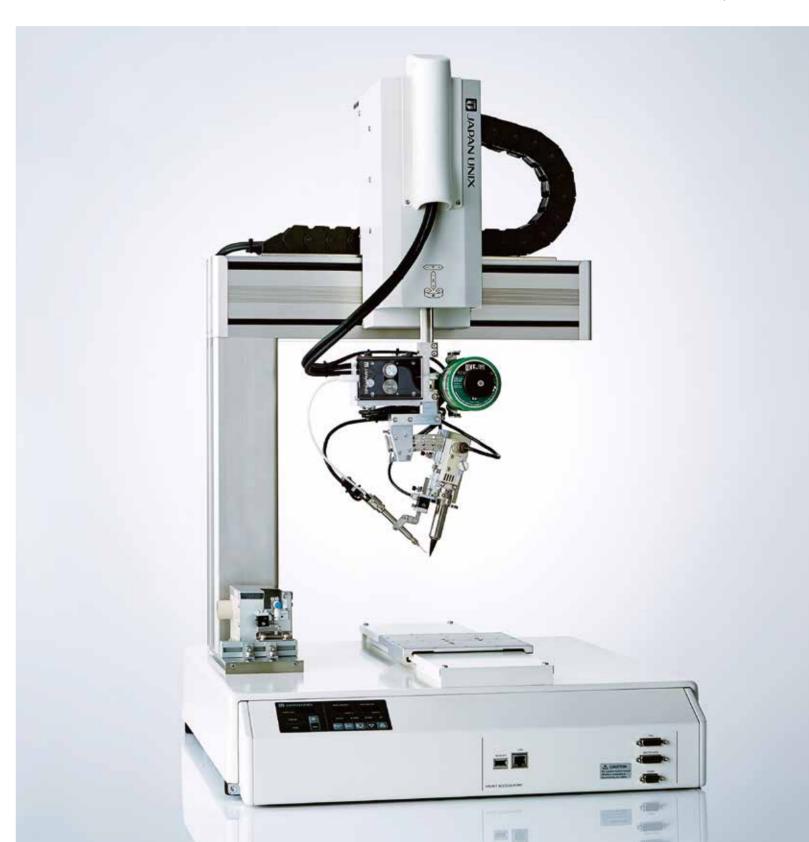


## SOLDER MEISTER®

DF series | vol.3

www.japanunix.com



## Technology Shaping the Future, One Step at a Time

By applying new ideas today, we hope to bring happiness and innovation to the world. Taking emotion, even if the difference means only an improvement of 0.1%, we continuously strive to push the limits of research and development. And so our technology evolves while we work with our customers to make their dreams come true.

I JAPAN UNIX



#### Soldering Support

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





UNIX-DF204S



UNIX-DF304S



UNIX-DF404S

## SOLDER MEISTER® DF series vol.3

#### JAPAN UNIX DESKTOP SOLDERING ROBOTS

#### 5 STRENGTHS





For on-board electronics in vehicles, as well as mobile electronics, this technology plays an active role in cutting edge developments in a wide variety of fields.

#### 2 MERITS



Many essential features for delivering superior quality automated soldering have been added.



## 3 STANDARD CONFIGURATIONS

Choose the model best suited for your



## 4 STANDARD ROBOT COMPONENTS

The features included in the standard units deliver consistent quality.



#### 5 OPTIONS

Enabling improved maintenance and quality.



p.12 | SPECIFICATIONS

p.13 | PARTS LIST

p.16 | EXTERNAL VIEW DIAGRAM

#### p.18 | CUSTOMER SUPPORT

At Japan Unix, we offer a comprehens support system for our customers.



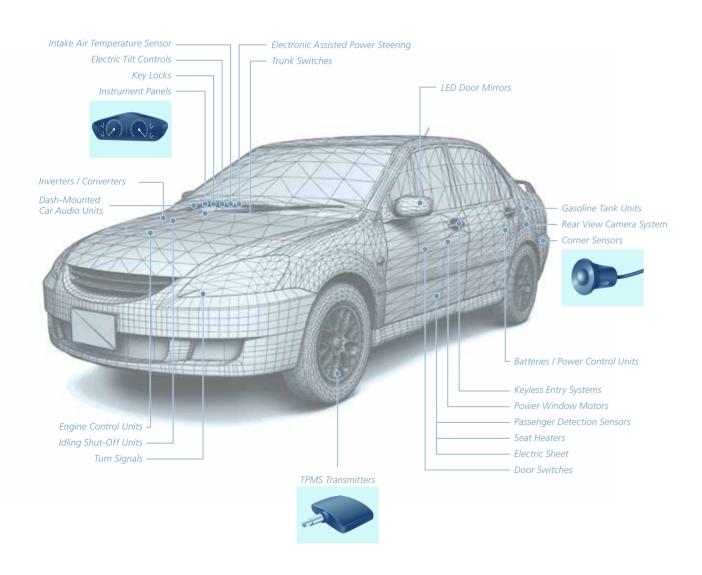
p.20 | GLOBAL NETWORK

- This catalog reflects the products as of April 2018. The product appearance and speci-
- Be sure to carefully read the operating instructions included with the product before

# Desktop soldering robots are used in a wide range of product manufacturing

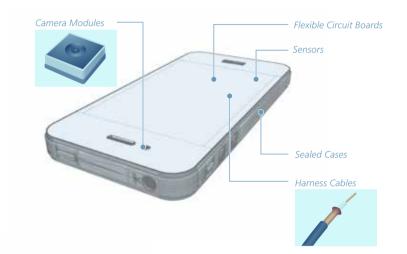
### **Automotive Electronics**

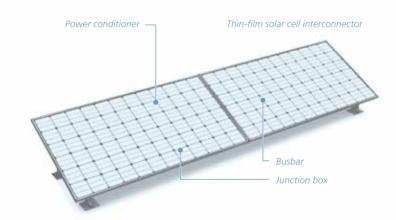
In recent years, modularization has been rapidly advancing. The electronic components in motor vehicles demand safety and high reliability, so the highest level of quality control in soldering is required. Desktop soldering robots are reliable and easy to operate, enabling even soldering beginners to produce expert quality work.



## 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. Desktop soldering robots support manufacturing methods suited to a variety of surface mount components and are also widely used for micro-scale soldering.





## Photovoltaics

Desktop soldering robots can even be used for ultrasonic soldering for small solar panels and other products. They are also widely used for items such as junction box assembly and power conditioner PCB soldering.

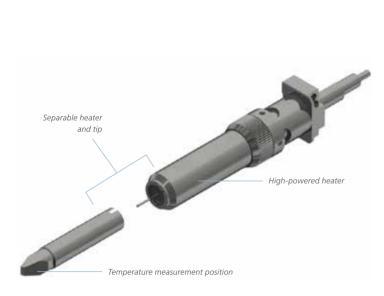
### **LED Terminals**

Desktop soldering robots also offer proper component support and are capable of soldering at the appropriate temperature for difficult to solder LED light terminals and power supply PCBs.

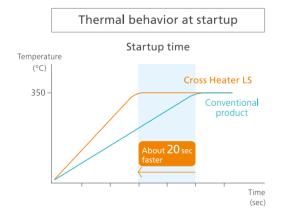


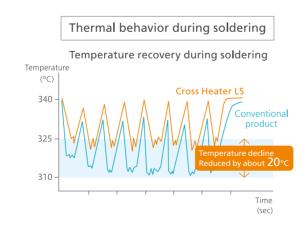
# Significantly improved robot and heater performance to achieve even better productivity

#### Equipped with a more accurate heater for improved thermal behavior



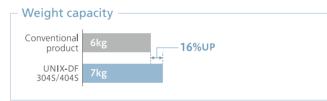
- More accurate temperature behavior achieved by setting the temperature measurement position close to the end of the tip.
- Faster temperature recovery than conventional models for more efficient work.
- Since the heater and tip are separable, they can be replaced independently.
- L-shaped positioning mechanism to prevent incorrect tip mounting.

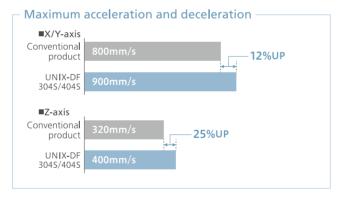




#### Shortened tact time through increased rigidity and processing speed

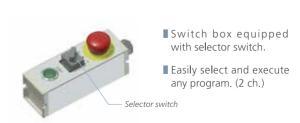






- Mechanism changed from previous model to improve rigidity (UNIX-DF204S).
- Motor changed to improve tool weight capacity and maximum workpiece weight (UNIX-DF304S/DF404S).
- Significant improvements to robot maximum speed and acceleration.
- Improved robot and solder tool processing capacity to reduce tact time.

## Easily change programming with the switch box



## Configure settings with the key switch on the front panel

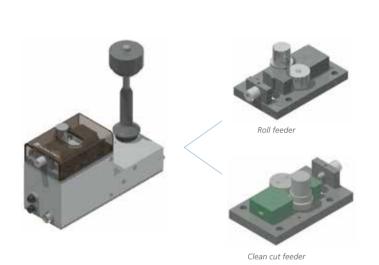


- Quickly check and change temperature settings.
- Capable of auto-tuning after replacing tips.

## Simpler and more user-friendly

- Easier to operate and maintain

## Easily change roller configuration and solder diameter with a new type of solder feeder



- Change solder diameter just by replacing the feeder block. No adjustments required.
- Easily switch between standard feeder and clean cut feeder by simply replacing the feed block.

## Create teaching data during production with the point graphic editing function. OPTION



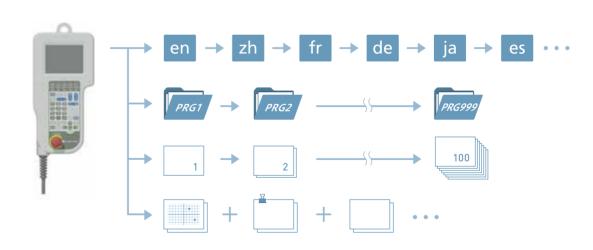
- Load DXF, Gerber data, image files, etc. for the circuit board to be soldered using specialized PC software and create a robot program on the PC screen.
- Easily switch product types by preparing program data alongside production.

### Save up to 999 programs to easily manage data and product types



- Store different product types for each program
- Manage programs for each tip shape or temperature setting.
- Use three-axis position correction with different tip shapes for each program.
- Set counters for each program with the counter function to count three-axis position corrections and cleanings.
- Store detailed settings for each type of product to quickly change setup and programming.

## Execute a variety of operations from the teaching pendant



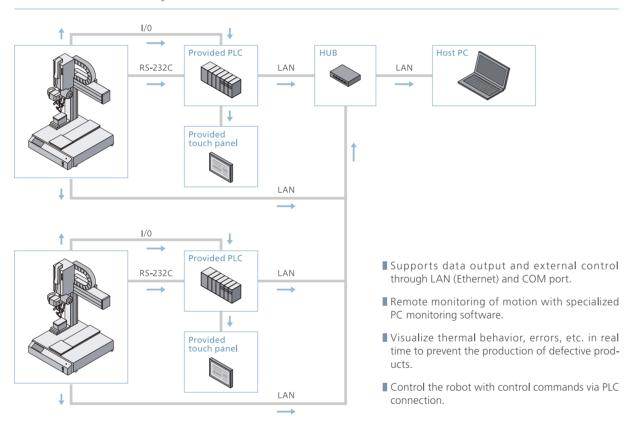
- Supports multiple languages globally. English, Chinese (simplified and traditional), Czech, French, German, Japanese, Korean, and Spanish
- Number of programs
  Up to 999
- Number of simple PLC recordings
  Up to 100
- $\blacksquare$  Coordinate registration, etc. for image processing
- Additional axis control.

#### 2 MERITS 4

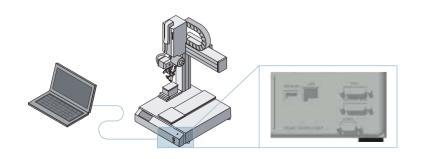
## Achieve 3D soldering

# Network functions strengthened in anticipation of upcoming "Industrie 4.0" standards

#### Connect to factory network for real-time visualization OPTION

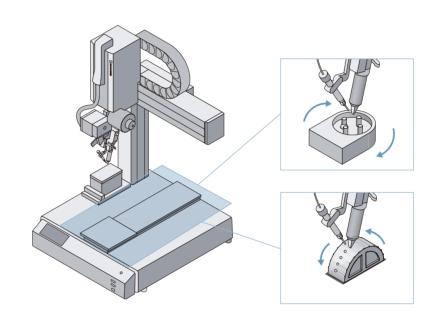


## Easily output data with the LAN/USB memory port



- Standardly equipped with a LAN/USB memory port.
- Save and load backup data with a USB memory drive.

## Easily solder products with complicated shapes using two additional axes OPTION



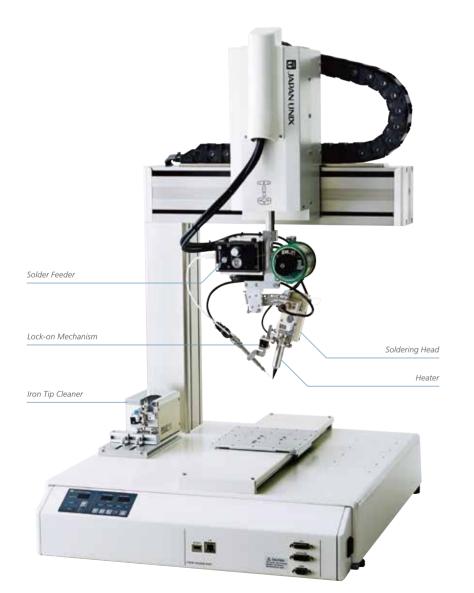
- Add 2 axes to the standard 4 axes for a maximum total of 6 axes.
- Control all robot operations and external equipment by robot at once.
- Allows for piece rotation, circuit board rotation, angular tilt, rotation of cylindrical parts, cable control, and more.
- Space-saving and easy to configure.

## Also equipped with a laser soldering process **OPTION**



- DF-Series can be equipped with laser soldering tools.
- Achieve even more accurate soldering.
- \* Please contact your sales representative for more information.

# Various model configurations deliver maximum effectiveness







UNIX-DF404S





UNIX-DF204S

UNIX-DF304S

## Robot Set Details (For UNIX-DF204S / 304S / 404S)

Soldering	UNIX-DF204S	DF-UPC-12S		
controller	UNIX-DF304S / 404S	Incorporated into the main body		
Soldering Head	UNIX-DF204S	Point type : choose from UMC-093A-BHS / UMC-093A-BHL. Linear type (option) : choose from UMC-093AS-BHS / UMC-093AS-BHL.		
	UNIX-DF304S / 404S	Choose from UMC-090-BHS / UMC-090-BHL		
6 11 5 1	UNIX-DF204S	Choose from UPM-057 / UPM-057CC		
Solder Feeder	UNIX-DF304S / 404S	Choose from UPM-056 / UPM-056CC		
Iron Tip Cleaner	with Vacuum Function	Standard:UJC-214CWI / Lock-on:UJC-214CWI L0(0°)/ L10(10°)		
Lock-on Mechan	nism(UNIX-DF304S/404S)*	Model number differs depending upon specifications. (See p.17)		
Tube Set		Model number varies depending on solder diameter used. (See P.18)		
Switch Box		DF-SBU (Cable length is 1.5m.)		
Teaching Pendant		DF-TPU (Cable length is 2m.)		
PC software		DF Editor SJ (Japanese) / DF Editor SE (English)		
WOodings on the UNIV DESOAC				

\*Optional on the UNIX-DF204S.

## Standard-equipped with more advanced soldering units

## Soldering Robot Heads PATENTED

- Select from two types of heaters.
- Standard equipped with solder supply lock-on mechanism. (UNIX DF304S/404S)\*1
- Heater block can be easily detached, and tip and heater can be replaced in approximately one minute.

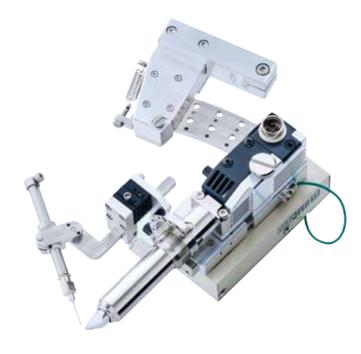
%1 Optional equipment for the UNIX-DF204S.

#### [Heater block]









## Lock-on Mechanism\*\*

- Angle block with memory provides stabilization and prevents solder supply position misalignment that can easily occur during maintenance.
- Perfectly maintains the original supply position.

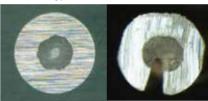
%2 Optional equipment for the UNIX-DF204S.



#### Solder Feeder PATENTED

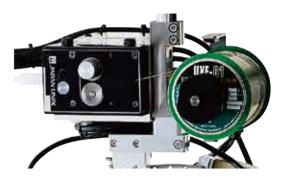
- Encoder detects errors such as solder shortage, jamming, and slippage.
- Improves solder feeding precision.
- Proprietary mechanism enables one-touch solder reel replacement.
- Clean Cut accessory available as standard option.

#### [Clean Cut type solder cross section]



Making an incision into the solder reduces solder balls and flux dispersion by 90% or more.\*\*3

3 Clean Cut results will vary ac-cording to the solder material used. Some solder materials are incompatible; please contact us





Clean Cut Type

## Iron Tip Cleaner with Vacuum Function

#### UJC-214CW II L0(0°) / L10(10°)

- Air blower-style iron tip cleaner.
- Vacuum system reduces solder scattering during cleaning.
- Air blower nozzle angle adjustment is based on a lock-on mechanism, making angle resetting easy.



# High-performance options to maintain higher-quality soldering

## Three-Axis Tip Position Corrector UCS-410S-SET

PATENTE

An automatic position corrector for the UNIX-DF Series.

• Quickly and automatically corrects position gap due to tip erosion and/or thermal expansion.



#### Solder Wire Preheater \*1 SHN-41S-\*\*

- Preheats solder wire to reduce solder balls and flux dispersion due to sudden heat shock during soldering.
- Also effective at reducing tact time.
- \*\* = Solder diameter %1 Cannot be used with Clean Cut Feeder.



#### Nitrogen Gas Generator UNX-200

- Creates a nitrogen gas environment to improve the workability of lead-free solder.
- Protection against oxidation and improves spread and wettability.



#### Nitrogen gas concentration monitor UNX-M2

- Displays nitrogen gas concentration by separating off and directing nitrogen gas to the sensor.
- Standardly equipped with alarm output and analog output. Connect with and operate a revolving light or recorder.



■ Ideal nitrogen gas concentration at the time of soldering.

## Double Brush Cleaner UJC-217

- Rotates two wire brushes to remove stubborn buildup on the end of the iron tip.
- Effectively cleans carbonization, tin oxides, and other materials that cannot be removed by the standard iron tip cleaner



#### Clean Cut Feeder \*2



- Reduces the occurrence of flux spatter and solder balls by putting notches into the solder as it is fed through.
- The special two-blade method<sup>※3</sup> stabilizes solder feeding and prevents solder slippage.
- %2 Cannot be used with Solder Wire Preheater %3 Solder diameter: φ0.5,φ0.6,φ0.65,φ0.8 and φ1.0 only.

#### Iron Tip N2 Cap

■ Blows nitrogen gas from the end of the iron tip.



#### Remaining solder sensor

When solder is running out, the sensor detects its exisistence and alerts that it needs to be replaced.



#### Added control axes (up to 2 axes)

- Add two additional axes to XYZR, up to a maximum of six simultaneously controlled axes.
- Piece rotation, circuit board rotation, angular tilt, rotation of cylindrical parts, cable control, and more can be controlled all at once.
- The mechanism is custom-designed.

#### Vision Position Correction Sensor

Detects target shape with a camera and automatically corrects misalignments in the workpiece.



### Digital Thermometer UNISENSOR-701A

Point graphic editing function

■Edit images of the circuit

board to be soldered with spe-

cial PC software to determine

and configure teaching points

Possible to import DXF, ipeq,

Gerber data, and more.

more accurately.

- Digital thermometer for tip temperature measurement.
- Handheld design makes for easy measurement of installed tip temperature. Ideal for routine temperature management.



#### Fume Extractor UAC-2000

- Extracts flux fumes during soldering.
- Dual filters for removal of fumes.
- Equipped with external input /output terminals.
- Three-level suction adjustment and filter clog sensor.
- · Dimensions: W340×D360×H477 (mm) (excluding protrusions)
- ·Weight: Approx. 18.5Kg

#### Fume Extraction Duct Set

- Duct for fume extractor that attaches to soldering robot.
- •Type varies according to equipment mod





#### A wide range of soldering iron tips

We offer a standard line up of tip shapes for point soldering and linear soldering.

· Please contact us regarding our tip shape lineup, special shapes, or other details.

## **SPECIFICATIONS**

			UNIX-DF204S	UNIX-DF3	304S	UNIX-DF404S	
Number of	axes		4 standard axes, 2 additi	onal axes (optional), fo	r up to 6 simu	Itaneously controlled axes	
		X-axis	200mm	300mm	1	400mm	
Range of		Y-axis	250mm	320mm	l	400mm	
movement		Z-axis	50mm	100mm	1	100mm	
		R-axis	±360°	±360°		±360°	
Maximum t	ransportabl	e mass (workpiece)	7kg	15kg		15kg	
		X-axis, Y-axis	600mm/sec	900mm/sec			
Maximum s	peed <sup>※1</sup>	Z-axis	250mm/sec	400mm/s	ec	400mm/sec	
(PTP)		R-axis	600 °/sec	900°/se		900°/sec	
Maximum CP :	speed <sup>**1</sup> (CP)	X/Y/Z-axis composite	600mm/sec	850mm/s	ec	850mm/sec	
	,,,,,	X-axis, Y-axis		±0.01mr	n		
Repeating p	osition	Z-axis		±0.01mr			
accuracy <sup>※2</sup>		R-axis		±0.008			
Workniece	size (mavim	um jig dimensions)	200mm×210mm	300mm×27		400mm×365mm	
Position inst	<u> </u>		2001111121011111	Remote teaching or n			
Teaching co			Direct teaching using the teaching		· '		
Program ca		I	Direct teaching using the teaching	Maximum 999		Isonal computer using FC sortwar	
Point capac			Maximum 32,000 points				
Drive metho			5-phase stepping motor drive				
Control met			PTP control, CP control				
Interpolatin	1		3-dimensional linear and arc interpolation				
	I/O-SYS		Specialized input/output (16 points each)				
	I/O-1		General input/output (8 points each) **4				
	I/O-MT /	′ I/O-S	I/O-MT: For external monitor control (optional) **4 I/O-S: For interlock device connection				
External	I/O-A / I/	/O-B / I/O-C	I/O-A: For air cleaner connection I/O-B: For brush cleaner connection (optional) I/O-C: For position correction unit connection (optional)				
interface	COM1		RS-232C (For external device control and COM commands)				
	COM2		RS-232C (for external device control)				
	COM3		For soldering controller co			(for external device control)	
	COM4		RS-232C(For external device		-		
	MEMOR	Υ	,	For USB memory	connection		
	LAN **5		For Ethernet connection				
Simple PLC			Maximum 100 programs, maximum 1000 steps per program				
Number of :		onditions	255 conditions				
Iron tip tem			200-450°C				
Heater alarr		Titiorrange	Configure upper temperature deviation limit: 5°C to 99°C / Configure lower temperature deviation limit: -5°C to -99°				
Heater pow			250W: Cross Heater LS / Cross Heater L				
· · · · · · · · · · · · · · · · · · ·		otor%6	$\varphi$ 0.3- $\varphi$ 1.2(Standard) $\varphi$ 0.5- $\varphi$ 1.0(Clean Cut Type)				
Applicable solder diameter **6  Alarm indicators		Ctci ·····	$\phi$ 0.3- $\phi$ 1.2(standard) $\phi$ 0.5- $\phi$ 1.0(Clean Cut Type)  Disconnected heater / disconnected temperature sensor / solder cloq, etc.				
		/~D~H)				T.	
External dimensions (W×D×H)		7^U^U)	413×387×714(mm) 560×575×934(mm) 584×635×934(mm)  AC100-120V 50/60Hz 480W(VA) / AC220-240V 50/60Hz 480W(VA)				
Power supp	ry ^^/		AC100-120V 50/60			50/60Hz 480W(VA)	
Air	a ma m a m = ± · ·		Dry air, 0.5MPa (max), φ6 joint				
Operating to			5-40°C				
Relative hur	nidity			45-85% (non-co			
Weight			Approx. 35kg	Approx. 4	okg	Approx. 52kg	

- \*1: The maximum speed will change depending on the conditions. Note that the maximum speed will not be achieved at the maximum transportable mass settings.

  \*2: The repeating position accuracy only applies to situations where the main unit temperature is constant. Note that it does not guarantee the absolute position.

  \*3: Since the memory capacity is shared, the quantity of point data that can be stored will be reduced if the point attribute data, point work data, and/or PLC program data increase.

  \*4: With UNIX-DF204S, control can only be performed with either I/O-1 or I/O-MT. Note that they cannot both be used at the same time.

  \*5: The Ethernet connection will be 108ASE-T/1008ASE-TX.

- \*\*6: Since there may be cases where the applicable solder diameter cannot be used depending on the manufacturer or materials to be used, it is strongly recommended to conduct a test in advance for confirmation.

  \*\*7: When using a power supply voltage of AC220 240V, an optional power unit assembly must be connected. The power consumption will change depending on the heater type.

  The values shown indicate the maximum power consumption.

## PARTS LIST

## Soldering Heads/Heaters

Soldering head model number	Compatible heater name	Compatible heater model number	Compatible tips	Output power	Model number of supported robot
UMC-093A-BHS UMC-093AS-BHS**		4000015 2540	Cross-Bit LS		UNIX-DF204S
UMC-090-BHS	Cross Heater LS	100BHS-2510	series	250W -	UNIX-DF304S UNIX-DF404S
UMC-093A-BHL UMC-093AS-BHL**	Cross Heater L	100BH-2510	Cross-Bit L		UNIX-DF204S
UMC-090-BHL	Closs Realer L	100011-2310	series		UNIX-DF304S UNIX-DF404S

## Soldering Heads

UMC-093A-BHS / UMC-093A-BHL(For point soldering)	UMC-093AS-BHS / UMC-093AS-BHL(For linear soldering)	UMC-090-BHS / UMC-090-BHL

#### Lock-on Mechanism

Product Image	Model number	Solder preheating (○ = yes)	Soldering method	Remarks	
	LOS87-75**-XY			**=Solder supply angle: 30	
	LOS87-75**H-XY	0	Linear solder	(for 30° application) 25°/30°/35°	
	LOP87-75**-XY		Daint calder	**=Solder supply angle : 45	
	LOP87-75**H-XY	0	Point solder	(for 45° application) 35°/40°/45°/50°/55°/60°	

•All lock-on mechanism models include an XY adjustment mechanism.

## Iron Tip N2 Cap

<u>'</u>		
Product Image	Model number	Remarks
A 600 A 600	100BHS-N2-CA	N2 nozzle (NZS**) included
460	100BH-N2-CA-YZ	N2 nozzle (YNZ**) included

## PARTS LIST

### Standard Solder Feeder Parts

### Solder Feeder Spare Parts

Product Image	Name	Model number	Remarks
	Roller unit	UPM-023RF-RU**	** = Wire diameter specification;
	Inlet nozzle	UPM-023RF-INZ***1	e.g., $05 = \varphi 0.5$
	Center nozzle	UPM-023RF-CNZ***1	$\phi 0.3/\phi 0.4/\phi 0.5/\phi 0.6/\phi 0.65/\phi 0.8/\phi 1.0/\phi 1.2$
·. 6		UPM-023-ONZSS	For wire diameter $\phi$ 0.3- $\phi$ 0.4
	Outlet nozzle	UPM-023-ONZS	For wire diameter $\phi$ 0.5- $\phi$ 0.65
	Odtjet 11022je	UPM-023-ONZM	For wire diameter $\phi$ 0.8
		UPM-023-ONZL	For wire diameter $\varphi$ 1.0- $\varphi$ 1.2

<sup>\*1</sup> Nozzles are common for  $\phi$  0.6 and  $\phi$  0.65(\*\*=0

### Solder Supply Components (Standard)

Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
	φ1.2	ND-15GP	CL-S-3	PT12S-040	
	φ1.0	ND-16GP		PT10S-040	
110	φ0.8	ND-17GP	CL-S-2	PT08S-040	400mm <sup>®2</sup>
	φ0.6/φ0.65	ND-18GP		PT06S-040	
	φ0.5	ND-19GP		PT05S-040	
	φ0.4	ND-20GP		PT04S-040	
	φ0.3	ND-21GP		PT03S-040	

<sup>\*2</sup> Lengths other than 400mm are also available (special order,

## Solder Supply Components (High Precision)

Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
11	φ0.8	SND-10		PT08S-040	
111	φ0.6/φ0.65	SND-08	CL-S-2	PT06S-040	400mm <sup>*2</sup>
	φ0.5	SND-07		PT05S-040	

<sup>%2</sup> Lengths other than 400mm are also available (special order)

## Clean Cut Type Solder Feeder Parts

#### Solder Feeder Spare Parts

Product Image	Name	Model number	Remarks
	Roller unit	UPM-023CC-RU**	** = Wire diameter specification;
	Inlet nozzle	UPM-023CC-INZ***1	e.g., $06 = \varphi 0.6$
	Center nozzle	UPM-023CC-CNZ***1	$\varphi$ 0.5/ $\varphi$ 0.6/ $\varphi$ 0.65/ $\varphi$ 0.8/ $\varphi$ 1.0
	Outlet nozzle	UPM-023-ONZS	For wire diameter $\phi$ 0.5- $\phi$ 0.65
		UPM-023-ONZM	For wire diameter $\phi$ 0.8
		UPM-023-ONZL	For wire diameter $\phi$ 1.0

X1 Nozzlos are common for (0.0 € and (0.0 €E/) ± −0.

## Solder Supply Components (Clean Cut Type)

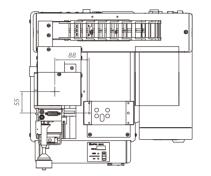
Product Image	Wire diameter	Needle	Needle holder	Tube set	Tube set overall length
11 1	φ1.0	ND-15GP	CL-S-3	PT10SCC-040	
110	φ0.8	ND-16GP	CL-S-2	PT08SCC-040	400mm <sup>**2</sup>
	φ0.6/φ0.65	ND-17GP		PT06SCC-040	
	φ0.5	ND-18GP		PT05SCC-040	

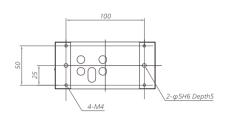
<sup>%2</sup> Lengths other than 400mm are also available (special order)

## EXTERNAL VIEW DIAGRAM

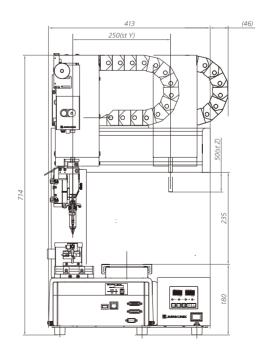
UNIX-DF204S

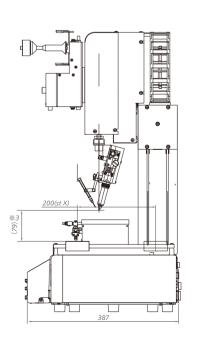
Top view Jig mounting surface (X-axis table)





Front view Side vie





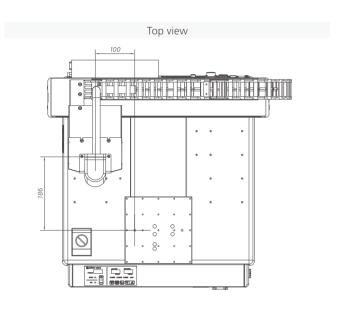
The clearance between iron tip and X table differs depending on type of soldering head

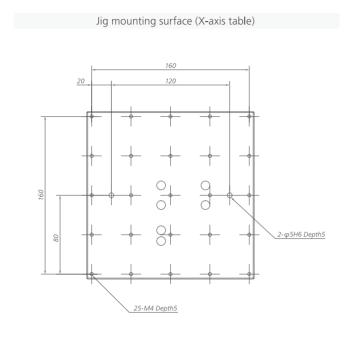
## EXTERNAL VIEW DIAGRAM

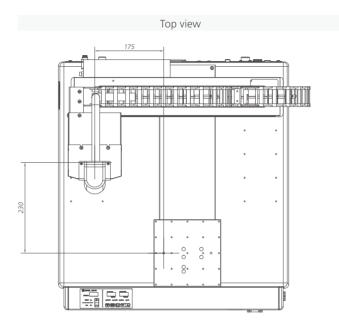
UNIX-DF304S

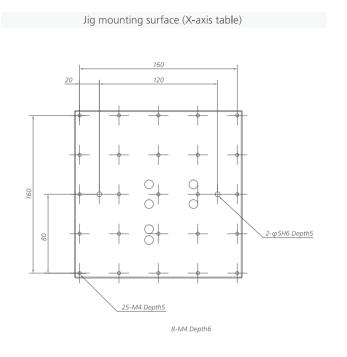
UNIX-DF404S

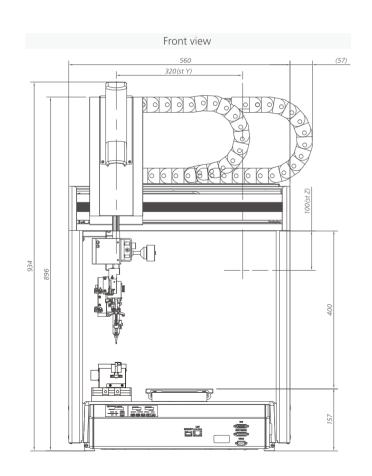
Units: mm

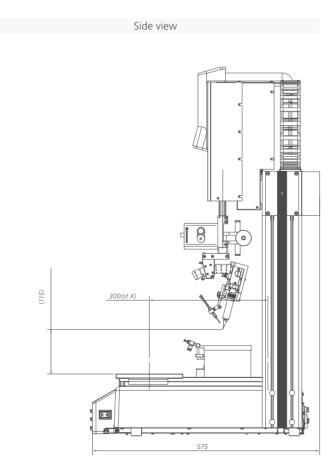


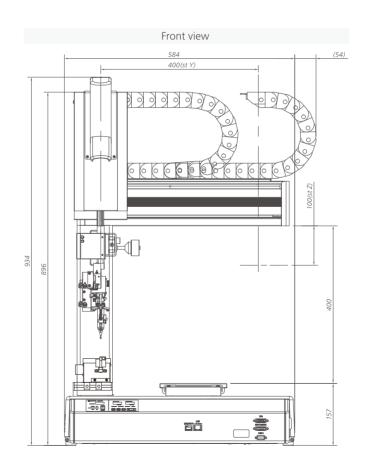


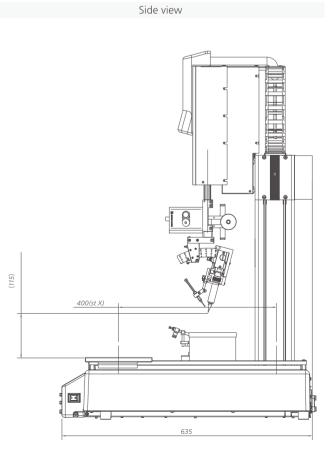










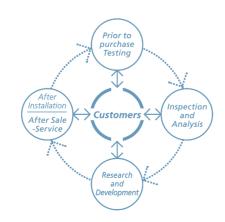


# Comprehensive customer support structure provided by soldering engineers



## Soldering Support

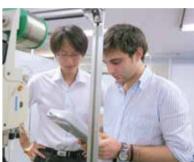
In the manufacturing world, there is nothing more important than having someone you can trust when you run into unexpected trouble. The soldering specialist engineers at Japan Unix provide our customers with a comprehensive support structure from prior to your purchase to after the installation. This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

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