

LM-F Series

Yb: Fiber Laser Markers



The LM-F Series **laser engravers** combine cutting-edge technology with industrial robustness for a wide range of marking applications. This versatile series has numerous performance options to match the right laser to the application. The system is designed with multiple integration options to suit standalone operation, full production automation and prototype development. Owners of the LM-F series also benefit from AMADA WELD TECH's commitment to providing industry-leading customer support.

KEY FEATURES

- 10-70 W fiber laser markers
- High-power, high-speed laser marking system for metals, plastics, and ceramics
- Excellent contrast and crispness of annealed and engraved marks
- Air-cooled, sealed industrial package designed for operation in harsh environments
- Powerful control software with industry standard programming
- Multiple integration options to match application needs
- Complies with IEC13849-1 category 3 P.L.d safety circuitry with proper integration
- MARKER MOTION® unit comes with integrated stage controllers for up to 4 axes
- Communication Protocols: RS-232, EtherNet/IP™, Ethernet TCP/IP, Digital IO

TYPICAL APPLICATIONS



Medical tools & instruments



Implantable medical devices



Metal engraving for automotive and UDI applications



Electrical components



Plastic housings

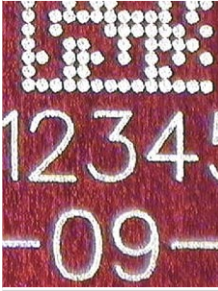


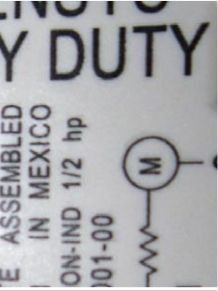
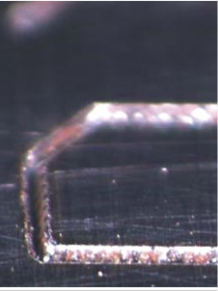



Cutting of thin metals

Contact us for a free feasibility study on your parts.

MARKER SELECTION GUIDE

AMADA WELD TECH offers a wide range of lasers to correctly match any marking application. The table below highlights the choices in laser power and typical applications for each laser.

LM-F010A, LM-F020A	LM-F020A-SM	LM-F020A-HP	LM-F035A-HP	LM-F050A	LM-F070A-HP
10 W and 20 W Marking Systems	20 W Precision Marking System	20 W Marking System	35 W Advanced Marking System	50 W Marking and Engraving System	70 W Advanced Processing System
					
Marking on Metals	Precision Marking for Smallest Feature Size	Marking on Metals and Plastics	Marking on Plastics and Large Area Annealing	Engraving of Stainless Steel	Marking, Welding and Cutting of Metal

LASER/SYSTEM SPECIFICATIONS

	F-THETA OUTPUT LENS				
	100 mm	160 mm	254 mm	330 mm	420 mm
Field size	2.42 in x 2.42 in** (62 mm x 62 mm)	3.89 in x 3.89 in (99 mm x 99 mm)	6.18 in x 6.18 in (157 mm x 157 mm)	8.54 in x 8.54 in (217 mm x 217 mm)	11.44 in x 11.44 in (291 mm x 291 mm)
Working distance*	3.86 ± 0.04 in (98 ± 1 mm)	6.93 ± 0.08 in (176 ± 2 mm)	11.65 ± 0.12 in (296 ± 3 mm)	15.28 +/- 0.16 in (388 +/- 4 mm)	19.45 ± 0.20 in (494 ± 5 mm)
Lens diameter	3.54 in (90 mm)	3.54 in (90 mm)	4.72 in (120 mm)	4.72 in (120 mm)	4.72 in (120 mm)
Wavelength	1070 nm ± 5 nm				
Nominal power/frequency range***	LM-F010A – 10 W / 20 - 200 kHz LM-F020A – 20 W / 20 - 200 kHz LM-F020A-HP – 20 W / 2 - 500 kHz, CW LM-F020A-SM – 20 W / 2 - 500 kHz, CW (Single mode) LM-F035A-HP – 35 W / 2 - 500 kHz, CW LM-F050A – 50 W / 20 - 200 kHz LM-F070A-HP – 70 W / 2 - 500 kHz, CW				
Guide laser	Diode 630 - 650 nm				

* Working distance is the distance from the focus point to the lens assembly. Error value of the working distance does not relate to the process depth of focus.

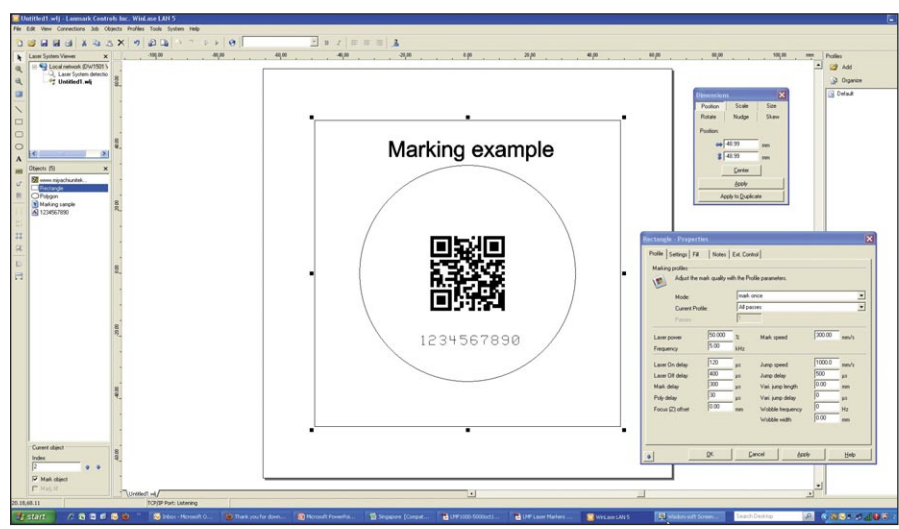
**2.04 in x 2.04 in (52 mm x 52 mm) for 35 W version

*** Default frequencies. Wider frequency range can be configured in software.

SOFTWARE FEATURES

- Powerful, user-friendly Windows®* based job editor
- Easy to import graphics
- Multi-Language support
- Advanced DXF filter with process optimization
- Password protected security lockout
- Touch Screen GUI Enabled
- Windows 10 compatible

*Windows® is a registered trademark of Microsoft Corp.



MARKING OPTIONS

- Galvanometric scanner, XY - Standard
- XYZ and rotary stages (Optional)
- Automation: I/O control, 4-axis motor control, time delays, and custom operator messages
- On-the-fly (Optional)

Accepted file types: .dxf, .dwg, .plt, .emf, .wmf, .bmp, .jpg, .gif, .cdr, and .ai

MARK TYPES

- Line-art graphics: CAD, line-drawings, logos
- Shaded graphics: photos, halftones & grayscale artwork
- TrueType®* fonts, filled or outline-only
- Single point or drill object arrays
- 1D and 2D (Data Matrix and QR code) barcodes
- MS AutoDate, MS TextMerge, serialization, and barcode

*TrueType® is a registered trademark of Apple, Inc.

MARKER MOTION®

Laser marking systems are often required to control one or more motors or actuators to execute complex production sequences. LM-F Fiber Laser Markers have an integrated motion system allowing the user to control up to four stepper motors (typically XYZ and Rotary) with integrated controllers using a the WinLase®* software interface for easy configuration and control without extensive hardware requirements.

- Step and repeat marking
- Focal plane height adjust - adjust the height of the marker head to pre-programmed static positions to accommodate marking surfaces at different heights above the tooling plane
- Rotary - rotate a circular cylindrical part while marking to ensure mark completely wraps around part with no distortion or areas out of focus

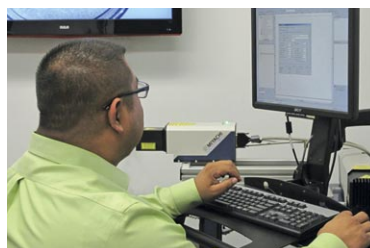


*WinLase® is a registered trademark of Alase Technologies

INTEGRATION

AMADA WELD TECH offers the widest range of integration options to match any laser marking or laser engraving application. Whether working in a job shop or fully automated production line, our markers are designed with the integrator in mind and include several input/output options including

RS-232, EtherNet/IP, Ethernet TCP/IP, and safety interlocks. In addition, AMADA WELD TECH offers a wide range of accessories for marking workstations including standard and custom Class 1 enclosures.



Controlled by PC/Touchscreen interface

Ideal for:

- Small lot marking
- Application labs/ job shops
- Jobs with barcode scanners
- Semi-automatic workstations



Control through PLC

Ideal for:

- Production lines
- Machine controlled processes
- Low-level operators
- High speed and part throughput
- On-the-fly marking (optional)

according to DIN EN 60825-1:10/2003



TECHNICAL SPECIFICATIONS

Parameter	Value
AC input power	Single Phase, 90-130 VAC/180-260 VAC, 50/60 Hz, 10 A
Environment temperature	15° - 40° C (59° -104° F)*
Environment humidity	Less than 90% RH (non-condensing)
Cooling	Air-cooled

*15°-35°C (59°-95°F) for LM-F010A, LM-F020A, LM-F035A-HP, LM-F050A

WEIGHT & DIMENSIONS

	Controller	Head
Dimensions	26.4 in x 17.0 in x 7.3 in (670.9 mm x 431.8 mm x 186.1 mm)	8.49 in x 3.03 in x 4.22 in (215.6 mm x 77 mm x 107.2 mm)
Weight	61 lb (27.7 kg)	8.4 lb (3.8 kg)



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