LASER WELDING

MICRON SERIES
LASER WELDING SYSTEMS

- *G and M code programming*
- *25-micron focused spot diameter*
- *Multi-axis Servo drives*
- *Real time power feedback*
- *Time share multiple systems*
- *Auto FDA data logging*
- *Cleanroom compliant*
- *Remote diagnostics*
- *Comfortable ergonomics*
- *Two-year warranty*
- *24/7 technical support*

MX-40

MX-60

The MICRON Series Laser Welding Systems offer medical device manufacturers the unsurpassed precision, control, speed, reliability and flexibility required for meeting stringent FDA quality control and process certification standards. The Micron Series ultra-precision CNC motion systems provide SUB-MICRON XY positional resolution and bi-directional repeatability.

The MICRON Series is available in three standard models. The MX40 is designed for applications with limited floor space; SMX40 meets the special CNC motion and larger workstation interior required for long guide-wire assemblies; model MX60 provides larger work envelopes and XY travel. All three models include our new A Series pulsed Nd:YAG laser welder.

SMALL SPOT DIAMETERS

MICRON Series Laser Welding Systems are capable of producing focused spot diameters of 25 microns (0.001") when integrated with our new A Series pulsed Nd:YAG laser and innovative beam delivery system.

UNITEK MIYACHI LASERS®

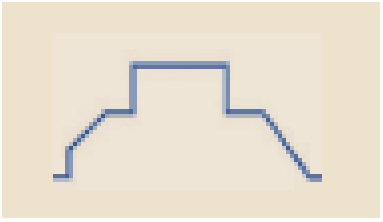
Laser Solutions for Advanced Manufacturing

A SERIES LASERS

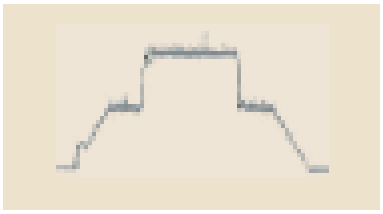
A Series
Pulsed Nd:YAG Laser Welders

The A Series lasers are designed to meet the stringent demands of FDA Process certification and reliable long term performance for laser welding medical devices, implants and surgical tools. They feature real time power feedback, 20-segment pulse shaping, IAD coated variable beam splitters and “clear-view” on-axis CCTV viewing. Several models are available with power ratings from 5 to 600 watts.

Together, the MICRON Laser Welding Systems and the A Series Nd:YAG lasers provide medical device manufacturers with powerful new production tools.



Programmed Pulse Shape



Actual Laser Output

Process Control

The A Series pulsed Nd:YAG lasers set industry standards for process control, weld quality and repeatability. High brightness output and achromatic optics produce weld spot diameters as small as 25 microns (0.001”) and minimal heat affected zone (HAZ). These state-of-the-art lasers offer high MTBF, superior pulse stability, and exceptional long term reliability.

Real Time Power Feedback

Real time power feedback ensures extremely accurate pulse-to-pulse stability and repeatability; essential for successful spot and seam welding medical devices. Laser weld pulses are programmed in peak power which is monitored at a 20kHz sampling rate in real time. Lamp voltage is automatically adjusted to compensate for flashlamp degradation, temperature variations, and power changes due to thermal lensing or other factors.

No Power Feedback

20 Segment Pulse Shaping

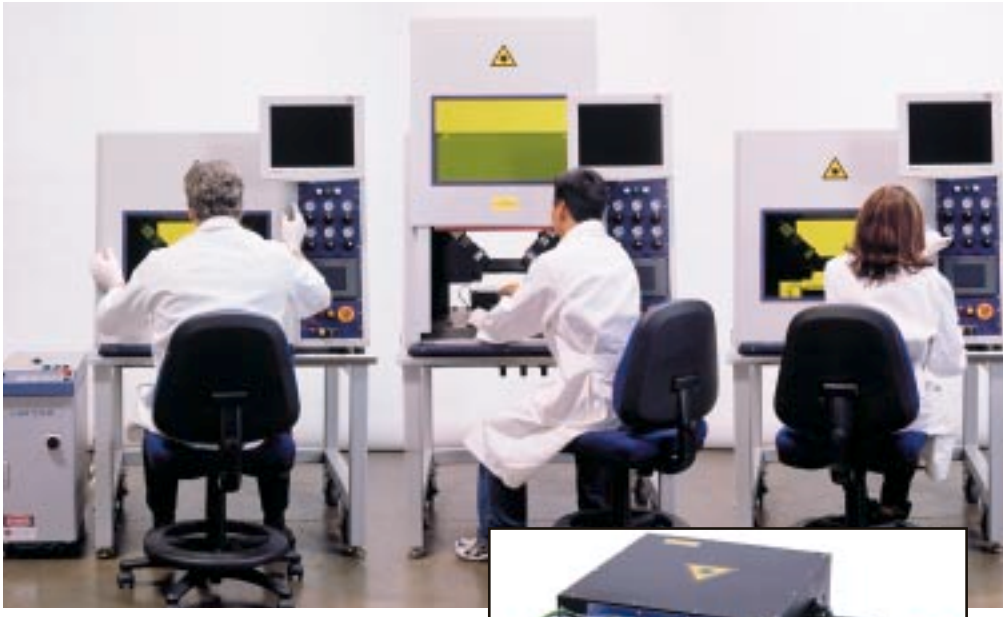
Pulse shaping permits quick and easy optimization of robust laser weld schedules for a broader variety of materials. Pulse shaping is used to produce deep penetration welds without weld splatter and minimal HAZ. With up to 20 programmable segments, including steps and up and down ramp, the A Series lasers provide the ultimate control, flexibility, and reliability in tailoring the laser weld pulse and greatly extend the range of material and joint designs that can be successfully laser welded.

Power Feedback

MICRON SERIES LASER WELDING SYSTEMS

Time Share Multiple Systems

Time share features of the A Series lasers allow ONE laser to support multiple MICRON Series workstations or tooling sets with different beam delivery optics and weld schedules. Several system operators, each with independent control over their specific laser welding process, share one laser power supply, thus saving the cost of separate lasers for each workstation. Our FS External Beam Splitter permits each workstation to have up to three energy share outputs for applications requiring two or more welds simultaneously.



One A Series laser serves three MX40 welding systems.

FS External Beam Splitter

Advanced Weld Process Lab

Our Advanced Weld Process Laboratory is available to assist customers with qualifying samples, developing a robust weld process, and in selecting, characterizing and optimizing materials, weld joint designs, tooling, and part tolerances.

24/7 technical Support – Our Commitment to Partnership

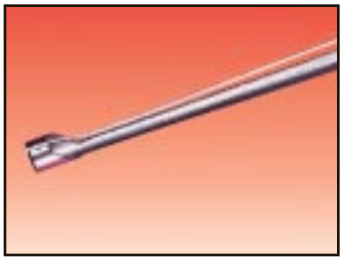
We are 100% committed to providing unsurpassed technical support and the fastest possible customer service. As your partner, our number number one priority is to deliver a production-worthy solution and total customer satisfaction.

Ask about our Extended Warranty and Preventive Maintenance plans.

Advanced weld process lab at Unitek Miyachi.

Catheter Guidewire Assembly

Pacemakers



Cauterizing Tool

Medical Probe

SPECIFICATIONS

Parameter	MX-40	SMX40	MX-60
Physical Dimensions			
Overall Cabinet W x D x H Inches	42 x 36 x 36	72 x 36 x 36	61 x 41 x 74
Machine Base Plate W x D Inches	25 x 31	60 x 31	40 x 34
Laser Weld Performance			
Weld Pulse Energy	0.01J – 70 J		
Power Supply Capacity	5 – 600 W		
Weld Spot Size	25 – 1000 microns		
Time / Energy Sharing	Up to 4-way energy share, up to 6-way time share		
Beam Delivery/Vision Systems			
Focus Head Type	In-line CCTV style, achromatic lens set		
Output Magnification Ratio	0.25 – 1.4		
Laser Head Beam Angle of Incidence	Manually adjustable, 0 – 90°		
Beam Delivery Fiber	100 – 1000 micron GI / SI		
Laser Power Meter	Integrated power meter and auto data logging, option		
CCTV Viewing System	B and W, cross-hair generator. Color and high-mag systems available		
Standard XY Linear Translation Axes			
Travel mm	200 x 200	300 x 450	300 x 300
Resolution nm	500	500	100
Bi-directional Repeatability µm	2	2	500
Standard Z Linear Translation Axis (focus head axis)			
Travel mm	100	100	150
Resolution	1 micron		
Bi-directional Repeatability	5 micron		
Rotary Stage			
Travel	360°		
Resolution	1 arc-seconds		
Bi-directional Repeatability	5 arc-seconds		
Control, Programming, and Communications			
Control/Programming Platform	Personal computer, Aerotech A3200		
Motion/Welding Programming	Standard RS-274 G-code or		
CAD-to-Production Post Processor			
Vision-Directed Motion System	Cognex, Matrox, DVT available		
Remote Diagnostics	via analog telephone line connected to system		
Communications Links	RS-232, RS-485, Ethernet 10-baseT, USB		
Data Logging	Over communications link or to EXCEL		
Software Interface	Factory Works, WonderWare		
Production User Interface	Standard and configured-to-order hardware controls		
Safety			
Laser Safety	CDRH Class I, CE 60825-1, ANSI Z136.1		
EMC, Electrical, Machine Safety	CE compliant		
Equipment Certification			
Software/Equipment Validation	Meets or exceeds FDA requirements		
As-Shipped Performance	Traceable to NIST		
Certification Maintenance	By user, or per preventive maintenance and on-site calibration service contract		

Your Local Representative

Specifications subject to change without notice.

ISO 9001 Certified Company

UNITEK MIYACHI CORPORATION

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