Standard operating procedure

System name – flip chip bonder [FC150]

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Important - To operate this machine two person always require.
                Machine is use for quartz and 3, 5 samples only.

Facility requirement to machine

Vacuum - .8psi
Nitrogen pressure 4.5bar

Steps for make system ON

1] Switch ON chillers, switch present at left side wall of machine.
2] Switch ON Vacuum pump, switch present at left side wall of machine
3] Turn ON nitrogen valve which is present at back side of machine
4] Turn ON power supply main MCB which is present at back side of machine.
5] Press green button which is present on top centre on machine.
6] Computer will boot itself if not then you have to turn ON CPU which is left bottom of machine.

Wait for some time system will boot and software will open automatically.

Check vacuum [.8], nitrogen pressure [4.5 bar] and chiller liquid, if all are correct then proceed following steps.

Calibration process

1] Log ON by using user name and password which is allocate to you, RESET machine after every power ON
2] There is one calibration option on software window press it.
3] Software will display every next action, which have to follow by user carefully.
4] User should clean reticule and tool very carefully with perfection, it will decide machine performance.
5] After calibration put reticule and tool in the proper box carefully.

Next process is to check machine accuracy for bonding process.
Check machine accuracy
1] Use two quartz standard samples for bonder process. First of all clean it by IPA.
2] Place one in substrate cassette with pattern will upside and one in chip cassette with pattern will downside. Place tool in tool cassette facing downwards in C pocket which is normally use in program.

3] Place proper bonding tool on the chuck with alignment instrument.

4] Open edit mode from software by clicking on edit option, before it makes sure door is close. Use process file by selecting also select quartz sample dimension detail library file.

5] Click on load substrate to chuck option in software

6] Click on load chip from tool cassette to ARM

7] Click on chuck positioning for alignment

8] Click on alignment option through software

9] Now user has to align chip and substrate pattern by using left and right joystick carefully, as user learn in training

10 click on bonding option in software.

11 click on again alignment option to check bonding accuracy, if user doesn't find below +/-3 micron accuracy, follow calibration again.

12 remove the quartz sample put in to box safely, its very important.

Bonding process

Follow check machine accuracy process except quartz sample, over there user will use his/her sample.

After step 7 users can use temperature parameter fro chip and substrate separately, careful about temperature setting should not exceed 300deg.

Shut down process

1] Remove your entire sample from machine out side

2] Place tools in box. Shut down PC and press red button which is present on top centre of machine.

Before using machine important step to aware

1] Always take permission from system owner for your recipe

2] Always fill log book before going to use the machine

3] Always use both hand while operating joystick. Left hand on left joystick and right on right one.

4] Humidity and temperature of room should be 55% to 60% and 22 deg to 24%

5] Don't open door or put hand inside the machine while machine is in running condition

6] Use emergency switch if anything goes wrong to stop machine quickly

7] Don't use thumb drive with PC.

8] Read user manual carefully before operate the machine

9] There is formic acid option with machine. Dedicated sensor is inside the machine for any leakage detection. Above 3 PPM leakage is very dangerous. Leave the lab and inform to in charge and all people who are present in the room.

10] Always monitor nitrogen pressure and vacuum

11] For troubleshooting for any unwanted things don't use your idea call system owner.