

DL Fiber Marker Facility Requirements

Effected Models:

DL Series	P _{out}	Model	Beam Diameter	AMY Model
8-80	50W	8-80-BxxA	8mm	ML-7350DL
		8-80-DxxA	2mm - 3mm	
		8-80-FxxA	3mm - 4.5mm	
		8-80-HxxA	4mm – 6mm	
	20W	8-80-CxxA	8mm	ML-7320DL
		8-80-ExxA	2mm - 3mm	
		8-80-GxxA	3mm - 4.5mm	
		8-80-JxxA	4mm – 6mm	

Purpose:

The purpose of this document is to describe the facility requirements for proper installation of the **DL Series Fiber Laser Markers**. This document supplements the information found in the Laser Operator Manual. The contents of this document are subject to change without notice.

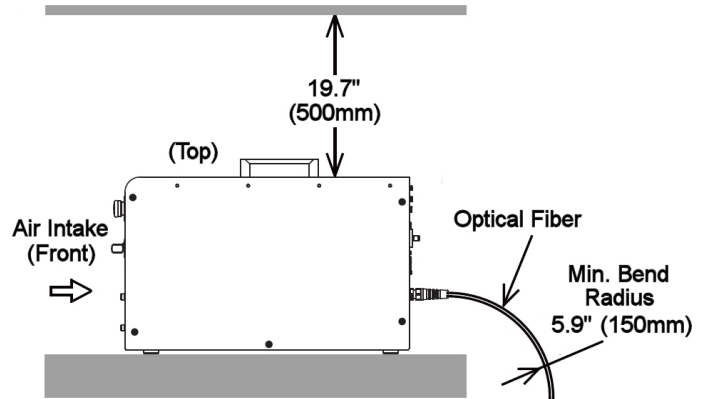
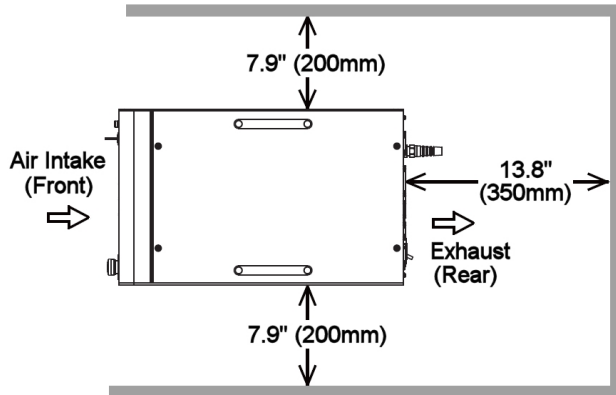
Planning:

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

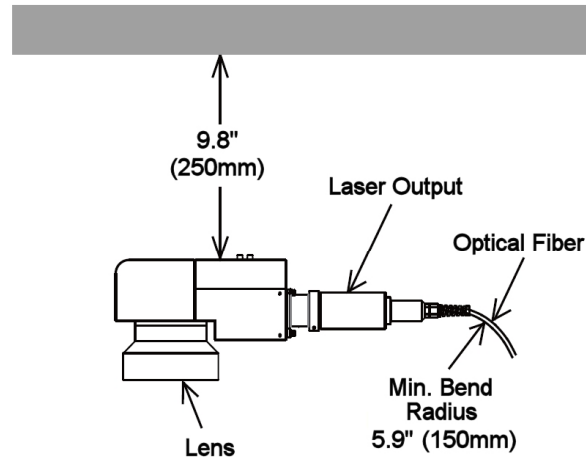
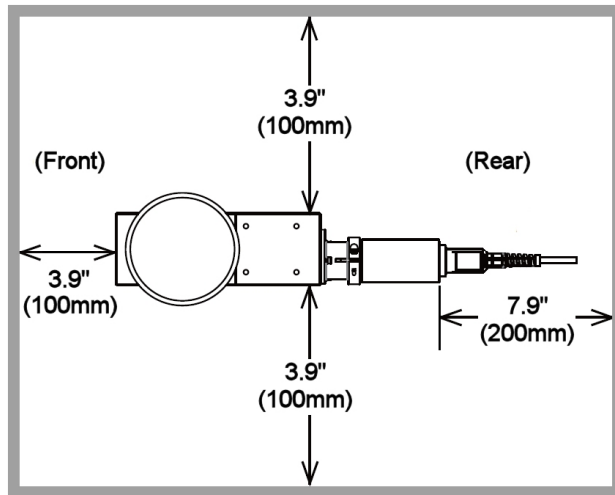
- Install the laser in an isolated “laser operation area” away from common work areas (*unless the laser is used with a Class I workstation*).
- Appoint a Laser Safety Officer (LSO) to be responsible for the “laser operation area”.
- The LSO should be responsible for controlling the Laser Operation key-switch.
- Post warning signs to keep unauthorized personnel away from the “laser operation area”.
- Install the laser on a firm, level floor that is free from vibration or impact.
- Do not operate the laser where there is considerable dirt, dust, oil mist, chemicals, fumes, moisture, or near a high-frequency noise source.
- Use the laser only when the relative humidity < 90% (non-condensing).
- Operate the laser where the ambient temperature is above 41°F (5°C).
- Do not operate the laser where sudden temperature fluctuations can occur.
- Do not operate the laser in a confined space. Allow sufficient space as shown below. If mounted in a rack, both the front and back panels of the control unit must be unrestricted.
- Always wear protective eyewear when using the Laser Marker, unless Laser Head is mounted inside a Class I enclosure.
- Keep all combustible materials away from the Laser Marker.
- Do not install the Laser Marker in areas with sudden temperature fluctuations or in areas of high humidity.

Clearance Requirements:

Controller:



Head Unit:



Power Supply Requirements:

The DL Laser Markers operate off a single-phase power of 100-240VAC (± 10%), 50/60 Hz (± 3%). Before applying power to the Marker, measure the available power at the installation site and verify it falls within the acceptable voltage ranges.

8-80 Laser Marker Model:	50W	20W
Input Voltage Range (50/60Hz):	100-240 VAC	
Power Consumption:	0.33kW	0.27kW
Recommended Service (@120VAC):	5A	5A

Grounding

To ensure safety and optimal operation, the laser must be properly grounded. This Marker 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.**

If the laser is being used in conjunction with a workstation or system, verify that the potential (voltage) between the Laser PE Ground and the Workstation/System PE Ground is at or near zero volts. In

practice, it is best to measure this potential at multiple times throughout the day to verify that no other equipment is causing a potential difference due to leakage current. 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 laser from lightning transients.

Cooling Requirements:

The temperature in the Marker is maintained by an internal cooling fan. In order to maintain a proper operating temperature, there must be adequate space around the Marker (*see the "Clearance Requirements" section above for exact requirements*). If the laser cannot maintain a proper operating temperature, a (181/182/198) Laser Temperature error will appear and the Marker will stop operating.

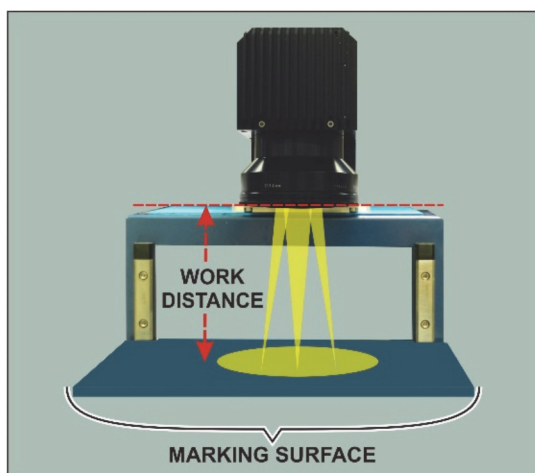
Operating Temperature Range: 41°F - 95° (5°C - 35°C)
Ambient Humidity: 40 to 80% (*non-condensing*)

Dimensions:

Refer to the Operator Manual (AMY # OM1175337) for dimensional data:

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 of the DL Models is listed below. Use the working distance value as a starting point, then adjust to/from the lens until the desired mark is achieved.

f-theta lens	Working Distance	Marking Area
75mm	3.66 ± 0.04 in. (93 ± 1 mm)	○ 39mm
100mm	4.25 ± 0.04 in. (108 ± 1 mm)	○ 80mm
150mm	6.69 ± 0.08 in. (170 ± 2 mm)	○ 120mm
160mm	6.93 ± 0.08 in. (176 ± 2 mm)	□ 98mm
270mm	12.32 ± 0.12 in. (313 ± 3 mm)	□ 140mm
350mm	16.18 ± 0.16 in. (411 ± 4 mm)	□ 200mm

Mass (Weight):

Component	8-80 DL Marker
Control Unit	57.3 lbs (26kg)
Head Unit	8.82 lbs (4kg)

CDRH Accession:

The DL Series Laser Markers are sold worldwide under model number **ML-73x0DL**. The **DL** Series Laser Markers are sold worldwide by; Amada Miyachi America (AMYA), Amada Miyachi Japan (AMY), and Amada Miyachi Europe (AMYE). All DL Series Laser Markers are Class IV devices that 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 Class IV laser devices. The Accession Numbers are as follows:

Series	P_{out}	AMY¹ Miyachi Model	Accession #
8-79	50W	ML-7350DL	1320222-001
	50W	ML-7350DL-3D	1320222-003
	20W	ML-7320DL	1320222-001
	20W	ML-7320DL-3D	1320222-003

CSA Compliance:

The DL Series Laser Markers are not CSA compliant at this time.

CE Documentation:

The DL Series Laser Markers are not CE compliant at this time.

Service:

If the Laser produces an Error Code refer to the Operators Manual for resolution. If your marker 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 (AMYA Pt #):**Miscellaneous Components:**

Description	AMYA Pt #
Optical Lens Cleaner (RoHS compliant)	900-342
Lens Cleaning Tissue (7.75" x 4")	900-314
IR Safety Glasses ($\lambda = 1064\text{nm}$)	475-118
Over-the-Glasses IR Safety Glasses ($\lambda = 1064\text{nm}$)	475-160

Maintenance Components:

Description	AMYA Pt #
Air Filter – Front Panel (1175953) (1175952)	4-69483-01 4-68482-01
Lithium Battery, 3.0v, 560 mAH (1025004)	145-014

I/O Connector dust caps:

Description	AMYA Pt #
26-pin MDR connector	260-068
USB-B connector	---
25-pin D-Sub Hi-Density, Female connector (POD)	260-057
25-pin D-Sub, Male connector	260-064
26-pin D-Sub Hi-Density, Female connector (E-Stop)	260-058
9-pin D-Sub, Female connector (Maintenance)	260-057
9-pin D-Sub, Male connector (RS-232C)	260-062
25-pin D-Sub, Female connector (Scanner)	260-059
15-pin Dual D-Sub connector 15M (I/F Out)	260-058
15F (Ext I/O)	260-063

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

Spares Kits:

Level	AMYA Pt #
Level 1	8-707-05-01
Level 2	8-707-05-02

Front / Rear Panel Components:

Description	AMYA Pt #
Key switch (switch + key)	680-512
E-Stop Switch	680-316
ON/OFF Power Switch	680-478
Air Filter Bezel (Air Filter Cover)	4-69259-01 (Black) 4-69259-02 (Blue)

Electronic Components:

Description	AMYA Pt #
Fan, Cooling Assembly (1175957)	4-69492-01
Power Supply, 24V, 600W	525-068
Power Supply, 24V, 150W	525-101
Power Supply, 15V, 5A, 75W (x 2)	525-094
Power Supply, 5V, 5A, 25W	525-096
Power Cord, IEC320-C13	205-422
EMI Filter	270-578
AC Filter Assembly	4-39759-01
Interlock Safety Relay, Cat 3	555-209
E-Stop Safety Relay, Cat 3	555-210

PCB's:

Description	AMYA Pt #
MHC Control PCB	4-73042-01
MUC Control PCB	4-68842-01
Front Control Panel PCB	4-68428-01
Surge Absorber PCB	4-67760-01