APOLLO SEIKO

2022-2023

Product Catalog

Your Automated Soldering Partner

Apollo Seiko is
Your Automated Soldering Partner.

Apollo Seiko is the creator and worldwide leader of selective soldering solutions. Our patented technologies and dedication to customer service sets us apart from the competition.

Since our start up in 1969,
we are committed to the research and development of advanced soldering solutions and building strong partnerships with our customers.

"Leverage 52 Years of Soldering Excellence and Innovation"

We, Apollo Seiko Ltd. have been established since 1969 and the year 2022 is our 53rd year in business.

Our vision has always been to invent, build, and strive to modernize automated soldering methods that increase output and quality by providing a precise and repeatable process.

As we look to the future, we recognize innovative products have never simply been enough. Our success is highly attributed to our valuable customers and we are immensely grateful for the partnerships we have established over the past 52 years. One of the core values of the Apollo Seiko Global Family Network is to provide professional technical service and friendly support unmatched by any of our competitors.

We will continue to provide solutions and engineer products to meet our expectations as well as the high expectations of our customers and industry. From automotive to biotechnology, we believe all electronics industries can benefit from automated soldering. We sincerely thank you for your continued loyalty, guidance and support in the future.

Koichi Hirosaki
President and CEO
Apollo Seiko Ltd.

Apollo Seiko Global Family

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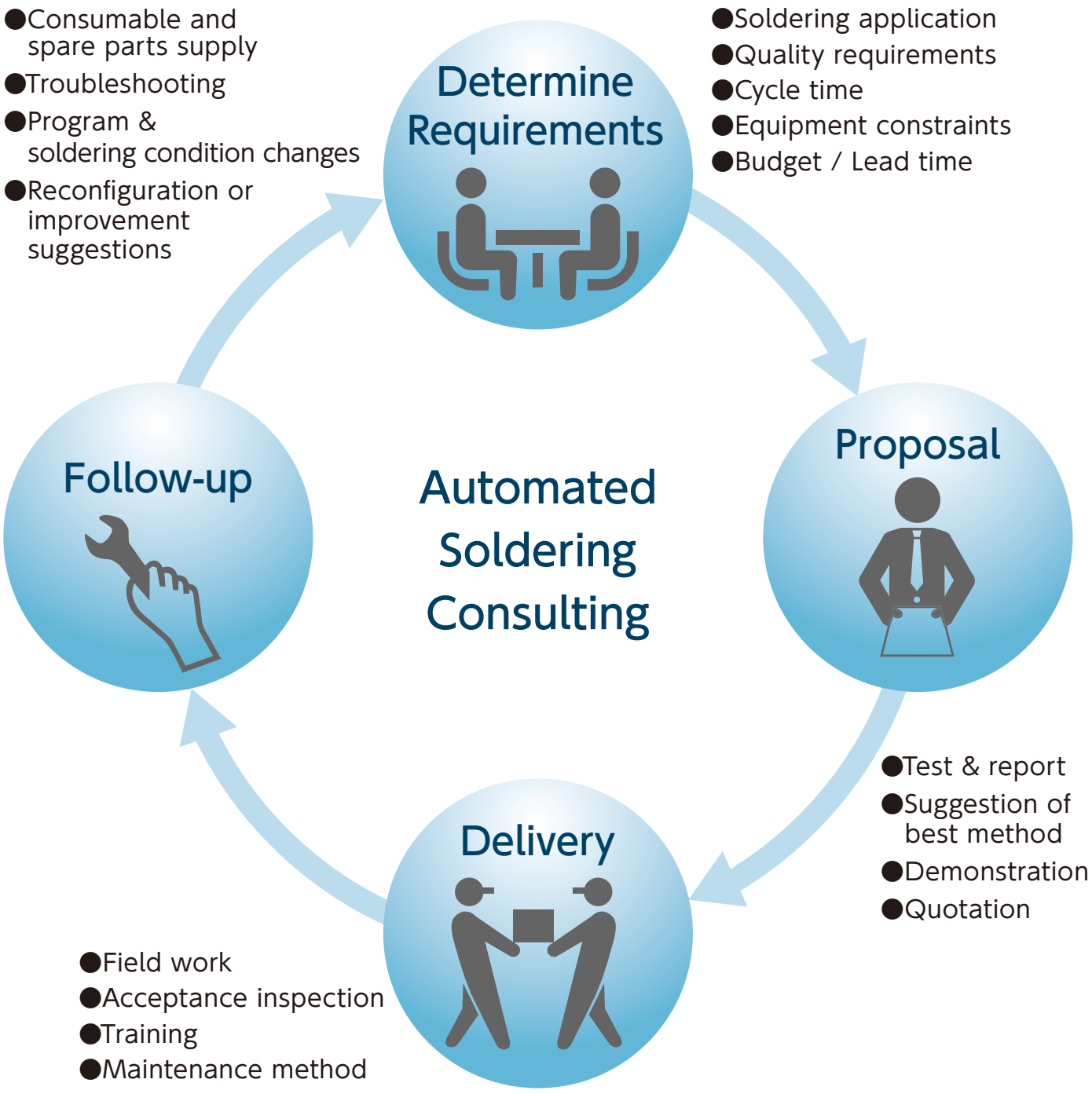
APOLLO SEIKO

Introduction Flow of Automated Soldering

Reliable Support System

We offer Automated Soldering Consultation Services in order to provide a complete solution from product introduction to installation support.



We are always Your Automated Soldering Partner.

Iron Cartridge

Advantage of Apollo Seiko's Iron Soldering

Direct heating system with high-temperature control

The temperature sensor is embedded as close to the apex of the tip as possible. Capable of detecting even the smallest temperature changes.

Just 8 seconds to exchange the iron cartridge without tools

A special key groove allows a precise exchange without position variation.

Nitrogen direct blow DN iron tip

Thanks to the built-in nozzle and slim shape, the nitrogen blow function can be used on iron tips to solder in tight spaces.

Wide variety of iron tip options

We have more than 100 types of standard iron tips. You can select the most appropriate shape and size iron tip for point soldering and slide soldering. Custom made tips are also available.

Slim cartridge able to solder in tight spaces

The diameter for the DS type is Φ6.4mm, and DN type has Φ7mm.

One touch Quick Change Iron Cartridge DX

Patented design

Thanks to our temperature sensor technology, we have created an iron cartridge that allows you to change only the tip and not the entire cartridge.
Easy to change and there is no position variation after the replacement.
Moreover, compared with our normal iron cartridge models,
changing only the tip is around 50% cheaper.

L-CAT EVO-Ⅱ

Iron Tip Soldering Robot

In-Line/ Cell production type

The newest version of the EVO series has the most exclusive features for soldering.

Gantry type soldering robot

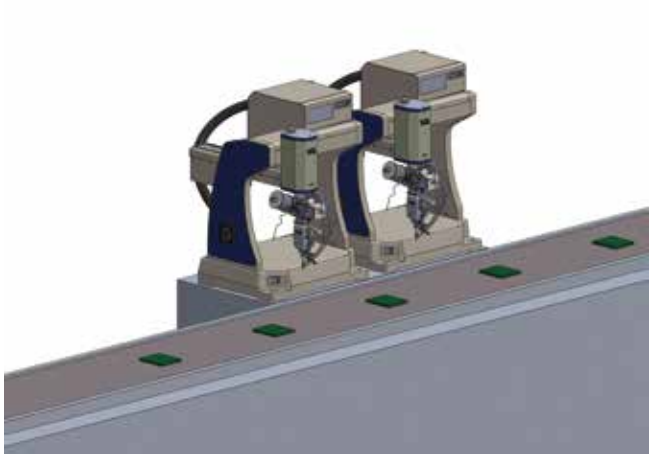
All 4 axes (X, Y, Z & R) are suspended from the gantry which allows for simple fixture design and easy integration into a conveyorized system.
Fixture size and weight as well as cable/wire harness lengths are not an issue as the fixture remains stationary on the robot base table.

Programming freedom & flexibility

L-CAT EVO-Ⅱ has a very flexible solder sequence that can be customized to meet the needs of your specific application.
Soldering parameters can be arranged in a sequence that provides a solution for each particular soldering challenge.

In-line/ Cell Production

An example of the L-CAT EVO-Ⅱ being used with a conveyor.

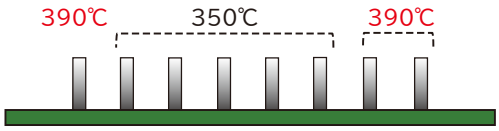


Standard nitrogen gas generator

Increases the solder wettabillity, provides better results and minimizes solder defects.

Iron tip temperature can be set individually for each point

High-quality soldering of components with different heat capacities, reliable filling of through-hole, and perfect back fillets can be achieved.



Iron unit & feeder, all in the same axis

Due to the iron unit and feeder being on the same axis, when rotating it, the feeder tube does not twist or loosen.

Type		L-CAT EVO-Ⅱ4330	L-CAT EVO-Ⅱ4430	L-CAT EVO-Ⅱ4540
Operation Range	X axis	300mm	400mm	500mm
	Y axis	300mm	300mm	400mm
	Z axis	60mm	60mm	60mm
	R axis	340°	340°	340°
Repeatability		X, Y, Z axes ±0.02mm		
Resolution		X, Y, Z axes 0.01mm		
Teaching Method		Remote teaching (JOG) / Manual Data Input (MDI)		
Program Capacity		100 programs		
Memory Capacity		100,000 points		
External Input / Output	SYS - I/O	IN:16 OUT:10		
	Free I/O	IN:16 OUT:16		
Soldering Condition		198 conditions		
Setting Temperature		0 ～ 500℃		
Solder Feeling Speed		1.0 ～ 50.0mm/sec		
Solder Feeling Amount Resolution		0.1mm		
Solder Write Diameter	Using ZSB Feeder	Φ0.4 ～ 1.0mm (Option: Φ0.3mm)		
	Using Normal Roller	Φ0.3 ～ 1.0mm		
	Using Large Diameter Feeder	Φ1.2 ～ 2.0mm		
Heater Capacity		200W (Max.)		
Air Supply		0.4 ～ 0.5MPa (Dry & Clean Air)		
Power Source		AC94 ～ 260V		
Power Consumption		330W		
Dimensions (W×D×H)		520×995×714mm	620×995×714mm	720×1,100×714mm
Weight		50kg	52kg	55kg

* Position repeatability is not a guarantee of absolute precision. With usage conditions, it may exceed the above value.

J-CAT LYRA

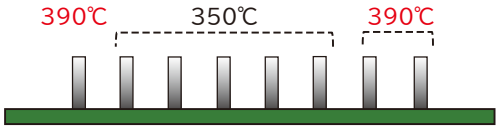
Iron Tip Soldering Robot

Cell production type

Our latest desktop soldering robot follows the performance and usability of the conventional models, "COMET" and "STELLAR". The LYRA is equipped with a high level of functionality designed to improve the overall quality of soldering.

Localized iron tip temperature control

The iron tip temperature can be set for each point according to the work needs, e.g.: in heat capacity, solder through-hole filling rate, back fillet, etc.



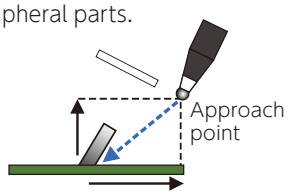
Easy setting of the soldering conditions

You can easily set and change the soldering conditions with the included teaching pendant. Since each parameter is registered interactively, there is no need to learn complicated operations.

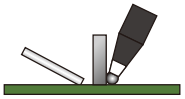
Soldering Condition 1	1/2
Soldering Type	Point Soldering
Temp. Setting Function	Disable
1st Amount	7mm
1st Feed Speed	15mm/s
1st Reverse Amount	3mm
1st Reverse Speed	50mm/s
Iron Down Motion	Enable
Approach Function	Disable
Pre-Heat Time	0.5esc
2nd Amount	7mm
2nd Feed Speed	10mm/s
2nd Reverse Amount	3mm

Approach function / angle retract function

You can move the iron tip closer to the coordinates of the soldering point at the set speed from any approach point. Similarly, after soldering, you can move the iron tip to any location safely.
It reduces the risk of damaging pins, which may occur due to unstable pin position. It also prevents interference with peripheral parts.



Move from any approach point to a teaching point at any speed



Soldering is possible without damaging the pin

Supports dual iron feeder option

You can easily switch to the dual iron unit feeder specification as an option.
Simultaneous soldering at two locations shortens the tact time, and for workpieces with a large heat capacity, simultaneous heating with two irons solves this soldering dilemma which was not possible until now.

Type		J-CAT 320 LYRA	J-CAT 330 LYRA	J-CAT 340 LYRA
Operation Range	X axis	200mm	300mm	400mm
	Y axis	200mm	320mm	400mm
	Z axis	50mm	100mm	150mm
	R axis	±360°	±360°	±360°
Portable Weight (X table stage)		7kg	15kg	
Repeatability		X, Y, Z axes ±0.01mm R axis ±0.008°		
Resolution		X, Y, Z axes 0.01mm R axis 0.08°		
Teaching Method		Remote teaching (JOG) / Manual Data Input (MDI)		
Program Capacity		999 programs		
Memory Capacity		32,000 points		
External input / Output		input : 16 output : 16		
Soldering Condition		Point and Slide Total : 500 conditions		
Setting Temperature		0 ～ 500℃		
Solder Feeling Speed		1.0 ～ 50.0mm/sec		
Solder Feeling Amount Resolution		0.1mm		
Solder Write Diameter	Using ZSB Feeder	Φ0.4 ～ 1.0mm (Option: Φ0.3mm)		
	Using Normal Roller	Φ0.3 ～ 1.0mm		
	Using Large Diameter Feeder	Φ1.2 ～ 2.0mm		
Heater Capacity		200W (Max.)		
Air Supply		0.4 ～ 0.5MPa (Dry & Clean Air)		
Power Source		AC94 ～ 260V (Single Phase)		
Power Consumption		620W		
Dimensions (W×D×H)		443×454×818mm	680×600×872mm	682×660×898mm
Weight		33kg	49kg	57kg

* Position repeatability is not a guarantee of absolute precision. With usage conditions, it may exceed the above value.

ARC-5000

Iron Unit Electric Arch (optional)

By combining the iron unit with a motor, the angle of the iron unit can be easily programmed as required.

The iron unit angle can be adjusted

By combining the iron unit with a motor, the iron unit can be changed to any angle.You can register the coordinates of the iron insertion angle for each point. Eliminates the risk of interference between the iron tip and peripheral parts, it also makes the iron tip reach the point accurately. Even when using irons with different tip angles, such as in high-mix production, the angle can be changed to the taught angle for each registration program, so it can be used without problems in recreating the position.

Type	ARC-5000
Operation Range	-30°~+25°
Motor Specification	Stepping motor with the reduction gear (Harmonic drive®) (without encoder) Basic step angle: 0.018 degrees /pulse (Positioning accuracy ±0.006 degrees)
Maximum Speed	420deg/s
Maximum Acceleration	210deg/s²
Mountable Robot	J-CAT3□□ LYRA Soldering robot JS-3 LYRA Ⅱ Soldering robot JC-3 LYRA Ⅱ Soldering robot

Harmonic Drive is a registered trademark of Harmonic Drive Systems INC.

OMEGA

Iron Tip Soldering Robot

In-Line / Unit type

The OMEGA system has been designed exclusively for automated soldering.
This soldering unit can be widely adapted for use in semi & fully automated systems, desktop robots, linear actuators and special purpose machines.
The OMEGA is a new soldering unit compatible with MODBUS TCP/IP and Industry 4.0.

Model
OMEGA-LSP:
Controller and feeder separate type
OMEGA-LCO:
Controller and feeder combined type

Iron Unit
RSP

Solder feeder LFD

Iron unit RSP / RSL-R / RSL-FPR

It takes 8 seconds to replace the iron cartridge and it does not require position adjustment upon iron cartridge replacement.

RSP
for
point soldering

RSL-R
for
slide soldering

RSL-FPR
for
slide soldering

■RSP/RSL-R/RSL-FPR

Type	RSP/RSL-R/RSL-FPR
Weight	0.8kg

Solder feeder LFD

It can control feeding amount precisely by its pulse motor and the ZSB can be attached as an option.

■LFD

Type		LFD
Solder Feed Motor		Pulse motor
Solder Wire Diameter	Using ZSB Feeder	Φ0.4 ～ 1.0mm (Option: Φ0.3mm)
	Using Normal Feeder	Φ0.3 ～ 1.0mm
	Using Large Diameter Feeder	Φ1.2 ～ 2.0mm
Feed/Reverse Speed		0.1 ～ 50.0mm/sec
Weight		1.3kg

■OMEGA controller

Type	OMEGA
Solder Condition	297 conditions Point:99 / Slide:99 / Special:99
Solder Step	9 Steps(Max.)
Setting Temperature	1～500℃
Heater Capacity	200W (Max.)
Power Source	AC85～264V(Single Phase)
Power Consumption	450W
Dimensions(W×D×H)	110×200×280mm
Weight	3.8kg

Simple operation on the Touch Panel

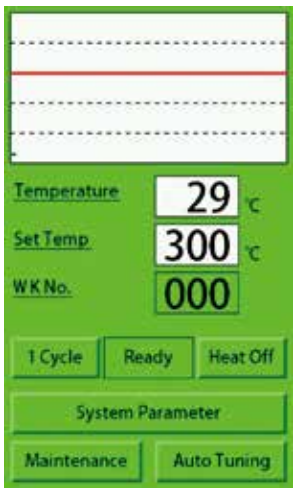
All operations can be done on the touch panel.
The LCD displays a simple chart of the iron cartridge temperature on the touch panel, the current temperature change is clear at a glance.

Auto tuning function

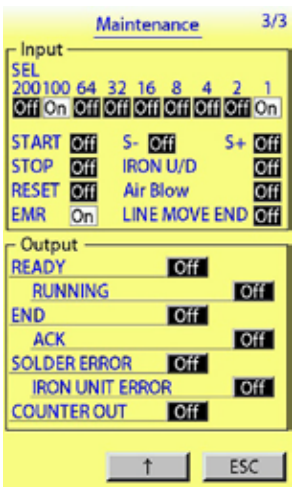
Auto tuning function allows the user to easily set the optimal temperature control parameter.

Maintenance mode

It can check the operation of the heater or motor control part and the conditions of each sensor in maintenance mode.
Further, it has an I/O check function and can easily perform the communication check with the host communication side or confirmation when a malfunction occurs.



▲ Operation Screen (Example)

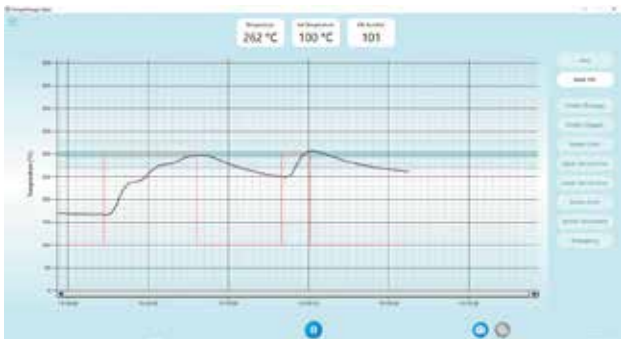


▲ Maintenance Screen (Example)

OMEGA Manager

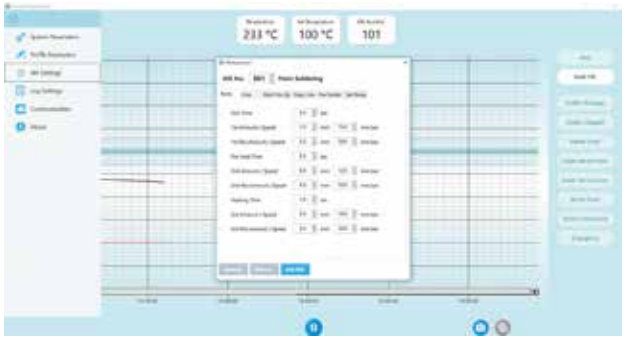
Special PC Software for OMEGA

With the OMEGA manager it is possible to monitor and check the controller condition.
It receives and sends a variety of process parameters such as temperature data, error occurrence, soldering condition, system parameters and more. Information such as the temperature data can be exported and saved as a CSV file, allowing for simple verification of the soldering condition and cycle time.

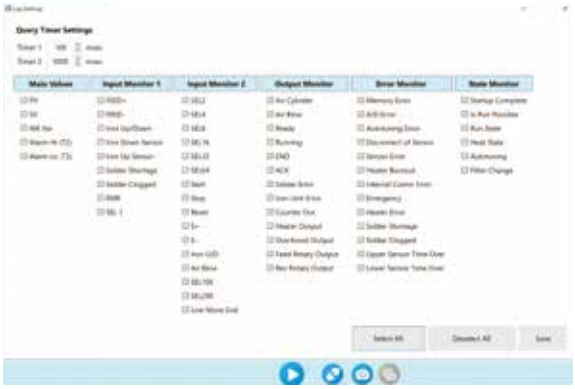


▲ Monitoring Screen

▲ Error Warning Screen



▲ Solder Condition Acquisition Screen



▲ Log Setting Screen

SR-LYRA Ⅱ

Iron Tip Soldering Robot

In-Line type

An in-line soldering device that combines a SCARA robot with the soldering unit "LYRAⅡ". You can choose from two types of SCARA robots according to your application.

LYRAⅡ & SR controller

Compact body and controller

The weight of the robot body is 19kg (in the case of SR400-LYRA Ⅱ), which is lightweight and compact. The robot controller and LYRA Ⅱ controller have also become compact, greatly increasing the degree of freedom for in-line design.

High-speed, high-reliability robot

By adopting a high-speed and highly reliable SCARA robot from FANUC, you can use the robot continuously.

■Common features of the LYRAⅡ controller

Localized iron tip temperature control

The iron tip temperature can be set for each point according to the work needs, e.g.: in heat capacity, solder through-hole filling rate, back fillet, etc.

Type		SR400-LYRA Ⅱ	SR650-LYRA Ⅱ
Operation Mode		Horizontal Articulated Robot	
Controlled Axes		4-axes (J1、J2、J3、J4)	
Motion Range		400mm	650mm
Operation Range (Max operation speed)	J1 axis	±142° (720°/s) 2.48rad (12.57rad/s)	±148° (440°/s) 2.58rad (7.68rad/s)
	J2 axis	±145° (780°/s) ±2.53rad (13.61rad/s)	±150° (700°/s) ±2.62rad (12.22rad/s)
	J3 axis stroke	200mm (1,800mm/s)	210mm (2,000mm/s)
	J4 axis	±360° (3,000°/s) 6.28rad (52.36rad/s)	±360° (2,500°/s) 6.28rad (43.63rad/s)
Wrist Part Portable Weight		3kg	6kg
Repeatability*	J1 + J2 axis	±0.01mm	±0.01mm
	J3 axis	±0.01mm	±0.01mm
	J4 axis	±0.004°	±0.004°
Weight of Robot (The controller unit is not included)		19kg	30kg
Solder Condition		Point and Slide Total : 500 conditions	
Setting Temperature		0～500℃	
Solder Feeling Speed		1.0～50.0mm/sec	
Solder Feeling Amount Resolution		0.1mm	
Solder Write Diameter	Using ZSB Feeder	Φ0.4～1.0mm (Option Φ0.3mm)	
	Using Normal Roller	Φ0.3～1.0mm	
	Using Large Diameter Feeder	Φ1.2～2.0mm	
Heater Capacity		200W(Max.)	
Air Supply		0.4～0.5MPa (Dry & Clean Air)	
Power Source		AC200～240V (Single Phase)	
Power Consumption		2,750W	3,750W

* Position repeatability is not a guarantee of absolute precision. With usage conditions, it may exceed the above value.

JS-3 LYRA Ⅱ

Iron tip Soldering Robot

In-Line type

LYRA Ⅱ & JS-3 controller

Comprehensive & straightforward teaching

Uses interactive teaching, which has been well received even on the desktop type. PC software can now be operated intuitively. Data management becomes even easier when there are many soldering points or programs.

The iron tip angle can be adjusted (optional)

By combining the iron unit with a motor, the iron unit can be changed to any angle.
The coordinates of the iron insertion angle can be registered for each point.
This eliminates the risk of interference between the iron tip and peripheral parts, and allows the iron tip reach the point with high accuracy. (Refer to P10: ARC-5000)

■Common features of LYRA Ⅱ controller

Approach function / angle retract function

You can move the iron tip closer to the coordinates of the soldering point at the set speed from any approach point. Similarly, after soldering, you can move the iron tip to any safe location.
It reduces the risk of damaging pins, which may occur due to unstable pin position. It also prevents interference with peripheral parts.

Type		JS-330LYRA Ⅱ	JS-340LYRA Ⅱ	JS-350LYRA Ⅱ
Arm Length	Maximum(J1+J2)	350mm	450mm	550mm
	J1 axis	125mm	225mm	325mm
	J2 axis		225mm	
Operation Range	J1 axis		340(±170)°	
	J2 axis		290(±145)°	
	J3 axis		200mm	
	J4 axis		720(±360)°	
Maximum Speed	Combined(J1+J2+J4)	6,900mm/sec	7,600mm/sec	8,300mm/sec
	J3 axis		2,080mm/sec	
	J4 axis		2,500°/sec	
Portable Weight			Maximum 6kg (Rating 3kg)	
Repeatability*	Combined(J1+J2)		±0.010mm	±0.012mm
Weight of Robot			36kg	37kg
Control Method			PTP (Point to Point) / CP (Continuous Path)	
Interpolation			3-dimensional linear and arc interpolation	
Teaching Method			Remote Teaching (JOG), Manual Data Input (MDI), Direct Teaching	
Teaching Pattern			Direct teaching using optional Teaching Pendant II Offline teaching using optional JR C-Points II PC Software	
Program Capacity			999 programs	
Memory Capacity			32,000 point	
Simple PLC Function			1,000 Steps	
External Input / Output			LAN･I/O-SYS (15 Inputs / 14 Outputs)･I/O-S･COM1･I/O-MT (Option)･ Fieldbus (CC-Link･DeviceNet･PROFIBUS･PROFINET･CANopen･Ethernet/IP Option)	
Power Source			AC200 ～ 240V(Single Phase)	
Power Consumption			1,850W	

* Position repeatability is not a guarantee of absolute precision. With usage conditions, it may exceed the above value.

L-CAT NEO-N

Iron Tip Soldering Robot

In-Line / Cell production type

The L-CAT NEO-N has been designed for an in-line or off-line process flow. It has been enhanced with a more sophisticated design and high-speed operating performance.

Preferred robot communication type

You can choose your own device when it comes to communication & teaching of the L-CAT NEO-N, such as an iPad or tablet PC.

PC Software Screen Example

Available for Windows7, Windows8.1, & Windows10 (32 bit & 64 bit) It can manage multiple robots via Ethernet Robot status data-logging – saved as a CSV file type
Teaching data editing and file transfer is very simple.

*iPad is a registered trademark of Apple Inc.
*Windows is a registered trademark of the Microsoft Corporation.

Built in monitor as standard equipment

The built in monitor displays the soldering process and helps to program the application.

Type		L-CAT NEO-N4330	L-CAT NEO-N4430	L-CAT NEO-N4530
Operation Range	X axis	300mm	400mm	500mm
	Y axis	300mm	300mm	300mm
	Z axis	80mm	80mm	80mm
	R axis	±180°	±180°	±180°
Repeatability		X, Y, Z axes ±0.01mm R axis ±0.02°		
Resolution		X, Y, Z axes 0.01mm R axis 0.1°		
Teaching Method		Remote Teaching (JOG) / Manual Data Input (MDI)		
Program Capacity		511 programs		
Memory Capacity		500,000 point		
External I/O	Input	39		
	Output	39		
Setting Temperature		0 ~ 500℃		
Solder Feeding Speed		1.0 ~ 50.0mm/sec		
Solder Feeding Amount Resolution		0.1mm		
Solder Wire Diameter	Using ZSB Feeder	Φ0.4~1.0mm (Option : Φ0.3mm)		
	Using Normal Feeder	Φ0.3 ~ 1.0mm		
	Using Large Diameter Feeder	Φ1.2 ~ 2.0mm		
Heater Capacity		200W (Max.)		
Power Source		AC94 ~ 260V (Single Phase)		
Power Consumption		650W (Max.)		
Dimensions (W×D×H)		690×686×800mm	790×686×800mm	890×686×800mm
Weight		90kg	95kg	100kg

SR series

Iron Tip Soldering Robot

In-Line/ Cell production type

In-Line System

The SR series has a highly dense, automated pogo-pin component support system. This eliminates the need for custom fixtures for each particular application.
The through-hole components simply get loaded onto the PCB & the system takes care of the support of the components & rotation of the PCB for automatic soldering with an Apollo JC-3 robot. The high-speed, flexible connection type conveyor can be easily configured to meet the requirements of the line & process flow.

SR-IST
Installing / Setting Machine

SR-SOR
Soldering Machine

SR-SPD
Separating / Ejecting Machine

Type	SR-IST	SR-SOR	SR-SPD
Power Source	AC200±10%　50/60Hz		
Power Consumption	1.5kW	1kW	1kW
Working Area	120×80 ～ 275×190mm		
Dimensions(W×D×H)	1200×950×1700mm	996×950×1700mm	1200×950×1700mm
Weight	300kg		

Off-Line System

This model has consolidated the functions of
the in-line system into one machine which allows for a smaller footprint. This unit is designed for small lot, high-mix production.

SR-IAF
Off-Line Type Automatic Soldering Machine

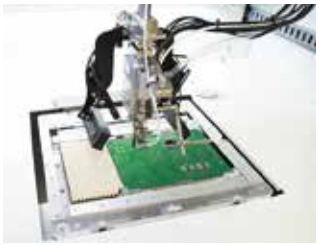
Type	SR-IAF
Power Source	AC200±10%　50/60Hz
Power Consumption	1.5kW
Working Area	120×80 ～ 275×19mm
Dimensions (W×D×H)	1000×950×1700mm
Weight	300kg

Standard Equipment

Multi Placement Jig

A highly dense array of pogo pins trace the shape of the thru-hole components to lock the pins into position to support the components. The entire assembly is then flipped 180 degrees for automatic, robotic soldering with the Apollo Seiko JC-3 solder robot. This eliminates making costly custom fixtures.

Image Recognition System



This system checks the lead shape / pattern before soldering. If there are any issues with the images, the system can be programmed to select, stop or skip a specific operation, thus preventing defective soldering.

Rudra (Cyclone Type Iron Tip Cleaner)

Vortex-like air flow generated inside the cleaner and residual solder on the iron tip is easily removed without any solder ball spattering.
There are no consumable parts and the unit is maintenance free. Iron tips of virtually any shape can be used.

APOLLO SEIKO

J-CAT CMS

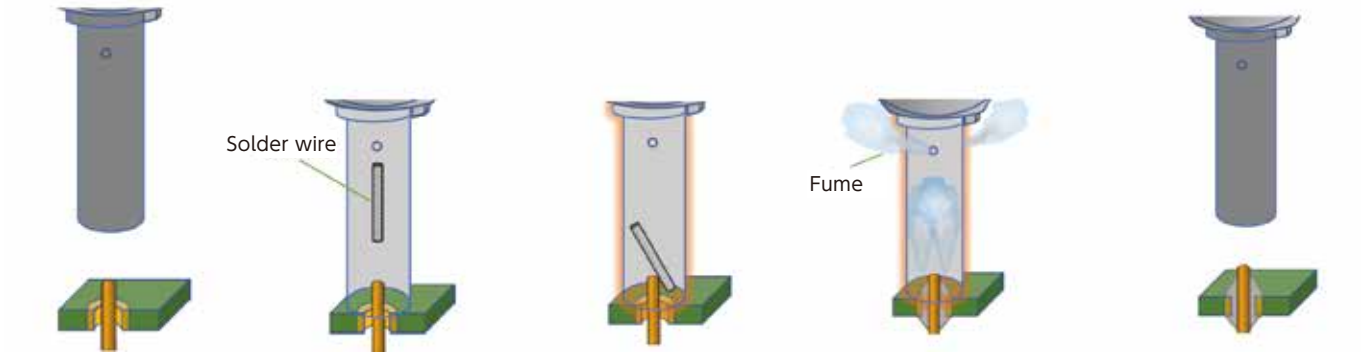
Metal Sleeve Soldering Robot

Cell production type

The J-CAT CMS is the latest sleeve-type soldering robot that adopts a metal sleeve. By adopting a cartridge heater for the lightweight and compact head, it is possible to insert the sleeve into narrow spaces.

Patented

Sleeve Soldering Mechanism



The CMS head moves to a specified position.

After pre-heating the pad or land by the sleeve, the solder wire is then cut and dropped into the solder joint area.

The solder wire is heated up and melts inside the sleeve.

The solder melts smoothly because the flux fumes are exhausted through the vent holes on the sleeve.

The entire amount of solder is fed, completely melts and is delivered to the solder joint to ensure consistent solder results.

No spattering or solder balls

When the solder is supplied to the work area or when the solder melts, the sleeve creates a closed space, preventing solder balls and flux spatter.

Ensures a constant amount of solder

It cuts the solder wire to the set amount, then supplies it to the work point, and then melts the solder.
As the solder does not get wet within the sleeve, all the cut solder is supplied to the point to ensure the consistency in the amount of solder.

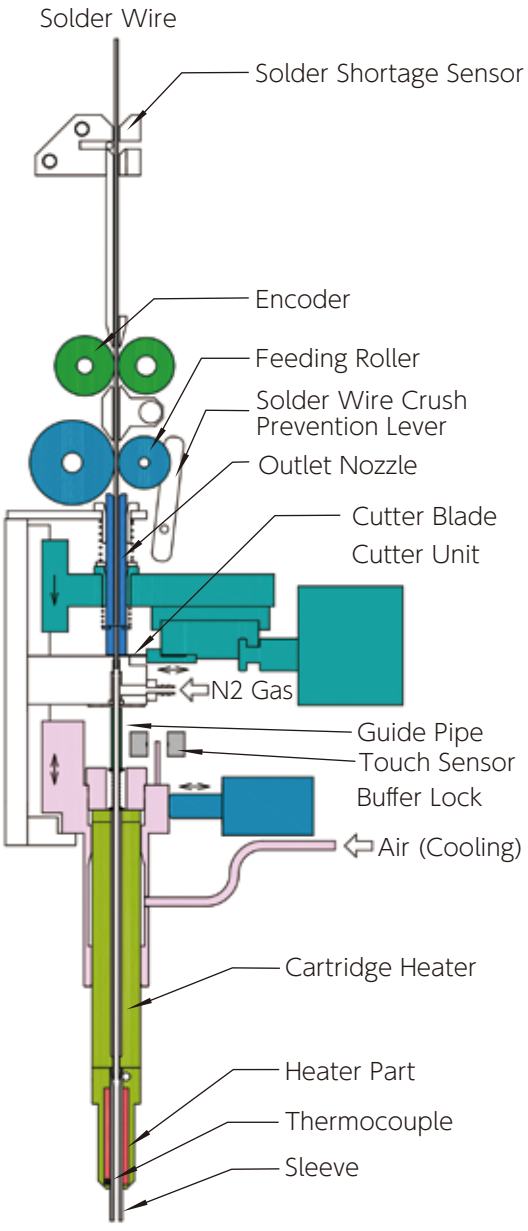
Barrel fill and perfect back fillet

Utilizing flux that melts at a lower temperature compared to conventional solder wire, it flows along the pins before the solder melts. So, it makes through-hole and back fillet soldering easy.

No position variation due to tip erosion

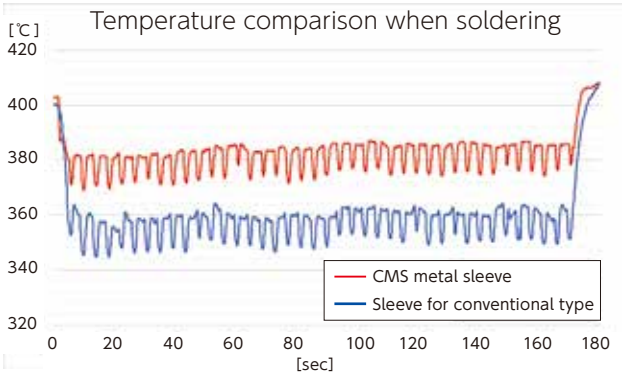
With iron tip soldering, position variation occurs when using a new iron tip compared to using an old one which has been worn down through use.
Since the sleeve does not get wet with solder, the sleeve tip does not incur erosion.

CMS Head Structure



Metal sleeve

Because of the highly conductive metal used in the unique design, soldering temperature is minimized and the recovery time is much faster.



Nitrogen gas generator APN-05 (Standard)

This is an N2 dispenser designed specifically for use with Apollo Seiko N2 tips.
Gas passes through from the inside of a cartridge heater to the inside of the sleeve and is discharged from the tip of the sleeve. it can solder in a nitrogen gas atmosphere.

Touch sensor / Buffer lock

When the sleeve tip touches to the work, it stops to move in the Z direction. The buffer lock function registers the Z height, and it fixes the height of the sleeve tip.
With the buffer lock set as a reference height, Z is always soldered at a constant height.

Cartridge heater

The shape of the cartridge heater is slim, and it is designed to be used in narrow spaces such as high-density PCB layouts. It has higher power and a quick response.

Position correction unit F2R-3000 (Standard – 3-axis only)

This unit corrects positional displacement that can occur when exchanging the cartridge heater and sleeve. It compares the programmed position data with the actual location of the cartridge and sleeve after replacement.

Drill cleaner DRC-1400 (Optional)

The rotating drill bit removes any dross from inside the sleeve.

Type		J-CAT 330 CMS	J-CAT 340 CMS
Operation Range	X axis	300mm	400mm
	Y axis	320mm	400mm
	Z axis	100mm	150mm
Portable Weight (X table stage)		15kg	
Repeatability		X,Y,Z ±0.007mm	
Teaching Method		Remote Teaching (JOG) / Manual Data Input (MDI)	
Program Capacity		999 programs	
Memory Capacity		32,000 points	
External input / Output		IN: 16 OUT: 16	
Soldering Condition		500 conditions	
Setting Temperature		0~500℃ (1℃ increments)	
Solder Feeling Amount		2~10mm (0.1mm increments)	
Solder Feeling Speed		10,20,30,40,50mm/sec (selectable)	
Usable Solder Diameter		Φ0.4 ~ 0.8mm	
Heater Capacity		200W	
Supply Air		0.4~0.5MPa (Dry & Clean Air)	
Power Source		AC94~260V (Single phase)	
Power Consumption		620W (Max.)	
Dimensions (W×D×H)		682×536×809mm	674×670×857mm
Weight		45kg	52kg

*Position repeatability is not a guarantee of absolute precision. With usage conditions, it may exceed the above value.

CMS-1AU

Sleeve Soldering Robot

In-Line type

Single axis CMS robot for dedicated machines and in-line use.

1-axis robot equipped with only Z-axis

An in-line metal sleeve soldering robot that combines a CMS head and programmable Z axis. This allows for simple integration with any robot.

Type	CMS-1AU
Operation range (Z axis)	100mm
Portable Weight	5kg
Repeatability	±0.02mm
Soldering Condition	500 conditions
Setting Temperature	0~500℃ (1℃ increments)
Solder Feeling Amount	2~10mm (0.1mm increments)
Solder Feeling Speed	10,20,30,40,50mm/sec (selectable)
Usable Solder Diameter	Φ0.4~0.8mm
Heater Capacity	200W (Max.)
Air Supply	0.5MPa
Power Source	AC100~240V (Single phase)
Power Consumption	540W (Max.)

*These specifications may be changed for improvement without prior notice.

STAR GATE

Laser Soldering Unit

In-Line/ Cell production type

Controls the laser power according to the soldering temperature.

Coaxial laser head

Laser controller

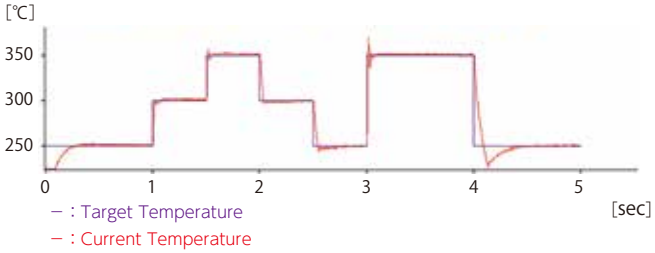
Attached with a robot
(J-CAT330 STAR GATE)

In conventional laser soldering, all the laser power is used as a base to set the required temperature. However, the type of material and components around the soldering item may cause a variation in the temperature. Thus, causing unexpected results such as overheating or insufficient heating of the solder and consequently, damaging the product.
Thanks to the development of the STAR GATE coaxial laser head, the new generation of laser soldering, this deficiency has been overcome.

Set the laser power according to the soldering temperature

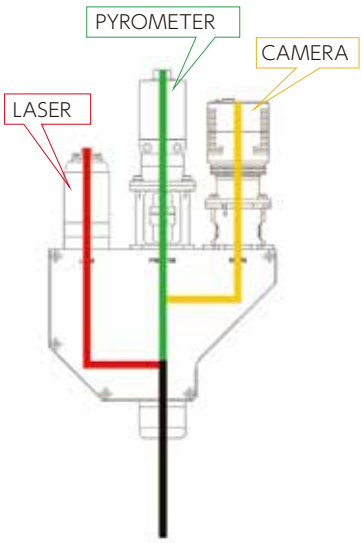
With STAR GATE it is possible to control the soldering process with the actual temperature.
The user does not need to consider the power of the laser, it is automatically set according to the temperature.

【 Temperature Setting Waveform 】



The laser light beam and the infrared pyrometer radiation is delivered from a coaxial laser head

We have coupled the infrared pyrometer and laser beam into the coaxial laser head, which provides real-time control and precision of the soldering process temperature. (sampling cycle 0.0001sec)

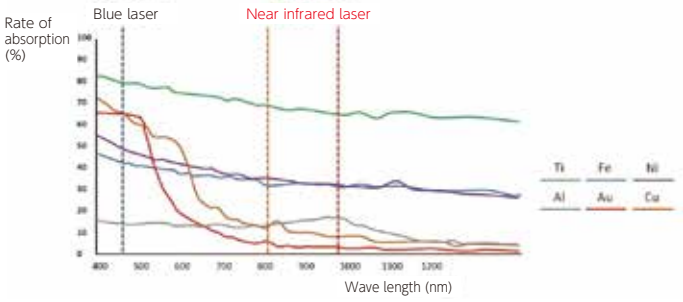


【 Inner drawing of the coaxial head 】

Two types of wave are available; infrared or blue wave

Options are an 80W laser with an infrared wavelength of 925nm, or a 20W or 50W blue laser with a wavelength of 450nm.
Because the absorption rate of the blue laser in shiny metals such as gold and bronze, it requires less power to solder than the infrared laser.
The light reflection is also lower, which helps avoid damaging the surrounding components or solder mask.

【 Absorption level of some metals 】



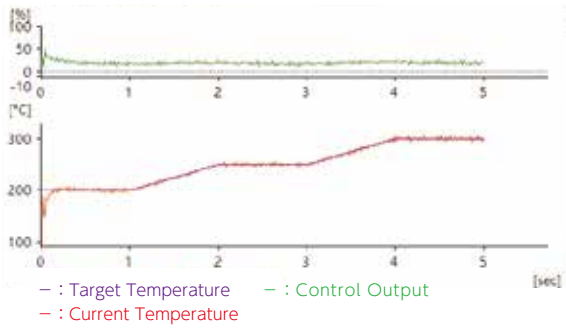
A minimun fiber size of 105µm

Thanks to the use of 105µm size fiber, it is possible to generate a beam from a diameter of Φ18µm.

*The minimum size of laser beam which can be controlled with temperature is Φ250µm or more.

Visualization of the Soldering temperature & laser power

Displays the control status through PC software.



MLU

Laser Soldering Unit

In-Line/ Cell production type

A low-priced, entry-level, conventional model a laser solder machine.
This system is controlled by laser power instead of temperature.
It is composed of a laser controller, laser oscillator, and laser head.

Small size laser head

Due to its small size of 104 mm, it is perfect for mounting on In-Line machines. Furthermore, the laser beam and the camera are configured in a coaxial head, capable of microscopic adjustments.

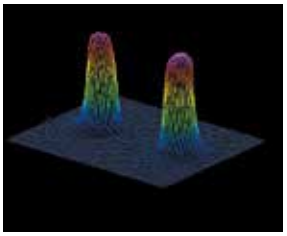
Inexpensive introduction cost

In cases where it is not necessary to control the laser power by temperature, it is more cost effective than STAR GATE.

APOLLO SEIKO

Twin Beam Function

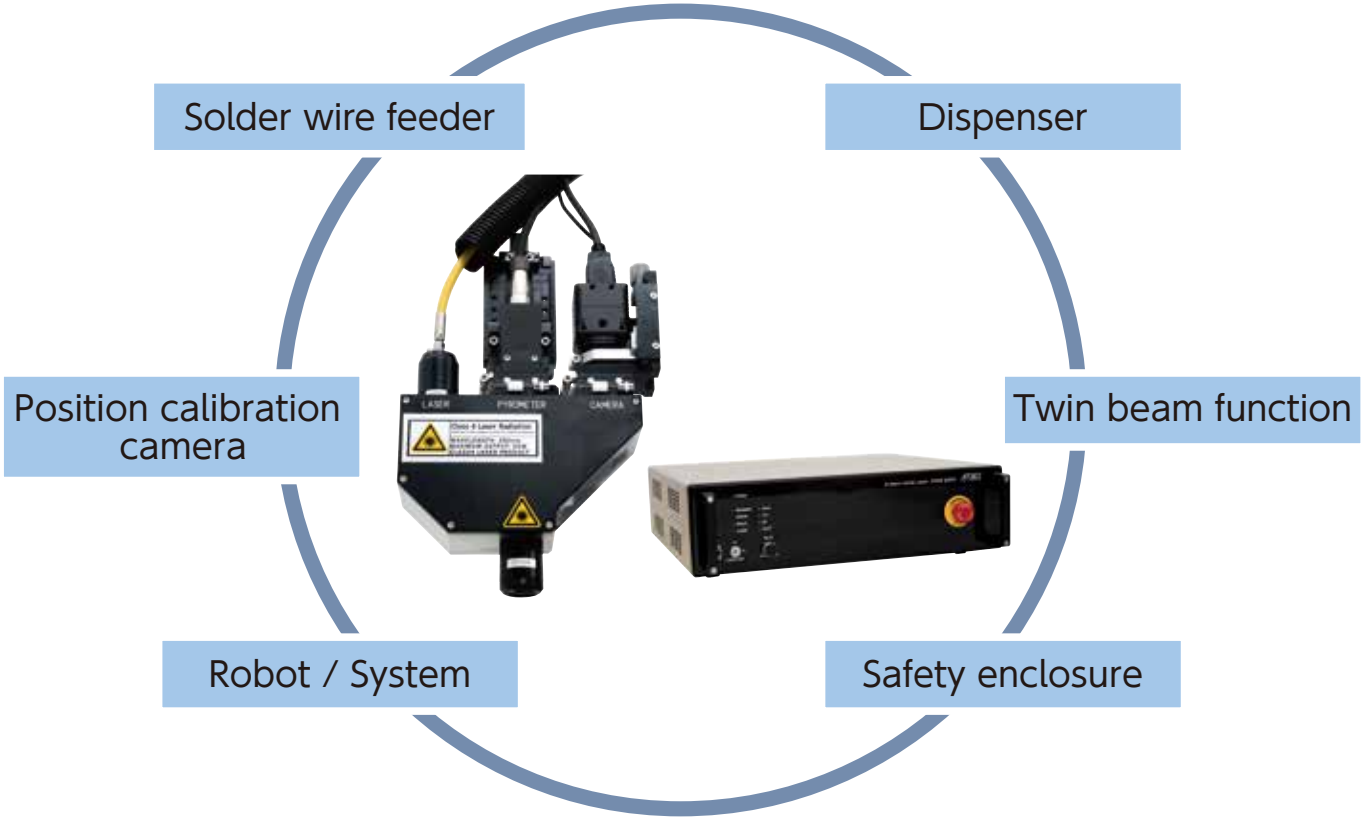
This special optical system splits one laser beam into two.
The split beam easily mounts to the conventional laser head.



The electrodes of the right and left side are heated by the laser at the same time. It prevents the flotation, inclination and the Manhattan phenomenon of the tip part and allows stable soldering. It can solder a pair of soldering points at the same time which shortens the cycle time.

Combination Variety

This system can easily meet virtually any user requirement & process flow.



■MLU / STAR GATE

Type		MLU-808FS	MLU-980FS	STAR GATE	STAR GATE BLUE
Material		Semiconductor Laser			
Oscillation		Continuous Wave			
Wavelength		808nm	980nm	925nm	450nm
LD Output / Fiber Core Diameter		50W / 200 or 400μm		80W / 105 or 200μm	20W or 50W / 105 or 200μm
Guide Beam		650nm (±10nm)			520nm (±15nm)
Halation Prevention		Available			
LD Cooling System		Electric Cooling			
Coaxial Camera Monitoring Function		Available			
Coaxial Pyrometer Function		Not Available		Available	
Fiber Length		3M or 5M		3M or 5M	
Focused Beam Diameter		φ67μm~φ4000μm φ133μm~φ8000μm		φ18μm~φ2100μm φ33μm~φ4000μm	
Temperature Control	Upper Limit Type	Not Available		Not Available	
	Perfect Temperature Waveform Type	Not Available		Available (Internal Integrated Type)	
Pyrometer	Pyrometer Position	—		Arranged coaxially with the laser beam	
	Measurement Size	—		φ250μm	
	Measurement Temperature Range	—		140℃~700℃	
	Response Speed	—		0.0001sec	
Registered Waveform Capacity		16		32	
External Interface		RS232C or LAN + GPIO		RS232C + GPIO	
Dimentions (W×D×H)		【Laser Head】 104×192×63㎜ (Expect projection) 【Laser Oscillation Unit】 270×260×230㎜ 【Laser Controller】 430×350×149㎜		【Perfect Coaxial Laser Head】 185(W)×58(D)×279.5(H) (Expect projection) 【Laser Oscillation Controller】 ●925nm 80W Type / 450nm 20W type 448㎜(W)×504㎜(D)×132㎜(H) ●450nm 50W Type 448㎜(W)×584㎜(D)×175㎜(H)	
Weight		【Laser Head】 Approx. 1kg 【Laser Oscillation Unit】 Approx. 6.5kg 【Laser Controller】 Approx. 16kg		【Perfect Coaxial Laser Head】 Approx. 2.5kg 【Laser Oscillation Controller】 ●925nm 80W Type / 450nm 20W type Approx. 20kg ●450nm 50W Type Approx. 23kg	
Power		AC100V (Single Phase) 50~60Hz AC200V (Single Phase) 50~60Hz AC220V (Single Phase) 50~60Hz *Select one type		●925nm 80W Type / 450nm 20W type AC100-120V /AC200-240V 50/60Hz ●450nm 50W Type AC100-120V/AC200-240V 50/60Hz (Switching System)	
Power Consumption		1.1kVA or less		1.5kVA or less	

*These specifications may be changed for improvement without prior notice.

JC-3 series

3 / 4-axis Cartesian Robot

In-Line / Cell production type

Introducing the most suitable soldering robot for in-line production.
The combination of the Apollo Seiko soldering control unit and a Janome Cartesian robot.

3-axis type

4-axis type

Adaptable to the soldering process

Iron tip and laser soldering process; you can select the most suitable process and integrate it with this Cartesian robot.
Also, this system uses the same available options as the J-CAT series desktop robots.

A simple control

This system utilizes the same Teaching Pendant as on the J-CAT series robot.

Many stroke size options

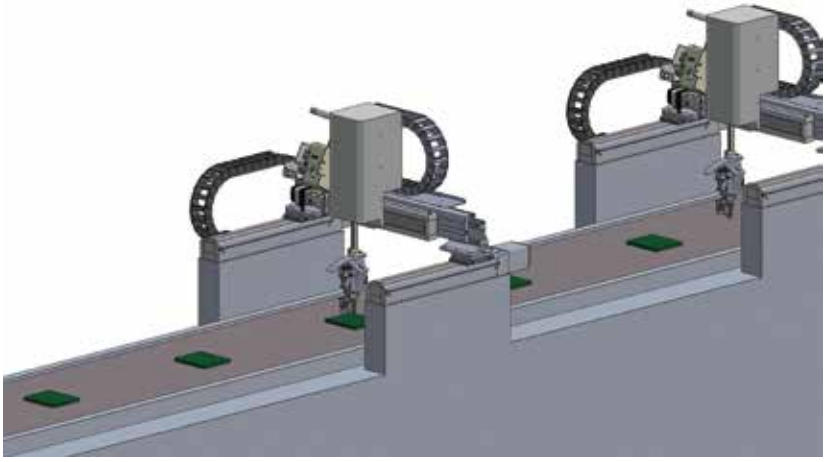
You can select the most suitable stroke size and the number of axes for your application requirement.

In-Line / Cell production

It can be integrated with a conveyor line, dual shuttle or a free-standing fixture as a option. You are free to choose the best method for your needs.

Robot Combination Example

JC-3-4A LYRA In-line type example



Type		JC-3-3A	JC-3-4A
Soldering Method		Laser	Iron
Number of Axes		3 Axes Synchronous Control	4 Axes Synchronous Control
Stroke	X axis (mm)	300/400/500/600mm	
	Y axis (mm)	300/400/500mm	
	Z axis (mm)	50/100/150/200mm	100/150mm
	R axis (deg)	—	±360°
Maximum Portable Lord (kg)		8kg	3kg
Maximum Speed 〈 PTP Movement *1 〉	X axis(mm/s)	300/400mm: 700mm/sec 500/600mm: 800mm/sec	
	Y axis(mm/s)	800mm/sec	800mm/sec
	Z axis(mm/s)	400mm/sec	400mm/sec
	R axis(deg/s)	—	900°/sec
Repeatability (mm) *2	X axis(mm/s)	±0.02mm	
	Y axis(mm/s)	±0.02mm	
	Z axis(mm/s)	±0.02mm	±0.01mm
	R axis(deg/s)	—	±0.008°
Teaching Method		Remote Teaching (JOG) / Manual Data Input (MDI)	
External Input / Output		I/O-SYS：16 Inputs/ 16 Outputs　I/O-1：8 Inputs / 8 Outputs I/O-MT (Optional)：for auxiliary axes (pulse string input type*8) control, control up to 2 axes Fieldbus (Optional)：Choose CC-Link / DeviceNet / PROFIBUS COM Port (RS232C)：COM1, COM2, COM3 (for external device control) EMG OUT: For external safety circuit connection MEMORY：For USB memory connection LAN：For PC connection via the Ethernet SWITCHBOX (Optional)：Dedicated switchbox connector	
Power Source		AC90~240V (single phase) 50/60Hz + external DC48V (depending upon facility supply)	

* 1 Maximum speed may be unreachable depending upon the tool attachment setup.
* 2 Repeatability measured at a constant temperature, so absolute precision is not guaranteed.

AF Series

Selective Flow Soldering System

In-Line / Cell production type

The new cost-effective AF Series has the same core functions as our F-CAT Series. You can select between In-Line type and All-In-One type. In each model an auto nozzle cleaner, flow height sensor & temperature control function as well as XY camera position sensing is included. These new selective flow systems include the option of QR / Barcode reading & MES data storage.

AF iN4050 Z3 In-Line type

A 3 step solder system including pre-flux, pre-heater and solder section. The modular type system allows for customization and expansion of your equipment.

Model		AF iN4050 Z3	AF iN2535 Z3
Power Consumption		25kW	
Power Source		AC200~240V 50/60Hz 3Phase	
N2 Requirement		0.2~0.4MPa 99.99% 20±5ℓ/min	
Working Area (X×Y)		500×400mm	350×250mm
Dimensions (W×D×H)	Flux & Preheater	2000×1640×1527mm	1850×1490×1527mm
	Solder	1300×1640×1527mm	1150×1490×1527mm

AF iN4050A In-Line / All-in-one type

This is an all-in-one selective flow system for production in a high-mix, low-volume environment. It is possible to select from the combination of conveyor type and the application board size (robot stroke).

Model	AF iN4050A	AF iN2535A
Power Consumption	11kW	
Power Source	AC200~240V 50/60Hz 3Phase	
N2 Requirement	0.2～0.4MPa 99.99% 20±5ℓ/min	
Working Area (X×Y)	500×400mm	350×250mm
Dimensions (W×D×H)	1300×1640×1527mm	1150×1490×1527mm

AF 4050A Off-Line, All-in-one Selective Flow System

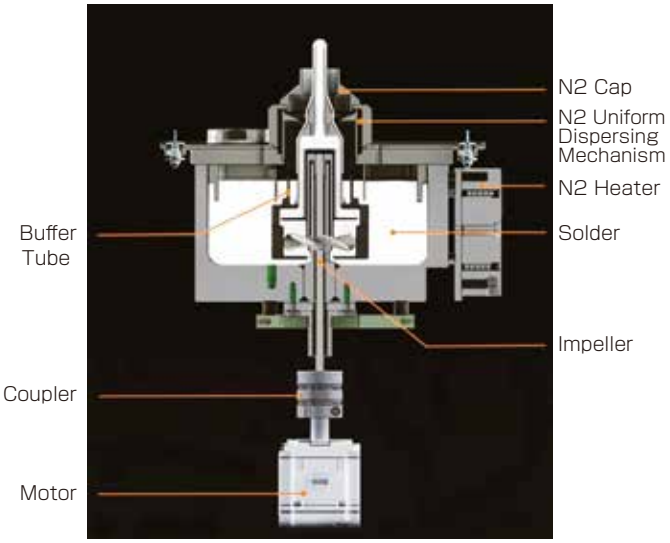
This model is an all-in-one machine for off-line production. It is equipped with all the automatic nozzle cleaning, automatic solder feeder, and position calibration camera, etc.

Model	AF 4050A	AF 2535A
Power Consumption	11kW	
Power Source	AC200~240V 50/60Hz 3Phase	
N2 Requirement	0.2 ~ 0.4MPa 99.99% 20±5ℓ/min	
Working Area (X×Y)	500×400mm	350×250mm
Dimensions (W×D×H)	1200×1930×1527mm	1050×1780×1527mm

AF series Features

Solder Bath

Utilizing a small tank of 6.5kg reduces the machine starting time and suppresses the dross formation. The impeller rotation is connected directly to the motor. As a result, this system prevents the belt and chain traction from stretching or skidding and provides stable rotation. Also, the automatic nozzle cleaner and automatic flow height sensor function provides for controlled and smooth solder flow.



Nozzle Type

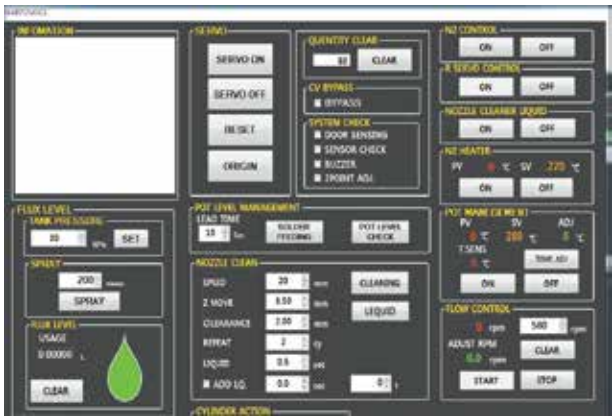
You can select the nozzle type that meets your application needs.

Standard Type (Circle)

Customization Type (Example)

Software and Monitor Screen

The monitor screen displays all the necessary information needed to program and run the machine.
The teaching can be performed via a PC.



Micro Jet Flux

5 dot size levels are available. The application cycle range is from 10~100ms allowing the selection of the most suitable flux quantity for each workpiece.

Standard Nozzle

Option Nozzle

Remote Control Function

Capability to be controlled remotely by connecting to the internet. The remote control and internet connection allows the selective soldering system to set up, teach, perform software updates and inform if some trouble occurs.

Utility – Machine with various convenience functions

Automatic Nozzle Cleaner

The nozzles can now be cleaned automatically which improves safety and ease of maintenance.

Automatic Solder Feeder

Solder wire is used instead of bar solder and is automatically fed into the solder pot which is easier and safer.

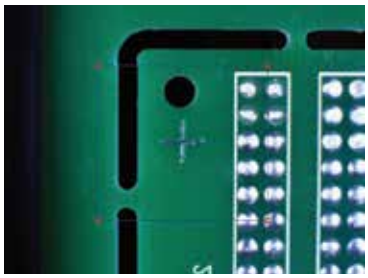
Camera Scan Teaching

The AF series application is directly scanned so teaching can be performed.

Flow Height Control

The laser sensor observes and calibrates any flow height changes that occur from the solder surface height in the bath, and any variation by the rotation of the impeller.

Position Calibration Camera



It detects and calibrates any application shift before pre-fluxing and soldering.

N2 Heater

The unit heats the nitrogen coming into the solder pot and controls the nitrogen temperature.

AF Series Function List

Standard Function

■Monitoring Camera
■Solder Feeder
■Dot Fluxer
■Camera Scan Teaching
■Nozzle Cleaner
■Position Calibration Camera
■Flow Height Control
■Flow Temperature Control
■Pre- Heating
■Flux Detection Sensor

Common Function

■Nozzle Size　Φ4～20㎜
■Solder Bath　6.5kg

Option

■N2 Requirement
■Flow Height Control (Vision camera type)
□QR / Barcode Reader
□MES Data Storage
□Loader / Unloader / Conveyor

Note: It needs the specification examinations when using these options (□).

SSA

Solder Feeder for Automation Equipment SSA

The solder can be fed forward or in reverse and controlled by an external I/O controller. If used to control the solder liquid surface level, it automatically keeps the level constant. In addition, it can be attached to the equipment as a feeder of an automatic soldering system.

Type	SSA
Power	AC100V / AC220V 50/60Hz
Using Motor	DC motor 5W
Solder Wire Diameter	Φ0.4~2.0mm
Solder Feed	External control (high / Low)
Solder Feed Speed	10~30mm/sec.
Solder Feed Reverse	External control (30mm/sec.)
Sensor	clogged / shortage sensor
External Control	Available
Weight	Approx. 2kg
Accessories	I/O Connector, External Power Supply Connector, Power Cable
Option	Solder Wire Feeding Tube

HASL-130

Hot Air Unit

This Hot Air Cartridge has been developed with Apollo Seiko's direct heating technology, which was accumulated by the development and production of our iron cartridges. The fine Hot Air Cartridge enables micro and narrow pitch soldering. The shape and size of the air outlet can be fabricated per your application requirements.
The control unit has excellent response and a very stable high-performance temperature controller. The mass flow controller can regulate accurate air (nitrogen) flow.
It is also possible to use as a pre-heater prior to soldering.

Type		HASL-130
Power Supply		AC100~240V(Single Phase)
Temperature Range		0~500°C
Flow Amount		0.1~5NL/min
Hot Air Cartridge		130W DC Heater
Weight	Control Unit	Approx. 3kg
	Cartridge Unit	Approx. 0.5kg
Option		Nitrogen Generator APN-05

Control Unit

Cartridge Unit

J-CAT GRT

Board Cutting Desktop Robot

With the addition of a router life sensor and a USB camera teaching function (optional), the J-CAT GRT is much more efficient and allows for a more stable process.

Type	J-CAT320GRT	J-CAT330GRT	J-CAT340GRT
Divisible Area (W×D×H)	195×190×35mm	295×315×90mm	395×395×82mm
Dimensions (W×D×H)	350×439×632mm	618×586×657mm	647×640×665mm
Weight	28kg	42kg	51kg
Applicable Board Materials	Glass epoxy / Paper phenol laminate, etc. (Maximun thickness1.6mm)		
Tool Specifications	DC brushless motor Rated speed 40,000rpm		
Trace Accurancy	0.2mm (guide value) (When Router 0.8mm, Cutting speed 10mm/s, PCB thickness 1.6mm)		
Vacuuming Method	Ejector		
Teaching Method	Remote teaching(JOG) / Manual data input(MDI)		
Power Supply	AC100~240V(Single phase) / 250VA		
Air Supply	0.5MPa (Only dry clean air)		
Air Consumption	200Nl/min		
Standard Accessories	Teaching pendant,Manual,Software(Factory installed), Dust collecting kit, Router bit(Consumable) Spare vacuum nozzle		

J-CAT SCD

Screw Tightening Desktop Robot

There are two types of drivers: a Servo and mechanical torque driver.
The robot software can detect a jammed screw, loose screw and driver idling.

Type	J-CAT320SCD	J-CAT330SCD	J-CAT340SCD
Move Area	X=200mm Y=200mm Z=50mm	X=300mm Y=320mm Z=100mm	X=400mm Y=400mm Z=150mm
Dimensions (W×D×H)	268×387×554mm	560×535×659mm	556×631×807mm
Weight	26kg	39kg	47kg
Portable Weight	7kg	15kg	
Max Speed PTP X,Y Axis	700mm/sec	900mm/sec	
*1 Z Axis	250mm/sec	400mm/sec	
Resolution (X,Y,Z Axis) *2	±0.006mm	±0.007mm	
External I/O	I/0-SYS Input 16, Output 16		
Teaching Method	Remote Teaching (JOG) / Manual Data Input (MDI)		
Available Screw	M1.0~M8.0mm		
Output Torque	0.03~5.55N·m		
Power Source	AC90~250V(Single Phase)		

*1 Maximum speed cannot be achieved when the robot is bearing its maximum portable load.
*2 Position repeatability is not a guarantee of absolute precision.

SZB-8000

High Power Soldering Station

This soldering station consists of a temperature controller and ZSB rollers,
which helps prevent the solder from spattering.
This system is very efficient and easy to use.

Iron Unit

AM-8000
(Pistol Type)

PM-8000
(Pencil Type)

Option Iron Unit Stand

AK-1 (for PM Iron Unit)

AK-2 (for AM Iron Unit)

Type	SZB-8000
Solder Wire Diameter	0.4～1.6mm
Power Supply	AC100～240V (Single Phase)
Power Consumption	150W
Setting Temperature	0～500℃
Temperature Setting	PID control
Usable Iron Cartridge	DS type (130W Heater)※p47、48
Solder Feed	1 Pulse timer / Continuous
Solder Feed Speed	0～40mm/sec
Dimensions (W×D×H)	100×338×174mm
Weight	2.7kg (Main Unit)
Constitution	Main Unit, Iron Unit, Feeding Tube, Power Cable, Tip removable Pad, Fuse 2A, Iron cartridge

TTM-3000N

Manual Soldering Station

The high-powered soldering station provides 100 watts of soldering power. The TTM-3000N is ideal for lead free soldering due to the extremely fast heat up, temperature recovery and the ability to integrate N2 gas.
The N2 gas can be pumped directly into the TTM-3000N via APN-05 generator or factory supplied Nitrogen.
Statistical temperature data can be downloaded to a PC using an optical USB cable.

Type	TTM-3000N
Power	AC90 ～ 264V (Single Phase)
Heater Capacity	130W(max) DC48V
Grounding Resistance	Less than 2Ω
Temp. Control	PID control
Control Interval	0.1second
Dimensions (W×D×H)	110×115×135mm
Weight	2kg
Max. Power Consumption	150W
Accessories	Iron Cartridge Grip, Iron Cartridge, Iron Holder Stand, Tip Removable Pad, Ground Terminal, Fuse 2A, Power Cable

TTM-1000H

Lead Free Manual Soldering Station

This equipment is designed to produce lead free soldering with no static electricity.
It is economical because the only necessary replacement part is the Iron tip.

Type		TTM-1000H
Power		AC100V, AC115V, AC220V
Setting Temperature		200~420℃
Heat Capacity		90W
Output Power		36VAC, 400KHz High frequent current
Temp. Consistency		±2℃ (No load)
Raising Time		25sec. (300℃)
Weight	Contraller	2.5kg
	Iron unit	0.1kg
Accessories		Iron Cartridge Grip, Iron Cartridge, Iron Holder Stand, Power Cable

ZSB-10

Zero Solder Ball Feeder

The ZSB feeder has a built-in roulette cutting blade, which creates evenly spaced holes while precisely feeding solder wire. During soldering, the flux is released evenly through these holes which provides consistent flux coverage without spattering.

Type	ZSB-10
Power	AC100~240V (Single Phase)
Power consumption	65W
Solder Wire Diameter	φ0.4 ～ 1.0mm
Weight	1.5kg
Dimensions (W×D×H)	190×85×80mm
Accessories	Foot Switch, Power Cable
Option	Solder Wire Feeding Tube

Option

Accessories

ZSB
Zero Solder Ball Feeder

SC+AⅡ
Soldering Application Position Calibration System

ARC-5000
Iron Unit Electric Arch

APN-05
Permeable Membrane System
Ultra Small N2 Gas Generator

CRB-A2
Air blow from two directions

BRC-3000
Rotary Iron Tip Cleaner

Robot example with accessories

Option	Robot	Iron tip type		
		L-CAT EVO-Ⅱ	J-CAT LYRA	OMEGA
		P7-8	P9-10	P11-12
ARC-5000	Iron Unit Electric Arch P10	–	○ J-CAT320LYRA cannot be mounted	–
DRC-1400	Drill Cleaner DRC-1400 P19	–	–	–
ZSB	Solder Wire Pre-heater P37	○	○	○
YPH-10	Solder Wire Pre-heater P37	○	○	○
CRB CRB-A2	Air blow from two directions P38	○	○	○
Rudra	Cyclone type iron tip cleaner P38	–	△ ※1	–
SRC-3000 SRC-500DC BRC-3000	Rotary Iron Tip Cleaner P38	○	○	△ ※2
SC+AⅡ	Soldering Application Position Calibration System P39	○	○	–
CSS-2100	Small Soldering Camera Monitor P40	○	○	○
CVR-2100	High-Quality Portable Video Recorder P40	○	○	○
APN-05 APN-12	N2 Gas Generator P41	Standard equipment in the robot	○	○ ※3
NCM-02	N2/O2 Concentration Measuring Instrument P42	○	○	○
F2R-3000	Automatic Tool Position Correction Unit P42	–	○	–
TTM-140	Tip Thermometer P42	○	○	○
VAC-1000 VAC-3000	Fume Extractor P43	○	○	○
VAC-4001A VAC-4002A	Fume Extractor P43	○	○	○

Robot example with accessories

Iron tip type				Sleeve type		
SR-LYRA Ⅱ	JS-3 LYRA Ⅱ	L-CAT NEO-N	JC-3 LYRA Ⅱ	J-CAT CMS	CMS-1AU	JC-3 CMS
P13	P14	P15	P25-26	P17-20	P20	P25-26
–	○	–	○	–	–	–
–	–	–	–	○	○	○
○	○	○	○	–	–	–
○	○	○	○	–	–	–
○	○	○	○	–	–	–
–	△ ※1	–	△ ※1	–	–	–
○	○	○	○	–	–	–
–	○	–	○	○	–	○
○	○	○ Standard equipment	○	○	○	○
○	○	○	○	○	○	○
○	○	Standard equipment in the robot	○	○ Standard equipment	Standard equipment in the controller	○ Standard equipment
○	○	○	○	○	○	○
–	○	–	○	○ Standard equipment	–	○ Standard equipment
○	○	○	○	○	○	○
○	○	○	○	–	–	–
○	○	○	○	○	○	○

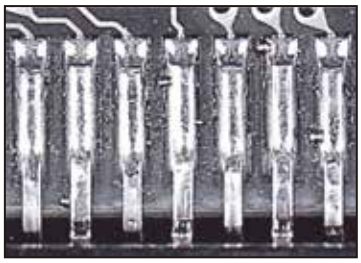
*1 It can be used only when using ARC-5000
*2 It needs to control the I/O of the unit when using SRC-500DC or BRC-3000
*3 When it uses the alarm signal of APN-05, connect to an external device.

ZSB

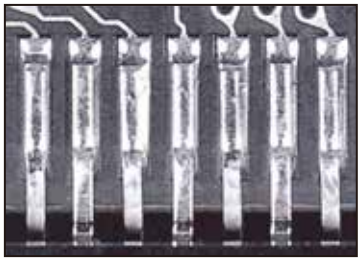
Solder Ball Spattering Prevention Roller

The built-in roulette cutting blade makes evenly spaced holes, while precisely feeding solder wire. During soldering, flux is released evenly through these holes. This provides consistent flux coverage without spattering and allows solder to melt on a clean, active surface.

Comparison Test Results:

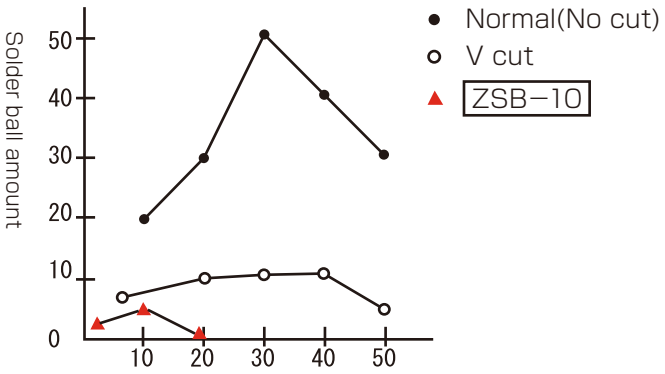


Solder ball spreading test without ZSB



Solder ball spreading test with ZSB

Test Results



Solder ball spattering distance(mm)

Comparison Test Conditions	
Iron Temperature	350℃
Solder Feeding Spread	10mm/sec
Solder Feeding Quality	100mm
Solder Diameter	0.5mm (.020") Sn60%Pb40% Flux2%

YPH-10

Solder Wire Pre-heater

The stainless steel sleeve is equipped with two heaters to pre-heat the solder wire as it is being fed. This helps to prevent solder ball spattering by pre-heating the solder wire & internal flux. This is designed to be used with large diameter solder wire and is effective in reducing tact/cycle time, as well as improving quality in lead free and tin/lead applications.

Solder Wire Heater

Temperature Controller

Type	YPH-10
Setting Temperature	0 ～ 150℃
Heater Capacity	10W
Power Source	AC100 ～ 240V (Single Phase)
Solder Wire Diameter	φ1.0 ～ 1.6mm (φ0.8 optional)
Constitution	Temperature Controller, Solder Wire Heater, Attaching Bracket, Heater Cable,Power Cable, Feeding Tube

Iron Tip Cleaners

You can select the iron tip cleaner based upon your application.

Air Blow Iron Tip Cleaner

CRB

Air blow from one direction

CRB-A2

Air blow from two directions (front & back)

Rudra

Cyclone type iron tip cleaner

*Rudra can only be used with the ARC-5000

Rotary Iron Tip Cleaner

SRC-3000

The wet sponges rotate in one direction to clean the iron tip. The soldering debris drops down into the reservoir below.

SRC-500DC

Based upon the I/O signal, the wet sponges can be programmed to rotate forward or backward to allow for more thorough tip cleaning.

BRC-3000

The stainless steel brushes rotate to remove oxides from the tip and are designed to be utilized in lead free process.

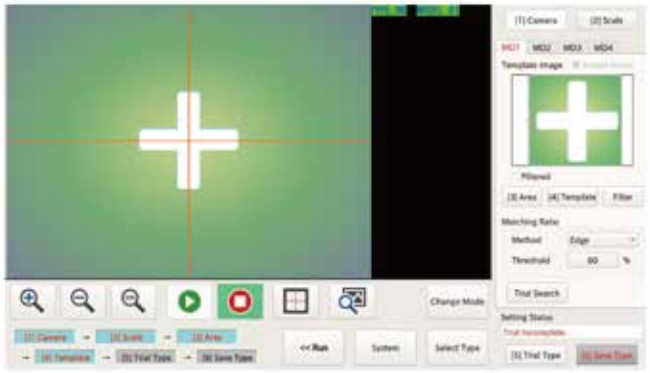
SC+A Ⅱ

Soldering Application Position Calibration System

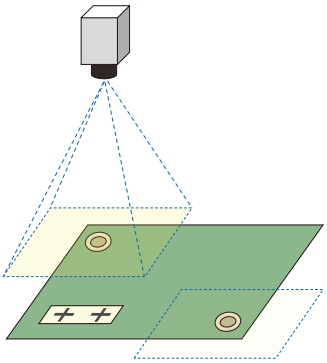
The position calibration camera has been designed exclusively for use with our soldering robots.

Useful for solving problems with solder substrate position. Calculates the difference in the position that may occur in the movement of the workpiece or problems with the accuracy of the jig.

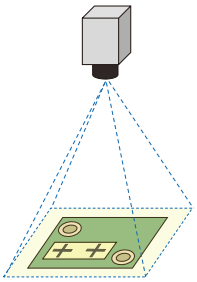
It detects the difference in the original position by checking the fiducial, or other specific point, and comparing it with the original position. It then sends this coordination data to the robot.
The robot calculates the necessary adjustments for a proper soldering process.



Methods to register the base data



2 points calibration



1 point calibration

SC+A II can use the Teaching Pendant for settings so no PC is required.
Configuring the image processing is easy by following the on-screen steps.

Type	SC+A Ⅱ
Mountable Robot	J-CAT/JC-3/JS-3 Series / L-CAT EVO-Ⅱ
Sensor	1/1.8" Color CMOSsensor /Rolling shutter
Image Processing	FPGA High speed picture processing engine (Incorporating camera)
Effective Pixels	1600×1200
Search Method	Pattern maching (with Masking function / Pre-processing filter)
Registered Model Number	100 models (with retry functions)
Setting Method	No PC necessary / Enable to set by main unit
Robot Coordinates Calibration	X,Y,R-Axes
Accessories	Camera for position calibration, lens, Ring Lightning (White), Mounting bracket, LAN cable

CSS-2100

Small Soldering Camera Monitor

This micro camera easily attaches to the Apollo soldering robot. The function of the CMOS camera is for teaching and process monitoring. Due to the miniature size, each camera can be easily integrated on all Apollo robots.

When attaching to the equipment

Monitoring image

Type	CSS-2100
Sensor	1/4inch color CCIQⅡ
Indication Pixel	316K pixel
Resolution	400TV Line
Picture Signal	NTSC video
Focus Distance(Min.)	Approx. 20mm
Min.Vision Area	Approx. 5mm (D) ×40mm (W)
Focus Distance(Max.)	Approx. 100mm
Max.Vision Area	Approx. 30mm (D) ×40mm (W)
Ambient Environment	−10℃~45℃, 85% no condensation
Voltage	DC5~12V(AC100~240V Multi Adaptor)
Power Consumption	50mA
Accessories	Attaching Bracket, Adapter, Power+Data Cable

CVR-2100

High-Quality Portable Video Recorder

Connecting the CSS-2100 camera to this CVR-2100 device allows for real time recording of the soldering process. The stored data on the SD card makes it easy to transfer to a PC.

Type	CVR-2100
Memory Type	SD card (Max. 32GB)
Resolution	1280×720 pixels
Video Input	Composite AV input
Video Output	HDMI / Composite AV output
Weight	260g
Dimensions(W×D×H)	75×25×130mm
Battery	4400mAH (Max. recording time 9h)
Accessories	Multi-adapter, USB cable, AV cable

Nitrogen Gas Generator

Nitrogen gas helps eliminate oxidation of the iron tip and soldering surface.
It also increases solder wettability and provides better results and minimizes solder defects.

APN-05 For a desktop robot

Permeable Membrane System Ultra Small N2 Gas Generator

This is an ultra small N2 gas generator which can be built into a soldering robot or attached externally.

Type	APN-05
Nitrogen Gas Flow	0.3 ~ 0.6L/min
Nitrogen Gas Con	99% (When nitrogen gas flow 0.5L/min)
Air supply	0.4 ~ 0.5MPa (Only dry & clean Air)
Power Supply	AC100 ~ 240V less than 1.4W
Dimensions (W×D×H)	Approx. 110×200×100mm
Weight	Approx. 1.4kg
Accessories	Power Adapter, I/O Connector, Air Tube (2 types), Air Cock

APN-12 For desktop robots

PSA System Small N2 Gas Generator

It is a high performance model that can be used with more than one robot.
Its compact design allows for greater portability.

Type	APN-12
Nitrogen Gas Flow	1.2NL/min
Nitrogen Gas Con	99.99%
Air Supply	0.65~0.7MPa (only dry & clean air)
Discharge Pressure	0.5MPa
Power Supply	AC100~240V 50/60Hz
Dimensions (W×D×H)	Approx. 310×270×310mm
Weight	Approx. 18kg
Noise Value	50dB

KSM-M6R For selective flow system

PSA System Large N2 Gas Generator

This N2 gas generator has a color touch panel which controls the N2 concentration and displays the amount of fluid flow.

Type	KSM-M6R
Nitrogen Gas Flow	100NL/min
Nitrogen Gas Con	99.99%
Air Supply	0.75MPa (only dry & clean air)
Discharge Pressure	0.5MPa
Power Supply	220V 60Hz
Dimensions (W×D×H)	1,260×420×1,218mm
Weight	Approx. 500kg
Noise Value	65dB

NCM-02

N2/O2 Concentration Measuring Instrument

It can measure N2 concentration up to: 99.9%, O2 concentration: 25%.
The level of N2 gas generation is measured precisely.

Type	NCM-02
Display Value	100-O2 Concentration (%)
Measuring Range	99.9~75%(N2)　0.1~25%(O2)
Overall Accuracy	±1.0%FS (It conforms to O2)
Power Supply	AC100~220V (with an adaptor)
Power Consumption	Less than 15W
Weight	0.5kg
N2 Enclosing Port	for φ4mm tube / One-Touch Connector

F2R-3000

Automatic Tool Position Correction Unit

This optical sensor prevents mis-alignment as the tip plating wears.

Type	F2R-3000
Sensor	Optical sensor (For X/Y-axis) Low-contact touch sensor (For Z axis)
Correction Accuracy	±0.1mm (X/Y/Z-axis)
Maximum tool type registable number	50 Type
Power Supply	DC12 ~ 24V
Power Consumption	200mA
Dimensions (W×D×H)	77×144×54mm
Weight	Approx. 0.7kg
Accessories	Main unit
Option	I/O SYS Cable, Attaching Plate

TTM-140

Tip Thermometer

This well-designed sensor allows for easy placement and accurate readings for iron tips.
It achieves stable measurement within seconds.

Type	TTM-140
Power Supply	AA battery LR6 × 4 pcs. : 6V
Dimensions (W×D×H)	83×140×42mm
Weight	150g (w/o battery)
Temperature Resolution	1℃
Temperature Measuring Range	Sensor (TIM-140S) : 0~500℃ Probe　(TIM-140SP) : 0~700℃
Temperature Accuracy	0~500℃→±3℃ / 501~700℃→±4℃(excluding sensor error)
Operating Environment	0~50℃　20~85%RH　(no condensation)
Accessories	Sensor 3pcs / AA battery LR6x4 pcs

Fume Extractor

We recommend the use of a Fume Extractor in order to prevent solder fumes from irritating the eyes, nose and throat. Also, they prevent fumes from accumulating on the equipment. Below are the types of Fume Extractors we offer.

VAC-1000 / 3000

If there is no air duct near the work space, use the VAC-3000 together with VAC-1000. Three carbon filters remove solder fumes and clean exhaust.

Type	VAC-3000
Filtering Rate	More than 95%,0.3μm
Vacuum Type	Ejector
Air supply	0.5Mpa (Dry Air)
Noise Level	Below 82dB
Dimensions (W×D×H)	194×170×308mm
Weight	Aprrox. 4.0kg

VAC-4001A / VAC-4002A

This triple filtering design allows for 99.97% efficiency. The equipped DC motor is low noise, low vibration and low power consumption. The high-power motor generates large air flow.

Type	VAC-4001A	VAC-4002A
Power Supply	100~110V AC or 220~240V AC	100~110V AC or 220~240V AC
Power Consumption	120W	250W
Air Flow	140㎥/h	250㎥/h
System Flow (Including filter)	120㎥/h	100㎥/h×2
Filtering Efficiency	99.97% (0.3μm)	99.97% (0.3μm)
Duct Hose Length	ϕ75mm×1500mm	ϕ75mm×1500mm×2
Static Pressure	2400Pa	3000Pa
Noise	60dB	65dB
Dimensions (W×D×H)	420×230×430mm	470×230×500mm
Weight	13.4kg	14.2kg

EFA-1300

This is a desktop type portable fan. Its compact design allows for greater portability.

Type	EFA-1300
Power source	AC110/220V
Dimensions (W×D×H)	130×130×10mm
Weight	1.5kg

System15 / Purex

Solder fumes are vacuumed through a silicone tube mounted directly to the point of soldering. The combination of the two filtering units (pre-filter & HEPA filter) removes all harmful gases, thus preventing flux build-up on the iron and extending tip life all while keeping the environment clean and safe.

Type	System15
Filtering Rate	More than 99.997%, 0.3μm (HEPA)
Vacuum Type	IP54 Synchronous (Brushless) motor
Air Flow	70m3/Hr
Noise Level	Below 50dB
Dimensions (W×D×H)	360×330×500mm
Power	AC230V 1ph 50Hz or 110V 1ph 60Hz

Type	Purex
Filtering Rate	More than 99.997%
Wattage	50W / 75W
Air Flow	100m 3/hr 59cf/m
Noise Level	52 dBA
Dimensions (W×D×H)	455×480×720mm
Power	AC230V +/- 10%, 120V +/- 10%

ASW Solder series

High-quality Lead-Free Solder

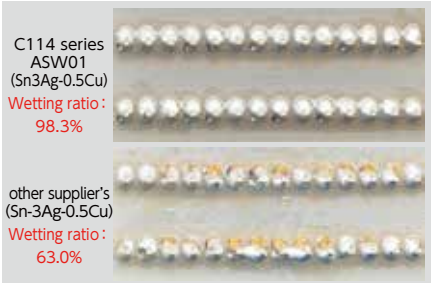
The most suitable resin solder wires for an automated soldering process.

C114 Series

Higher reliability for automotive devices.
Thanks to its transparent flux residue there is no burnt residue on the PCB.

Can apply with laser solder

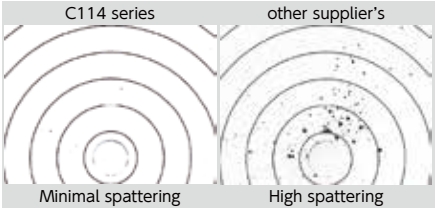
Confirmation of wettability with laser soldering



【Condition】
Beam power：40W　Wire Diameter：Φ0.8mm
Preheat：0.05s　Wire feed：7mm/s,1.6s
Postheating：0.3s　PCB：Cu, one side
Connector terminal：Brass, Sn plating on Ni

Very few spattering

Flux spattering test using a soldering iron robot



Collect spattered flux onto thermal paper.

【Condition】
Ilon temp：380℃
Feed speed：25mm/s
Feed length：5mm×200 shots

Clear appearance after soldering

Flux color test

Achieve higher productivity for quality inspection

C231 Series

This solder suppresses the generation of carbides. It makes this resin solder wire suitable for the sleeve soldering process. An activator that exhibits stable wettability in a short period of time at high temperatures.

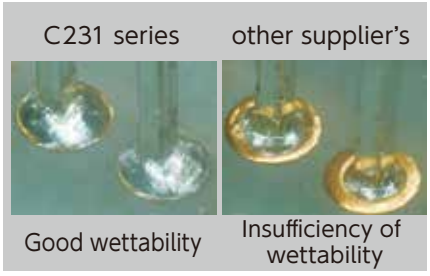
Suppressing carbide Generation

Flux residue after heating

【Condition】
Heating temperature：360℃　Atmosphere：N2
Heating rate：1.3℃/s　Holding time：None

Excellent wettability

Comparison wettability for through-hole soldering



【Condition】
Iron temperature: 360℃
Application: Cu through-hole

Solder Wire for AF series

■ Solder wire

Type	ASW01	ASW02	ASW03
Alloy Composition	Sn96.5 Ag3.0 Cu0.5	Sn99.0 Ag0.3 Cu0.7	Sn99.3 Cu0.7
Solder Diameter		2 ㎜	
Bobbin		2Kg	
Characteristic		Feeding for AF series	

Apollo Seiko Resin Solder Wires

Flux Type	Alloy Composition	Flux Content	Characteristic
C114	Sn96.5 Ag3.0 Cu0.5 Sn99.0 Ag0.3 Cu0.7 Sn99.3 Cu0.7	4.0% / 6.0%	Minimal Spattering
C210	Sn96.5 Ag3.0 Cu0.5	4.0%	For stainless part
C220	Sn96.3 Ag3.5 Ni0.2	3.0%	For aluminum part
C231	Sn96.5 Ag3.0 Cu0.5	3.0%	For CMS
C241	Sn96.5 Ag3.0 Cu0.5	3.0% / 4.0%	For laser / Halogen free

※Available in various solder wire diameters, forms, flux contents.

APOLLO SEIKO

WICK GUN

Wick Dispenser to Absorb Solder

The desoldering "Wick Gun" is easy to feed and absorb solder. The used wick can easily be cut with one hand by pulling the built-in trigger.

Model1000－1 Standard Parts
1×Model 1000－1 dispenser
1×W4015－1 cassette

Model1000 Spare Parts

Parts No.	Description & Size (Width, Length)
W4015－1	Wick cassette ＃1,W=0.9㎜ L=4.57m
W4015－2	Wick cassette ＃2,W=1.5㎜ L=4.57m
W4015－3	Wick cassette ＃3,W=2.2㎜ L=4.57m
W4015－4	Wick cassette ＃4,W=2.9㎜ L=4.57m
W10010	Cutter blade

BONPEN

Flux Dispenser Pen

This flux pen enables fine and accurate flux application. Various shapes of pen tips are available including both flat or bullet shape.

CYBERSOLV C8502

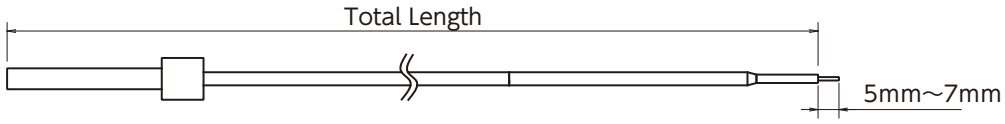
Full Strength Maintenance Cleaner

This flux remover is a non-flammable solvent specifically designed to remove flux residues.

*The small size is for trial.

Solder Wire Feeding Tubes

The flexible double layer solder feed tube provides for smooth and precise feeding of solder wire. Please specify the optimal tube set for the robot unit along with the solder wire diameter and point/slide soldering.

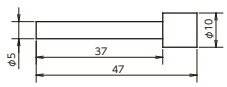
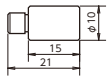
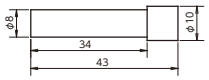
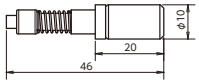


Configuration: TAL | 1.0 | — | 650 | S60

Eg) Point soldering feeding tube
Solder Wire Diameter: 1.0mm
Total length:650mm

Solder Wire Diameter

Tube Type

TAL		L-CAT EVO-Ⅱ L-CAT NEO-N J-CAT Series JS-3 / SR Series OMEGA TERRA LUNA YPH-10 SZB-8000
TR		SSA
TU		SSB
TZB		ZSB-10 SZB-7000

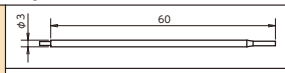
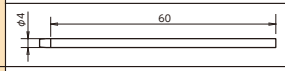
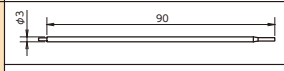
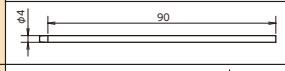
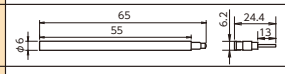
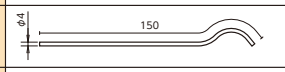
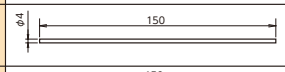
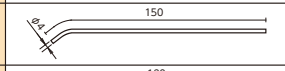
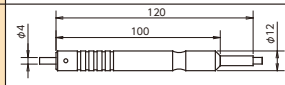
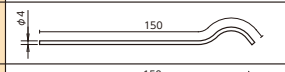
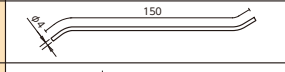
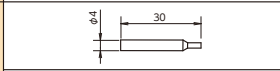
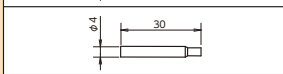
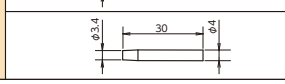
Tube Total Length

The requested length can be fabricated.
Recommended Length is as follows:

Model	Point Soldering	Slide Soldering
L-CAT NEO-N	650mm	780mm
L-CAT EVO-Ⅱ	450mm	600mm
J-CAT320	650mm	780mm
J-CAT330	750mm	880mm
J-CAT340	750mm	880mm
JS-3/SR SCARA Series	650~1000mm	
OMEGA TERRA LUNA	1500mm	
SSA/SSB/ SZB-7000/ SZB-8000	1500mm	
ZSB-10	700mm	

*Recommended length is as above.
(It is also the recommended length for YPH-10)

Nozzle Type

S60		For Point Soldering, SSA, ZSB-10 (Solder Wire Diameter Φ0.3-1.2mm)
		For Point Soldering, SSA, ZSB-10 (Solder Wire Diameter Φ1.4 - 2.0mm)
S90		For Slide Soldering, SSA, ZSB-10 (Solder Wire Diameter Φ0.3 - 1.2mm)
		For Slide Soldering, SSA, ZSB-10 (Solder Wire Diameter Φ1.4 - 2.0mm)
N55		Needle Type*
Y	No nozzle	For YPH-10
L		For SSB PM-L Iron Unit (Pencil)
S		For SSB PM-S Iron Unit (Pencil)
V		For SSB AM Iron Unit (Pistol)
H120		For ZSB-10
S150-L		For SZB-7000 PM Iron Unit (Pencil) For SZB-8000 PM Iron Unit (Pencil)
S150-R		For SZB-7000 AM Iron Unit (Pistol)
Z30		For SZB-8000 AM Iron Unit (Pistol) (Solder diameter: Φ0.4~0.65mm)
		For SZB-8000 AM Iron Unit (Pistol) (Solder diameter: Φ0.8~1.2mm)
		For SZB-8000 AM Iron Unit (Pistol) (Solder diameter: Φ1.6mm)

*N55 Needle Size : N55-N *.*

Solder Wire Diameter

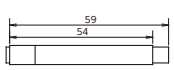
KTU Feeding Tube Set

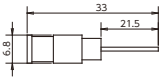
Type : TAL*.*-***KTU

Solder Wire Diameter Total Length

Spare Parts

TAL*.*-*** (Tube)

KTU-HOL (Needle Holder) 

KTU-N*.* (Needle) 

Solder Wire Diameter

APOLLO SEIKO

Iron Cartridge

Many types of iron cartridges are available with varying heater types & overall length.

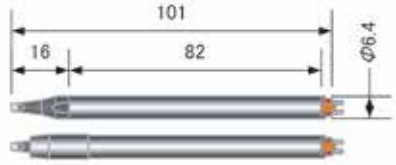
DS: DC48V: Total length 101mm　DM: DC48V: Total length 145mm
TS: AC100V: Total length 101mm　TM: AC100V: Total length 145mm
DN: DC48V: Total length 101mm with nitrogen sleeve

Configuration: [Type] – [“Size & Tip”] shape

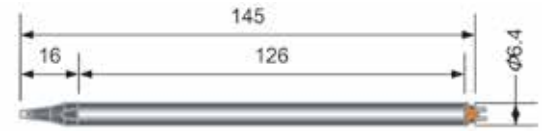
(Eg: DS-08PAD03-E08)

Point Soldering Iron Cartridge

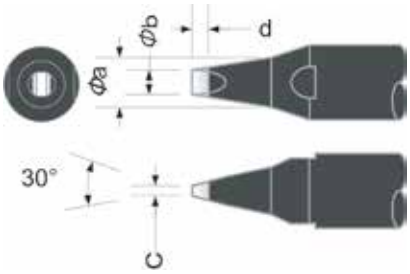
TS/DS/DN Cartridge



TM/DM Cartridge

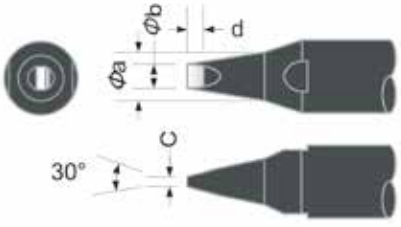


PAD/PDS



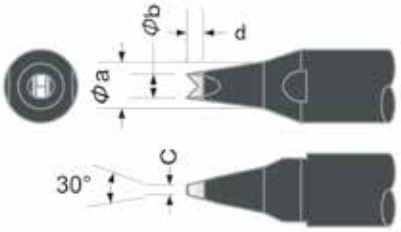
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-10PAD03-E08	3	1.0	0.3	0.8
＊＊-13PAD05-E15	4	1.3	0.5	1.5
＊＊-16PAD06-E15	4	1.6	0.6	1.5
＊＊-20PAD07-E15	4	2.0	0.7	1.5
＊＊-24PAD08-E15	4	2.4	0.8	1.5
＊＊-30PAD10-E30	5	3.0	1.0	3.0
＊＊-40PAD10-E30	5	4.0	1.0	3.0
＊＊-50PDS-E40	5	5.0	1.3	4.0
＊＊-60PDS-E40	6	6.0	1.3	4.0
＊＊-80PDS-E50	8	8.0	1.6	5.0

PAD/PDS



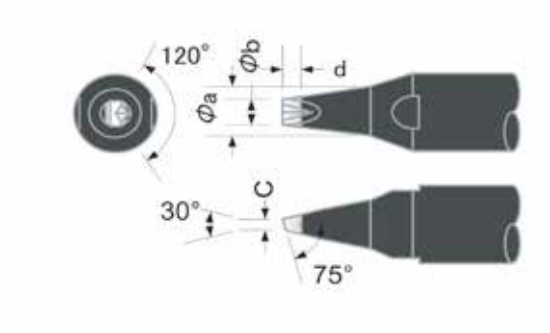
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-10PAD03-B08	3	1.0	0.3	0.8
＊＊-13PAD05-B15	4	1.3	0.5	1.5
＊＊-16PAD06-B15	4	1.6	0.6	1.5
＊＊-20PAD07-B15	4	2.0	0.7	1.5
＊＊-24PAD08-B15	4	2.4	0.8	1.5
＊＊-30PAD10-B30	5	3.0	1.0	3.0
＊＊-40PAD10-B30	5	4.0	1.0	3.0
＊＊-50PDS-B40	5	5.0	1.3	4.0
＊＊-60PDS-B40	6	6.0	1.3	4.0
＊＊-80PDS-B50	8	8.0	1.6	5.0

PDZ



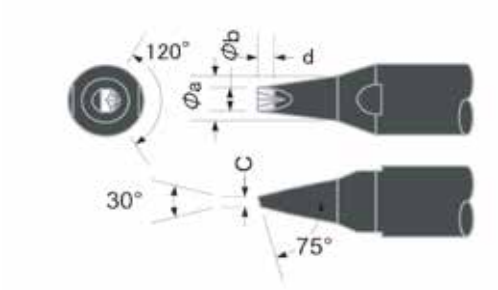
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-13PDZ08-EZ15	4	1.3	0.5	1.5
＊＊-16PDZ12-EZ15	4	1.6	0.6	1.5
＊＊-20PDZ14-EZ15	4	2.0	0.6	1.5
＊＊-24PDZ16-EZ15	4	2.4	0.8	1.5
＊＊-30PDZ20-EZ30	5	3.0	1.0	3.0
＊＊-40PDZ24-EZ30	5	4.0	1.0	3.0
＊＊-50PDZ35-EZ40	5	5.0	1.3	4.0

GDV



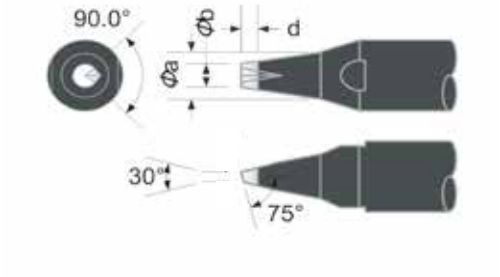
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-10GDV07-EZ10	3	1.0	0.4	1.0
＊＊-13GDV08-EZ15	4	1.3	0.5	1.5
＊＊-16GDV10-EZ15	4	1.6	0.6	1.5
＊＊-20GDV14-EZ15	4	2.0	0.8	1.5
＊＊-24GDV14-EZ15	4	2.4	0.8	1.5
＊＊-30GDV17-EZ30	5	3.0	1.0	3.0
＊＊-40GDV17-EZ30	5	4.0	1.0	3.0
＊＊-50GDV17-EZ40	5	5.0	1.0	4.0
＊＊-60GDV23-EZ40	6	6.0	1.3	4.0

GDV



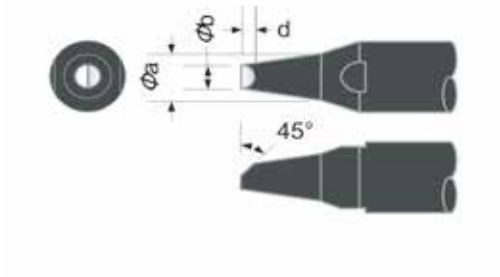
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-10GDV07-BZ10	3	1.0	0.4	1.0
＊＊-13GDV08-BZ15	4	1.3	0.5	1.5
＊＊-16GDV10-BZ15	4	1.6	0.6	1.5
＊＊-20GDV14-BZ15	4	2.0	0.8	1.5
＊＊-24GDV14-BZ15	4	2.4	0.8	1.5
＊＊-30GDV17-BZ30	5	3.0	1.0	3.0
＊＊-40GDV17-BZ30	5	4.0	1.0	3.0
＊＊-50GDV17-BZ40	5	5.0	1.0	4.0
＊＊-60GDV23-BZ40	6	6.0	1.3	4.0
＊＊-80GDV60-BZ50	8	8.0	1.6	5.0 V溝 150°

GAV



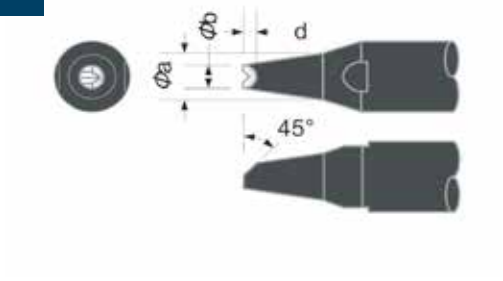
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-20GAV14-EZ15	4	2.0	—	1.5
＊＊-24GAV17-EZ20	4	2.4	—	2.0
＊＊-30GAV21-EZ30	5	3.0	—	3.0
＊＊-40GAV28-EZ30	5	4.0	—	3.0

PCA/PCS



Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-10PCA-B	3	1.0	—	—
＊＊-13PCA-B	3	1.3	—	—
＊＊-16PCA-B	4	1.6	—	—
＊＊-20PCA-B	4	2.0	—	—
＊＊-24PCA-B	4	2.4	—	—
＊＊-30PCA-B	5	3.0	—	—
＊＊-40PCA-B	5	4.0	—	—
＊＊-50PCS-B	5	5.0	—	—
＊＊-60PCS-B	6	6.0	—	—
＊＊-80PCS-B	8	8.0	—	—

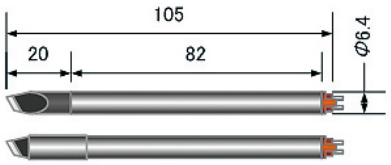
PCZ



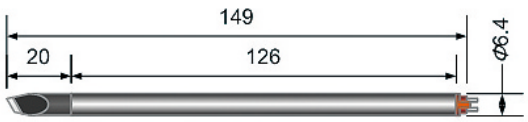
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-20PCZ10-BZ	4	2.0	—	—
＊＊-24PCZ12-BZ	4	2.4	—	—
＊＊-30PCZ14-BZ	5	3.0	—	—
＊＊-40PCZ16-BZ	5	4.0	—	—
＊＊-50PCZ24-BZ	5	5.0	—	—

Slide Soldering Iron Cartridge

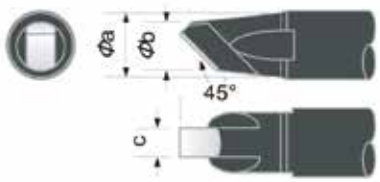
TS/DS/DN Cartridge



TM/DM Cartridge

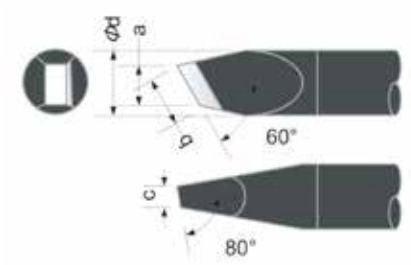


KAA



Type	a(mm) diameter	b tip width	c thickness	d plating size
＊＊-16KAA45-B	6.0	3.4	1.6	—
＊＊-20KAA45-B	6.0	3.4	2.0	—
＊＊-24KAA45-B	6.0	4.0	2.4	—
＊＊-30KAA45-B	6.0	4.5	3.0	—
＊＊-40KAA45-A	6.0	5.5	4.0	—
＊＊-50K45AS-A	6.0	6.0	5.0	—

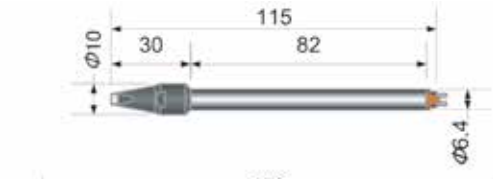
RDD



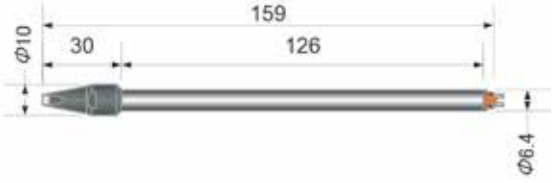
Type	a(mm) tip width	b	c thickness	d diameter
＊＊-20RDD-B20	2.0	—	0.6	6.4
＊＊-24RDD-B20	2.4	—	0.6	6.4
＊＊-30RDD-B20	3.0	—	0.6	6.4
＊＊-40RDD-B20	4.0	—	0.9	6.4
＊＊-50RDD-B20	5.0	—	1.3	8.0

Heat Storage Type Iron Cartridge

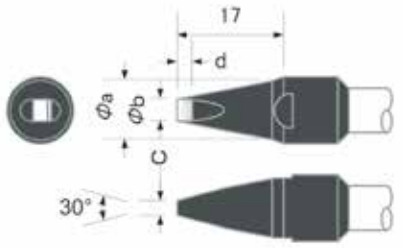
TB/SB Cartridge



MB/DB Cartridge

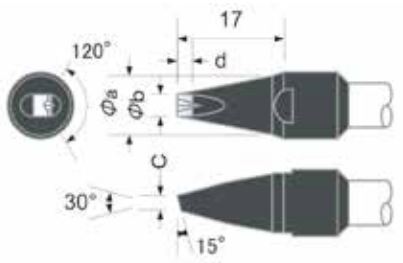


PAD



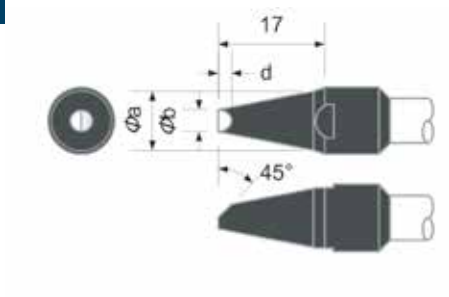
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊B-16PAD06-B20	7	1.6	0.6	2.0
＊B-20PAD07-B20	7	2.0	0.7	2.0
＊B-24PAD08-B20	7	2.4	0.8	2.0
＊B-30PAD10-B30	8	3.0	1.0	3.0
＊B-40PAD10-B30	8	4.0	1.0	3.0
＊B-50PAD10-B30	8	5.0	1.0	3.0

GDV



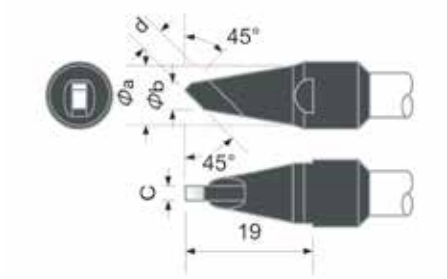
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊B-16GDV10-BZ20	7	1.6	0.6	2.0
＊B-20GDV12-BZ20	7	2.0	0.7	2.0
＊B-24GDV14-BZ20	7	2.4	0.8	2.0
＊B-30GDV17-BZ30	8	3.0	1.0	3.0
＊B-40GDV17-BZ30	8	4.0	1.0	3.0
＊B-50GDV23-BZ40	8	5.0	1.3	4.0

PCA



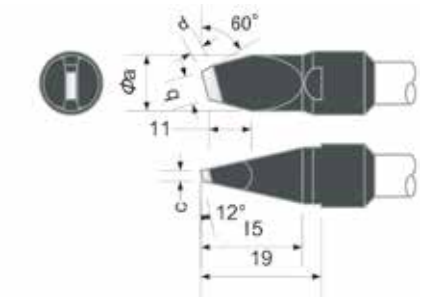
Type	a(mm) diameter	b tip width	c thickness	d plating size
＊B-24PCA-B	7	2.4	—	—
＊B-30PCA-B	8	3.0	—	—
＊B-40PCA-B	8	4.0	—	—

KAA



Type	a(mm) diameter	b tip width	c thickness	d plating size
＊B-16KAA45-B10	8	3.4	1.6	—
＊B-24KAA45-B10	8	4.0	2.4	—
＊B-30KAA45-B10	8	4.5	3.0	—
＊B-40KAA45-B10	8	5.5	4.0	—

RDD



Type	a(mm) diameter	b tip width	c thickness	d plating size
＊B-30RDD-B15	8	3.0	0.6	1.5
＊B-40RDD-B20	8	4.0	0.9	2.0
＊B-50RDD-B25	8	5.0	1.3	2.5

N2 Nozzle

This external nozzle supplies nitrogen gas to large bodied iron tips such as heat storage type or X tip type.

One Touch Quick Change Iron Cartridge DX

The patented design of the one-touch quick-change DX iron is easy to change and there is no position variation after tip replacement.

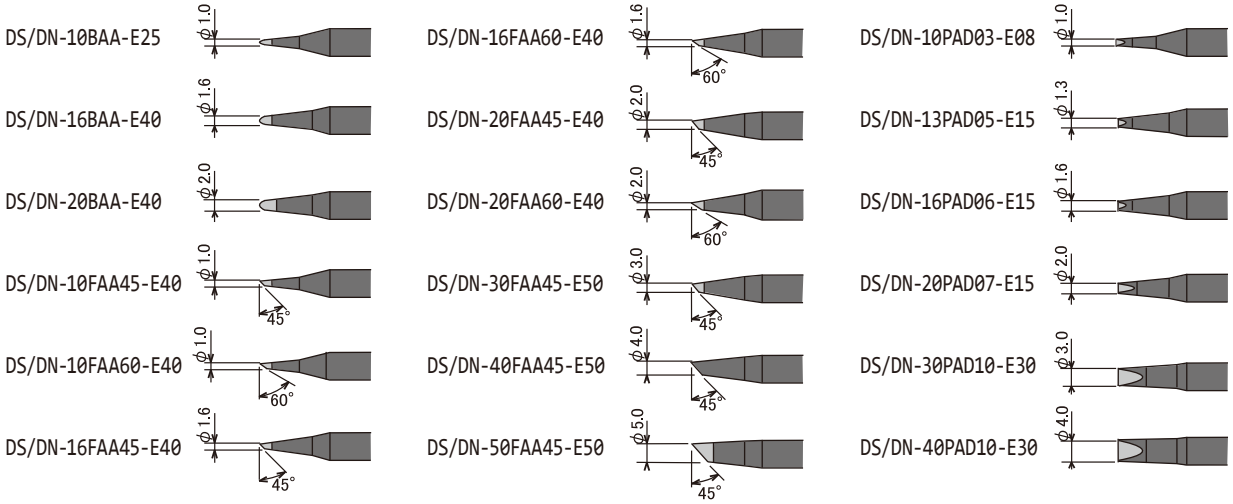
Patented

Custom Made Iron Cartridge

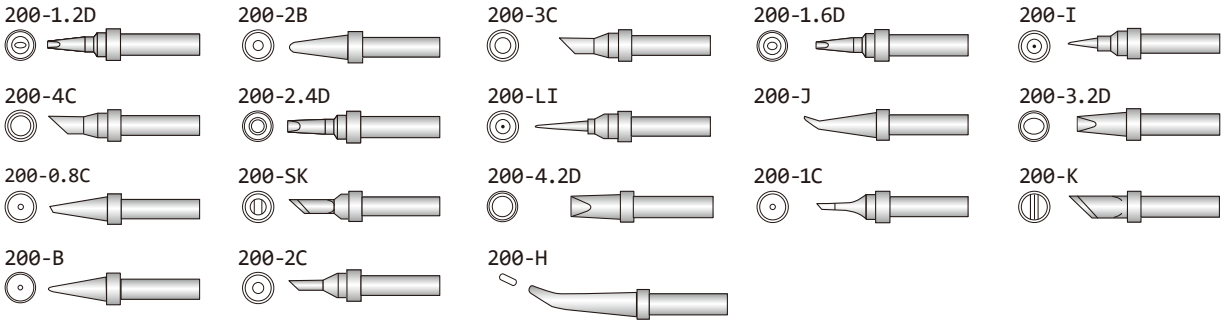
Upon request, various custom tips can be made. Feel free to request.

Iron Cartridges for Manual Soldering

TTM-3000N

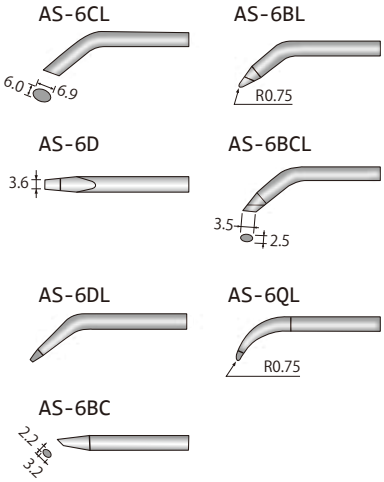


TTM-1000H

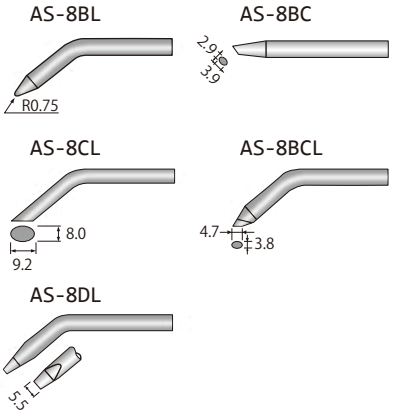


SSB

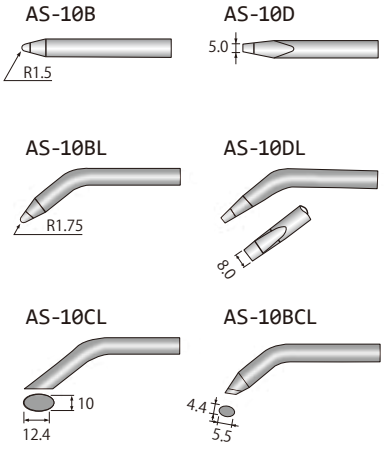
■For 60W (C-60-6)



■For 100W (SA-100W)



■For 150W (SA-150W)



AM iron unit (pistol type) for SSB is compatible with 60W, 100W or 150W heater, and PM iron unit (pencil type) is compatible with 60W heater.
Please select an iron cartridge conforming to the specification.

APOLLO SEIKO

Apollo Seiko Ltd.

Registered Date : October 1,1969

ISO 14001 Certificated

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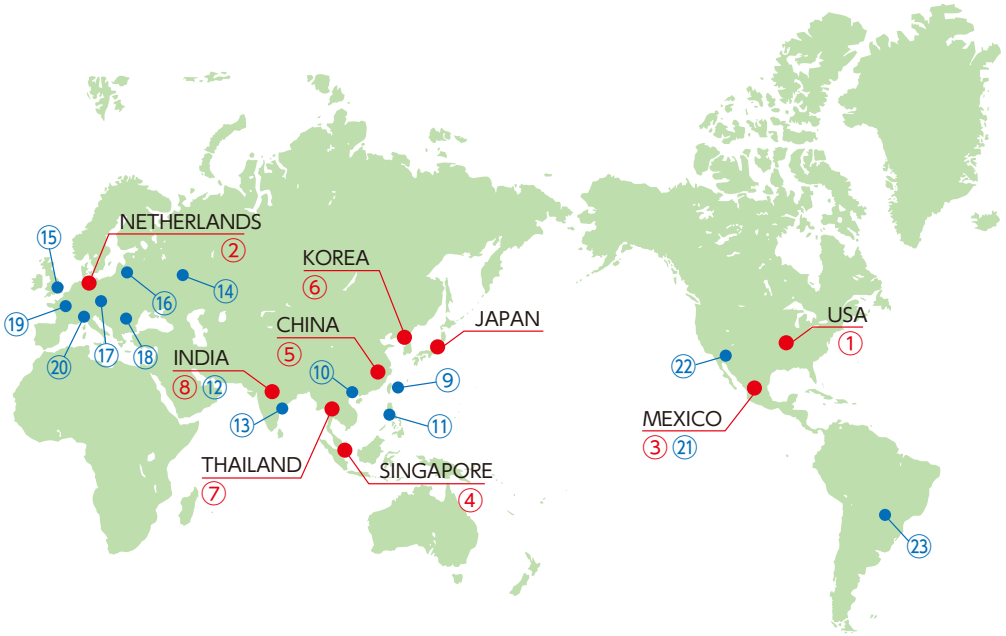

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These specifications may be changed for improvement without prior notice.