

# LP-S500W SERIES

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[panasonic.net/id/pidsx/global](http://panasonic.net/id/pidsx/global)



This product is classified as a Class 4 Laser Product in IEC / JIS standards and in FDA\* regulations. Never look at or touch the direct laser beam and its reflection.

\* This product complies with 21 CFR 1040.10 and 1040.11 Laser Notice No. 50, dated June 24, 2007, issued by CDRH.

## A new standard black laser annealing

### Black laser annealing

#### What is black laser annealing?

Black laser annealing is a printing technique that uses laser irradiation to heat up metal surfaces and form oxide films that appear as letters printed in black\*. In contrast to traditional techniques involving metal surface etching, the absence of depressions or burrs keeps surfaces level. This makes black laser annealing the best printing technique for target objects such as bearings that require high surface precision.

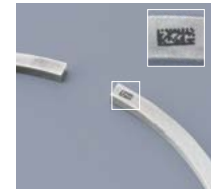
\* Black laser annealing may not be possible with certain materials.



Bearings



End mills



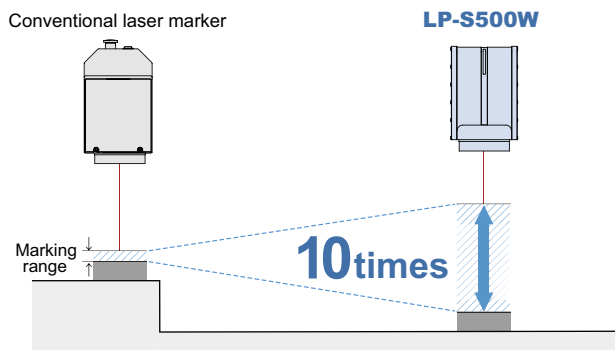
Piston rings

### SIMPLE

#### Wide marking range achieved through a newly developed optical design New design

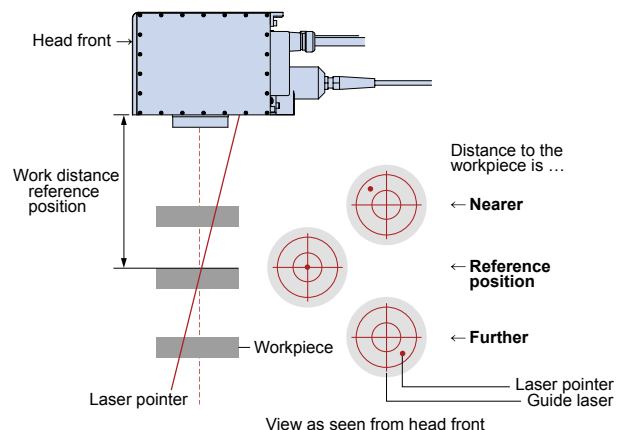
Reliable black laser annealing used to require strict management of the target's work distance. With the LP-S500W series, you now have  $\pm 15$  mm  $\pm 0.591$  in\* more flexibility in work distance thanks to a newly developed optics design. There is no longer a need to do process changeovers for lines producing products of different sizes. And, because printing is done uniformly regardless of height differences, the LP-S500W series helps improve production reliability.

\* In case of marking to SUJ2 (material) by LP-S500W



#### Visualize the marking range: New dual pointer marks New feature

The LP-S500W series allows the operator to visualize the marking range based on the relationship between the positions of the guide laser and laser pointer. Now you can check target object position and height based on the laser pointer's marker positions. Deviation amounts can also be checked. With this feature, equipment setup and maintenance gets a little easier.

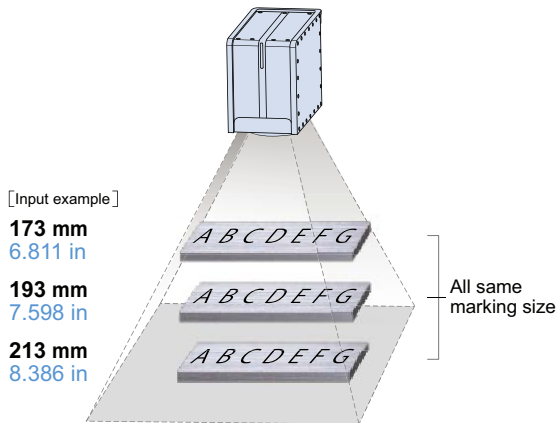


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- CO2 Laser
- Option
- LP-M
- LP-S
- LP-S500W
- LP-RF
- LP-Z
- LP-V/LP-W

**High precision marking made simple:**

**Work distance setting** New feature

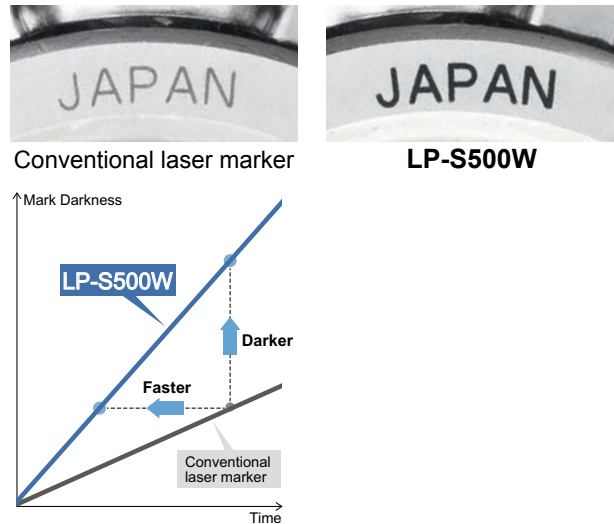
For accurate marking on workpieces with different heights, marking sizes, positions, etc. need modification in consideration of each target's height. With the **LP-S500W** series, marking size and position are corrected automatically by entering the distances to each target object. Setting for marking target objects of different heights just got much simpler.



**Improved productivity:**

**High-speed black marking** New design

A significant amount of heat energy used to be needed to achieve a sufficiently dark black laser annealing. Featuring a high-output 42 W FAYb laser, the **LP-S500W** series has twice the output of other models\*. Improve productivity with black laser annealing that is faster and that produces darker markings. \*LP-F13W



**TOUGH**

**Sealed, IP67G rated head enclosure**

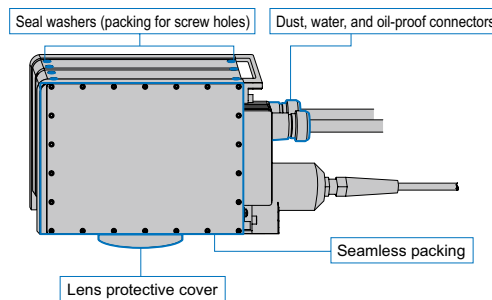
**Superior design**

The **LP-S500W** series features minimum frame seams. Minor seams and screw holes are completely sealed, producing high sealing performance. This performance is sustained by applying constant pressure to the sealed areas. Maximum cooling efficiency is also achieved allowing the use of a fanless head for thorough cooling.

**High quality protection parts**

Seamless sealing materials are used that have low water absorption and excellent oil resistance properties. Connectors are dust, water, and oil-proof. The lens has a protective glass cover.

**LP-S500W series**



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- LP-Z**
- LP-V/LP-W**

What is IP?  
 IP indicates the degree of protection from water, human body, or solid foreign objects. This is based on IEC / JIS standards.

IP6X: Prevents chips from entering inside the product (complete prevention).  
 IPX7: Prevents water from entering inside the product when it is immersed under water under the specified conditions.  
 G: Indicates the oil protection structure specified by JIS standards and able to prevent oil drops or oil foam from entering from any direction.

FIBER  
SENSORSLASER  
SENSORSPHOTOELECTRIC  
SENSORSMICRO  
PHOTOELECTRIC  
SENSORSAREA  
SENSORSSAFETY LIGHT  
CURTAINS /  
SAFETY COMPONENTSPRESSURE /  
FLOW  
SENSORSINDUCTIVE  
PROXIMITY  
SENSORSPARTICULAR  
USE SENSORSSENSOR  
OPTIONSSIMPLE  
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UNITSWIRE-SAVING  
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**FLEXIBLE****Removable fiber unit enhanced flexibility of equipment design**

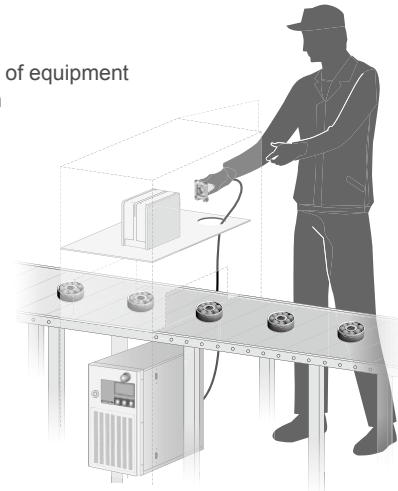
Panasonic's unique laser head design allows the fiber unit to be easily removed from the scanner unit. This revolutionary mechanism is a first in the fiber laser marker industry\*<sup>1</sup>. Because the fiber unit is removable, it can be easily incorporated into equipment for easy installation and enhanced flexibility of equipment design.

\*1: Data obtained by Panasonic Industrial Devices SUNX as of February 2012

**[ Fiber unit removability advantages ]**

- Smaller equipment, lower costs
- Simpler equipment assembly
- Simpler dismantling when transporting equipment
- Simpler laser marker maintenance

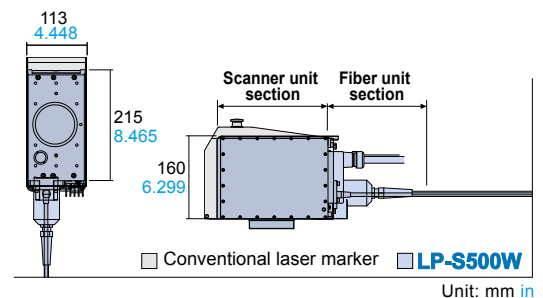
■ Illustration of equipment integration

**Space-saving small head**

The **LP-S500W** series takes up close to 15 % less floor space with about 20 % less volume\*<sup>1</sup> compared to conventional models\*<sup>2</sup>. Save floor costs by using more space-saving equipment.

\*1: Scanner unit section

\*2: LP-F series

**OPERABILITY****Easy operation via a touch panel console**

A color touch panel is used so that even persons unfamiliar with machine operation can easily handle it. An intuitive and easily understandable software package allows the operator to smoothly access any setting screens, and the ergonomically designed console is easy to operate whether hand-held or directly attached to a machine.



Touch panel console

\* An inlaid composite image is used for the screen.

**Configurable using an office PC**

The laser marker comes standard with PC software that allows for easy configuration of print data and layout, via a familiar PC based environment. Data can also be created on a PC in offline mode, which means that data configuration is possible without stopping the laser marker. In addition, connecting a PC to the laser marker allows you to check the operation status, I/O status or error log.

**Monitor and mouse****Large screen for checking print content**

Laser marker setup and operation is made simple by connecting a commercially available monitor and a mouse. When the monitor is placed in an easy-to-view position, the printed content can be viewed from a distance and any changes made to the printed content can easily be verified.

\* Operation check is required in advance.

**SPECIFICATIONS**

| Item  | Model No.  | <b>LP-S500W</b><br>(Marking range 90 × 90 mm <b>3.543 × 3.543 in</b> )  | <b>LP-S505W</b><br>(Marking range 160 × 160 mm <b>6.299 × 6.299 in</b> )                    |
|---|--|---|---|
| CE marking directive compliance                 |  | Low Voltage Directive, EMC Directive, RoHS Directive  |   |
| Work distance reference position (Note 1)       |  | 193 mm <b>7.598 in</b>  | 357 mm <b>14.055 in</b>   |
| Work distance range (Note 2)                    |  | 173 to 213 mm <b>6.811 to 8.385 in</b>  | 327 to 387 mm <b>12.874 to 15.236 in</b>  |
| Marking laser                                   |  | Class 4 Yb fiber laser; wavelength: 1,070 nm <b>0.042 mil</b>   |   |
|   | Average output (Note 3)                            | 42 W (±5 %) CW oscillation  |   |
| Guide laser / pointer                           |  | Class 2 semiconductor laser; wavelength: 655 nm <b>0.026 mil</b>  |   |
| Marking range                                   |  | 90 × 90 mm <b>3.543 × 3.543 in</b>  | 160 × 160 mm <b>6.299 × 6.299 in</b>  |
| Scanning method                                 |  | Galvano scanning method   |   |
| Character settings<br>(character height, width) |  | 0.1 to 90 mm <b>0.004 to 3.543 in</b><br>(configurable in 0.001 mm <b>0.0004 in</b> steps)  | 0.1 to 160 mm <b>0.004 to 6.299 in</b><br>(configurable in 0.001 mm <b>0.0004 in</b> steps) |
|   | Marking spacing<br>(character spacing, line pitch) | 0 to 90 mm <b>0 to 3.543 in</b><br>(configurable in 0.001 mm <b>0.0004 in</b> steps)  | 0 to 160 mm <b>0 to 6.299 in</b><br>(configurable in 0.001 mm <b>0.0004 in</b> steps)       |
| Marking shape                                   |  | Arced output: -180° to +180° (configurable in 0.01° steps)  |   |
| Character types                                 |  | Straight Line, Proportional, Justify, Arc   |   |
| Barcodes  |  | English uppercase letters, English lowercase letters, numerals, katakana, hiragana, kanji (JIS No. 1 and No. 2 standards), symbols, user-registered characters (up to 50)       |   |
| 2D codes  |  | Code 39, Code 128, ITF, NW-7, JAN (EAN) / UPC, RSS-14 (GS1 DataBar), RSS (GS1 DataBar) Limited, RSS (GS1 DataBar) Expanded  |   |
| Composite codes                                 |  | QR Code, Micro QR Code, Data Matrix, GS1 Data Matrix  |   |
| I/O   |  | RSS-14 (GS1 DataBar) CC-A, RSS (GS1 DataBar) Stacked CC-A, RSS (GS1 DataBar) Limited CC-A, UCC / EAN COMPOSITE etc.   |   |
| Interface                                       |  | Input terminal, Output terminal, I/O connector  |   |
| Cooling method                                  |  | RS-232C, Ethernet   |   |
| Power supply                                    |  | Head: Naturally air cooling, Controller: Forced air cooling   |   |
| Power consumption                               |  | 90-132 V AC, or 180-264 V AC (Auto-switching), 50/60 Hz   |   |
| Protection degree                               |  | 470 VA or less (100 V AC), 650 VA or less (200 V AC)  |   |
| Ambient temperature                             |  | Head: IP67G (Excluding the controller)  |   |
| Storage ambient temperature                     |  | 0 to +40 °C <b>+32 to +104 °F</b> (Controller, Head) (No dew condensation or icing allowed)   |   |
| Ambient humidity                                |  | -10 to +60 °C <b>+14 to +140 °F</b> (Controller, Head) (No dew condensation or icing allowed)   |   |
| Applicable standards                            |  | 35 % to 85 % RH (Controller, Head) (No dew condensation or icing allowed)   |   |
| Net weight                                      | Head   | 6.5 kg approx.  | 7.0 kg approx.  |
|   | Controller   | 24 kg approx.   | 24 kg approx.   |
| Laser Marker Utility OS (Note 5)                |  | FDA regulations, CE marking (Note 4)  |   |
|   |  | Microsoft Windows® 10 Professional (32-bit / 64-bit) / 8 Professional (32-bit / 64-bit) / 7 Professional (32-bit / 64-bit) / Vista Business (32-bit) / XP Professional (32-bit) |   |

- Notes: 1) Work distance reference position represents the calculated center position of the work distance range. Depending on objects to be marked, optimal distance may vary.  
 2) Work distance range represents the configurable work distance. Depending on objects to be marked, optimal distance or markable range may vary.  
 3) This output is measured at the work end. (The preset power is 100.)  
 4) China models are available, too. Please contact our sales office.  
 5) Microsoft and Windows are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.

**[Dust-, water- and oil-proof performance]**

- The head of the FAYb Laser Marker (excluding controller) offers dust- and water-proof performance conforming to IEC/JIS protection grade IP67. Oil-proof performance conforms to IPXXG, and offers protection against some lubricant and cutting oils. Tests are conducted according to the specified environments, times, and methods. However, dust-, water- and oil-proof performance is not guaranteed in all environments. Refer to IEC 60529 (JIS C 0920) for details of testing methods. Oil-proof performance is evaluated using typical lubricants and cutting oils (see table below), but this performance may not be fully achieved depending on the type of oil.
- The protection degree fully achieves performance only when the fiber unit, connectors, focus adjustment unit cover and lens protection glass are attached correctly.
- Although the product features a protection degree, it cannot be used submersed in water or oil.

| Test oils | Oil type                  | Product name                            | Oil type                | Product name           |
|-----------|---------------------------|---|-------------------------|------------------------|
|           |                           | Water-insoluble cutting oil             | Yushiron Cut Abas BM405 | Lubricant              |
|           | Water-soluble cutting oil | Daphne Alpha Cool EW, Yushiroken EC50T5 | Machine oil             | Daphne Mechanic Oil 46 |

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LP-S500W

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## PRECAUTIONS FOR PROPER USE

Refer to p.1593~ for information about laser beam.

- This catalog is a guide to select a suitable product. Be sure to read instruction manual attached to the product prior to its use.

- This product is classified as a Class 4 Laser Product in IEC / JIS standards and in FDA\* regulations. Never look at or touch the direct laser beam and its reflection.
- The laser used by this product generates infrared light that is invisible to the human eye. Use particular caution when the laser is operating.
- The following labels are attached to this product. Handle the product according to the instruction given on the warning labels. (Warning labels are not shown in the product photographs in this catalog.)



\* This product complies with 21 CFR 1040.10 and 1040.11 Laser Notice No. 50, dated June 24, 2007, issued by CDRH.

### Safety standards for laser beam products

- A laser beam can harm human being's eyes, skin, etc., because of its high energy density. IEC has classified laser products according to the degree of hazard and the stipulated safety requirements. The **LP-S500W** series are classified as Class 4 laser.

#### Overview of classification by IEC 60825-1

| Classification | Description  |
|----------------|--|
| Class 4        | Lasers that are also capable of producing hazardous diffuse reflections. They may cause skin injuries and could also constitute a fire hazard. |

### Safe use of laser products

- For the purpose of preventing user from suffering injuries by laser products, IEC 60825-1 (Safety of laser products). Kindly check the standards before use.

### Recommended use of a dust collector

- Depending on the object being marked, harmful gasses or smoke that have a detrimental effect on the human body or the laser marker may be generating during marking. If your application falls under this description, use a dust collector.

\* For more information, contact our office.

### Maintenance

- Air filter: Regularly clean the air filter attached to the FAYb Laser Marker to maintain cooling effects.
- Laser pointer emission port: Dust or chips adhering to the laser pointer emission port may affect the printing quality or seriously damage the laser marker. Clean the laser pointer emission port regularly.

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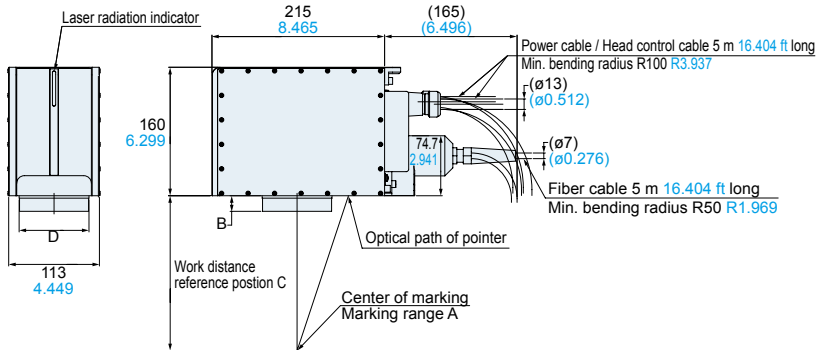
- LP-M
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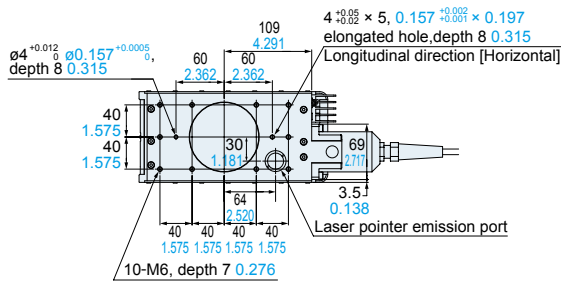
**DIMENSIONS (Unit: mm in)**

The CAD data can be downloaded from our website.

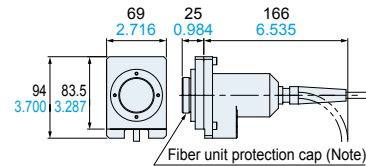
**Head**



|   | LP-S500W                 | LP-S505W                   |
|---|--------------------------|----------------------------|
| A | 90 × 90<br>3.543 × 3.543 | 160 × 160<br>6.299 × 6.299 |
| B | (20) (0.787)             | (46) (1.811)               |
| C | 193 7.598                | 357 14.055                 |
| D | ø87 ø3.425               | ø106 ø4.173                |

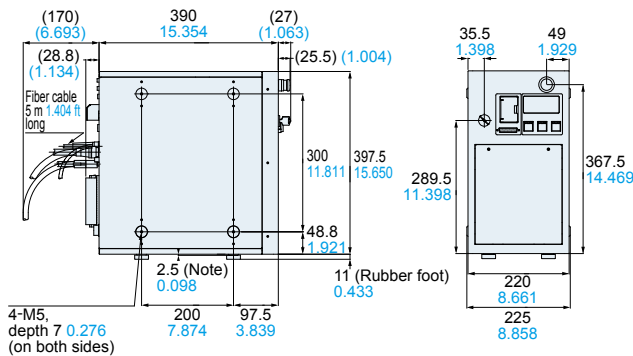


**Fiber unit (when removed)**



Note: The fiber unit protection cap should be removed when the scanner unit is connected.

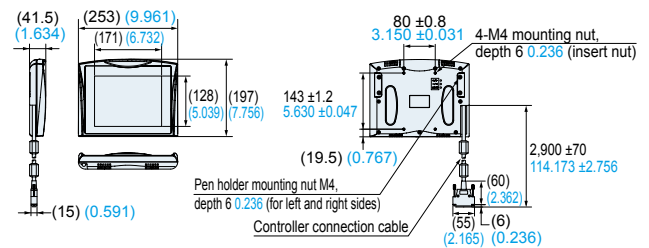
**Controller**



Note: Indicates the height at the protruding section when the rubber foot are not attached. The rubber foot can be attached to either the right or left side of the controller.

**LP-ADP40**

**Console (Optional)**



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