



Pulsed Nd:YAG Laser Micro Welder

ML-2052A

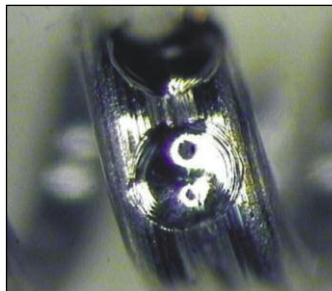
The ML-2052A **micro welder** laser is specifically designed to meet the stringent demands of FDA process certification and reliable long term performance for laser welding small, delicate components such as implantable medical devices, surgical tools, sensors, automotive electronics, aerospace components.

ML-2052A features three built-in fiber outputs which can be configured in time share or energy share modes making it possible to address the most critical applications utilizing one or more workstations up to 30 meters from the laser.

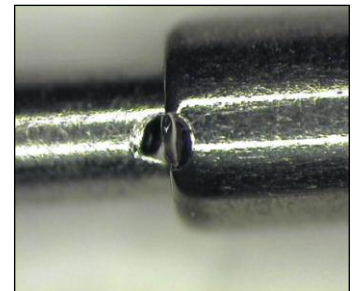
KEY FEATURES

- 30 micron spot diameter for precision welding applications
- 20-segment pulse shaping provides deep penetration welds
- Up to three time share or energy share outputs
- Real time power feedback ensures exceptional pulse-to-pulse power stability

TYPICAL APPLICATIONS



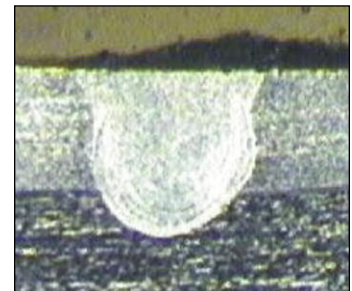
Fine spring



Hypo-tubing

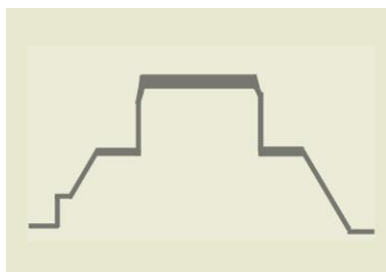


Guide wire welding

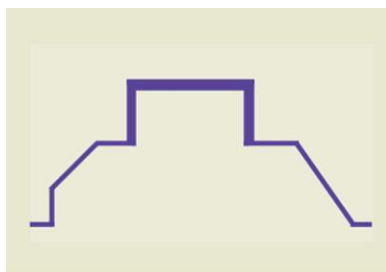


Lap weld cross section

FEATURES



Programmed Pulse Shape



Actual Laser Output

PROCESS CONTROL

The ML-2052A micro welder sets the industry standard for process control, weld quality and repeatability. High brightness output and low aberration beam delivery optics produce weld spot diameters as small as 30 microns and minimal heat affected zone (HAZ). Pulse width increments of 20 μ s down to 60 μ s, and peak powers to 1 kW, the ML-2052A offers precise control of weld dimensions.

REAL TIME POWER FEEDBACK

Real time power feedback ensures extremely accurate pulse-to-pulse stability and repeatability. Laser weld pulses are programmed in peak power which is monitored at a 20 kHz sampling

rate in real time. Lamp voltage is automatically adjusted to compensate for flashlamp degradation, temperature variations, and power changes due to thermal lensing.

20-SEGMENT PULSE SHAPING

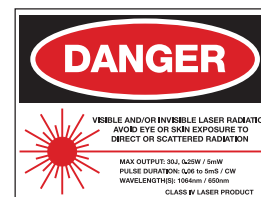
Pulse shaping permits quick and easy optimization of robust laser weld schedules for a wide variety of materials. Pulse shaping is used to produce deep penetration welds without weld splatter and minimal HAZ. With up to 20 programmable segments, including ramp up/down, ML-2052A provides the ultimate control, flexibility, and reliability in tailoring the laser weld pulse.

TECHNICAL SPECIFICATIONS

Parameter	ML-2052A Laser Micro Welder
Input power	200/220/240 VAC +10% / -15%, 50/60 Hz, single-phase
Maximum peak power	1 kW / 0.5 ms
Maximum peak energy	100 μ m SI fiber: 0.12 J / 200 μ m SI fiber: 0.25 J
Average output power	100 μ m SI fiber: 0.24 W / 200 μ m SI fiber: 0.25 W
Pulse width	60 - 500 μ s (20 μ s increment)
Pulse repetition speed	1 - 30 pps
Input voltage	200/220/240 VAC +10% / -15%, 50/60 Hz, 1 \emptyset
Wavelength	1.064 μ m
No. of schedules available	32 schedules
Time/energy sharing	Single, energy share 2 - 3, time share 2 - 3
Applicable optical fibers	ϕ 0.1 mm SI optical fiber, ϕ 0.2 mm SI optical fiber
Cooling method	Forced air cooling
External communication	RS-485, Digital I/O

WEIGHT & DIMENSIONS

Dimensions (L x W x H)	26.2 in x 12.2 in x 27.2 in (665 mm x 310 mm x 700 mm)
Weight	154 lb (70 kg)



AMADA WELD TECH INC.

1820 S. Myrtle Ave. • Monrovia, CA 91016 US
T: (626) 303-5676
info@amadaweldtech.com • www.amadaweldtech.com
ISO 9001 Certified Company • 24/7 Repair Service: 1-866-751-7378

AMERICAS

AMADA WELD TECH
(Midwest Technical Center)
Detroit, Michigan
T: (248) 313-3078
midwestsales@amadaweldtech.com

AMADA WELD TECH DO
LTDA.
São Paulo, Brasil
T: +55-11-4193-3607
antonio.ruiz@amadaweldtech.com

EUROPE

AMADA WELD TECH
GmbH
Munich, Germany
T: +49-89-839403-0
info@amadaweldtech.eu

ASIA

AMADA WELD
TECH CO., LTD.
Isehara, Japan
T: +81-4-7125-6177
sales@miyachi.com

AMADA WELD TECH
KOREA CO., LTD.
Seoul, Korea
T: +82-31-8015-6810
sales@amadaweldtech.co.kr

AMADA
(THAILAND) CO., LTD.
Bangkok, Thailand
T: +66-2170-5900
info@amada.co.th

AMADA WELD TECH
INDIA PVT., LTD.
Bangalore, India
T: +91-80-4092-1749
info@miyachiindia.com

AMADA WELD TECH
(Mexico Office)
El Paso, Texas
T: (915) 881-8765
mxsales@amadaweldtech.com

AMADA WELD TECH
SHANGHAI CO., LTD.
Shanghai, China
T: +86-21-6448-6000
jwu@msc.miyachi.com

AMADA WELD TECH
TAIWAN CO., LTD.
Taipei, Taiwan
T: +886-2-2585-0161

AMADA
VIETNAM CO., LTD.
Ha Noi, Vietnam
T: +84-4-6261-4583

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