td>
<td>Class 4</td>
<td>Class 4</td>
<td>Class 4</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1.064µm</td>
<td>1.064µm</td>
<td>1.064µm</td>
</tr>
<tr>
<td>Output Pulse Energy</td>
<td>0.1 - 150 Joules</td>
<td>0.1 - 150 Joules</td>
<td>0.1 - 150 Joules</td>
</tr>
<tr>
<td>Maximum Peak Power</td>
<td>10.0 kW</td>
<td>10.0 kW</td>
<td>10.0 kW</td>
</tr>
<tr>
<td>Average Power</td>
<td>100 Watts</td>
<td>150 Watts</td>
<td>200 Watts</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>0.5 - 50 Milli-seconds</td>
<td>0.5 - 50 Milli-seconds</td>
<td>0.5 - 50 Milli-seconds</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>0.5 - 20 Hz</td>
<td>0.5 - 20 Hz</td>
<td>0.5 - 20 Hz</td>
</tr>
<tr>
<td>Beam Diameter</td>
<td>0.05mm - 2.00 mm</td>
<td>0.05mm - 2.00 mm</td>
<td>0.05mm - 2.00 mm</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Internal / Chiller Ready</td>
<td>Internal / Chiller Ready</td>
<td>External Chiller Required</td>
</tr>
<tr>
<td>Cooling Capacity-Run Time</td>
<td>24 hour/Continuous</td>
<td>24 hour/Continuous</td>
<td>24 hour/Continuous</td>
</tr>
<tr>
<td>Supply Circuit</td>
<td>230V (+/-10%),50/60Hz</td>
<td>230V (+/-10%),50/60Hz</td>
<td>230V (+/-10%),50/60Hz</td>
</tr>
<tr>
<td>Binocular Microscope</td>
<td>15x (optional 25x, 40x)</td>
<td>15x (optional 25x, 40x)</td>
<td>15x (optional 25x, 40x)</td>
</tr>
<tr>
<td>Illumination System</td>
<td>LED Natural Lighting</td>
<td>LED Natural Lighting</td>
<td>LED Natural Lighting</td>
</tr>
<tr>
<td>Pulse Performance Profile Technology (P3)</td>
<td>Exclusive Integrated Software</td>
<td>Exclusive Integrated Software</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Programming Memory</td>
<td>99 text cells</td>
<td>99 text cells</td>
<td>99 text cells</td>
</tr>
<tr>
<td>Automatic Sleep Mode</td>
<td>Exclusive Integrated Software</td>
<td>Exclusive Integrated Software</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Parameter Adjustment Features</td>
<td>External Touchscreen</td>
<td>External Touchscreen</td>
<td>External Touchscreen</td>
</tr>
<tr>
<td>Preventative Maintenance Alert Software</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Motorized Beam Expander</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Shield Gas Supply</td>
<td>Dual Nozzles</td>
<td>Dual Nozzles</td>
<td>Dual Nozzles</td>
</tr>
<tr>
<td>Pedestal Power Supply Unit</td>
<td>25”H x 24”W x 30”L</td>
<td>25”H x 24”W x 30”L</td>
<td>25”H x 24”W x 30”L</td>
</tr>
<tr>
<td>“Footprint” Dimensions</td>
<td>635mm x 610mm x 762mm</td>
<td>762mm x 610mm x 890mm</td>
<td>762mm x 610mm x 890mm</td>
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<tr>
<td>Weight (Unpackaged)</td>
<td>250 lbs / 114 Kg</td>
<td>250 lbs / 114 Kg</td>
<td>250 lbs / 114 Kg</td>
</tr>
<tr>
<td>Warranty Coverage (Parts &amp; Labor)</td>
<td>Two Years</td>
<td>Two Years</td>
<td>Two Years</td>
</tr>
<tr>
<td>Laser Safety Certification Compliance</td>
<td>FDA(CDRH), UL, CSA, CE</td>
<td>FDA(CDRH), UL, CSA, CE</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
<tr>
<td>Country of Origin</td>
<td>Made In USA</td>
<td>Made In USA</td>
<td>Made In USA</td>
</tr>
</tbody>
</table>

**NOTE:** Fatigue test data can be provided upon request.
LaserStar 8000 Series 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.

- 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 LaserStar Fiber-Coupled Welding Systems

<table>
<thead>
<tr>
<th>Technical Profile</th>
<th>LaserStar 50 Watt</th>
<th>LaserStar 80 Watt</th>
<th>LaserStar 100 Watt</th>
<th>LaserStar 150 Watt</th>
<th>LaserStar 200 Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength</td>
<td>1.064µm</td>
<td>1.064µm</td>
<td>1.064µm</td>
<td>1.064µm</td>
<td>1.064µm</td>
</tr>
<tr>
<td>Average Power @ Ambient</td>
<td>50 Watts @ 35° Celsius</td>
<td>80 Watts @ 30° Celsius</td>
<td>100 Watts @ 30° Celsius</td>
<td>150 Watts @ 30° Celsius</td>
<td>200 Watts @ 30° Celsius</td>
</tr>
<tr>
<td>Peak Power (kW)</td>
<td>10.0kW</td>
<td>10.0kW</td>
<td>10.0kW</td>
<td>10.0kW</td>
<td>10.0kW</td>
</tr>
<tr>
<td>Output Pulse Energy</td>
<td>0.1 - 100 Joules</td>
<td>0.1 - 100 Joules</td>
<td>0.1 - 100 Joules</td>
<td>0.1 - 100 Joules</td>
<td>0.1 - 100 Joules</td>
</tr>
<tr>
<td>Pulse Length (mS)</td>
<td>0.5 - 30mS</td>
<td>0.5 - 30mS</td>
<td>0.5 - 30mS</td>
<td>0.5 - 30mS</td>
<td>0.5 - 30mS</td>
</tr>
<tr>
<td>Pulse Frequency (Hz)</td>
<td>40Hz (2400 rpm)</td>
<td>40Hz (2400 rpm)</td>
<td>40Hz (2400 rpm)</td>
<td>40Hz (2400 rpm)</td>
<td>40Hz (2400 rpm)</td>
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<tr>
<td>Supply Circuit</td>
<td>208-240V (+/-5%)</td>
<td>208-240V (+/-5%)</td>
<td>208-240V (+/-5%)</td>
<td>208-240V (+/-5%)</td>
<td>208-240V (+/-5%)</td>
</tr>
<tr>
<td>Beam Diameter</td>
<td>175 - 1000µm</td>
<td>175 - 1000µm</td>
<td>175 - 1000µm</td>
<td>175 - 1000µm</td>
<td>175 - 1000µm</td>
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<tr>
<td>Memory Storage Cells</td>
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<td>99 Cells</td>
<td>99 Cells</td>
<td>99 Cells</td>
<td>99 Cells</td>
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<tr>
<td>Diagnostic Audible Alert</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<td>Diagnostic Visual Alert</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
<td>Optional</td>
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<tr>
<td>Cooling System</td>
<td>Air-Internal Closed Loop</td>
<td>Air-Internal Closed Loop</td>
<td>Air-Internal Closed Loop</td>
<td>Air-Internal Closed Loop</td>
<td>External Chiller Required</td>
</tr>
<tr>
<td>Dimensions</td>
<td>35”H x 10”W x 28”L</td>
<td>35”H x 24”W x 30”L</td>
<td>39”H x 24”W x 30”L</td>
<td>39”H x 24”W x 30”L</td>
<td>39”H x 24”W x 30”L</td>
</tr>
<tr>
<td>Weight</td>
<td>125lbs /56Kg</td>
<td>250lbs /110Kg</td>
<td>250lbs /110Kg</td>
<td>250lbs /110Kg</td>
<td>250lbs /110Kg</td>
</tr>
<tr>
<td>Warranty</td>
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<td>Two Years</td>
<td>Two Years</td>
<td>Two Years</td>
<td>Two Years</td>
</tr>
<tr>
<td>Certification</td>
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<td>FDA(CDRH), UL, CSA, CE</td>
<td>FDA(CDRH), UL, CSA, CE</td>
<td>FDA(CDRH), UL, CSA, CE</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
<tr>
<td>Country of Origin</td>
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<td>Made In USA</td>
<td>Made In USA</td>
<td>Made In USA</td>
<td>Made In USA</td>
</tr>
</tbody>
</table>

Chain Making Machine Integration

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

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 (0.5 mS) section. Each individual section is defined at 25%, 50%, 75% or 100% of total pulse energy output.
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:

- 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 Systems

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Platform</td>
<td>Pedestal</td>
</tr>
<tr>
<td>FiberStar Lasing System</td>
<td>Class 4</td>
</tr>
<tr>
<td>Beam Delivery Presentation</td>
<td>Fiber</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1.070 µm</td>
</tr>
<tr>
<td>Operating Mode</td>
<td>Pulse or Continuous Wave (CW)</td>
</tr>
<tr>
<td>Output Power (Average)</td>
<td>150 Watt / 300 Watt / 450 Watt</td>
</tr>
<tr>
<td>Polarization</td>
<td>Random</td>
</tr>
<tr>
<td>Output Power Stability</td>
<td>+/- 1%</td>
</tr>
<tr>
<td>Maximum Peak Power</td>
<td>1.5 kW / 3.0 kW / 4.5 kW</td>
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<tr>
<td>M²</td>
<td>2.0-15.0</td>
</tr>
<tr>
<td>Pulse Length</td>
<td>0.5 - 250 Milli-seconds</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>0.5 - 20 Hz</td>
</tr>
<tr>
<td>Burst (Count) Mode</td>
<td>1 - 25 pulses</td>
</tr>
<tr>
<td>Beam Diameter</td>
<td>&gt; 25 micron</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Internal Forced Air / Optional External Chiller</td>
</tr>
<tr>
<td>Cooling Capacity-Run Time</td>
<td>24 Hour / Continuous</td>
</tr>
<tr>
<td>Supply Circuit</td>
<td>120 V (+/-10%), 50/60 Hz</td>
</tr>
<tr>
<td></td>
<td>15 Amp, Single Phase</td>
</tr>
<tr>
<td></td>
<td>208V (+/-5%) or 230V (+/-10%)</td>
</tr>
<tr>
<td></td>
<td>50/60Hz, 15 Amp, Single Phase</td>
</tr>
<tr>
<td>Parameter Adjustment Features</td>
<td>External Touchscreen</td>
</tr>
<tr>
<td>Pulse Performance Profile Technology</td>
<td>Exclusive Integrated Software</td>
</tr>
<tr>
<td>Programming Memory</td>
<td>99 Text Cells</td>
</tr>
<tr>
<td>Language Display Options</td>
<td>English</td>
</tr>
<tr>
<td>Shield Gas Supply</td>
<td>Outlet</td>
</tr>
<tr>
<td>Inert Gas Welding Adjust Valve</td>
<td>Dual - Integrated</td>
</tr>
<tr>
<td>Pedestal WorkStation</td>
<td>23”H x 12”W x 22”L</td>
</tr>
<tr>
<td>“Footprint” Dimensions</td>
<td>584mm x 304mm x 559mm</td>
</tr>
<tr>
<td>Weight (Unpackaged)</td>
<td>118 lbs / 54 Kg</td>
</tr>
<tr>
<td>Warranty Coverage (Parts &amp; Labor)</td>
<td>2 Years</td>
</tr>
<tr>
<td>Laser Safety Certification Compliance</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
<tr>
<td>Country of Origin</td>
<td>Made in USA</td>
</tr>
</tbody>
</table>

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.

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.

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

Optional Operator Interface Terminal (OIT)
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
# Model 3930

**Spot Size Reference Chart**  
Focus Head - Fiber Cable

<table>
<thead>
<tr>
<th>Right Angle Focus Head Part #</th>
<th>Working Distance mm</th>
<th>Spot Diameter Fiber Core Diameter (microns)</th>
<th>100µm</th>
<th>200µm</th>
<th>300µm</th>
<th>400µm</th>
<th>600µm</th>
<th>800µm</th>
<th>1000µm</th>
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</thead>
<tbody>
<tr>
<td>607-3930-01</td>
<td>25</td>
<td>66 132 199 265 397 529 660</td>
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**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 3931

## Spot Size Reference Chart

### Focus Head - Fiber Cable

<table>
<thead>
<tr>
<th>Right Angle Focus Head</th>
<th>Working Distance</th>
<th>Spot Diameter</th>
<th>Fiber Core Diameter (microns)</th>
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<td>80</td>
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<td>166</td>
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<td>320</td>
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### 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

<table>
<thead>
<tr>
<th>Straight &amp; Right Angle Basic Focus Head</th>
<th>Working Distance mm</th>
<th>Spot Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part #</td>
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<td>Fiber Core Diameter (microns)</td>
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<tr>
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<td>100μm</td>
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<td>STRAIGHT</td>
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<td>100</td>
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<tr>
<td>RIGHT ANGLE</td>
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<td>607-3540</td>
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<td>100</td>
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<td>607-3550</td>
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<td>167</td>
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</tbody>
</table>

**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.
Integrated Turnkey Solutions

LaserStar Technologies offers a wide range of standard and custom welding workstations to meet a variety of precision spot and seam laser welding applications.

Multi-Purpose Workstations are Class 1 Enclosures that easily integrate with a variety of laser processing technologies and motion systems while providing full featured HMI (Human Machine Interface) capabilities for total process management. Workstation features include multi-axis motion devices, custom process controls, vision system alignment and inspection, atmospheric control, while offering the speed, reliability and flexibility required for meeting stringent quality control and process certification standards.

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

- Spot and Seam Welding
- Nd:YAG and Fiber Compatible
- High Speed Motion Solutions
- Class 1 Eye Safe Enclosure
- Stable, Ergonomic Platform
- Space Saving Footprint

613-404-10 Turnkey Welding Workstation
(Shown with 517-8080 LaserStar Welding System and Optional Sony Video System and Table)

Interior View of 613-404-10 Turnkey Welding System Shown with Horizontal Gantry, 4 Axis Motion Device, Focus Head and Camera Viewing System. This is one example of many different system configurations available.
### Multi-Purpose Enclosure, Table Top - Class I

**Model Number:**
- 617-402, 617-403 (Basic Platform)
- 617-402-10, 617-403-10 (HMI Platform)

**Supply Circuit:**
- 120V, 50/60 Hz, 15 Amp, Single Phase
- 208 - 240V, 50/60 Hz, 15 Amp, Single Phase

**Chamber Dimensions:**
- 613-402, 617-402-10: 28”L x 20”W x 31”H
  - 717mm x 490mm x 790mm
- 613-404, 617-404-10: 35”L x 42”W x 35”H
  - 889mm x 1607mm x 889mm

**Features:**
- HMI Controller (Human Machine Interface)
- Interior Grid Insert Plate
- Dual Argon Delivery System (Diffuser/Gas Lens)
- Interior Atmosphere Exhaust Port (Exhaust Unit not included)
- Interior Halogen Lights (Adjustable)
- Mechanical Front Door (Open-Close)
- Front Door Safety Interlock
- Front Door Laser Safety Glass Viewing Window
- Cable(s) Chamber Entry Port

**Functions:**
- Argon Delivery - Adjustment Valves
- Fire Line to Laser
- Start/Stop Control
- Jog and Speed Adjustment Control
- End of Cycle Sensor
- Confirmation of Laser Pulse (Firing)
- Interior Light Adjustable Control
- Proximity Switch

**System Compatible:**
- 8000 Series LaserStar Welders
- 8500/8600 Series FiberStar Welders
- Motion Device Software

**Software Communication:**
- Integrates with 8000/8500/8600 Series Control Software

**Accessory Compatible:**
- Video Imaging Output
- Video Monitor Output
- Cross Hair Generator

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NOTE: Custom Multi-Purpose Welding Workstation dimensions are available upon request.
System available without HMI Controller.

LaserStar’s full featured HMI (Human Machine Interface) Controller offers programmer’s the ability to control multiple system functions for total process management.Capabilities include a multi-level touch screen, X-Y-Z and rotary jog controls (Fig. 1), application specific storage cells (Fig. 2), rapid recall of weld schedules and laser system management (Fig. 3). A user-friendly design, coupled with process flexibility ensures proper interface between the laser and the motion device systems.

![Fig. 1](image1)
![Fig. 2](image2)
![Fig. 3](image3)

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

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.
LasersStar 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 Windows® XP and Windows® 7 Professional 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 1 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!
LaserStar CAD2 Software

A state-of-the-art laser marking system requires the right software, and CAD2 is that software. This feature ensures user’s will quickly learn the programming fundamentals needed to begin producing successful results. Below are just a few of the standard software features available:

- Graphic user interface format for Windows®
- Comprehensive Windows® True Type font library including vector fonts, crossless fonts, standard and industrial fonts
- Comprehensive barcode and 2-D data matrix code library
- Easily import bitmap images, vector graphics and drawings (HPGL) from software such as CorelDraw, Adobe Illustrator, and Auto CAD, etc.
- Date, time and shift codes can be automatically generated for automated production environments

The LaserStar CAD2 software includes a comprehensive library of more than 100+ True Type fonts, images, and wire-frame artwork. CAD2 software, when used in cooperation with CorelDraw, or any other HPGL (.plt) based software package, can generate limitless custom designs and theme combinations to personalize a wide range of marking and engraving applications. Themes can easily be combined with various True Type fonts. Customized fonts can be easily added to the font library.

ProLase 7 Laser Marking Software for Industrial Users

LaserStar is pleased to offer Prolase 7 laser marking software for today’s industrial user who requires advanced capabilities in a robust and reliable design. Below are just a few of the standard laser marking software features available with Prolase 7:

- User-friendly graphical interface
- Full compatibility with all current versions of Windows 7™
- Fast file transfer to the laser marking system
- File import formats: PLT (HPGL), AI, DXF, BMP, TIFF
- Bar Codes
- Two Dimensional Codes including Data Matrix
- Automatic Serialization
- File Input Programming (Mail Merge)
- Date Coding
- Fill Editor
- Motion Control (4 Axis)
- Multiple I/O Interface
- TrueType Font Converter
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
- × NA

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**INDUSTRIES**

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Laser Marking & Engraving Examples

Precious Metals

Novelty Items
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.

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 (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.

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- 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

**FIBERSTAR “INTEGRATOR” MARKING SYSTEMS**

**3500 Series**

**FiberStar Integrator System**

(Also available in rack mountable kit)

**HIGHLIGHTS**

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

**3500 Series FiberStar “Integrator” System**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
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<tbody>
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<td>Laser Type</td>
<td>Pulse Fiber Laser</td>
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<td>Platform</td>
<td>Class 4</td>
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<td>Wavelength</td>
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<td>Beam Diameter (focus)</td>
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<td>Laser Peak Power</td>
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<td>Output Power</td>
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<td>Output Fiber Length</td>
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<tr>
<td>Cooling System</td>
<td>Fully air cooled, heat-sink</td>
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<tr>
<td>Marking Field Size</td>
<td>Variable</td>
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<tr>
<td>Focusing Optics (mm)</td>
<td>100, 163, 254, 330 &amp; 420</td>
</tr>
<tr>
<td>Profile Laser (optional)</td>
<td>Visible, red-beam pilot laser for easy positioning of the work piece</td>
</tr>
<tr>
<td>Electrical Connection</td>
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Additional 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 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.

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 (Pulsed Fiber Laser)

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

### 3600 Series FiberStar Open Marking System

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

Addional 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.
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

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3801 Series
Industrial FiberCube
Laser Marking System

---

3801 Series FiberCube Marking System

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

Additional 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® Systems)

- **Scanhead Assembly**
  - Shown with Pointing Diodes
  - Optional Camera Assembly

- **Large Viewing Chamber Window**

- **Adjustable Halogen Chamber Lighting**

- **Multi Function T-Slot Plate Design**

- **Precision Z-Axis Adjustment**
  - (Mechanical or Motorized)

- **Adjustable Fume Extraction Tubes**

- **Digital Messaging Display**

- **Compact Rotary Module**
  - (Optional Accessory)

- **Ergonomic Easy Lift Handles**

**FiberCube® Enclosure Dimensions**

- **19" (483)**
- **31.00 (787)**
- **2.83 (72)**
- **0.98 (25)**
- **24 3/4" (629)**

**628-2616**

Fume Exhaust System

(Recommended for all FiberCube Systems)

MADE IN THE USA
3804 Industrial FiberCube® Series (Pulsed Fiber Laser)

The Industrial 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.

Industrial 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.

Industrial 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

### 3804 Series FiberCube Marking System

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Type</td>
<td>Pulse Fiber Laser</td>
</tr>
<tr>
<td>Platform</td>
<td>Benchtop System</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1062 nm (Nominal)</td>
</tr>
<tr>
<td>Beam Diameter (focus)</td>
<td>&lt; 30 µm</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>1 - 500 kHz</td>
</tr>
<tr>
<td>Laser Peak Power</td>
<td>&gt;10 kW</td>
</tr>
<tr>
<td>Output Power</td>
<td>10 - 100 Watt</td>
</tr>
<tr>
<td>Output Fiber Length</td>
<td>3.0 meters</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Fully air cooled, heat-sink</td>
</tr>
<tr>
<td>Marking Field Size</td>
<td>Variable</td>
</tr>
<tr>
<td>Focusing Optics (mm)</td>
<td>100, 163, 254, 330 &amp; 420</td>
</tr>
<tr>
<td>Profile Laser (optional)</td>
<td>Visible, red-beam pilot laser for easy positioning of the work piece</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>110 - 230 V (+/-10%) 16 A, 50/60Hz</td>
</tr>
<tr>
<td>Weight (unpackaged)</td>
<td>395 lbs / 179 Kg</td>
</tr>
<tr>
<td>Warranty Coverage</td>
<td>As Quoted</td>
</tr>
<tr>
<td>Laser Safety Compliance</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
</tbody>
</table>

Additional 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.
- Logos, certification symbols, barcodes, serial codes, and 2-D data matrix codes
- Ideal for safety and security identification markings
- 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
- Plastic materials: day and night design for items such as mobile phone keyboards, dashboards and other illumination components for aerospace and automotive markets
- Hallmark identification and custom logo marking/engraving on the inside of rings
- Multi-line text on the inside of rings (i.e., storybook rings)
- Copyright, serialize and custom brand finished jewelry pieces
- Personalize watches, lockets, eyeglass cases, gifts, novelty products, awards, etc.
- Customize pen-pencil sets with company or personal names, etc.
- Create unique textures or patterns on various alloys
- Customize various jewelry with photos or design images
- Engrave hallmarks and logos in master models for casting
- Rapid marking on precious metals with heat-sensitive materials
- Input Vector and Raster Files

Sample Plate Alloys
- Brass
- Stainless Steel
- Clear Aluminum
- Blue Anodized Aluminum
- Titanium
- *External Pattern Ring is Stainless Steel*

FiberCube© Enclosure Dimensions

NOTE: Custom Industrial FiberCube© dimensions are available upon request. In the interest of technical progress, we reserve the right to make technical changes without notice.

MADE IN THE USA
3805 FiberStar Tower Marking System

The FiberStar Tower Marking System 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 Tower Laser Marking 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 laser marking around a circumference. LaserStar’s CAD2 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 Tower Marking System

<table>
<thead>
<tr>
<th>3805 Series FiberStar Tower Marking System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Type</td>
</tr>
<tr>
<td>Platform</td>
</tr>
<tr>
<td>Wavelength</td>
</tr>
<tr>
<td>Beam Diameter (focus)</td>
</tr>
<tr>
<td>Pulse Frequency</td>
</tr>
<tr>
<td>Laser Peak Power</td>
</tr>
<tr>
<td>Output Power</td>
</tr>
<tr>
<td>Output Fiber Length</td>
</tr>
<tr>
<td>Cooling System</td>
</tr>
<tr>
<td>Marking Field Size</td>
</tr>
<tr>
<td>Focusing Optics (mm)</td>
</tr>
<tr>
<td>Profile Laser (optional)</td>
</tr>
<tr>
<td>Electrical Connection</td>
</tr>
<tr>
<td>Weight (unpackaged)</td>
</tr>
<tr>
<td>Warranty Coverage</td>
</tr>
<tr>
<td>Laser Safety Compliance</td>
</tr>
</tbody>
</table>

Additional 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 Tower Systems)

- Optional Linear Movement of Scanhead Assembly
- Optional Foot Pedal
- User Friendly Graphical Interface
- Custom Design Your Own Fixtures for a Variety of Component Part Shapes & Sizes
- Integrated Computer and Rack Mounted Laser Source
- Dual Purpose Casters for Easy Positioning with Permanent Rubber Isolation Leveling Feet
- Automatic Door
- Adjustable Exhaust Port

**NOTE:** Contact LaserStar for different workstation footprint specifications.
3806 FiberStar® Rotary Dial System

The FiberStar Rotary Dial Marking System 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.

The FiberStar Rotary Dial Laser Marking System 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.

### HIGHLIGHTS

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

---

### 3806 Series FiberStar Rotary Dial System

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laser Type</td>
<td>Pulse Fiber Laser</td>
</tr>
<tr>
<td>Platform</td>
<td>Rotary Dial Workstation</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1062 nm (Nominal)</td>
</tr>
<tr>
<td>Beam Diameter (focus)</td>
<td>&lt; 30 µm</td>
</tr>
<tr>
<td>Pulse Frequency</td>
<td>1 - 500 kHz</td>
</tr>
<tr>
<td>Laser Peak Power</td>
<td>&gt;10 kW</td>
</tr>
<tr>
<td>Output Power</td>
<td>10 - 100 Watt</td>
</tr>
<tr>
<td>Output Fiber Length</td>
<td>3.0 meters</td>
</tr>
<tr>
<td>Cooling System</td>
<td>Fully air cooled, heat-sink</td>
</tr>
<tr>
<td>Marking Field Size</td>
<td>Variable</td>
</tr>
<tr>
<td>Focusing Optics (mm)</td>
<td>100, 163, 254, 330 &amp; 420¹</td>
</tr>
<tr>
<td>Profile Laser (optional)</td>
<td>Visible, red-beam pilot laser for easy positioning of the work piece</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>110 - 230 V (+/-10%) 16 A, 50/60Hz</td>
</tr>
<tr>
<td>Weight (unpackaged)</td>
<td>approx. 2000 lbs / ?? Kg</td>
</tr>
<tr>
<td>Warranty Coverage</td>
<td>As Quoted</td>
</tr>
<tr>
<td>Laser Safety Compliance</td>
<td>FDA(CDRH), UL, CSA, CE</td>
</tr>
</tbody>
</table>

¹ Additional 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 Systems)

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

- User Friendly Graphical Interface
- Integrated Computer and Rack Mounted Laser Source (optional A/C Enclosure available)
- Optional Light Curtain for Complete Automatic Mode
- Quick Release Load/Unload of Fixtures
- Dual Opto-Touch Safety Switches
- Manual Door for Direct Part Marking
- Available with Programmable X and 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.
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.
FiberStar Laser Cutting Systems

3900 Series

FiberStar Laser Cutting Systems offer a significant competitive advantage for today’s marketplace while producing high quality, dimensionally accurate laser cuts for a wide range of industrial applications. The state-of-the-art, fully integrated fiber laser source provides excellent beam quality while producing many years of reliable performance.

The cutting system offers a programmable 4 axis CNC system controller, integrated computer with Windows operating software, integrated chiller, chamber exhaust with material filter capture, and G code programming software.

The highly flexible, all-purpose 3900 Series provides superior edge quality, tight dimensional tolerances and precision cut patterns on a wide range of metal, plastic and ceramic materials. Designed to the highest standards of reliability, repeatability, and user safety, all FiberStar laser cutting systems offer a factory sealed, maintenance free laser source.

FiberStar Laser Cutting Systems are ideal for a wide range of complex alloys and applications including:

- Medical Device and Instruments
- Aerospace and Electronics
- Automotive and Micro Components
- Tool & Die Components
- Jewelry (Gold, Silver, Platinum, Titanium)
- Prototyping Components
- Complex Industrial Alloys
- Ceramics and Plastics

**HIGHLIGHTS**

- Maintenance Free Source
- Excellent Laser Stability
- 4 Axis Motion Controller
- Complete Turnkey Solution
<table>
<thead>
<tr>
<th><strong>3900 Series FiberStar Laser Cutting System</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System Platform</strong></td>
</tr>
<tr>
<td><strong>FiberStar Lasing System</strong></td>
</tr>
<tr>
<td><strong>Wavelength</strong></td>
</tr>
<tr>
<td><strong>Output Power</strong></td>
</tr>
<tr>
<td><strong>Beam Quality (M²)</strong></td>
</tr>
<tr>
<td><strong>Operating Mode</strong></td>
</tr>
<tr>
<td><strong>Cutting Head</strong></td>
</tr>
<tr>
<td><strong>Cover Gas</strong></td>
</tr>
<tr>
<td><strong>Cooling</strong></td>
</tr>
<tr>
<td><strong>Exhaust System</strong></td>
</tr>
<tr>
<td><strong>Chamber / Enclosure</strong></td>
</tr>
</tbody>
</table>
| **Chamber Dimensions** | 30” L x 33” W x 31.75” H  
780mm x 835mm x 806mm |
| **Processing Area X/Y/Z** | 15” L x 12” W x 3.75” H  
395mm x 300mm x 95mm |
| **Processing Speed X/Y/Z** | Maximum 200mm/s |
| **Repeat Accuracy** | ±0.02mm |
| **Guides** | Linear Units with precision steel shafts and recirculating ball slots, adjustable for no play |
| **Drive Elements X/Y/Z** | Servo Motor, Recirculating ball transmission, adjustable for no play  
X/Y Axis – 16mm x 10mm / Z Axis – 16mm x 4mm |
| **Controller** | 4 Axis Controller, Integrated Computer, Windows OS I/O module, Safety Circuit, Rest Test Monitoring |
| **Operation** | Function Keys and Emergency STOP Shutdown |
| **Supply Circuit** | 230V / 16A / 50-60Hz / Single Phase (Laser, Enclosure) |
| **Warranty** | As Quoted |
| **Country of Origin** | Made / Assembled in USA |
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 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 and marking 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 and marking a wide range of materials, including:

- Nitinol
- Monel
- Titanium
- Stainless Steel
- Steel Alloys
- Nickel Alloys
- Aluminum
- Gold
- Platinum
- Silver
- Kovar
- Berylium
- Nyobium
- 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 welding and marking 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 welding and marking 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

LaserStar Center (RI)
Corporate Offices - Manufacturing, Sales, Service, Training
401-438-1500 • Fax: 866-516-3043
Email: ri.sales@laserstar.net

LaserStar Center (FL)
Manufacturing, Sales, Service, Training
407-248-1142 • Fax: 866-708-5274
Email: fl.sales@laserstar.net

LaserStar Center (CA)
Sales, Service, Training
213-612-0622 • Fax: 866-347-0934
Email: ca.sales@laserstar.net
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


RHODE ISLAND (Corporate Office)
One Industrial Court
Riverside, Rhode Island 02915 USA
401-438-1500 • Fax: 866-516-3043
Email: ri.sales@laserstar.net

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

CALIFORNIA
145 North Sierra Madre Blvd, Suite One
Pasadena, California 91107 USA
213-612-0622 • Fax: 866-347-0934
Email: ca.sales@laserstar.net

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