

			Subject No.	
			Line No.	Line Position No.
_				
		Plasma cleaner		
N	odel ID :	PSX307		
		NM-EFP1A		

Panasonic Factory Solutions Co., Ltd.

1. Specifications

Project No.

1.1 Standard Specifications

1.1	Electric Source	Rated voltage	Single-phase: AC200 V±10 V Single-phase: AC208 V±10 V
	Electric Source	Raled vollage	
			Single phase: AC220 V±10 V Single-phase: AC230 V±10 V
			• Single-phase: AC240 V±10 V
		Frequency	50 /60 Hz
		Rated capacity	2.0 kVA (FULL LOAD 5.0 kVA)
			above capacity (5 kVA) is preferable as power source for the machine.
		 When a step dow 	wn transformer is used, the secondary side must be more than 5 kVA.
		 The power source 	e should be connected by 3-conductor cable of 5.5 mm2 (AWG #10) or over.
		A transformer swite	ch on the machine has to be changed if the power source is other than 200 V.
		 There is no leakage d 	etection function in this facility. When necessary, please request by individual specification.
2	Pneumatic Source	Supply air pressure	0.5 MPa Supply air amount 6.5 L /min
		Pressure	0.1 MPa to 0.15 MPa
	Ar, O ₂ Gas Supply		0.1 L /min (Ar) : Standard configuration is Argon only.
	Plasma Discharge	Max. Consumption	(Oxygen option: 0.2 L /min(O2)
	N_2 gas supply (option) for	Pressure	0.05 MPa to 0.1 MPa
	diluting the oxygen gas	Max. Consumption	2 L /min
3	Dimensions		113 mm × D 1 100 mm × H 1 450 mm
			266 mm × D 1 100 mm × H 1 450 mm (Single lifter specification)
			and the monitor are not included in the above dimension.
4	Mass	Main body mass	• PSX307-S : 850 kg * Varies with machine configuration. (Changer specification)
-			• PSX307-M : 725 kg *Varies with machine configuration. (Single lifter specification)
5	Environment	Temperature	20 °C to 30 °C Humidity 50 % to 70 % (no condensation)
Ŭ		Cleanliness	Less than Class 10 000 (exhaust dust required)
6	Program	Storage capacity	Internal storage device: CFast 4GB
0	riogram	of HDD	Storage capacity : Max. 100 products
		External storage	USB port x 2 (Ver,2.0)
		device	
7	Others		jement information
<i>'</i>	Others	-	: Information on auto-run time
			essed board : Information on number of boards processed. or items and number of errors
			er: Rear fixed rail only
		Pass line: 920mr	
			7-S : 4 locations on the main unit, 2 locations on the loader/unloader
			7-M : 4 locations on the main unit
		 Fixing eyeboit for 	r transportation: 4 locations (This machine does not accept lifting.)
	< Change	er spec. >	< Single lifter spec. >

Project No.

1. Specifications

1.2 Standard Functions

	Standard Function		I Back for an end of a later stable and the later
1	Method	Plasma method	High-frequency parallel plate etching method
2	Cycle Time	<psx307-s></psx307-s>	30 s/cycle/3 PCBs
		* If 3 column	45 s //cycle/6 substrates
		spec PCB length	Transfer t1 Transfer Stand−by
		is 120mm or less,	
		6 PCBs is	Process $4 t 2 \rightarrow t 3 \rightarrow t 4 \rightarrow$
		processed at once.	Exhaust to Dischange Dischang to
		< > value is PCB	dischange preparation vent complete
		length of 120mm	
		or less.	< 45 s >
			Dry running without PCB
			• PCB length setting: 250 mm, 〈120 mm 〉
			Others are the same condition.
			Discharge time setting Gas flow rate setting
			* Ar gas: 8 sec. * Ar gas: 5 ml /min
			* O ₂ gas: 5 sec. * O ₂ gas: 50 ml /min
		<psx307-m></psx307-m>	45 s/cycle/2 PCBs
		* If 2 column	<pre>< 60 s >/cycle/4 substrates</pre>
		spec PCB length	Transfer ti Transfer Stand-by
		is 160mm or less,	
		4 PCBs is	Process
		processed at once.	Exhaust to Dischange Dischang to dischange preparation vent complete
		< > value is PCB	1
		length of 160mm	< 60 s >
		or less.	Dry running without PCB
			• PCB length setting: 330mm, <160 mm >
			Others are the same condition.
			Discharge time setting Gas flow rate setting Ar goo: 12 goo Ar goo: 5 ml (min)
			* Ar gas: 13 sec. * Ar gas: 5 ml /min
		Deverender	* O ₂ gas: 10 sec. * O ₂ gas: 50 ml /min
		Remarks	• Process time and exhaust time depend on conditions of PCBs etched.
			(Size, material, etc) Confirm the cycle time with your own PCB.
			• Exhaust time of t2 might become longer due to out gas from processing PCB.
		Tatal	
3	Change-over Time	Total	• PSX307-S : Max. 25 min
			• PSX307-M : Max. 15 min
		Work	Magazine mounting jig change (Process, work data and magazine data have
		Descriptions	Transport nail position adjustment already been input; the data loading
			Front/Rear transport rail adjustment time is excluded.)
			 Intra-chamber electrode replacement/adjustment

1. Specifications

Project No.

1.2 Standard Functions

4	PCB	Magazine size	• W:30 mm to 80 mm (3 column)	(Cross-section of magazine)
	Supply/Stock		• W:30 mm to 125 mm (2 column)	
			• L:100 mm to 260 mm (PSX307-S)	
			• L:100 mm to 350 mm (PSX307-M Single lifter)	
			• L:100 mm to 350 mm (PSX307-M Changer)	
			• H:75 mm to 175 mm (Changer)	
			• H:75 mm to 240 mm (Single lifter)	
			 First-slot offset A= 15mm or more 	
			B= 9 mm or more	
				<u> </u>
		Lifter stroke	• PSX307-S : Max. 175 mm	Contact us for magazine sizes outside
			• PSX307-M : Max. 190 mm	the applicable ranges shown left.
		Magazine data	Height to pitch, slot count and first-slot offs	et is set by data input.
		Magazine stock	<changer 3="" column="" for="" spec.=""></changer>	
			Magazine at loader: 3 pcs. x 2series = 6 pc	S.
			Magazine at Unloader: 3 pcs. x 2series = 6	pcs.
			<single 2="" column="" for="" lifter="" spec.=""></single>	
			Magazine at loader: 2 pcs., Magazine at Ur	lloader: 2 pcs.
		Loading	Loader :Bottom to top	
		Unloading	Unloader: Selectable from above and below	v
5	Applicable Plasma	PCB	Glass epoxy, BT resin, Film, Ceramic, etc	
	Material	Electrode	Au plating, Ni plating, Cu, etc	
		Surface film	Solder resist, etc	
			• The material must be checked ahead of time w	hen the carrier, etc. is to be used.
6	Vacuum Chamber	Ultimate vacuum	Less than 3 Pa (In case that all parts in the	e chamber are new and there is
			no PCB in the chamber.)	
7	Rotary Pump	Exhaust speed	345 L/min (50Hz), 413 L/min (60 Hz)	
			Oil mist eliminator is provided. Pump oil: 1	/lineral oil (standard)
			• When oxygen (option) is selected as the proce	ss gas, a hydrocarbon
			composite oil with enhanced resistance to acid	is used as the pump oil.
			Care must be taken when maintenance is	to be performed.
			 You should overhaul the pump periodically, and 	should replenish as needed and
			periodically replaced pump oil, and also replace	e oil mist eliminator filter regularly.
			Overhauling the pump as well as the oil and filt	ers are not covered by the warranty.
8	Mass-flow	Ar	2.5 ml /min to 10 ml /min	
	Controller	O ₂ (option)	10 ml /min to 100 ml /min	
			• Oxygen is an option. Depending on the b	oards to be processed, discharge
			may not be possible at the gas flow given	on the left.
9	High-frequency	Output	100 W to 600 W	
	Power Supply	Frequency	13.56 MHz • Notific	ation to pertinent authority on
	(Matching box)	Matching		ns required. (in Japan at least)
		Electrodes	Capacitance-coupled internal type	
10	Discharge Gas	Gas	Ar: purity 99.999 % or better (Manufactured by NIP	PON SANSO Corp. Pure argon B)
	 Please provide gas, 		O_2 : purity 99.99 % or better (option) (Manufactured	by NIPPON SANSO Corp. Pure oxygen A)
	cylinder and pressure	Cylinder	Outer diameter φ1 / 4 inch SUS tube	
	regulator	Pressure	With stop valve	
	specified at right,	regulator	Primary: 0 MPa to 25 MPa	
	and also connect	(Seamless type)	Secondary: -0.1 MPa to 0.3 MPa	
L	them to main body.			
11	Safety Device	Alarm function	Machine alarm in the following cases, and the erro	message is displayed on the monitor.
			Emergency stop • Air pressure drop • Process	error • Transfer system error
44	1.00		- 1 -	PSX307

1. Specifications

Project No.

1.2 Standard Functions

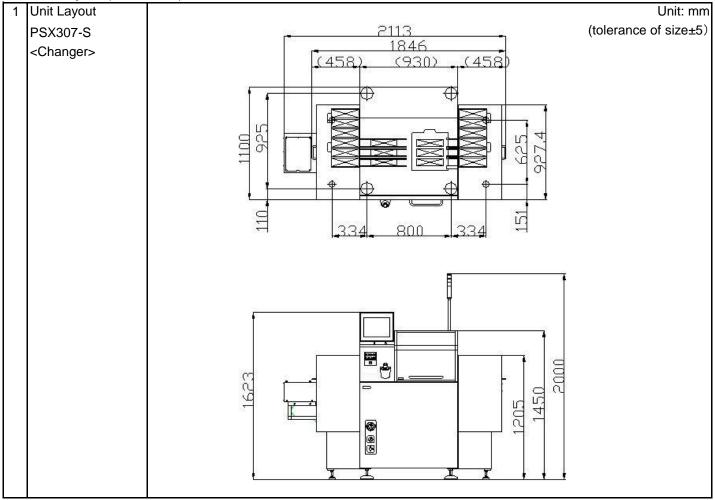
	DCR Specification	-	Delvimide DT regin. Close angus
12	PCB Specification	PCB material	Polyimide, BT resin, Glass epoxy
			• The material must be checked ahead of time when the carrier, etc. is to be used.
		Etched material	Au (gold): plating /Ni (nickel): plating /Cu (copper)
		Removal materials	Metal oxides, hydroxides, organic matter
		PCB dimension	X = 50 mm to 250 mm (PSX307-M : X = 50 mm to 330 mm)
			Y = 20 mm to 75 mm *(PSX307-M : Y = 20 mm to 120
			t = 0.5 mm to 2.0 mm Thickness t
			Max. warpage = ±1.0 mm
			 PCB should be flat, with no parts mounted on bottom side.
			In some cases, no remedial action can Warpage (Cross section in board X and Y directions)
			be taken if the warpage exceeds the Max. : Within 1.0 mm
			prescribed value even when the PCB
			size satisfies the above dimensions.
			 Please provide us with all the relevant information in advance.
			 In cases where the above warpage is exceeded, the skipped-level magazine
			specifications and pressure control process specifications for the plasma treatment
			are required, resulting in an extended tact time. It may not be possible to take any
			remedial action in some cases.
			* The electrode in the chamber is used exclusively from Y =70 mm to 75 mm.
		Process area	•PSX307-S : Max.X = 230 mm
			(PSX307-M : Max.X = 310 mm) •PSX307-S : Max.Y = 50 mm
			(PSX307-M : Max.Y = 100 mm) Centered Max.Y Y
		Type of chip	LSI, CMOS, etc.
		Remarks	• With film PCBs, we recommend using a carrier, plated with ceramic
			(with min. thickness of 20 μm). IC
			If you can not plate on the carrier, control the
			clearance between the PCB and carrier to less
			than 2 mm. Otherwise, the PCB may be
			damaged by spark. Surface mount devices
			• The back side of PCBs must be flat without any surface mount devices.
			If there are surface mount devices on the back side, you have to prepare
			the specific electrode and need to verify the quality.
			•When thickness is below 0.5 mm, some options for handling thin substrate are required.
			•Specific parts are required for the substrates such as very thin below 0.2 mm,
			or warping is more than 1 mm, or there are some components on the backside.
13	Safety Device	Signal tower	←Red: Error warning (Machine stops)
	(Changer spec.)		\vdash \leftarrow Yellow: No work in the loader or full with work in the unloader (Machine stops)
	,		Green: Automatic operation
			• Changes to the settings for the lighting in each situation can be made from the touch panel.
		Front co	
		(Automatio	
		•When the	ower is OFF
			requency output
		Coverforteede	
		Cover for Loade (Automatic lock)	
		•When it is OPE	
		power shuts dov	
		temporarily.	
114	.00		- 5 - PSX307

	Specifications	Project No.
	Safety Device	
14	Safety Device (Single lifter spec.)	< Single lifter spec. > Front cover Signal tower
		(Automatic lock) •When the cover is opened, power is OFF and high- frequency output stops. Cover for Loader/Unloader
		Stage Stag
15	Remarks	 If the cover opens while the current is applied, the machine stops by the safety sensor.
		Power of some parts stops while the door of the loader/unloader opens.
		 It is very dangerous to bypass the safety sensors or to perform maintenance while the current is applied.
		You may be in danger of an electric shock, a burn, or an injury. (It is very hot in the chamber.)
		• The parts inside the chamber, such as electrodes, guide rails and shields, must be periodically cleaned up or
		replaced. (The guide line of replacement is every 100 hours of RF usage, but depends on your conditions.)
		The vacuum pump must be overhauled once a year. (The frequency becomes every four months if the
		machine runs for 24 hours per day.) This frequency is a guide line, and depends on conditions.
		The replacement and cleaning of the parts inside the chamber and the overhauling of the pump are not covered
		by the warranty even during the warranty period.
		 Please be sure to perform periodical maintenance, periodical parts exchange in chamber as well as oil change and overhaul of vacuum pump.
		Otherwise, problems may occur, such as slow down of exhaust speed, abnormal discharge, or trouble and
		oil leak of the pump. It's recommended to purchase another vacuum bump for backup during overhaul.
		Interval of maintenance will become longer than written in the maintenance manual when the process time of
		plasma is set longer than standard. Please perform maintenance accordingly.
		 The cycle time becomes longer as the machine is used since the exhaust time becomes longer.
		This phenomenon varies depending on substrates and operation conditions.
		• In order to minimize increase of the exhaust time, the necessary maintenance must be performed as described
		in the Instruction Manual.
		• The standard pump oil (mineral oil) is flammable, and it readily deteriorates since it undergoes oxidization in the
		exhaust process. For this reason, do not use the standard mineral-base oil for any process applications in which
		oxidized gases are evacuated. When oxygen gas is to be evacuated, the mineral-base oil must be replaced with
		hydrocarbon-base oil, and the oxygen must be diluted by nitrogen gas.
		When PSX307 is used for application of underfill improvement or other, oxygen gas is consumed a lot.
		In such cases, spare parts shown blow should be purchased in advance since some parts in the chamber and in
		the pump are degraded. (O-ring for the chamber, Main valve, Vacuum protection valve, Filter in vacuum pump)
		 CE certification by the third party is obtained on the PSX307 with the described options.
		When some customized options are added, the CE certification may need to be obtained again.
		Please ask us for more detail when CE mark is mandatory.
		•There is no leakage detection function in this facility. When necessary, please request by individual specification.

2. Machine configuration

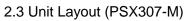
Project No.

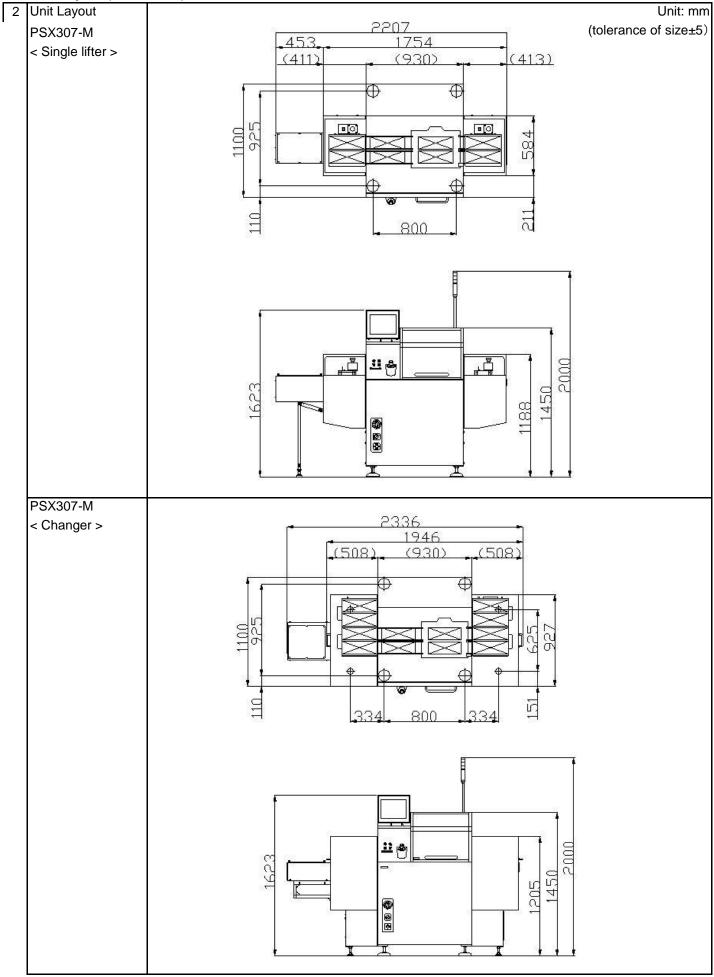
2.2 Unit Layout (PSX307-S)



2. Machine Configuration

Project No.





3. Option

Project No.

3.1 Main Body Unit , Gas Supply Unit (Argon), and other options for S and M type

	Option name	Qty		Specifications
1	PSX307 general configuration		 vacuum pu Touch pane Signal towe Load wiring 	n body [Standard specification] includes following specifications. mp • Plasma gas (Ar) • USB memory • High-frequency unit: 600W el • Transformer • Air piping • Load wiring:Main Unit Part er • Control Unit(Power Unit , Safty Relay Unit) (chamber valve) • Control unit (RF Control unit) g (Ar Gas Supply Section , Vacuum Pump)
2	Main Unit			
	O PSX307-S Main Unit		[S Standard]	 PSX307-S Main Unit •Vacuum chamber •Accessories Single Adjustment
	PSX307-M Main Unit		[M Standard]	 PSX307-M Main Unit •Vacuum chamber •Accessories Single Adjustment
3	Gas Supply Unit (Ar)			ndard specification] for gas to remove contaminants, de quality of wire bonding, by physical energy.
	Additional options			
	O Plasma gas 1 line (Ar)		[Standard specification]	Oil in the vacuum pump is specific for the Argon gas.
	🔲 Stainless pipe (For	Ar)		pipe between the gas cylinder and the mass flow controller 2 meters x 1 pc)
	GPlasma gas 2 lines (A 	Ar and O2	its surface ret	I Oxygen plasma application such as to improve mold adhesion by forming. Oil in the vacuum pump is used for both Ar and O2.
	Stainless pipe (For Ar , O_2 and N	l ₂)		pipes between the each gas cylinder (Ar, O2, N2) and the ntroller of PSX307. (2 meters x 3 pcs)
4	Vacuum pump			
	Rotary pump		[Standard specification]	 Vacuum pump ·Load wiring(vacuum pump) For dry pump specification, make this box unchecked. Pump is to be supplied by the customer. Recommended pump:PDV500-GB(EBARA Corporation), NeoDry36E-2(Kashiyama Industries, Ltd.)
	🔲 Spare rotary pump		*This is a spa	are pump at overhaul of a vacuum pump.
5	Other options for S and M type			
	Additional options			
	Oil level sensor		Oil level in t notify if it is	he vacuum pump is watched by a sensor and short.
	Option to improve under process	ərfill	Argon and C	Dxygen can also be equipped even when this option is selected.
	GEM Communication		Detailed sp	ommunication with the host server. ecification must be discussed and agreed. nized specification will be quoted separately.

3. Option

Project No.

3.2 S type options (Chamber Unit)

	Option name	Qty		Specifications
6	Chamber Unit (S type options)			electrode guide is selected based on substrate thickness. I specification] is 1.5 mm Gap.
	Ceramic electrode in the chamber (S	S type)		
	Universal type electrode chamber (S)	in the	[S Standard]	The material is ceramic. For 20mm to 70mm width substrate, he electrode width is adjustable. For 70 to 75mm width substrate, he width is fixed. Thin substrate below 0.5mm is not applicable.
	Customized electrode in chamber (S)	the	(Example: For	ectrode of customized design. thin substrate, protruded or untouchable area on bottom side) customized electrode must be discussed in advance.
	Chamber electrode guide (S	type)		
	Chamber electrode guide for Thin Board Gap 1.5 mm (S)		[S Standard	Material of the electrode guide is ceramic. Gap 1.5 mm : 0.5 mm = < substrate thickness < 1.0 mm
	Chamber electrode guide for Thick Board (S)		• 1.0 mm = < • Thick PCB,	t Straight guide; made of ceramic
	Chamber electrode guide for Thin Board Gap 0.8 mm (S)		•	n : t < 0.5 mm uide; made of ceramic
	Chamber cooling fan (S type	e)		
	Chamber cooling fan (S))		oling down the chamber to reduce substrate's warpage ng process time. (Specific for S type)

3.3 M type options (Chamber Unit)

	Option name Qty	Specifications
7	Chamber Unit (M type options)	 The chamber electrode guide is selected based on substrate thickness. The [Standard specification] of the electrode guide is for thick type.
	Ceramic electrode in the chamber (M type)	
	Universal type electrode in the chamber (M)	[M Standard]The electrode is aluminum and is for substrate from 20 to 120mm width.Thin substrate below 0.5mm is not applicable.
	Customized electrode in the chamber (M)	The ceramic electrode of customized design. (Example: For thin substrate, protruded or untouchable area on bottom side) * Design of the customized electrode must be discussed in advance.
	Chamber electrode guide (M type)	
	Chamber electrode guide for Thick Board (M)	[M Standard] • 1.0 mm = < t: substrate thickness • Thick PCB, Straight guide; made of ceramic
	Chamber electrode guide for Thin Board Gap 0.8 mm (M)	• Gap 0.8 mm:t < 0.5 mm • Overhang guide; made of ceramic
	Chamber electrode guide for Thin Board Gap 1.5 mm (M)	• Gap 1.5 mm:0.5 mm =< t < 1.0 mm • Overhang guide; made of ceramic
	Chamber cooling fan (M type)	
	Chamber cooling fan (M)	The fan for cooling down the chamber to reduce substrate's warpage caused by long process time. (Specific for M type)

Project No.

3.5 M type options (Substrate Transfer system)

	Option name	Qty		Specifications
10	Substrate Transport System (M type op	otions)		
	Specification of transport system ((M type)	If this is not s	elected, any substrate transport system is not equipped.
	Standard specification	of	[M Standard	Substrate indexer with wiring, substrate transporting claw,
	transport system (M)]	Pre and post transport rail with wiring for the chamber
	Substrate loading system (M type)	 Options for 	r the substrate loading system.
		witype)		ect the-board feed type (push <standard> / pull-in).</standard>
	Substrate pusher with	the	[M Standard	Substrates in the input magazines are pushed into the machine.
	overload sensor (M)]	The overload sensor is incorporated to protect substrate when jammed.
	Substrate pusher with the sensor for the magazine			chine with the magazine changer. (Design of cover is different.)
	(M)			ication is same as the above.
				the input magazines are pulled in with the machine's arm.
	Substrate pull-in unit (I	M)		e more than 9mm clearance below the magazine's first slot.
				are there to-back surface of the substrate, please inform us.
	Substrate pull-in unit fo			chine with the magazine changer. (Design of cover is different.)
	magazine changer (M)			ification is same as the above.
	No substrate loading syst	em (M)	Any substrate	loading system is not equipped.
	Additional options for thin substrat	e (M type)	Option for h	andling thin substrate
	Substrate transporting		Substrates ar	e protected from damage by the overload sensor when jammed.
	the overload sensor (M	1)		ay become longer due to slower ttransport speed for protection.
				guide to assist transportation of substrate warping downward.
	Guide for substrate tra	nsfer (M)	-	ion for the substrate pusher system with overload sensor, and
				for the option substrate puller system.
	Cover to align substart	e of		he upward warping substrate.
	upward warping (M)			ssists transportation to the chamber or output magazines.
	Loader & Unloader (M type	e)		the form of loader & unloader
			(single or mag	gazine changer or none).
	a Laadan 0 Linia dan sin		[M Standard	No magazine changer.
	C Loader & Unloader sin	gie (IVI)]	 Including the magazine holder and wiring.
			a Loodor 9 I	The safety cover is simple type and not full-cover.
	Loader & Unloader			Jnloader with the magazine changer
	with magazine change	r (M)	-	he magazine holder and wiring.
				height must be lower than 175 mm.
	No loader and no unloader	ader (M)		strate is manual load only or the machine is hooked up with of other supplier.
11	Other options (M type options)			• •
				ump x 1pc is included in [Standard specification]. acuum pump is for during overhaul period.
	Additional options (M type)			
	Plasma monitor (M)		State of the	plasma discharge can be monitored.

Project No.

3. Option

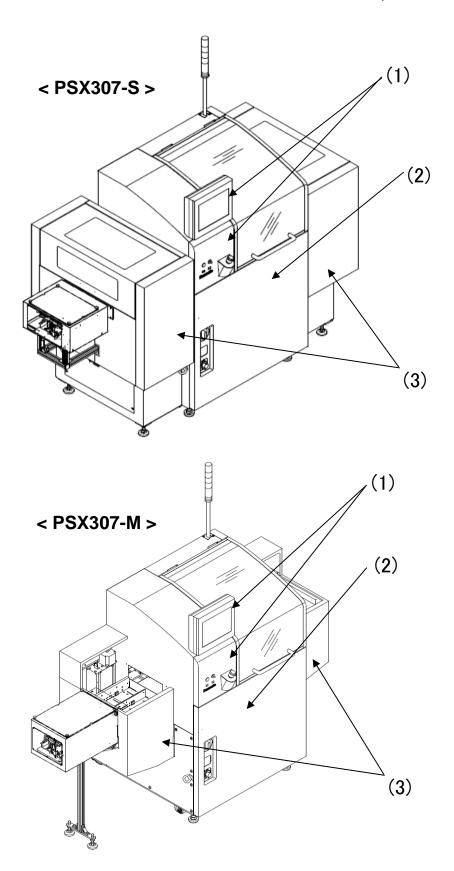
3.6 Manual

	Option name	Qty	Specifications
13	Manual		 Standard Specification is normal paper and written in Japanese
			 Standard Specification is DVD-ROM and written in Japanese
	Paper		
	Standard Manual (Japanese):normal paper		[Standard • Standard Manual(Japanese)normal paper×1set specification]
	Standard Manual (Japanese):clean paper		• Standard Manual(Japanese)clean paper
	Standard Manual (English):normal paper		• Standard Manual(English)normal paper
	Standard Manual (English):clean paper	1	• Standard Manual(English)clean paper
	Standard Manual (Chinese):normal paper		Standard Manual (Chinese) normal paper
	Standard Manual (Chinese):clean paper		• Standard Manual (Chinese) clean paper
	DVD-ROM		
	Standard Manual (Japanese):DVD-ROM		[Standard • Standard Manual(Japanese)DVD-ROM×1piece specification]
	Standard Manual (English):DVD-ROM	1	• Standard Manual(English)DVD-ROM × 1piece
	Standard Manual (Chinese):DVD-ROM		• Standard Manual (Chinese) DVD-ROM × 1piece

4. Component for Customer work

Project No.

PCB		Item								
Specification	(Appli	cable range)		Product A		Product	В		Product	С
			O Poly	/imide	\circ	Polyimide		\bigcirc	Polyimide	
			O BT	resin board	\circ	BT resin boa	ard	\bigcirc	BT resin boa	ard
	PCB ma	atorial	O Gla	ss epoxy board	\circ	Glass epoxy	y board	\bigcirc	Glass epoxy	/ board
		alenai	🔿 Film	n board	\circ	Film board		\bigcirc	Film board	
			Cer	amic board	$^{\circ}$	Ceramic boa	ard	0	Ceramic boa	ard
			🖲 Othe	Carrier	$^{\circ}$	Other		$^{\circ}$	Other	
			O Gold	: electrolytic plating	0	Gold: electrol	ytic plating	\circ	Gold: electrol	ytic platin
	Etched	material	O Gol	d: flash plating	\circ	Gold: flash	plating	0	Gold: flash p	olating
			O Slive	r • Other	0	Sliver • Other		0	Sliver • Other	
				vement of bond reliability	0	Improvement of b	oond reliability	0	Improvement of b	ond reliabil
			O Mol	d resin adhesion	\circ	Mold resin a	adhesion	0	Mold resin a	dhesion
	Object			lerfill wettability	Ō	Underfill we	ttability	Ō	Underfill wet	ttability
			O Othe		$\overline{\circ}$	Other		0	Other	
	Any mou	int devices on	O No		Õ	No		0	No	
	-	side of PCB	O Yes		Õ	Yes		ŏ	Yes	
		X : 50mm to		310 mm	Г		mm			m
		250mm Y : 20mm to 70mm		160 mm	h		mm	- ie		m
	s	t : 0.5mm to 2.0mm		1.2 mm			mm			m
		Less than ± 1.0mm	±	mm	+		mm			mm
User	page		•w:30 m	m to so mm (3 column im to 260 mm (PSX30	1), 3	o min to 125 m	m (z column)	1	
			• First -s	nm to 175 mm (Chang ot offset: <u>A= 15 mm o</u>	r mo	ore_B= 9 mm or	more			mm
			• H: 75 m	nm to 175 mm (Chang ot offset: <u>A= 15 mm o</u>	r mo	75 mm to 240 r pre_B= 9 mm_or	more			mm
	Guatama		• H: 75 m	nm to 175 mm (Chang ot <u>offset: A= 15 mm o</u> W: n		75 mm to 240 r		H:		mm,
		er's magazine e blank when	• H: 75 m • First -s Product	וווו to 175 mm (Chang ot offset: <u>A= 15 mm o</u> W: n P: n	r_mo nm,	75 mm to 240 r pre_ <u>B= 9 mm or</u> L:	moremm,	H:	-slot H:	
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No					
1	Touch panel operating area: Stainless hairline finishing				
2	Main body: Stainless hairline finishing				
3	Loader/unloader: Stainless hairline finishing				
• T	• There are partly welding marks on the surface of standard stainless cover. (No welding marks finishing can be selected from option.)				

6. Customer-requested specification

Project No.

If there are any mutual arrangements that are not written in this specifications, or special matters for buy-off check items (2 or more work types or acceptance inspection items), please note in below.

	Customer's requests						
No.	Items	Descriptions					
1	Add specification	Transport claw (2 claws type)					
2	Add specification	Parts for the ionizer. (Ionizer ;DJK Supply)					
3	Add specification	Electric outlet (100V)					
4	Carrier specification	1 Iane typr (Carrier W160mm×L310mm)					
(Not	e) Specify the quantity of parts,if any.						

7. Buy-off check items

Project No.

7.1 Criteria for acceptance quality

	ltem	Content
1	Ultimate Vacuum	Measure pressure for 2 min after pump-down from normal, with no boards present.
		Pressure should be max. 3 Pa,.
2	Cycle Time	• PSX307-S:Within 30 s (It is assumed that the processing time is set to 8 s for argon as the
		discharge gas and 5 s for oxygen.) (45 seconds or less for board length 120 mm or less)
		• PSX307-M:Within 45 s (It is assumed that the processing time is set to 13 s for argon as th
		discharge gas and 10 s for oxygen.) (60 seconds or less for board length 160 mm or less)
3	Remarks	Processing time, and exhaust to discharge preparation time depend on
		conditions of the PCBs etched. (PCB size, materials). Confirm the cycle time with your
		own PCB.
		• The above cycle time is measured with argon gas without any substrates inside the chamber.
		Since there are any substrate, substrate handling is simulation (250 mm length) is
		specified in program) In the case of oxygen gas, treatment time setting is 5 seconds and gas
		flow setting is 50ml/mim. other conditions are same as argon.
		In principle, deterioration of electronic component characteristics due to charged particles
		emitted during plasma etching outside the warranty.
		Please test to check whether your work can be processed and confirm the etching conditions.
		During etching, reverse contamination may be caused by the surface materials of the products
		being etched. Conduct a test beforehand to judge whether the work can be processed.
		Reverse contamination by metals other than gold and aluminum are outside the machine's
		warranty.
		The samples given on the left and used for measurement may be replaced with equivalent
		items if so warranted by conditions on the market.
		Use of gases other than those specified in the specifications is outside the warranty
		on the machine.

7. Buy-off check items

Project No.

7.3 PSX307-S Criteria for acceptance quality

	PSX307-S Criteria for acceptance quality Inorganic matter Inspection method Etching speed Result						
1	Inorganic matter	Inspection method		Etching speed			
	Etching Speed	RF power	600 W		andard value	Inspected value	Judge
	(PSX307-S)	Etching time	5 minutes x 2	1		nm /min	
		Target material	Gold (plating)	2		nm /min	
		Measurement method	X-ray fluorescence film	3		nm /min	
		(Film pressure measurement)	thickness gauge	4		nm /min	
		Gas	Ar	5		nm /min	
		Gas flow rate setting: 5 ml /min		6	All measured	nm /min	
		 Etching speed for all measured points 		7	points	nm /min	
		more than 26 nm/min		8	, more than	nm /min	
		Distribution (variation)	Distribution (variation) within ±30 %		26nm /min	nm /min	
		Distribution (Max – Min)		10		nm /min	
				11		nm /min	
		unit [.] mm		12		nm /min	
		230		13		nm /min	
				14		nm /min	
				15		nm /min	
		$\downarrow \downarrow \downarrow$ $\blacklozenge 11$. $_$	··· _ ·· _ • <u>1</u> 3	10		11111 / 111111	
			·· — · — • ;				
			10			old, nickel, copper	
			·· — · —● ·°				
			·· — · –•4·			Glass epoxy PCBI	
			5 3 Set the s	samp			
			points ar	nd m	easure.		
			(253)				
		Oper	ator side				
2	Organic Matter	Inspectio	n method		Etching	speed	Result
	Etching Speed	RF power	600 W	St	andard value	Inspected value	Judge
	(PSX307-S)	Etching time	30 s	1		nm /min	
	(PSX307-S) (Only for O ₂ gas is	Etching time Target material	30 s Positive resist	1 2		nm /min nm /min	
		-	Positive resist				
	(Only for O_2 gas is	Target material Measurement method		2		nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement)	Positive resist Optical interferometric film thickness gauge	2 3 4		nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas	Positive resist Optical interferometric film thickness gauge O ₂	2 3 4 5	Average for	nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min	2 3 4 5	Average for all measured	nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min	2 3 4 5 6 7	all measured points	nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min	Positive resist Optical interferometric film thickness gauge O ₂ v rate setting: 50 ml /min neasured points	2 3 4 5 6 7 8	all measured points more than	nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all m more than 800 nm/min • Distribution (variation)	Positive resist Optical interferometric film thickness gauge O ₂ v rate setting: 50 ml /min neasured points within ±30 %	2 3 4 5 6 7 8 9	all measured points	nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution(N	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax —Min)	2 3 4 5 6 7 8 9 10	all measured points more than	nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution = $\frac{(N)}{(N)}$	Positive resist Optical interferometric film thickness gauge O ₂ v rate setting: 50 ml /min neasured points within ±30 %	2 3 4 5 6 7 8 9 10 11	all measured points more than	nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution(N	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax —Min)	2 3 4 5 6 7 8 9 10 11 12	all measured points more than	nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all m more than 800 nm/min • Distribution (variation) Distribution (variation) unit: mm	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax —Min)	2 3 4 5 6 7 8 9 10 11 12 13	all measured points more than	nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution (variation) Distribution = $\frac{(N)}{(N)}$ unit: mm	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min)	2 3 4 5 6 7 8 9 10 11 12 13 14	all measured points more than	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all m more than 800 nm/min • Distribution (variation) Distribution (variation) Distribution = (N variation = 230 t = 230	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min)	2 3 4 5 6 7 8 9 10 11 12 13	all measured points more than 800 nm /min	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution (variation) Distribution = $\frac{(N)}{(N)}$ unit: mm	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % laxMin) lax +-Min) 	2 3 4 5 6 7 8 9 10 11 12 13 14	all measured points more than	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % laxMin) lax +-Min) 	2 3 4 5 6 7 8 9 10 11 12 13 14	all measured points more than 800 nm /min	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution (variation) Distribution = $\frac{(N)}{(N)}$ unit: mm	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % laxMin) lax +-Min) 	2 3 4 5 6 7 8 9 10 11 12 13 14	all measured points more than 800 nm /min Average	nm /min nm /min	iece
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % laxMin) lax +-Min) 	2 3 4 5 6 7 8 9 10 11 12 13 14	all measured points more than 800 nm /min Average Sample: 6 mm	nm /min nm /min	iece
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12 11 12 11 10 12 11 10 10 10 10 11 10	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min) 	2 3 4 5 6 7 8 9 10 11 12 13 14 15	all measured points more than 800 nm /min Average Sample: 6 mm Po	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % laxMin) lax +-Min) Ax + Min) Ax + Min) $Ax + Min = \frac{1}{3}$ $Ax - \frac{1}{9}$ $Ax - \frac{1}{9}$	2 3 4 5 6 7 7 8 9 10 11 12 13 14 15	all measured points more than 800 nm /min Average Sample: 6 mm Po the	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 12 11 12	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min) 	2 3 4 5 6 7 7 8 9 10 11 12 13 14 15	all measured points more than 800 nm /min Average Sample: 6 mm Po the	nm /min nm /min	
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all m more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 $12^{$	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min) 1ax + Min) ax + Min) $ax - \Phi_4$ $ax - \Phi_4$ Set the sample points and measured	2 3 4 5 6 7 7 8 9 10 11 12 13 14 15	all measured points more than 800 nm /min Average Sample: 6 mm Po the	nm /min nm /min	1
	(Only for O_2 gas is	Target material Measurement method (Film pressure measurement) Gas Gas flow • Etching speed for all n more than 800 nm/min • Distribution (variation) Distribution $= \frac{(N)}{(N)}$ unit: mm 230 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 12 11 12 11 12 11 12 11 12 11 12 11 12 11 12 12 11 12	Positive resist Optical interferometric film thickness gauge O_2 v rate setting: 50 ml /min neasured points within ±30 % lax - Min) lax + Min) 1ax + Min) ax + Min) $ax - \Phi_4$ $ax - \Phi_4$ Set the sample points and measured	2 3 4 5 6 7 7 8 9 10 11 12 13 14 15	all measured points more than 800 nm /min Average Sample: 6 mm Po the	nm /min nm /min	1

7. Buy-off check items

7.4 PSX307-M Criteria for acceptance quality 3 Inorganic Matter

3	Inorganic Matter	Inspection method			Etching speed Re			
5	Etching Speed	RF power 600 W		Standard value Inspected value		Result Judge		
	(PSX307-M)	Etching time	5 minutes × 2	1		nm /min	Juuge	
	(PSX307-IVI)	-		2				
		Target material	Gold (plating)			nm /min		
		Measurement method	X-ray fluorescence film	3		nm /min		
		, , ,	thickness gauge	4		nm /min		
		Gas	Ar	5		nm /min		
		Gas flow rate setting: 5 ml /min		-	All measured	nm /min		
		Etching speed for all measured points		7	points	nm /min		
				8	more than	nm /min		
		Distribution (variation) within ±30 %		9 10	180 nm /min	nm /min		
						nm /min		
		variation (Max + Min)				nm /min		
				12		nm /min		
		unit: mm		13		nm /min		
				14		nm /min		
		• 310		15		nm /min		
						Gold, nickel, cop		
					e sample on the			
4	Organic Matter	Inspectio	n method		Etching	j speed	Result	
	Etching Speed	RF power	600 W	St	andard value	Inspected value	Judge	
	(PSX307-M)	Etching time	30 s	1		nm /min		
	(Only for O ₂ gas is	Target material Positive resist				nm /min		
	selected: Option)	Measurement method	Optical interferometric film	3		nm /min		
		(Film pressure measurement)	thickness gauge	4		nm /min		
		Gas	O ₂	5		nm /min		
		Gas flow	v rate setting: 50 ml /min	6	Average for	nm /min		
		• Etching speed for all n	neasured points	7	all measured	nm /min		
		more than 420 nm/min		8	points	nm /min		
		Distribution (variation)	within ±30 %	9	more than 420 nm /min	nm /min		
		. ,	lax —Min)	10	420 1111 /11111	nm /min		
		=	lax + Min)	11		nm /min		
		unit: mm	(nm /min		
1								
1				12 13		nm /min		
				13		nm /min nm /min		
				13 14		nm /min		
		310		13		nm /min nm /min		
				13 14	Average	nm /min		
		310	· — · • 9	13 14	Average	nm /min nm /min nm /min	ece	
			· • 9 8	13 14	Average Sample: 6 mm	nm /min nm /min nm /min a x 6 mm Silicon pi	ece	
		310	· — · • 9 · — · • 8	13 14	Average Sample: 6 mm Po	nm /min nm /min nm /min nx 6 mm Silicon pi sitive resist		
				13 14 15	Average Sample: 6 mm Po ple on the	nm /min nm /min nm /min a x 6 mm Silicon pi		
			9 	13 14 15	Average Sample: 6 mm Po ple on the	nm /min nm /min nm /min nx 6 mm Silicon pi sitive resist		
				13 14 15	Average Sample: 6 mm Po ple on the	nm /min nm /min nm /min nx 6 mm Silicon pi sitive resist PMER P-LA900Pf	М	
		$(0\overline{0}1)$	· _ · ●³→ points a	13 14 15	Average Sample: 6 mm Po ple on the	nm /min nm /min nm /min nx 6 mm Silicon pi sitive resist	М	

8. Shipment and delivery condition

Project No.

-						
1	Buy-off Check	• Ref ope • For	uy-off check is performed based on Panasonic standard. efer to the buy-off check items list for check items. Also, some items such as continuous peration check, are possible to select works to be used. Please select below. or two or more work types, additional expense is required. lease describe any special note in buy-off check items or two or more work types.			
2	Buy-off Check Work Before Shipment	0	Panasonic evaluation PCB			
		0	Customer supplied product (One type only)	Туре		
3	Buy-off Check Work At Delivery	0	Panasonic evaluation PCB			
		0	Customer supplied product (One type only)	Туре		

9. Customer preparation items

Project No.

9.2 Electric Source Unit • Pneumatic Source Unit

