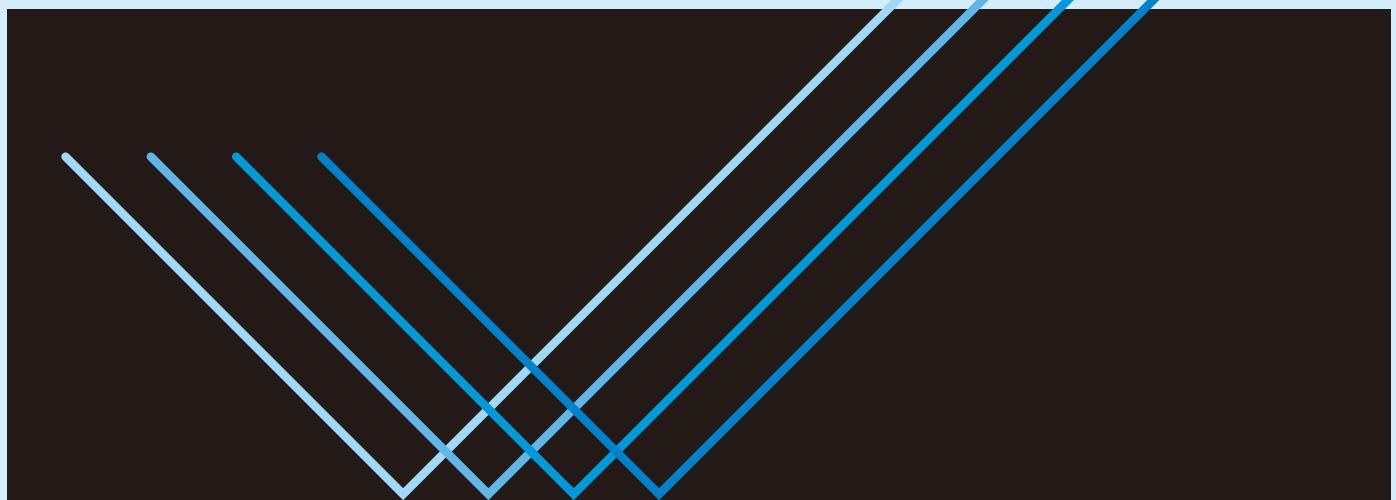


LASER MARKER CATALOGUE



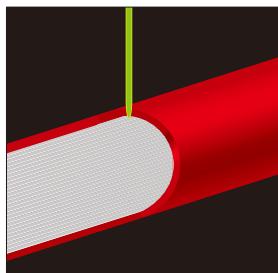
Spirit of Innovation



LASER MARKER

Miyachi Corporation, from Laser Markers to Laser Machines

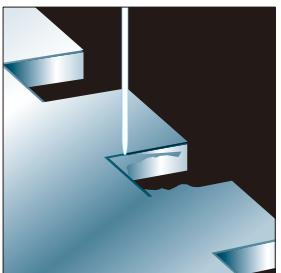
Miyachi laser markers transcend the basic concept of laser markers, which could mark letters, symbols, and figures. They could apply to many processes such as peeling, cutting, trimming, plastic welding, and marking.



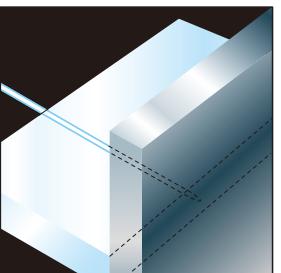
Peeling



Cutting



Trimming



Plastic welding



Marking

✓ Laser Machine Lineup

A rich product line-up: Fundamental wave, SHG (Second Harmonic Generation), and THG (Third Harmonic Generation)

LD Pumped YVO₄ (10W)

ML-7111A

LD Pumped YAG (50W)

ML-7064A

LD Pumped YVO₄ (7W)

ML-7112A

LD Pumped YVO₄ SHG (5W)

ML-9001A

LD Pumped YAG THG (3W)

THG Laser Processing System



✓ Basic Specifications and Performance

LD excitation

This improves the laser emission efficiency. It also reduces the power consumption and provides excellent stability.

Guide light

Guide light shows the writing position on work-piece and processing area.

Completely air-cooled

Cooling is achieved by fan and neither cooling water nor a water filter is required.

Single-mode

Since the laser beam can be condensed extraordinarily small, it is effective for fine processing.

Multi-mode

This is effective for applications that require energy over a wide area, i.e. oxide marking.

Built-in chiller cooler

These machines feature a compact design chiller cooler that does not require external cooling water.

Maintenance-free

Since no consumable parts, other than LD, is used, the interference by the maintenance work would be greatly reduced.

LMDraw

These machines are equipped with a wealth of functions operated from a screen. This is a powerful tool.

Automatic backup function

Time and counts of operation sets are backed-up in a log file automatically.

From Figure Making to Processing Operations, Ease of Use Has Been Significantly Improved.

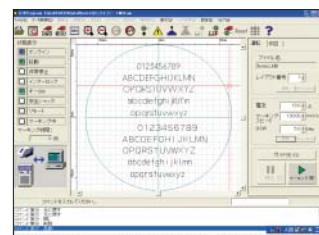
Equipped with a wealth of functions on simple operation screens



Operation unit screen

The operation unit uses interactive communications, which makes real-time processing possible.

- Large-screen 7.7-inch LCD touch panel
- As few as four touches from layout selection to the start of marking
- Layout image display
- Status display that shows the operation status



PC application software (LMDraw)

LMDraw is application software for creating and executing processing data.

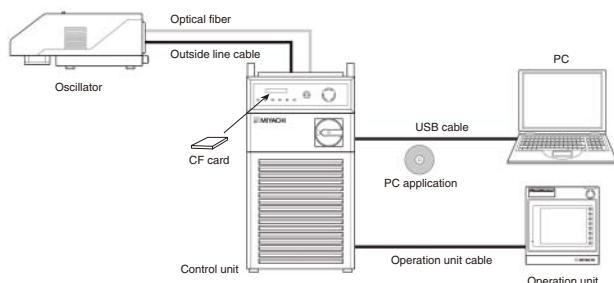
- 2D code marking is standard
- Supports DXF file reading
- Auto hatching function
- Automatic write order optimization function
- Thanks to the strong drawing functions, processing data is created efficiently.
- Move, rotate, copy, enlarge, reduce, compress, mirror characters, reverse direction marking, undo, redo, grid, ruler, rectangular data codes
- Other major functions
- Alarms, calendar settings, log management, serial number data settings, end point entrance length setting, jump speed change, and other functions are added as standard.

Available function

	Marker control functions	Character and figure layout	External file import	Operation display status	CF maintenance functions
PC	○	○	○	×	○
Operation unit	○	○	×	○	○

○: Possible ×: Not possible

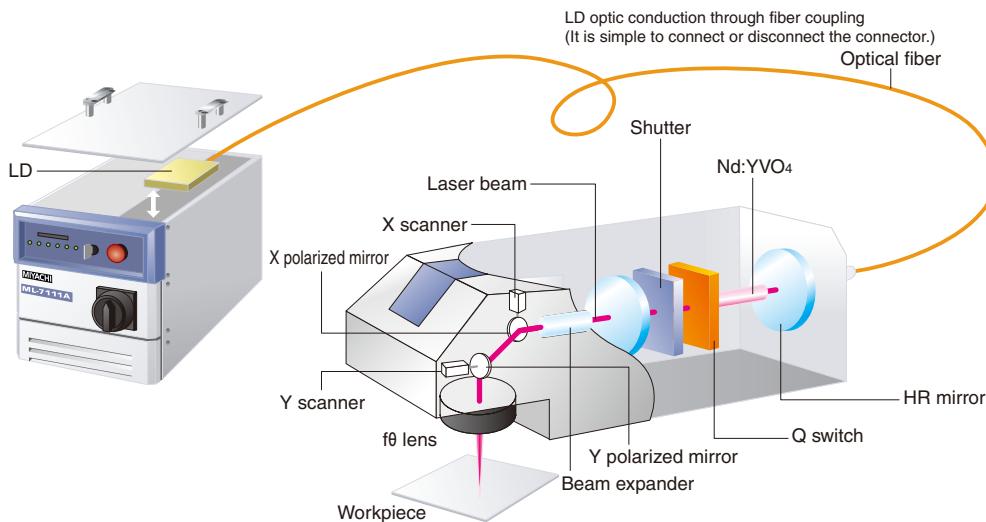
System configuration example



- Outside line cable: Cable connecting control unit and oscillator
- Optical fiber: Fiber transmitting the pumping light
- Operation unit cable: Cable connecting control unit and operation unit
- USB cable: Cable connecting control unit and PC: 3m, 5m, 8m, 10m
- Beam expander: Reduces the beam dispersion in inverse proportion to the magnification ratio
 - ML-7111A, ML-9001A 1.5x, 2x, 3x, 4x, 6x, 8x
 - ML-7064A 3x, 4x, 6x, 8x
- fθ lens: See Page 6.

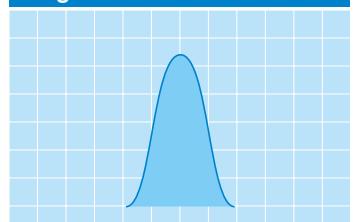
Easy LD replacement

Since the LD and the oscillator can be completely separated, the LD can be replaced in about 5 minutes.

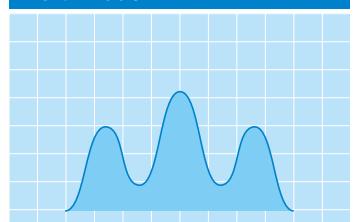


Oscillation mode features

Single mode



Multi-mode



ML-7111A

—2D Marking Standard—

Operation and Ease of Use Greatly Improved!

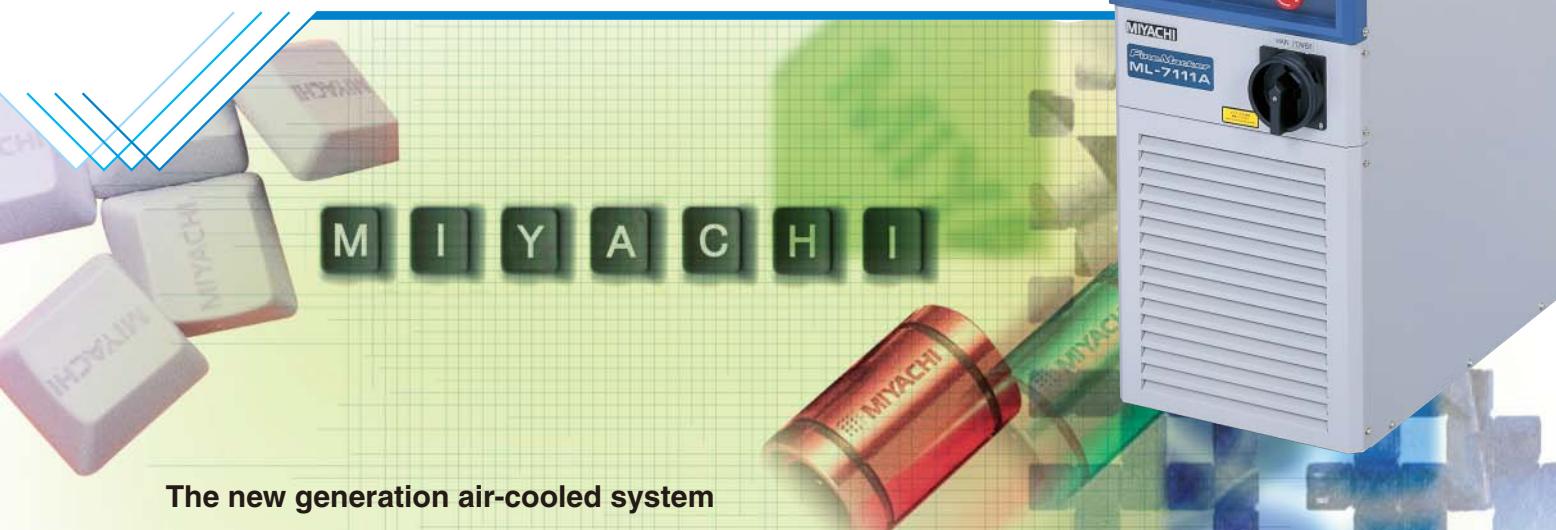
Great improvement in operation and ease of use!

Operability using a PC with LMDraw has been greatly improved! The screen configuration makes operations easy for even beginners to understand and allows advanced users to make detailed settings easily from the menu.



Fine, high-quality, high-precision

Because these units have superior output stability and peak power output in the Q switch high-frequency area, they are suitable for high-precision marking of electronic parts and fine processing of metals.



The new generation air-cooled system

Applications



Illumination switch paint peeling



Serial number marking

Specifications

Wavelength	1,064nm
Maximum output	10W min. (for CW mode)
Beam quality	Single mode
Number of schedules	1,023
Fonts	True Type fonts, DIN, JIS Z 8905, JIS Z 8904, JIS Z 8903, OCR-A, OCR-B, round hand fonts
Print types	Letters (uppercase and lowercase), number, katakana, hiragana, kanji, symbols
Supported file formats	DXF, BMP, JPEG, GIF, TIFF
Bar code types	Code 39, ITF
External interfaces	USB 1.1, compact flash (CF), RS-232C (option)
2D code types	Data matrix, QR codes (square and rectangular)
Required power	Single-phase 100 to 240 VAC -10%+6%, 50/60 Hz
Cooling method	Air cooled
Display units	Operation unit and PC

Basic Specifications and Performance

LD excitation	Completely air-cooled	Single-mode	Guide light
Maintenance-free	LMDraw	Automatic backup function	

ML-7064A

—Easy on the Environment and Powerful—

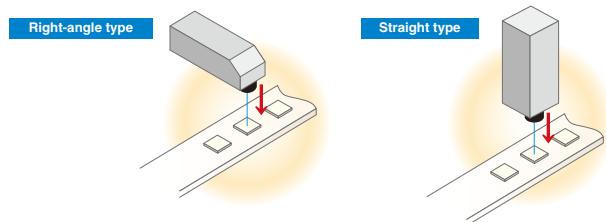
50W Output, Top Class in the Industry

High output and high-speed processing
Attains 50W output, top of the industrial range

Can handle deep etching, black marking, trimming, film peeling, cutting, and scribing at high speed with fine detail.

You can select from two types of oscillators

You can select either a right-angle type or straight type oscillator.



This is a multi-purpose single unit
for applications ranging from fine processing to deep etching.

Applications

Bit map marking



Deep etching marking of a stainless steel rod

Specifications

Wavelength	1,064nm
Maximum output	50W min. (for CW mode)
Beam quality	Multi mode
Number of schedules	1,023
Fonts	True Type fonts, DIN, JIS Z 8905, JIS Z 8904, JIS Z 8903, OCR-A, OCR-B, round hand fonts
Print types	Letters (uppercase and lowercase), number, katakana, hiragana, kanji, symbols
Supported file formats	DXF, BMP, JPEG, GIF, TIFF
Bar code types	Code 39, ITF
External interfaces	USB 1.1, compact flash (CF), RS-232C (option)
2D code types	Data matrix, QR codes (square and rectangular)
Required power	Single-phase 200 VAC +/-10%, 50/60 Hz
Cooling method	Chiller cooled
Display units	Operation unit and PC

Basic Specifications and Performance

LD excitation	Multi-mode	Guide light
Built-in chiller cooler	LMDraw	Automatic backup function

ML-7112A

—Low-Cost Laser Marker Born
from the Needs of Our Customers—

Easy on Your Wallet, Easy on the Environment

- Provides high laser beam quality at low price
- Processing area of □100mm
- Includes LMDrawLite
PC application software



- "Make the price lower"
- "Give us just the minimum, necessary functions without too many functions."
- "We want air cooling, not water cooling."

The birth of the ML-7112A, which gives customers like these what they want

Basic Specifications and Performance



Specifications

Wavelength	1,064nm
Maximum output	7W (for CW mode)
Oscillation types	Q switch pulse oscillation and CW oscillation
Fonts	DIN, JIS Z 8905, JIS Z 8904, JIS Z 8903, round hand fonts
Print types	Letters (uppercase and lowercase), number, katakana, hiragana, kanji, symbols, Character height 1mm min.
Required power	Single-phase 100 to 240 VAC -10%+6%, 50/60 Hz
Cooling method	Air cooled

*Supports CDRH and CE

ML-9001A

—Peeling, cutting, marking—

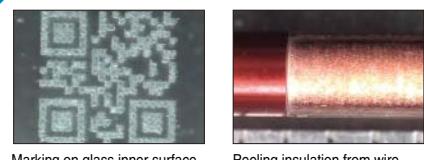
Can Even Process and Mark Workpieces with a High Reflection Ratio

- What Second Harmonic Generation (SHG) Is

This is a visible-light laser with a wavelength of 532nm (green light), half that of the fundamental wave laser (1,064nm).



Applications



Specifications

Wavelength	532nm
Maximum output	5W
Beam quality	Single mode
Cooling method	Air cooled
Required power	Single-phase 100 to 240 VAC -10%+6%, 50/60 Hz
Display units	Operation unit and PC
Compatible OS	Windows XP/Windows2000
2D codes	Data matrix, QR codes

*Supports CDRH and CE

Features of SHG

SHG can mark silicon wafers, WLCSP, thin memory cards, thin ICs, etc. without damaging the internal device.

Basic Specifications and Performance



Introducing the Wealth of Options Supported and System Sales

Miyachi offers customization and system sales to meet your desires.

THG laser processing systems

What is third harmonic generation (THG)

This is UV laser light with a wavelength of 355nm, one third of the fundamental wave of 1,064nm. This laser light is suitable for processing plastic materials such as polyimide and glass materials such as sapphire.



Image processing laser machine

- The position deviation correcting function makes high-precision positioning possible.

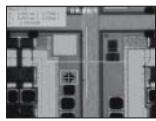


Image recognition screen



Has galvano-scanner

Since the laser light can be scanned with the galvano-scanner, there is no need for an X-Y table or other positioning device.

- The workpiece can be processed and/or marked at high speed with high precision without moving the workpiece.
- The laser oscillator optimum for the workpiece can be selected.
 - Fundamental wave: ML-7111A
 - SHG: ML-9001A

Dust-proof, fully-enclosed cabinet available

"Dust-proof, fully-enclosed cabinets" are available for all models so that you can use these laser machines even in harsh environments, such as those with oil mist or dust. The completely sealed structure of these lockers completely shuts out oil mist, dust, etc.

fθ lens list

○ marks options that can be selected

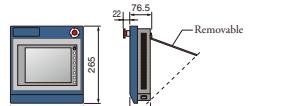
fθ lens	f75	f100	f150	f160	f254	f270	f300	f350	f420
A ML-7111A	○	○	○	○	○	○	○		○
B ML-7064A	○	○	○			○		○	
C ML-9001A		○			○		○		
Processing area (mm)	φ39	φ80	φ120	□100	□150	A C φ216(B □140	A □210(C □175	□200	□294
* Marking speed (mm/s)	0.01 to 5,000	0.01 to 7,000	0.01 to 10,000	0.01 to 11,000	0.01 to 17,000	0.01 to 18,000	0.01 to 20,000	0.01 to 20,000	0.01 to 28,000
* Position resolution (μm)	1	2	2	2	3	4	4	4	6
Work distance (mm)	93	A 110/B 107/C 95	170	175	A 299/C 277	313	A 358/C 328	411	494
Character height setting range (mm)	0.1 to 60	0.13 to 80	0.2 to 120	0.21 to 130	0.34 to 210	0.36 to 220	0.4 to 240	0.47 to 280	0.56 to 340

* The marking speeds are calculated (theoretical values). * The position resolutions are calculated (theoretical values).

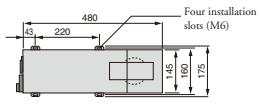
External dimension

ML-7111A / ML-9001A

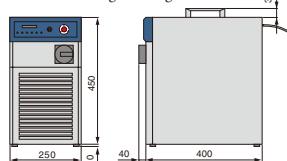
- Operation unit (sold separately) <Mass: 2.8kg>



- Oscillator <Mass: 13kg>



- Control unit <Weight: 24kg>

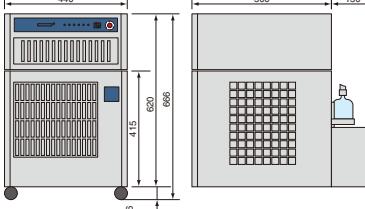


ML-7064A

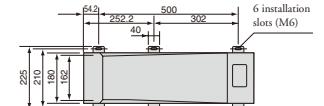
- Operation unit (sold separately) <Mass: 2.8kg>



- Control unit <Mass: 72kg>



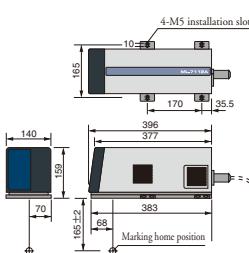
- Oscillator <Mass: 26kg>



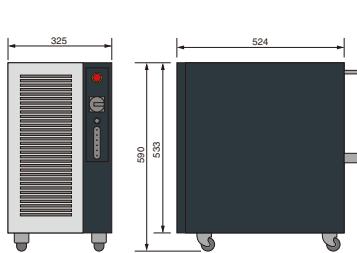
(This shows the right-angle type.)

ML-7112A

- Oscillator <Mass: 9.5kg>



- Control power supply <Mass: 30kg>



Miyachi laser products conform to the following standards.

- JIS C 6801
- JIS C 6802, IEC 60825-1
- CE (Some products)

*Please contact us for further details.



Protecting box label
(ex. ML-7111A)

Windows is a product (registered trademark) of the Microsoft Corporation of the United States of America, Data Matrix of the ID Matrix Corporation of the United States of America, and QR codes of Denso Wave, Ltd.

Note: Please understand that the specifications and appearance presented in this catalog are subject to change without notice.

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A Wise Choice Begins in Our Laboratory

Miyachi Corporation makes its application development laboratories available to customers at its operational centers in Japan and around the world. Everyone interested in learning more about laser welders, laser markers and fine spot welders, and/or having trouble meeting their production requirements is invited to make use of the equipment in one of our worldwide application laboratories. You may visit in person or send your parts for a technical analysis and application report. To avoid congestion, please call us prior to your visit to arrange an appointment.



E10T207002 (J15T906002)

Please visit MIYACHI website

URL <http://www.miyachi.com>

This website provides the information on our products and topics.



ISO 9001
JQA-1338



ISO 14001
JQA-EM0993

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