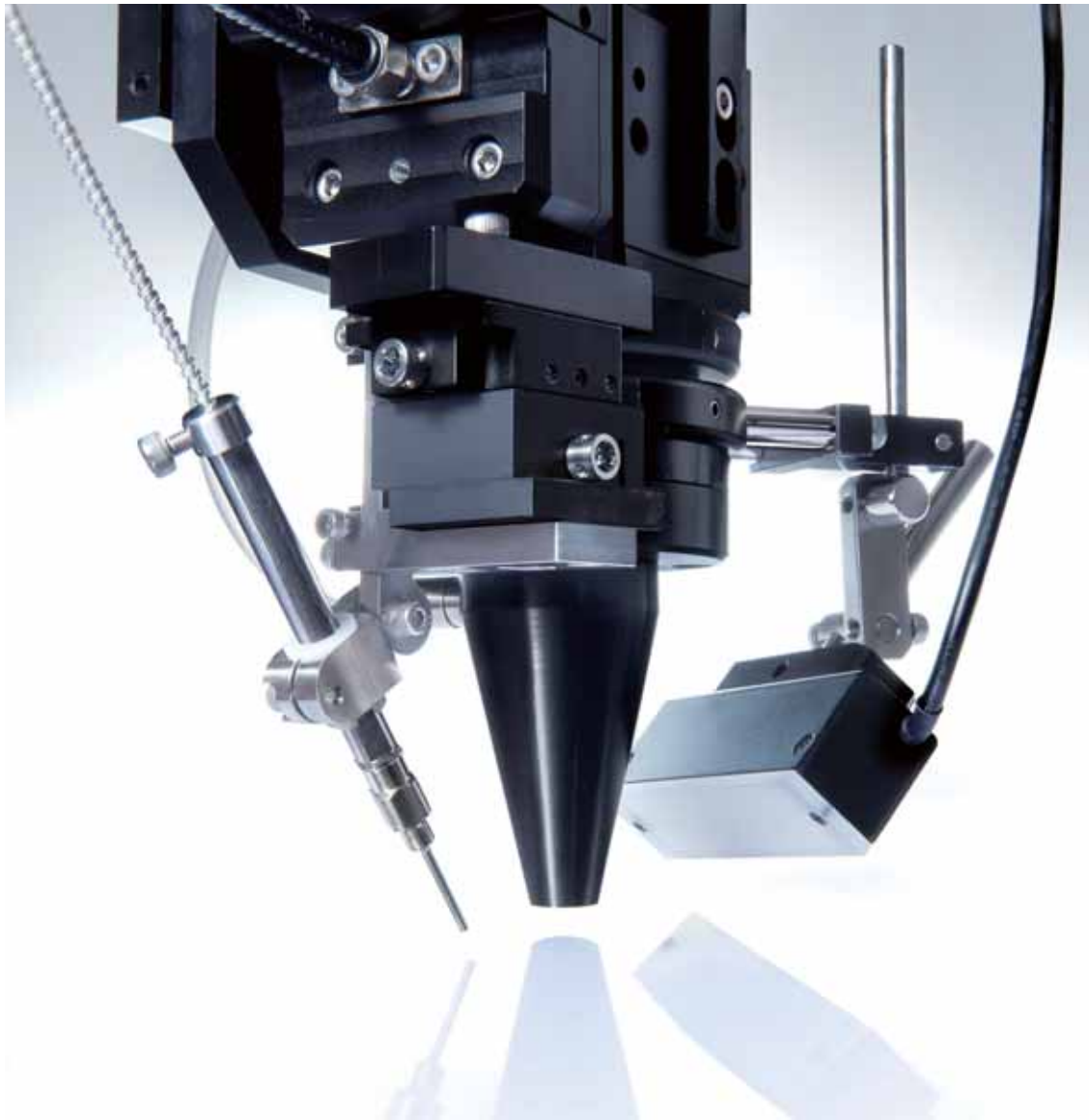
JAPAN UNIX

LASER SOLDERING SYSTEM
vol.3

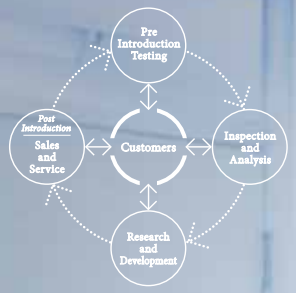


www.japanunix.com

JAPAN UNIX CO., LTD.
Inquiry No. C00411
Printed in Japan 17102000(S-col)

Technology Developing the Future, One Step at a Time

"By applying new ideas today, we hope to bring happiness and surprises to the world."
Taking this feeling to heart, even if the difference means only an improvement of 0.1%,
we continuously strive to research and develop.
And so our technology evolves while we work with our customers
to make their dreams come true.



Soldering Support

At Japan Unix, we provide our customers with comprehensive support using a system that covers the full sales cycle of Pre-Introduction and continues with Post-Introduction/Sales and Service.

Joining the future

JAPAN UNIX

Japan Unix's Laser Soldering System

Streamlined soldering operations and higher quality are achieved simultaneously.

With many years spent in the pursuit of automated soldering technology, the original technology and service of Japan Unix come together to make high precision laser soldering a reality.

LASER SOLDERING SYSTEM
vol.3

JAPAN UNIX LASER SOLDERING SYSTEM

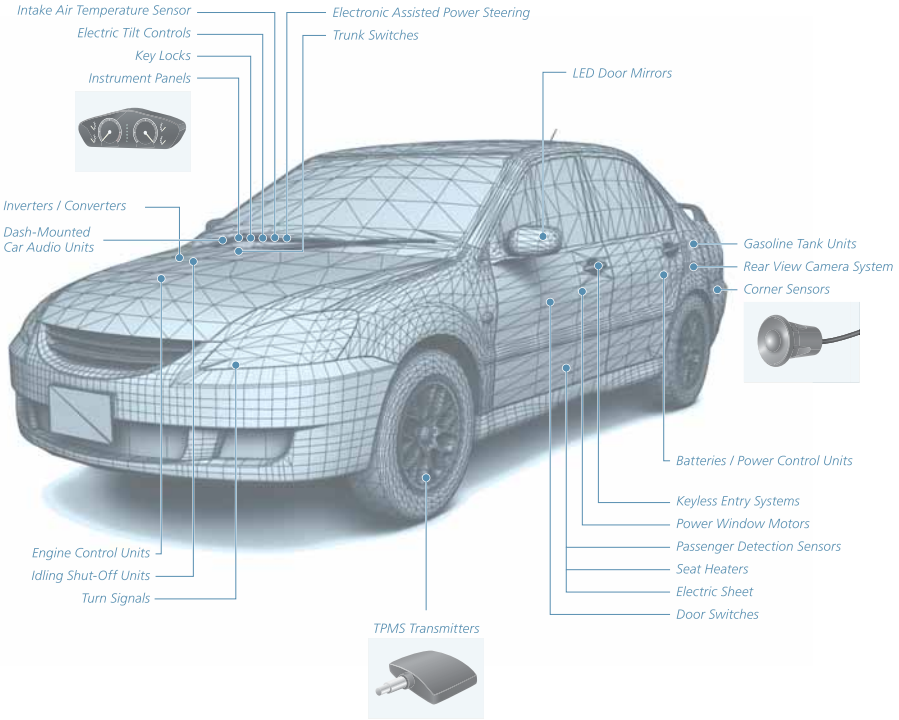
5 STRENGTHS

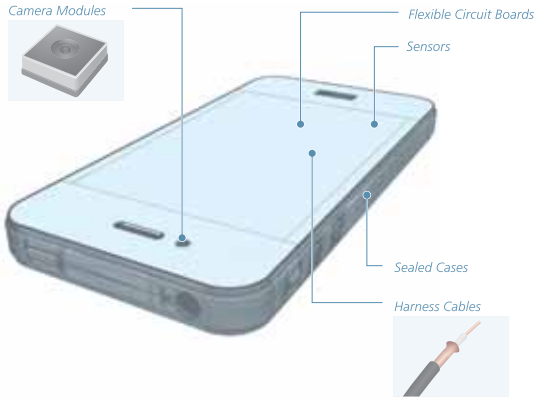
- *This catalog reflect the products as of October 2017. The product appearance and specifications can change without notice.*
- *Please carefully read through the instruction manuals enclosed with your products before use.*

Laser Soldering Technology is used in a wide range of cutting edge applications.

Automotive Electronics

In recent years, modularization has been rapidly advancing. The electronic components in motor vehicles demand safety and high reliability, so the highest level of quality control in soldering is required. Through the use of non-contact laser soldering technology high quality and high productivity can be achieved.





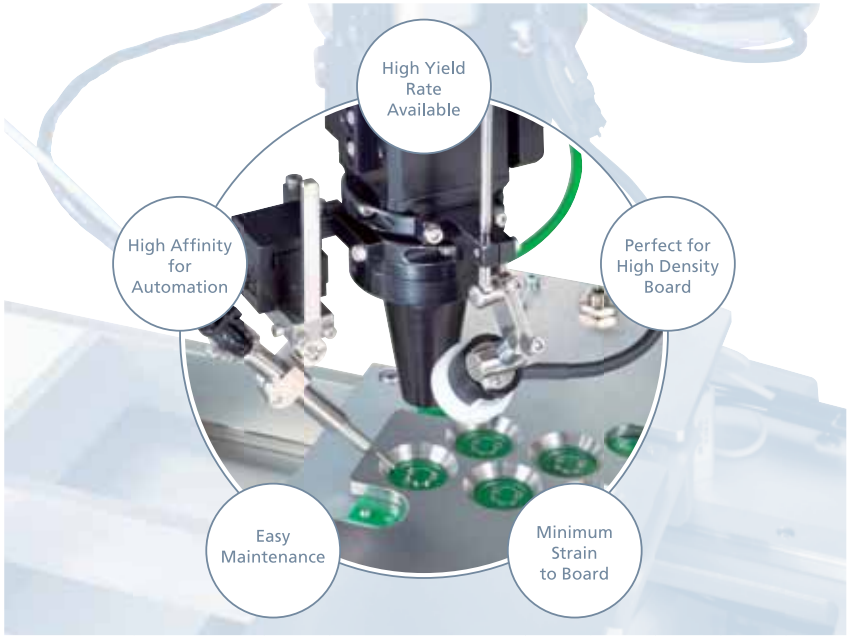
Smartphone

For smartphone and cellular phone applications, substrate boards are becoming more and more dense and efficient with slimmer, lighter weight designs in high demand. Because laser soldering is highly suitable for finely detailed applications, Laser Soldering Systems are frequently used in this field.

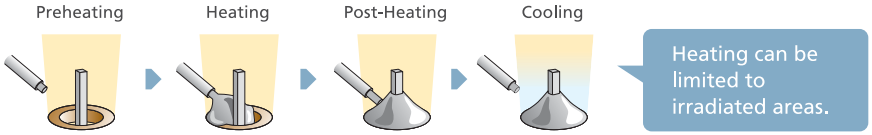
LED Terminals

Laser soldering is an ideal solution for constructing the terminal link and local heating elements of various LED light emitters. With techniques such as the use of divergent laser shots to simultaneously expose two separate points, laser soldering offers expanding possibilities.

Laser soldering is suitable for production of extremely fine-detailed parts.



The Process of Laser Soldering



[Precautions during heating]
During laser soldering, in response to the absorption of a quantity of energy, sudden spikes in temperature may occur. Overheating may cause deterioration of strength and reliability of finished products.

Advantages of Laser Soldering

The heating principle differs between "laser soldering" and "iron-tip soldering."
At Japan Unix, our years of experience help us to advise our customers of the most appropriate heating techniques for their products and applications.

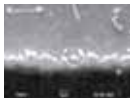
Product	 Laser Soldering	 Contact Tip Soldering
Heat Conversion	Surface Heating	Heat Transmission
Range of Heat Generation	Restrictive	Diffuse
Heating Time	Instantaneous	Slow
Temperature	Continuous temperature rise.	Limited temperature rise.
Advantages	・Suited to extremely detailed parts. ・Enables soldering applications in narrow and complicated spaces.	・Suitable for large thermal capacity components. ・Temperature regulation during soldering is simple.

Quality Control Support

Because the composition of solder changes depending on temperature conditions, if soldering is no performed at the appropriate temperature, reliable and durable solder joints cannot be achieved.
At Japan Unix, we assist customers in smooth product creation through our complete support system.

Soldering Laboratory
We thoroughly support customers with the latest analytical tools from pre-facility inspection, to system installation and testing for future products.

Inspection of temperature related solder compositionchanges
Inspection of the internal effects of soldering temperature on circuit boards



(SEM Survey)

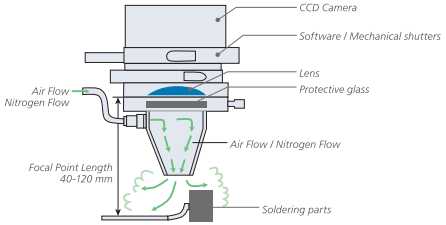
Growth rates of intermetallic compounds related to temperature conditions
Confirm alloy structure and the state of substrate inner layers after completing soldering.

Laser system developed for soldering applications

Laser Head

The laser head condenses the laser light transmitted from the laser oscillator through the optical fiber of the appropriate size and exposes the selected area. A coaxial CCD camera is standard equipment on the laser head, and various other features to enhance the manufacturability.

[Internal structure of the laser head]



The structure of the area inside the laser head surrounding the optics is protected with an air jet. This prevents flux fumes from contaminating the optics.
The CCD camera is set up in a coaxially to the optical components of the laser for a more compact construction.

Safety features based on Class 4 laser standards

Software / Mechanical shutters

The laser emissions are isolated within the head. Operations can be carried out either through external signals controlled by a software system or mechanical system accessed by directly lowering the internal shutter by pressing a switch on the controller.

A stable condensation of light through smoke blocking

Sliding protective glass

The glass prevents flux fumes from entering the head and adversely affecting the laser condensing lens. Because of its sliding structure, the glass enables one-step insertion and removal, making for easy maintenance.

Laser exposure locations and finishing touches can be easily confirmed

The coaxial CCD camera is standard.

The coaxial camera enables monitoring confirmation of the soldering position making it simple to set up the area to be exposed to the laser.

Laser Controller / Oscillator

For laser soldering, controlling the laser output is extremely important. This critical output control is carried out by the controller. Also, the oscillator uses a fiber-coupling LD laser, and laser energy is transmitted to the head through optical fiber.

Model No.ULD-775 (ver.75W) consists of a controller (control section), oscillating section and driver.
Our company's laser apparatus conforms to the standards of the International Electrotechnical Commission IEC60825-1:2007, as well as the Japan Industrial Standards JIS C 6802:2011. The laser class is class 4.
Approved for export to the United States by the FDA.

The above equipment is Model No.ULD-746 (ver.30W・45W)

The ideal parameters can be easily setup to suit your working conditions.

Programs for 63 Waveform Patterns

Waveform Patterns

Laser waveform programs can be chosen from a maximum of 63 different patterns.

8 levels of energy power can be easily set up.

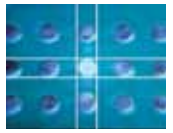
Energy Power

For 1 waveform, there are 8 different levels of energy output /time settings which can be easily assigned.

Selectable laser exposure position marks

Exposure position marks

On the monitor, the confirmation of laser shooting position can be set to either line type or square type.



Line Type

Square Type

Solder Feeder

The feeder provides the precise amount of solder to the joint area. It is equipped with an internal solder encoder that can accurately detect any trouble related to solder feeding.

(The solder feeder unit varies depending on the solder diameter used. Φ0.15 mm - φ1.2 mm available.)

Soldering Controller

A controller governs the amount of solder feed as small as 0.1 mm increments with precise speed and timing.

3 different installation methods are available to suit your needs.

1 System Integration

Laser Head / Laser Controller / Laser Oscillator | Soldering Controller + Solder Feeder | Robots | Safety Cover + Base | Transportation System

Our company is a one-stop shop for your laser soldering system needs, performing manufacturing line optimization, designing layouts in compliance with international safety regulations for lasers, and even carrying out construction and installation all in one place. Because we implement a comprehensive support service including setup of parameters by specialist engineers, we minimize the amount of time required by you, allowing you to focus on comprehensive management of your manufacturing lines. We offer a variety of production line support, including in-line, rotary table, and 2 slider systems.

Inline System (Internal)

Inline System

Compact Inline System

Slider Type Offline System

Inline System

System for Components Loader and Insertion

2 Laser Soldering Robot

Laser Head / Laser Controller / Laser Oscillator | Soldering Controller + Solder Feeder | Robots | Safety Cover + Base | Transportation System

We will supply our original soldering robot equipped with a laser system. If you're looking for consolidated machinery with a record of achievement in soldering, look no further. Our support services include parameter setting by experienced engineers; you can do your work with peace of mind.

〈Examples〉

Desktop Laser Soldering Robot

Multiple Axis Laser Soldering Robot

- Any other requirements not included with our robots or options, such as safety cover, we ask our customers to please prepare and install these on their own..
- Some options, such as image processing systems, can be added on.

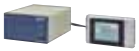
3 Laser Soldering Units

Laser Head / Laser Controller / Laser Oscillator | Soldering Controller + Solder Feeder | Robots | Safety Cover + Base | Transportation System

This unit is the best choice for companies that want to install only the core soldering components and develop overall production system by themselves, including frames, axles, and robots. It is also good for customers who already own soldering robots and would like them equipped with laser soldering units, so that they can then be used as laser soldering robots. Moreover, professional support such as parameter setting by experienced engineers can be offered for system development.

Laser Controller & Laser Oscillator

Laser Head



Soldering Controller

- This is the sale of only a laser soldering unit. Any additional requirements must be supplied by the customer.
- Some optional equipment may also be added.
- For safety covers and other requirements not included with our units or options, please prepare separately.

Laser Soldering Systems

Laser Head / Laser Controller / Laser Oscillator
In this set up of the 3 component laser system, the controller regulates laser output, the laser oscillator manages laser oscillation, and the laser head controls the exposure and positioning through the CCD camera.

Soldering Controller + Solder Feeder
In laser soldering, management of the solder amount is crucial.
High precision feeder and controller units manage a steady amount of solder.

Robots
All of soldering robots at Japan Unix can be equipped with laser soldering units. The appropriate robot for your manufacturing line can be selected from our varied lineup of robots, which includes desktop models and scalar type models, among others.

Safety Cover + Base
To prevent laser light leaking and to maintain a safe soldering process, it is necessary to conduct soldering operations within a carefully designed cabinet. With consideration for your manufacturing line, we provide specially designed safety covers and frames for maximizing both safety and operating efficiency.

Transportation System
We offer pallet systems design and others work holders in order to ensure effective transportation within the manufacturing line both before and after soldering processes. (Conveyor belts, index tables, etc.)

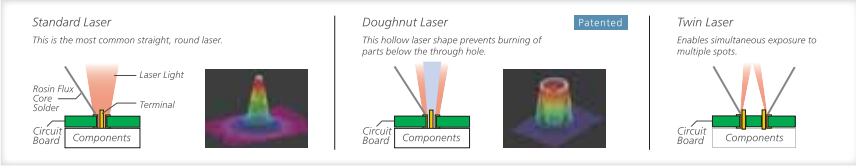
A wide variety of add-on options for more complete quality control

Options for Laser Systems

・Depending on robot types, some options may not be possible.
・Some options can be used only for customers purchasing core soldering units.

Atypical Laser Output

By changing the exposure shape of the laser, soldering can be applied to uniquely shaped circuit boards or components.



Power Meter

Measures and regulates the output of the laser, which is crucial for maintaining stable soldering quality.

LED Lighting

Lighting equipment to monitor for program teaching and make image processing easier.
Choose the best shape for your working environment. (Available in spot, ring or bar light.)

Image Position Correction (Vision Sensor)

Detects solder supply and laser exposure locations, and automatically corrects for slippage in XY orientation of working operations. Image processing which identifies simple defectives is also possible.

・This option is only available for full integration systems using Japan Unix brand robots.

Simple AOI Functions

Vision sensor supports the identification and judgment of defective products after the soldering operation.

・Because of a simple judgment function, depending on the work, it may not be able to achieve recognition. Japan Unix can perform tests to determine whether or not the system is suitable for customers' objectives.
・This option is only available for full integration systems using Japan Unix brand robots.

Pyrometer

The sensor captures real time temperature data during soldering. With our full integration systems, graphs of temperature data can be saved, and measured values can be output with CVS files.

・The temperature of pyrometer is easily affected by surface conditions, thus, the data is used as reference rather than a traceable temperature measurement.

Height Correction

A Z-axis sensor corrects for irregularity in the height and the orientation of the solder position.

Add-on Options for Soldering Mechanical Section

Clean Cut Feeder (CCF)

Patented

CCF cuts notches in solder during feeding which drastically prevents flux explosions. Patented two blade mechanism stabilizes rewind operation and prevents slippage.

Precision Solder Feeder

Patented

The innovative feeder can supply even superfine solder with diameters of φ 0.15-φ1.2, making it the perfect feeding device for use with laser soldering for fine-detailed parts. It uses an encoder that detects solder blockages and breaks.

Precision Needle

A needle suited for precision solder feeder is necessary when precise volume management is required, such as in fine-detailed solder wire.

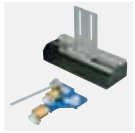
・Please see this catalog parts table for more details about model numbers.

Lock-on Mechanism

The lock-on fixes solder supply position with a graduated angled block that prevents slippage during operation and maintenance. Resetting the position after maintenance is also performed with ease.

Air Curtain

By creating an air curtain in the areas of laser exposure and at the edge of the solder supply, flux fume dispersal is prevented which protects the laser head.



Tracing Mechanism for Solder Supply and Position

This is a mechanism for confirming that the solder supply position has been set up correctly.

Nitrogen Gas Generator

Non-electric generator produces nitrogen environment around work the area, improving the operational efficiency of lead-free solder. By inhibiting oxidation, the application of nitrogen improves solder wettability and spread. Additionally this also protects the Laser optics.

U Lock

This is a cap which attaches to the solder bobbin when installing a roll of solder. This allows removal and replacement of a new roll of solder with oneeasy click.

SPECIFICATIONS

Laser Soldering Unit

The picture shows Model No.ULD-746.

Model No.		ULD-746	ULD-775
Laser power (rated)		30W・45W	75W
Wavelength		Can select from 2 wavelengths	
Laser spot diameter (mm)		φ0.4-, φ0.6- (Min.φ0.2 is available as an option)	φ0.4-, φ0.6-
Laser focal distance (mm)		Standard 60/ 30, 40, 80, 100 or 120 can be selected as an option	
Number of laser pulse		63	112
Shutter		Software operated shutter ※1	
Fiber length		3m※2	
Laser positioning method		Coaxial measurement using a CCD camera	
Cooling method		Forced-air cooled	
Operating conditions		Environmental temperature: 10-40℃ Humidity: 80% or less (no congelation)	
Power supply (voltage)		Single phase 220V±10% 50/60Hz	Multi-voltage
Power consumption		1200VA	Max 1500VA (Driver) + 15VA (Controller)
External dimensions	Driver	-	430 (W) ×132 (H) ×332 (D) mm
	Controller	331 (W) ×201 (H) ×465 (D) mm	300 (W) ×150 (H) ×310 (D) mm
	Oscillator	233 (W) ×210 (H) ×340 (D) mm	270 (W) ×160 (H) ×300 (D) mm
Weight	Driver	-	11.0kg
	Controller	17.5kg	6.5kg
	Oscillator	9kg	9.6kg
	Laser head	0.7kg	0.7kg
Safety standards Y		IEN class 4 label	

Caution label

Explanation label

※1 Can be changed to a mechanical shutter.
※2 5 m type is available through special order.

PRODUCT LIST

Laser Soldering Robots

Product Image	Name	Model No.
	Desktop laser soldering robot	UNIX-DF203L
	Desktop laser soldering robot	UNIX-DF303L
	Desktop laser soldering robot	UNIX-DF403L
	Multi-jointed laser soldering robot	UNIX-700FHL

・Please contact us for more details. Custom orders are required for a frame or a cover, etc.
・Laser soldering unit is not included.Please select separately from below.

Laser Soldering Unit

Product Image	Model No.	Remarks
	ULD-746-30-02	A wavelength 30W Fiber φ0.2
	ULD-746-30-04	A wavelength 30W Fiber φ0.4
	ULD-746-30-06	A wavelength 30W Fiber φ0.6
	ULD-746-45-04	A wavelength 45W Fiber φ0.4
	ULD-746-45-06	A wavelength 45W Fiber φ0.6
	ULD-746S-30-02	B wavelength 30W Fiber φ0.2
	ULD-746S-30-04	B wavelength 30W Fiber φ0.4
	ULD-746S-30-06	B wavelength 30W Fiber φ0.6
	ULD-746S-45-04	B wavelength 45W Fiber φ0.4
	ULD-746S-45-06	B wavelength 45W Fiber φ0.6
	ULD-775-75-04	A wavelength 75W Fiber φ0.4
	ULD-775-75-06	A wavelength 75W Fiber φ0.6
	ULD-775S-75-04	B wavelength 75W Fiber φ0.4
	ULD-775S-75-06	B wavelength 75W Fiber φ0.6

・Please contact us for more details about specs, delivery time or else.

PARTS LIST

Laser Controller, Laser Oscillator

Laser Controller Battery

Model No.	Remarks
ULD-746-BAT	Made by Maxell: Red

Peltier

Product Image	Model No.	Remarks
	ULD-PT30	For 30W/45W (travel and service engineer cost would be charged.)

Fibers

Product Image	Model No.	Remarks
	ULD-FB-02	Fiber for φ0.2 (replaceable by customers) For both wavelength A & B, Length 3m
	ULD-FB-04	Fiber for φ0.4 (replaceable by customers) For both wavelength A & B, Length 3m
	ULD-FB-06	Fiber for φ0.6 (replaceable by customers) For both wavelength A & B, Length 3m

•5 m type is available through special order.
•Minimum Fiber Bending Radius : 200m

Laser Heads

Protective Glass

Product Image	Model No.	Remarks
	ULD-PG-SET-A	A wavelength protective glass (with drop prevention holder)
	ULDS-PG-SET-B	B wavelength protective glass (with drop prevention holder)
	ULD-PG	A wavelength protective glass (without drop prevention holder)
	ULDS-PG	B wavelength protective glass (without drop prevention holder)
	ULD-HLD-SET	Drop prevention holder only

Options

Shutters

Product Image	Name	Model No.	Remarks
	Shutter unit	ULD-STR	Mechanical shutter set

•The standard specification is a software shutter.

Options

LED Lighting

Product Image	Name	Model No.	Set Contents (Available for individual purchase)
 *Spot type (Standard)*  *Bar type (custom)*  *Ring type (custom)*	LED lighting set	ULD-LED	LED light (ULD-LED-L) LED controller (ULD-LED-C)

•Bar and Ring types are special order.

Laser Protective Eyeglasses

Model No.	Remarks
ULD-EP	For wavelength A
ULDS-EP	For wavelength B

Power Meter

Model No.	Remarks
ULD-PM-30S	For 30W laser diode
ULD-PM-50S	For 45W laser diode

Solder Feed Control Units

Soldering Controllers

Product Image	Name	Model No.	Remarks
 USC-881SR	Solder King V ※1	USC-881SR	Separated touch panel ※2

※1 Separate PC software available
※2 Desktop laser soldering robots are loaded with UPL-066 dedicated soldering controller units.

Solder Wire Heater Mechanism

Product Image	Model No.	Set Contents (Available for individual purchase)
	SHN-10-＊＊	Temperature Controller (UHC-005) AC100V Heater (HN-S30-＊＊) Heater Clamp (HN-CLP) Heater Cable (QN-MP4B)

•Not applicable to use with clean cut feeder *＊＊Solder Diameter*

Nitrogen Gas Generator

Product Image	Model No.	Remarks
	UNX-200	Concentrated Nitrogen, Maximum 99.9%, 2L/min Dry Air 0.7MPa No Power Supply Required

PARTS LIST

Solder Feed Units

Solder Feeder

Product Image	Name	Model No.	Remarks
 UPM-052  UPM-055	Presicion Solder Feeding Device (φ0.15-0.8mm)	UPM-052	With U lock Solder wire diameter specs: φ0.15/φ0.2/φ0.3/φ0.4/φ0.5/φ0.6/φ0.8※1 (The diameter cannot be changed after purchase.)
	Solder Feeding Device (φ1.0-1.2)	UPM-055	With U lock Solder wire diameter specs: φ1.0/φ1.2
	Solder Feeding Device, Clean Cut Type (φ0.5-1.0)	UPM-055CC	With U lock Solder wire diameter specs: φ0.5※2/φ0.6※3/φ0.8/φ1.0

※1 Sepcial Type
※2 Option: The 1 blade cutter for φ0.5.
※3 The 1 blade cutter for φ0.6.

Solder Feeder Spare Parts

Solder Feeder	Name	Model No.	Remarks
UPM-052	Input nozzle	UPM-052-INZ＊＊	＊＊=Wire diameter specs:φ0.15=015 φ0.15/φ0.2/φ0.3/φ0.4/φ0.5/φ0.6/φ0.8※1 (The diameter cannot be changed after purchase.)
	Center nozzle	UPM-052-CNZ＊＊	
	Output nozzle	UPM-052-ONZ＊＊	
UPM-055	Input nozzle	UPM-055RF-INZ＊＊	＊＊=Wire diameter specs:φ1.0=10 φ1.0/φ1.2
	Center nozzle	UPM-055RF-CNZ＊＊	
	Output nozzle	UPM-055RF-ONZ＊＊	
UPM-055CC (Clean Cut Type)	Clean Cut roller unit	UPM-055CC-RU＊＊	＊＊=Wire diameter specs:φ0.6=06 φ0.5※2/φ0.6※3/φ0.8/φ1.0
	Input nozzle	UPM-055CC-INZ＊＊	
	Center nozzle	UPM-055CC-CNZ＊＊	
	Output nozzle	UPM-055CC-ONZ＊＊	

※1 Sepcial Type
※2 Option: The 1 blade cutter for φ0.5.
※3 The 1 blade cutter for φ0.6.

Solder Feed Spare Parts (Standard)

Product Image	Wire diameter	Needle ※4※6	Needle holder	Tube set ※6	Tube set length
 	φ1.2	ND-15GP	CL-S-3	PT12S-＊＊＊	＊＊＊=040…400mm ＊＊＊=050…500mm ＊＊＊=070…700mm ＊＊＊=100…1000mm
	φ1.0	ND-16GP	CL-S-2	PT10S-＊＊＊	
	φ0.8	ND-17GP		PT08S-＊＊＊	
	φ0.6	ND-18GP		PT06S-＊＊＊	
	φ0.5	ND-19GP		PT05S-＊＊＊	
	φ0.4	ND-20GP		PT04S-＊＊＊	

※4 5 pcs per pack
※6 The model number differs for the clean cut type. Please make a separate inquiry.

Fill the length in ＊＊＊

Solder Feed Spare Parts (Precision)

Product Image	Wire diameter	Precision needle ※5	Nozzle adapter	Precision needle holder	Precision tube set	Tube set total length
 	φ0.4	HND-0.5	NA04	CL-D-2	ST04-＊＊＊＊＊	＊＊＊＊＊= 15022…150mm ＊＊＊＊＊= 20022…200mm
	φ0.3	HND-0.4	NA03	CL-D-1	ST03-＊＊＊＊＊	
	φ0.2	HND-0.3	NA02		ST02-＊＊＊＊＊	
	φ0.15	HND-0.2	NA01		ST015-＊＊＊＊＊	

※5 1pc per pack

Fill the length in ＊＊＊

Solder Feed Spare Parts (High Accuracy)

Product Image	Wire diameter	Precision needle ※5※6	Needle holder	Tube set ※6	Tube set total length
 	φ0.8	SND-10	CL-S-2	PT08-＊＊＊	＊＊＊=040…400mm ＊＊＊=050…500mm ＊＊＊=070…700mm ＊＊＊=100…1000mm
	φ0.6	SND-08		PT06-＊＊＊	
	φ0.5	SND-07		PT05-＊＊＊	

※5 1pc per pack
※6 The model number differs for the clean cut type. Please make a separate inquiry.

Fill the length in ＊＊＊

Lock-on Unit for Laser

Product Image	Model No.	Solder preheating (○ = yes)	Solder supply angle
	LOL00-9020-XY		20°
	LOL00-9020H-XY	○	
	LOL00-9025-XY		25°
	LOL00-9025H-XY	○	
	LOL00-9030-XY		30°
	LOL00-9030H-XY	○	
	LOL00-9035-XY		35°
	LOL00-9035H-XY	○	
	LOL00-9040-XY		40°
	LOL00-9040H-XY	○	
	LOL00-9045-XY		45°
	LOL00-9045H-XY	○	
	LOL00-9050-XY		50°
	LOL00-9050H-XY	○	

・All lock-on mechanisms feature an XY regulation system. Also, a 90° head installation angle is standard.

EXTERNAL VIEW DIAGRAM

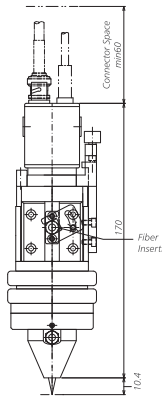
Laser Soldering Units

Unit : mm

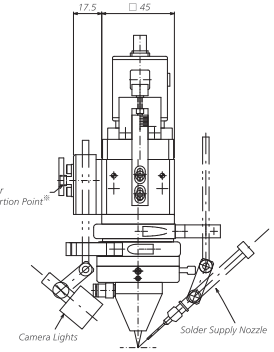
Laser Head (F60 lens)

Soft Shutter

Side View



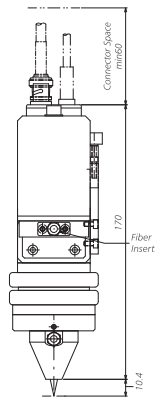
Straight On View



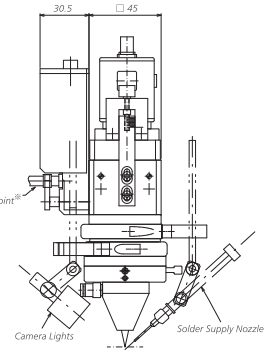
※Minimum Fiber Bending Radius: 200 mm

Mechanical Shutter

Side View

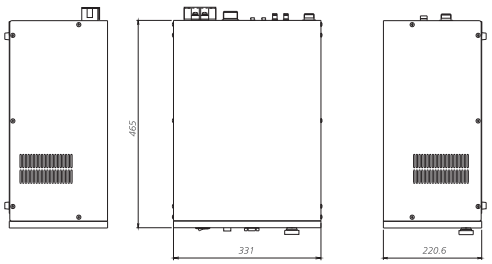


Straight On View

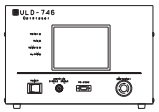


Laser Controller ULD-746

Left Side View / Overhead View / Right Side View

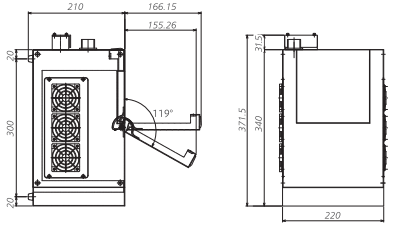


Straight On View



Laser Oscillator ULD-746

Left Side View / Overhead View

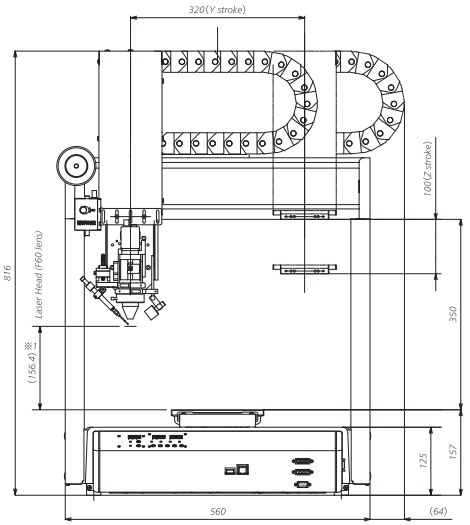


Straight On View

Desktop Laser Soldering Robot UNIX-DF303L

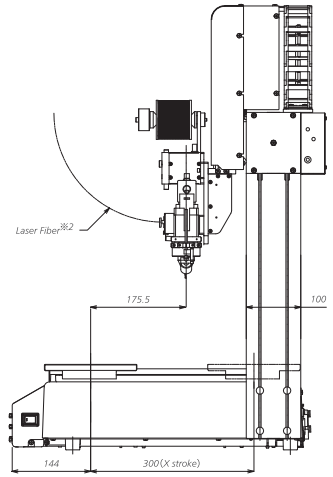
Unit : mm

Straight On View



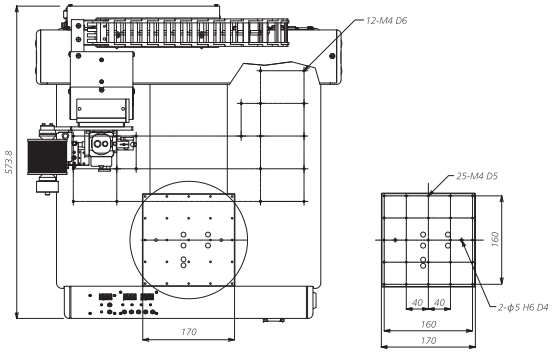
※1 Laser head WD is the same size with all F values below.
(F40・F60・F80・F100・F120)
The mounting position of the laser head is changed.

Side View



※2 Minimum Fiber Bending Radius: 200 mm

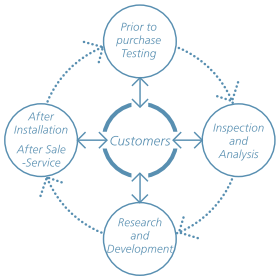
Overhead View



Comprehensive customer support structure provided by soldering engineers

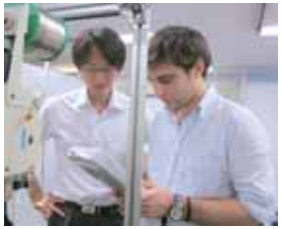
Soldering Support

In the manufacturing world, there is nothing more important than having someone you can trust when you run into unexpected trouble. The soldering specialist engineers at Japan Unix provide our customers with a comprehensive support structure from prior to your purchase to after the installation. This ensures continuous, safe, secure high quality manufacturing.



Testing and Analysis Prior to Purchase

We preform soldering operation testing using systems that are identical to the ones the customer is considering for purchase. At Japan Unix we make maximum utilization of our soldering technology and experience to perform experiments, inspect results and only then suggest the ideal soldering structure and system.



Design Support Service

In order to improve soldering operation efficiency and quality control, we provide a comprehensive range of processes from circuit board design to mass production.

Soldering Laboratory

The latest Japan Unix products are installed at our lab which is used for performing research and development of soldering technology, in addition to the testing procedures prior to purchase. It is also a place frequently used by worldwide customers, and has become something of an international soldering conference office. Also, in our soldering lab annex we analyze soldering joints in finer detail using state of the art optical and measurement systems. This plays a further role in the development of innovative products.

After-Service

To enable customers to operate in a more comfortable environment, we respond promptly to requests after the purchase for changes to system settings, software update, and repairs, among others. Please feel free to make an inquiry at any time.

Soldering School
(Certification Exam)

We regularly offer soldering classes which in a short period of time provide basic soldering techniques and knowledge. (Only in Japan)

※This program is based on The Japan Welding Engineering Society's "Micro-Soldering Technician Certification," and attendees can take the certification exam on the final day of the program.
※For more information, please contact the business supervisor or our school staff.

IPC Standards

IPC standards are manufacturing quality standard designed by IPC association, which are accepted by electronics manufacturers and purchasers worldwide.
At Japan Unix, we exclusively provide standards documents, information and services in Japan.

GLOBAL NETWORK

Distributors

- North and Central America ····· USA, Canada, Mexico
- Europe ····· UK, Italy, Finland, France, Germany, Norway, Spain, Czech Republic, Slovakia, Hungary, Romania, Turkey
- Russia ····· Saint Petersburg
- East Asia ····· China (Shanghai, Suzhou, Beijing, Shenzhen, Chengdu, Chongqing, Xian, Hong Kong), S.Korea, Taiwan
- Southeast Asia ····· Indonesia, Malaysia, Philippines, Singapore, Thailand
- Southern Asia ····· India
- Oceania ····· Australia
- Africa ····· South Africa

Japan Unix Offices

- Headquarters ····· 2-21-25 Akasaka, Minato-ku, Tokyo 107-0052
  TEL: +81-3-3588-0551 (Rep.) FAX: +81-3-3588-0554
- Osaka Office ····· 3F, 3-27-27 Tarumi-cho, Suita-shi, Osaka 564-0062
  TEL: +81-6-6190-4580 FAX: +81-6-6190-4581
- Nagoya Office ···· 8F, 1-7-5 Kanayama-cho, Atsuta-ku, Nagoya-shi, Aichi 456-0002
  TEL: +81-52-679-2111 FAX: +81-52-679-2112
- Techno Center ···· 2020-3 Oaza Tabaru, Mashiki-machi,
  Kamimashiki-gun, Kumamoto 861-2202
  TEL: +81-96-287-4501 (Rep.) FAX: +81-96-287-4503

- Korea Office
- Shanghai Office
- Shenzhen Office
- Taiwan Office
- Malaysia Office
- Mexico Office
- U.S.A Office