

## LMWS Fiber Marker Facility Requirements

### Effected Models:

LMF Series	P <sub>out</sub>	AMYA Model (U.S.)	AMY Model (EU/Asia)
8-791	70W	LMWS LMF70	LMWS ML-7370D
	50W	LMWS LMF50	LMWS ML-7350D
	35W	LMWS LMF35-HP	LMWS ML-7340D
	20W	LMWS LMF20-HP	LMWS ML-7320D
	20W	LMWS LMF20-SM	LMWS ML-7322D
	20W	LMWS LMF20	LMWS ML-7321D
	10W	LMWS LMF10	LMWS ML-7311D

### Purpose:

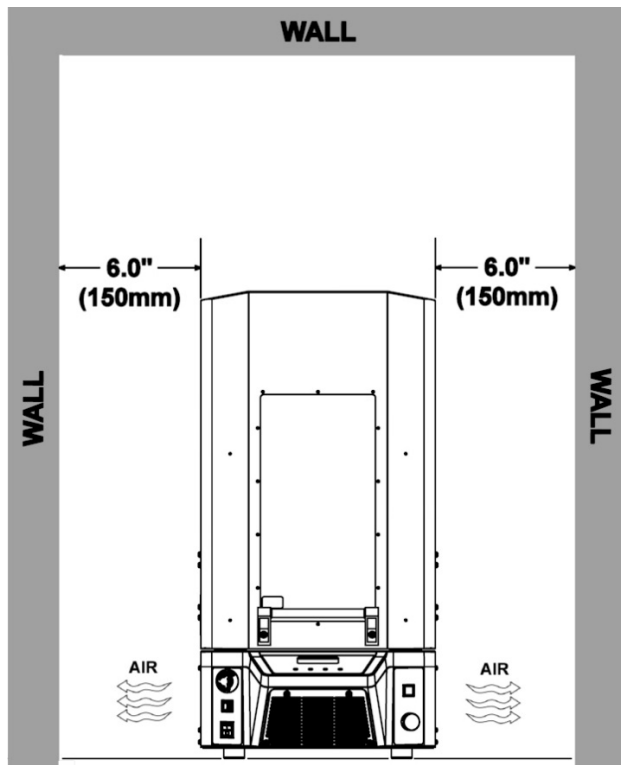
The purpose of this document is to describe the facility requirements for proper installation of the **LMWS Marker Workstation**. This document supplements the information found in the LMWS Marker Workstation Manual. The contents of this document are subject to change without notice.

### Planning:

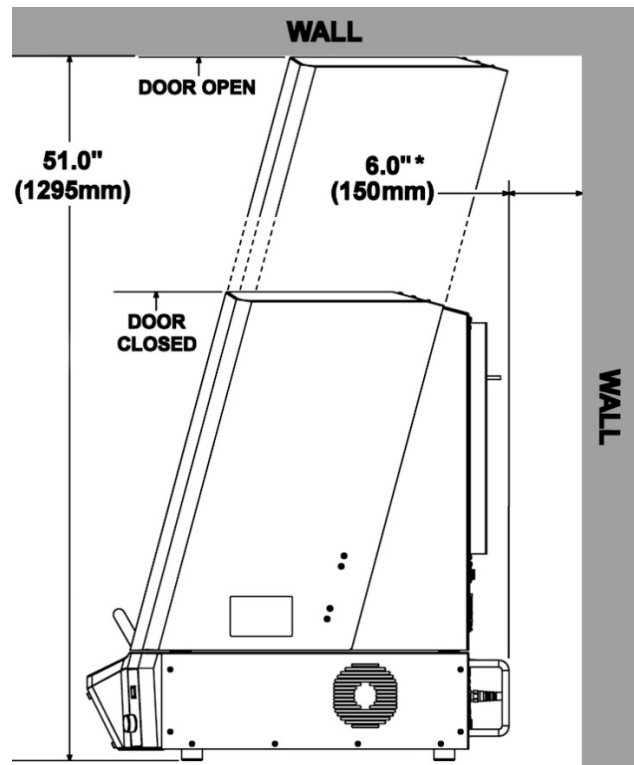
When planning for the installation of the Laser Marker Workstation, verify that the following conditions are met:

- Appoint a Laser Safety Officer (LSO) to be responsible for LMWS Workstation.
- The LSO should be responsible for controlling the Laser Operation key-switch.
- Install the workstation on a firm, level floor that is free from vibration or impact.
- Do not operate the workstation/laser where there is considerable dirt, dust, oil mist, chemicals, fumes, moisture, or near a high-frequency noise source.
- Use the workstation only when the relative humidity < 90% (non-condensing).
- Operate the workstation where the ambient temperature is between 41°F - 95°F (5°C - 35°C).
- Do not operate the workstation in a confined space. Allow sufficient space as shown below.
- Keep all combustible materials away from the Laser Workstation.
- Do not install the workstation in areas with sudden temperature fluctuations or in areas of high humidity.
- Fume extraction must always be used when performing any process that generates any particulate matter within the LMWS Workstation. The user is responsible for ensuring that fume extraction meets the specific requirements of the material being processed.

**Clearance Requirements:**



**Front View (all models)**



**Side View (all models)**

*Note\*: Depending on the fume extraction ducting, more than 6" clearance may be required.*

**Power Supply Requirements:**

The LMWS Marker Workstations operate off a single-phase power of 90-130VAC or 180-260VAC ( $\pm 10\%$ ), 50/60 Hz (with automatic switchover). Before applying power, measure the available power at the installation site and verify it falls within the acceptable voltage ranges.

LMWS Parameter	Value
Input Voltage Range (50/60Hz):	90-130 VAC or 180-260 VAC ( $\pm 10\%$ ), single-phase
Maximum Input Current (@110VAC):	10A
Recommended Service (@110VAC):	15A

**Grounding**

To ensure safety and optimal operation, the laser workstation must be properly grounded. This equipment accepts a standard 'IEC320 C13' modular power cord and should be connected to the same A.C. service as the PC used to operate the Marker. **DO NOT operate the Marker without a proper ground connection.** For more information on proper grounding techniques, consult an electrician that is familiar with the laws and regulations in your area. An improperly grounded system can damage the electronics in your equipment.

## Power Transformation and Protection

If the available A.C. service voltage in your area does not fall within the required voltage range, a 1.5kVA (minimum) step-up or step-down transformer may be required. Amada Miyachi does not supply these transformers. Instead the best option is to consult a local electrician and they can recommend a suitable power transformer for your facility from a local electrical supply house.

The laser itself is fairly immune to power disturbances but is not immune to power surges due to electrical storms. In these areas, the use of an isolation transformer and noise filter may be needed to help suppress the large power transients. Consult with a local electrician for ways to protect the workstation/laser from lightning transients.

## Cooling Requirements:

The temperature is maintained by an internal cooling fan. In order to maintain a proper operating temperature, there must be adequate space around the Workstation (see the "Clearance Requirements" section above). If the workstation cannot maintain a proper operating temperature, a *Laser Temperature* error will appear and the Marker will stop operating.

Operating Temperature Range: 41°F - 95° (5°C - 35°C)  
 Relative Humidity: Less than 90% (*non-condensing*)

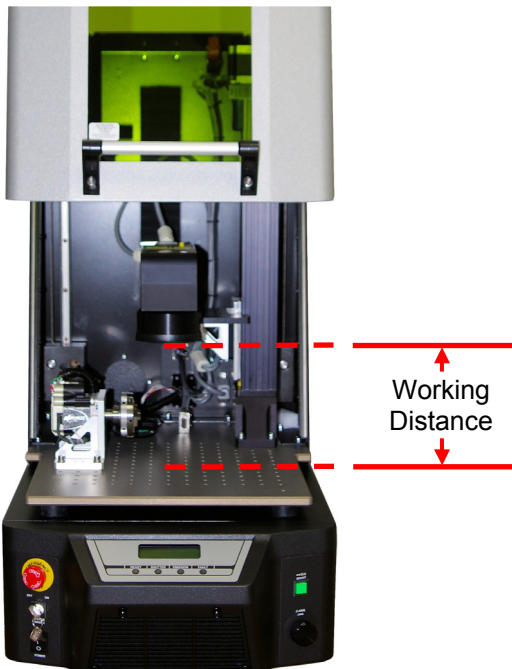
## Dimensions:

Refer to the appropriate Operator Manual for dimensional data:

The operator manuals for each of the Markers is posted on-line at: [www.amyasupport.com/lsd](http://www.amyasupport.com/lsd)

Workstation	Laser Manual (LMF)	Laser Manual (ML-)
990-381	990-559	990-561

## Working Distance:



In order to achieve an acceptable mark, the working distance must be set in order to focus the laser beam onto the surface of the marking material. An incorrectly set working distance, will not produce an acceptable mark.

Set the distance as shown on the left. If the marking quality is unacceptable, then slightly adjust the marking material towards or away from the lens until the marking quality is acceptable. Measurements are given from the work surface to the lowest point of the lens ring on the lens assembly.

Note: Do not touch the cover glass while measuring the working distance.

The nominal working distance for each lens is listed below. Use the working distance value as a starting point, then adjust to/from the lens until the desired mark is achieved. To simplify the process, use the included focus rod to set the working distance.

<b>f-theta lens</b>	<b>Working Distance</b>	<b>Marking Area</b>	<b>Focus Rod</b>
100mm	3.86 ± 0.04 in. (98 ± 1 mm)	2.42 in. □ (61.5mm □)	4-67209-01
160mm	6.93 ± 0.08 in. (176 ± 2 mm)	3.89 in. ○ (98.9mm ○)	4-67209-03
254mm	11.65 ± 0.12 in. (296 ± 3 mm)	6.18in ○ (6.18 in. ○)	4-67209-04

### Mass (Weight):

<b>Component</b>	<b>8-791</b>
Control Unit	61 lbs (27.7kg)
Workstation*	93 lbs (42.0kg)
Ultra-Compact Head	8.4 lbs (3.8kg)

*Note\*: The mass can vary depending on ordering options. Use this value as a guide.*

### CDRH Accession:

The LMWS Laser Marker Workstation is sold worldwide by; Amada Miyachi America (AMYA), Amada Miyachi Japan (AMY), and Amada Miyachi Europe (AMYE). The Laser Markers (base unit) used with the LMWS are all Class IV devices when used as stand-alone equipment. When the Laser Marker (base unit) is integrated with the LMWS workstation, the whole system becomes Class I. All devices are fully compliant with all applicable standards and regulations as set forth by the United States of America's Health and Human Services (HHS), Food and Drug Administration (FDA), Center for Devices and Radiological Health (CDRH), standard 21 CFR 1040.10 for laser devices. The Accession Numbers are as follows:

<b>Series</b>	<b>P<sub>out</sub></b>	<b>AMYA<sup>1</sup> Unitek Model</b>	<b>AMY<sup>1</sup> Miyachi Model</b>	<b>Accession #</b>
<b>Laser Marker Base Unit</b>	50W	8-791-BxR-xxA-xxA	---	1320222-000
	50W	---	8-791-BxR-xxB-xxA	1320222-002
	35W	8-791-QxR-xxA-xxA	8-791-QxR-xxB-xxA	1320222-000
	20W	8-791-RxR-xxA-xxA	8-791-RxR-xxB-xxA	1320222-000
	20W	8-791-PxR-xxA-xxA	8-791-PxR-xxB-xxA	1320222-000
	20W	8-791-CxR-xxA-xxA	8-791-CxR-xxB-xxA	1320222-000
	10W	8-791-DxR-xxA-xxA	8-791-DxR-xxB-xxA	1320222-002
<b>LMWS Workstation</b>		8-791-xxx-xxA-xxA	8-791-xxx-xxB-xxA	1420778-000

- Both the AMYA and AMY models are functionally equivalent and differ only in labeling

**CSA Compliance:**

The LMWS Laser Marker Workstations are not CSA compliant at this time. However, the LMWS Laser Marker Workstation can be CSA certified by a CSA approved agency at an additional cost.

**CE Documentation:**

All LMWS Laser Marker Workstation components are CE compliant. A copy of the *Declaration of Conformity* is located in each Operator Manual. Please refer to the appropriate Operators Manual for more information.

**Service:**

If the Laser produces an Error Code refer to the Operators Manual for resolution. If your Marker Workstation is in need of service, contact the Amada Miyachi America at (626) 303-5676 during normal business hours (7:00 am – 5:00 pm PST).

For after-hours support, please call: **(866) 751-SERV (7378)**

**SPARE PARTS:****Spares Kits:**

Level	Controller	Configuration	AMYA Pt #
Level 1	All Versions	All Models	8-707-10-01
Level 2	LEC-1	8-791-xLR-xxx-xxA	8-707-10-02
	LEC-1 P6	8-791-xBR-xxx-xxA	8-707-10-03
	LEC-2 ADV	8-791-xCR-xxx-xxA	8-707-10-04
	LEC-2 STD	8-791-xDR-xxx-xxA	8-707-10-05
	LEC-2 BSC	8-791-xER-xxx-xxA	8-707-10-06

**Miscellaneous Components:**

Description	AMYA Pt #
Optical Lens Cleaner (RoHS compliant)	900-342
Lens Cleaning Tissue (7.75" × 4")	900-314

**f-theta lens:**

f-theta Lens	f-theta Lens	Protective Glass	Lens Collar
f100	475-328	475-135	475-468
f160	475-111	475-135	475-468
f254	475-121	475-134	475-471

**Laser Marker (Base Unit) Maintenance / Replacement Components:**

Description	AMYA Pt #
Air Filter – Front Panel	4-70831-01 4-70832-01
Lithium Battery, 3.0v, 190 mAH	145-017
Fuse	330-210 (10A)
IEC Power Cord	205-133
Cat 5e Ethernet Cable	205-318
Collar O-Ring, Internal (1.364")	570-185
Collar O-Ring, External (1.739")	570-184

**Laser Marker (Base Unit) Electronic Replacement Components:**

Description	AMYA Pt #
Key switch (switch + key)	680-512
E-Stop Switch	680-316
ON/OFF Power Switch	680-478
Fan, Cooling	305-073
Power Supply, 24V, 600W	525-068
Power Supply, 24V, 3.2A, 75W	525-093
Power Supply, 15V, 5A, 75W	525-094
Power Supply, 5V, 5A, 25W	525-096

**Laser Marker (Base Unit) Replacement PCB's:**

Description	Configurations	AMYA Pt #
Control PCB	All Models	4-68418-01
Front Control Panel PCB	All Models	4-68428-01
LEC Interface PCB	8-791-xLR-xxx-xxA 8-791-xBR-xxx-xxA	4-69192-01
Surge Absorber PCB	All Models	4-69512-01
LEC-1 PCB	8-791-xLR-xxx-xxA	4-66600-01
LEC-1 Platform 6 PCB	8-791-xBR-xxx-xxA	4-66600-04
LEC-2 Advanced PCB	8-791-xCR-xxx-xxA	4-66600-05
LEC-2 Standard PCB	8-791-xDR-xxx-xxA	4-66600-06
LEC-2 Basic PCB	8-791-xER-xxx-xxA	4-66600-07
Shutter PCB	All Models	4-71290-01

*Note: The LEC Interface PCB is not used when the LMF Marker is configured with a LEC-2 Control PCB*

**Laser Marker (Base Unit) Mating I/O Connectors + backshells/dust caps:**

Description	AMYA Pt #		
	Connector	Backshell	Dust Cap
4-pin – Remote I/L connector	250-717	678-400	---
8-pin - User I/O connector	250-718	678-104	---
9-pin - User I/O connector	250-743	678-190	---
10-pin - System I/O connector	250-719	678-106	---
11-pin - System I/O connector	250-739	678-191	---
12-pin - E-Stop connector	250-744	678-192	---
50-pin – Extended I/O connector	250-597	250-598	260-061
9-pin (F) – COM1 / COM2 connector	250-798	250-194	260-062
15-pin (F) – COM3 connector	250-813	250-200	260-063
13W3 (M) – MTR1-4 connector	251-035	250-478	260-059

*Note: The dust caps are used to protect the unused connectors.*

**LMWS (Workstation) Maintenance / Replacement Components:**

Description	AMYA Pt #
Interlock Switch Harness Assembly	4-71024-01
Pulley Wheels (4 per Unit)	530-039
Counter-Weight Cable Assembly (2 per Unit)	4-71140-01
Door Slide Rail Bearings	460-320
Z-Axis Limit Switch Assembly (includes switch)	524-039
Bellows Assembly (2 per unit)	4-70783-01
Internal Exhaust Hose + Nozzle Kit	366-037
LED Workstation Lighting Assembly	4-71021-01
Z-Axis Jog Motor for: 8-791-xxx-xxR-xAA configurations 8-791-xxx-xxR-xCA configurations	4-71063-01
Programmable Z-Axis Motor Assembly for: 8-791-xxx-xxR-xBA configurations 8-791-xxx-xxR-xDA configurations	4-71230-01
Rotary Axis Motor Assembly for: 8-791-xxx-xxR-xBA configurations 8-791-xxx-xxR-xDA configurations	4-71230-01

*End of Document*