

INLINE PCBA CLEANING MACHINE-INCLE-3600C



Main parameters in cleaning machine:

ITEM	PARA	ITEM	PARA
Conveyor Speed	35cm/min	Temperature	65 c degree
Prewash	On	Isolation rinse	On
Chemical Wash	On	DI rinse up pressure	35psi
Chemical Wash Up Pressure	35psi	DI rinse bottom pressure	35psi
Chemical Wash Bottom Pressure	35psi	DI rinse tank temperature	50 c degree
Solvent	Keyzen A4625B	Final Rinse	On
Solvent %	13%	Hot Air Temperature	70 c degree

Standard:

IPC-TM-650

Military standard: 1.56 μg NaCl Eq./square

Equipment and method:

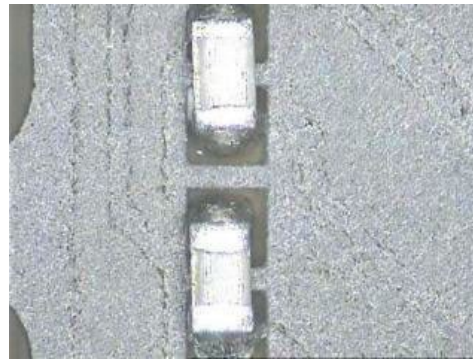
1. electron microscope
2. C3 Tester & Dionex ICS2500



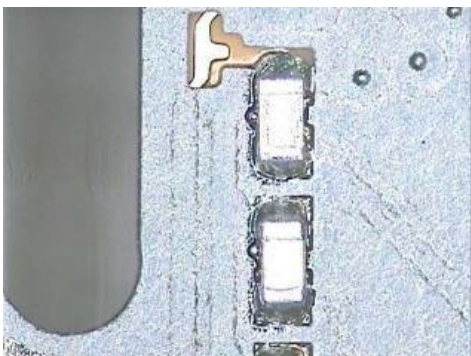
Cleaning Result Comparison



Before



After

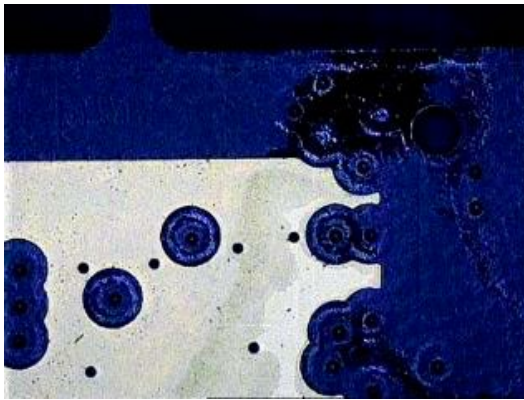


Before

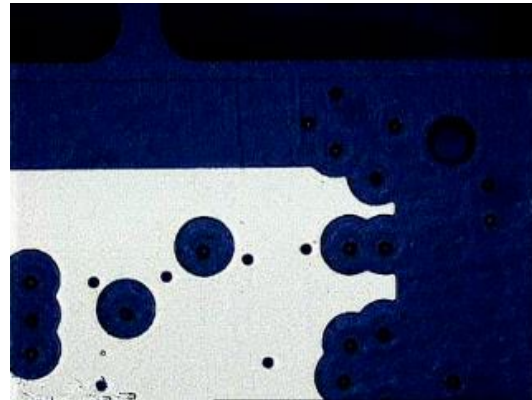


After

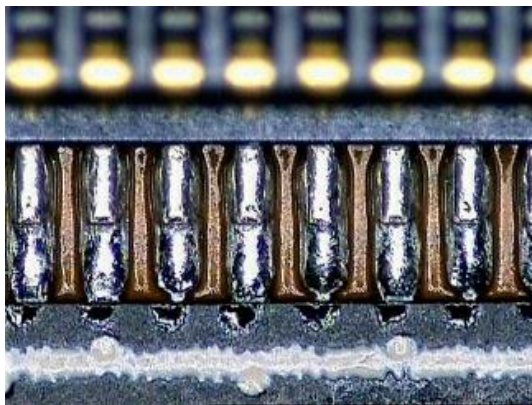
Cleaning Result Comparison:



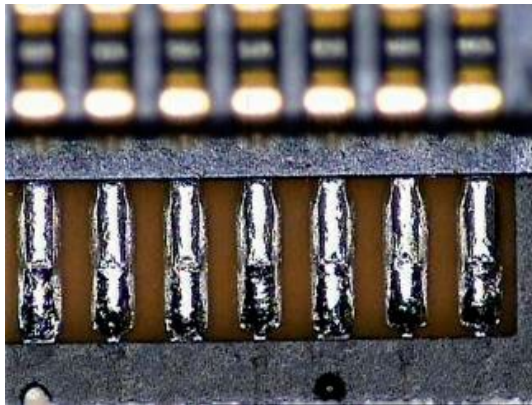
Before



After



Before



After

Conclusion:

IC TESTING RESULTS							(UNIT: $\mu\text{g}/\text{in}^2$)			
	F-	Ace	Form	Cl-	NO ₂ -	Br-	NO ₃ -	PO ₄ --	SO ₄ --	Succinic
Pass1	0.02	0.39	0.10	1.42	0.03	0.71	0.20	0	0.53	2.39
	Li+	Na+	NH ₄ +	K+	Mg+	Ca+				
Pass1	0.01	1.47	0.41	0.25	0.12	0.30				

C3 TESTING RESULTS

RESULTS	MAX(μA)	TIMES
Clean	90.2	180.0

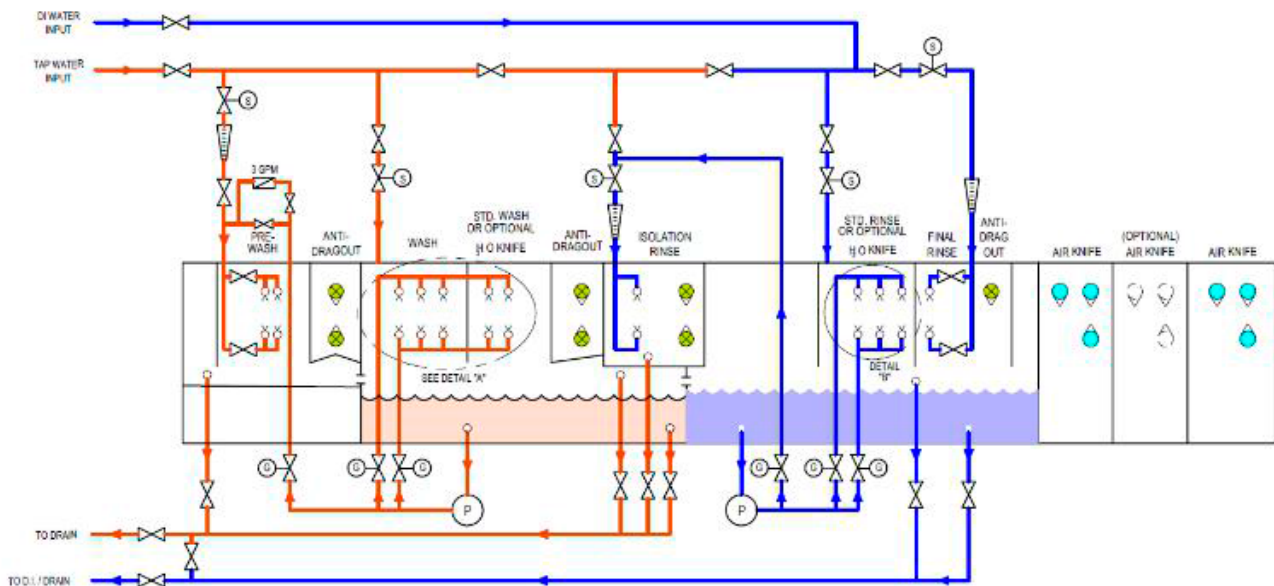
According to acceptable standard, every cm^2 need to contain less than $1.56\mu\text{g Na}$. Above test result is $3.47\mu\text{g}/\text{in}^2$, it's equal to $0.2278\mu\text{g per cm}^2$. Approved to meet standard.

According to acceptable standard, in 60seconds the electrical current need to be less than $500\mu\text{a}$. Approved to meet standard.

INLINE PCBA CLEANING MACHINE-INCLE-3600C	
Machine Type	NCLE-3600
Machine Length	3800mm
206	2060mm
Machine Height	1750mm—1800mm
Machine Weight	1700kg
Electrical	3phase 380VAC
General Power	78KW
Consumption Power	20KW-50KW
Exhaust	Each : 2000 CBM/H
Water Input	8—20 L/MIN
DI System Required	
Income Connector	1"
Drain Connector	2"
Flow	30 L/MIN
DI Water Quality	2--18 Mega Ohm
Conveyor System	
Conveyor Width	600mm
Conveyor Type	Stainless steel mesh belt
Conveyor Height	940mm±20mm
Conveyor Speed	200mm--600mm
Conveyor Direction	L to R
Wash	
Wash Length	610mm
Spray Bars	Upper 4 tubes, bottom 4 tubes
Heater Power	24kw
Cleaning Media	DI water
Cleaning Media Capacity	220L
Cleaning Temperature	40-60 c degree
Isolation Rinse Stage	
Isolation Length	305mm
Spray Bars	Upper 1 tube, bottom 1 tube

INLINE PCBA CLEANING MACHINE-INCLE-3600C	
Air Knife	Upper 1 tube, bottom 1 tube
Recirculating Rinse	
Rinse Length	305mm
Spray Bars	Upper 2 tubes, bottom 2 tubes
Heater Power	18kw
Cleaning Media	DI
Cleaning Media Capacity	188 L
Cleaning Temperature	40–60 c degree
Final Rinse	
Final Length	305mm
Spray Bars	Upper 1 tube, bottom 1 tube
Heater Power	Share with rinse tank
Cleaning Media	DI
Dryer Stage	
Dryer Stage Length	996mm
Air Knife	4 upper air knives, 2 bottom air knives
Air Blower	10 HP 2sets

Introduction of INCLE-3600C





- Chemical cleaning: Prewash + Wash
- Isolation: Air knife isolation + water isolation + Air knife isolation
- DI cycle rinse: DI water rinse
- DI Final rinse: DI final rinse
- Hot air knife drying: 3 sections hot air knife drying

Upper & bottom equipped with spray bar & spray nozzle. According different application, spray bar & nozzle can be changed to meet the required cleaning result.



Removable filters



At the entrance to install safety grating



Plumbing:

Stainless Steel or Polypro plumbing.
There is no CPVC and no gluing.

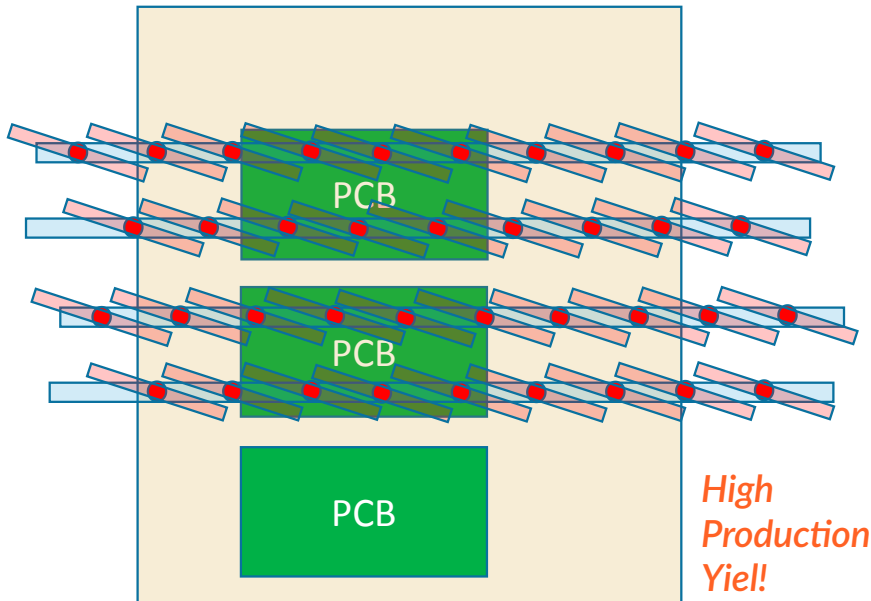


Main Screen

For all on/off switch. Also can choose from Pure DI water cleaning model, Chemical cleaning & DI rinse model.

All pressure, temperature, conveyor speed show at main screen.

Advantages of INCLE-3600C



1.1. Chemical cleaning pump: much more powerful cleaning pump. Two 10HP pump were used for chemical cleaning.

1.2. With higher density sprayer nozzle (see left side explanation picture), every corner will be sprayed by several nozzles on same spray tube. That means this machine can get higher production yield than others.

1.3. 3 individual powerful 10hp blower for drying PCB with air knife. Meanwhile, each air knife is equipped with inline heater. So to be sure PCB can get better drying performance even in high production



3 Sets Air Blower



Air Knives



Chemical Saving!

2.1. Condensator equipped at exhausting SUS tube. In this way, the exhausting mist air close to chemical tank will be condensated and get as mush as chemical back to tank. After test result, this can save more than 50% chemical consumption compare to other machines.

Since no any other machine install condensator, or very short path condensator inside machine, no enough cooling path to cold the mist and condensate the chemical back



2.2. Individual blower supply air to two top & one bottom air blade to take chemical off the PCB before PCB leave chemical tank. So to reduce as much as possible chemical was carried by PCB and save the chemical consumption. This is only be found in INCLE-3600C machine. In other machine, it's only two weak blade to do this job, not enough effective.

Air Blower

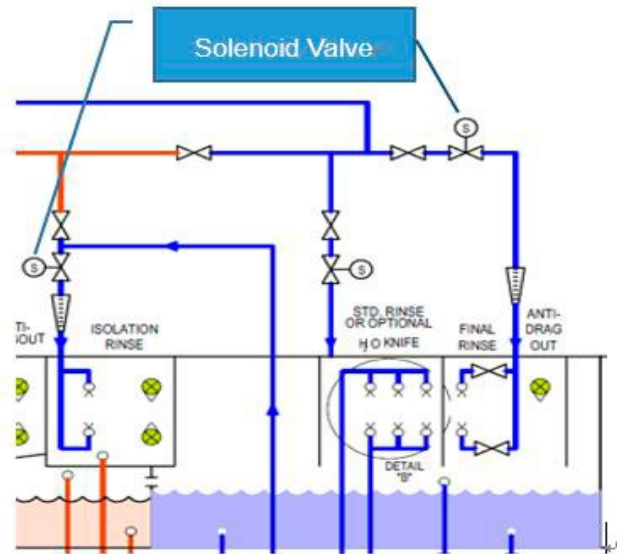


DI Water Saving!

3.1. Economy running.

Only when PCB passed, the DI isolation & DI final rinse will work. In this way, during running machine will drain water only when PCB pass.

2 solenoid valve to control DI cleaning and economy running



Less Maintenance!

4.1. Chemical tank individual filtering pump.

Two advantage for this :

a. it will filter the chemical tank's partical out, so to avoid spray nozzle get clogged. So it will be with much less maintenance compare to others.

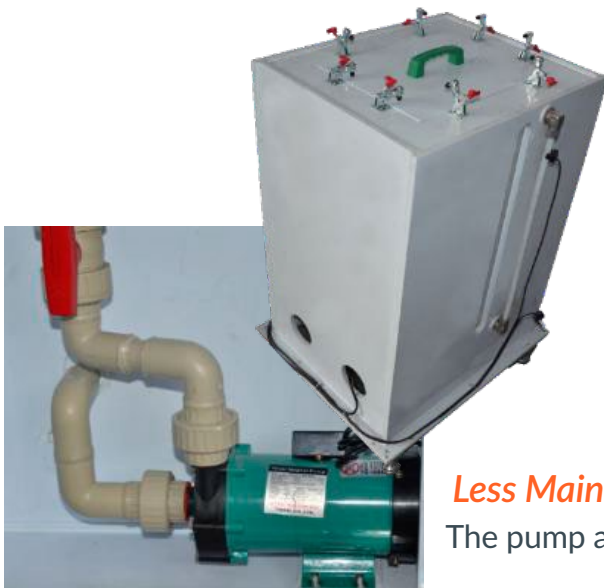
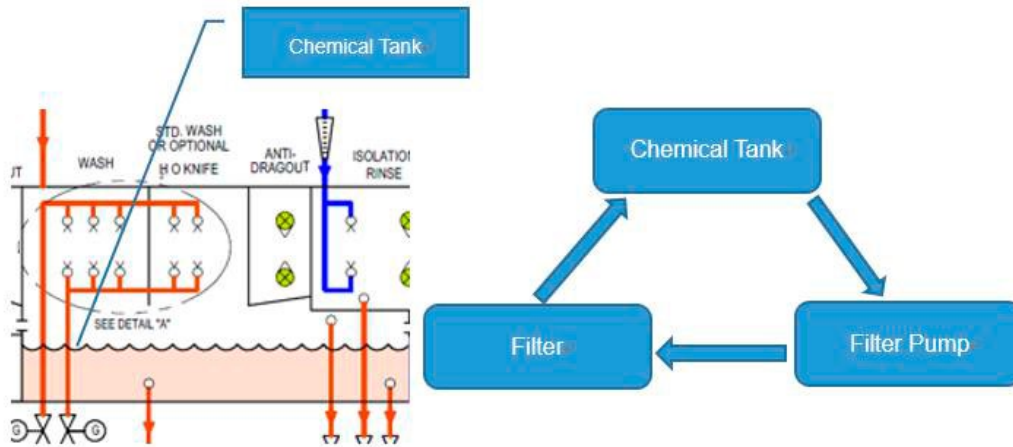
b. when the heater is start to work, the filtering pump will work too, this water circulate will make chemical temperature very uniform.



4.1. Chemical tank individual filtering pump.

It is an infinite cycle system which will be activated during cleaning

Chemical Flow Direction → Chemical Tank → Filter Pump → Filter → Chemical Tank



4.3. Chemical auto adding tank is outside machine.

Operator will mixed the chemical & DI water as required ration and add to this tank, no need to open machine to add. When chemical level is down, pump will work to feed mixed chemical automatically .

Less Maintenance!

The pump at the bottom side of adding tank

Cleaning Result Repeatability!

5.1. Cleaning tank's temperature can be set and maintain stable.

5.2 Cleaning tube's pressure can set lower & up limit, be sure the cleaning pressure is in range.

5.3 Inlet DI water's quality is monitored by resistance meter.

5.4 conveyor speed can be set in touchscreen and maintain stable

