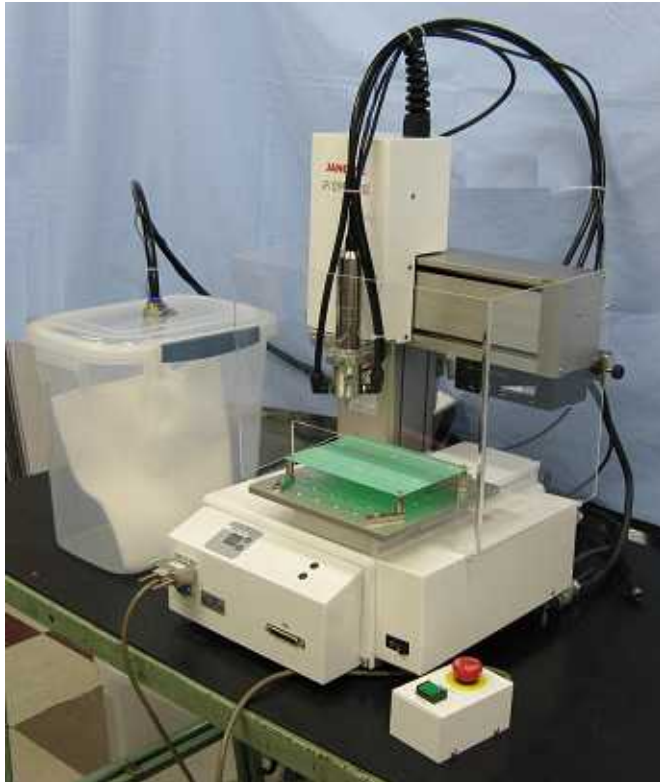


PC Board Depaneling Desktop Robot JR2003NERT



R&D Dept.
October 24, 2008

PC Board Depaneling by CAST Series

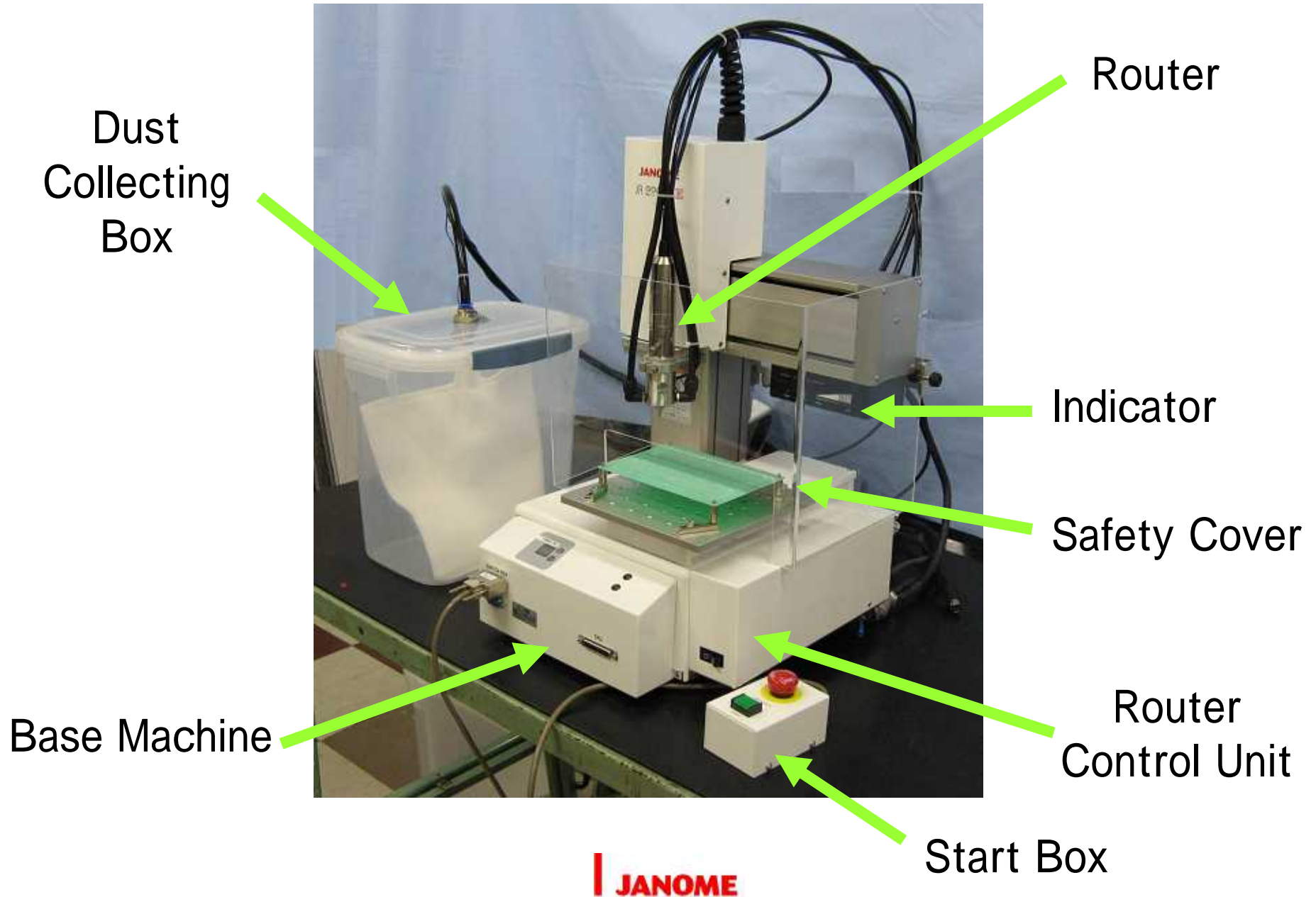
- The CAST Series has been sold as a PC board depaneling system. The router equipped with the Z mechanism cuts large panels into small, individual PCBs.
- PC board depaneling systems using the router are suitable for high-mix low-volume production. They have been in steady demand since when manufactured and supplied by SONY Manufacturing Systems Corporation.

Expansion of PC Board Depaneling Application from CAST Series to JR Series

It was considered that Janome could expect the same kind of demand for the CAST series from our JR desktop robot users.

Janome decided to develop a PC board depaneling application for the JR Series.

Configuration



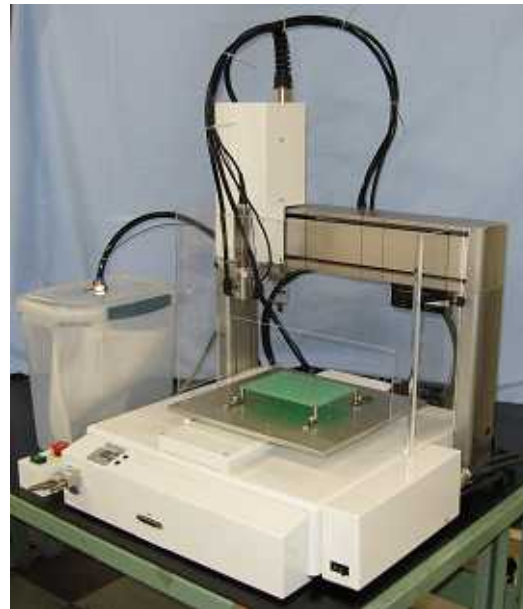
Models

Three different models are available.

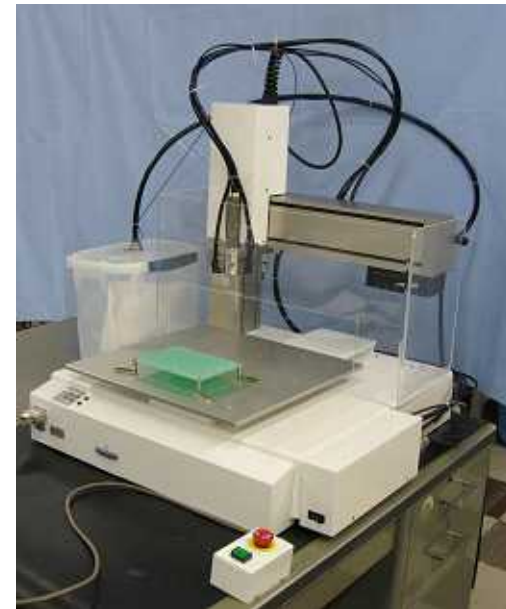
The base machines used for these models are the JR series desktop robots with position detection function.



JR2203NERT



JR2303NERT



JR2403NERT

Cutting Range

	Operation Range [mm]	Cutting Range [mm]
JR2203NERT	200*200*50	195*190*45
JR2303NERT	300*320*100	295*315*95
JR2403NERT	400*400*100	395*395*95

Start Box & Open Height

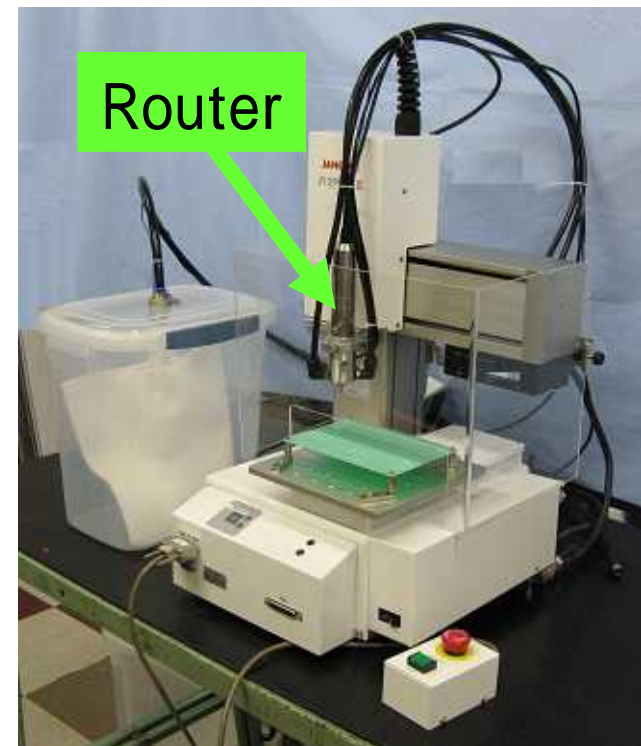
- The unit comes with a start box.
- The open height (the distance from the X table to the bottom of the Y-axis unit) of all models is 200mm.



Start Box

Router

- BM-14 (manufactured by Urawa Corporation)
- Collet Chuck
3.175
- Router Bit
8 Left twist

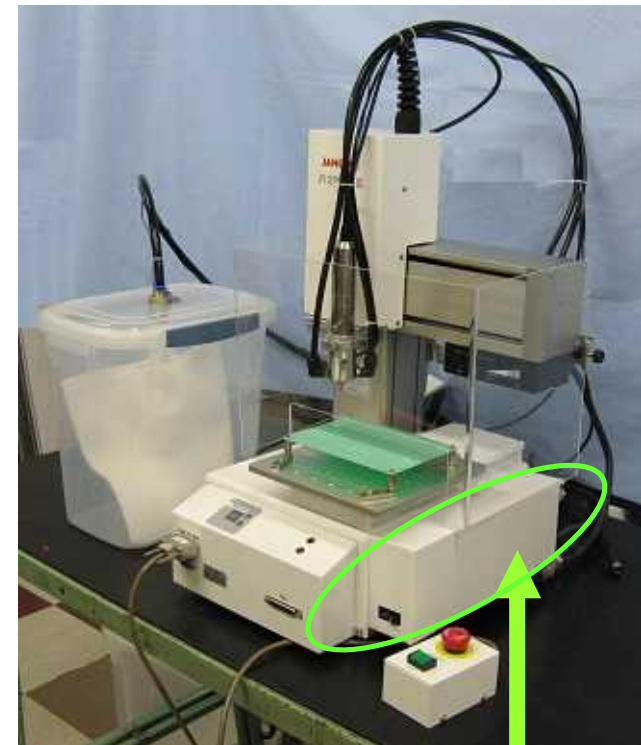


Supported PC Board

- Material:
Glass Epoxy / Paper Phenol Laminate
- Thickness: 1.6mm (maximum)

Router Control Unit




- Attached to the side of the unit (on the right of the operator) .
Common to JR2200, JR2300, and JR2400.
- The robot will be packed with the router control unit removed. Users need to attach it to the robot.
This is due to a matter of package space.

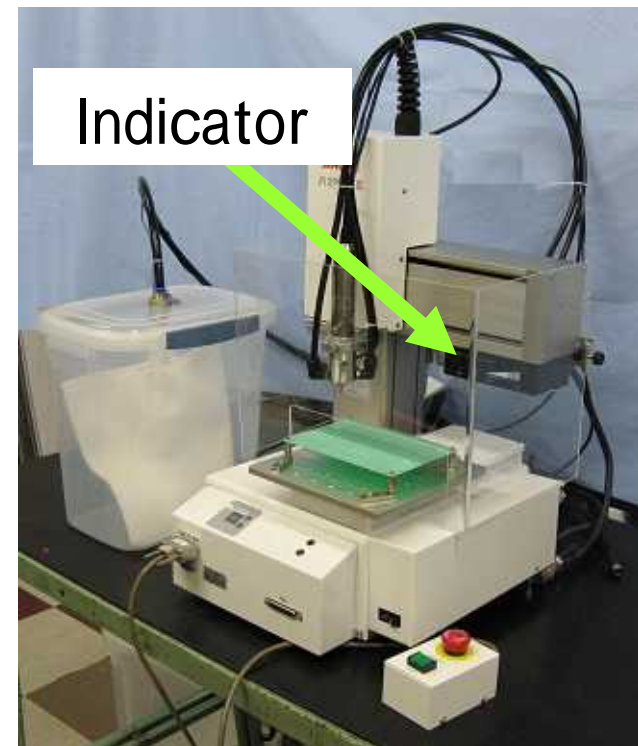


Router Control Unit

Indicator

The indicator shows the amount of current flowing into the spindle motor. It lights up in three different colors according to the amount of current.

-  Green: Normal
-  Yellow: Replace the blade, or lower the speed setting value.
-  Red: An error stop will occur in two seconds due to overcurrent.



Configuration

- Base machine
- Start box
- Router
- Router control unit
- Indicator
- Dust collecting box
- Safety cover
- Teaching data for PC board depaneling



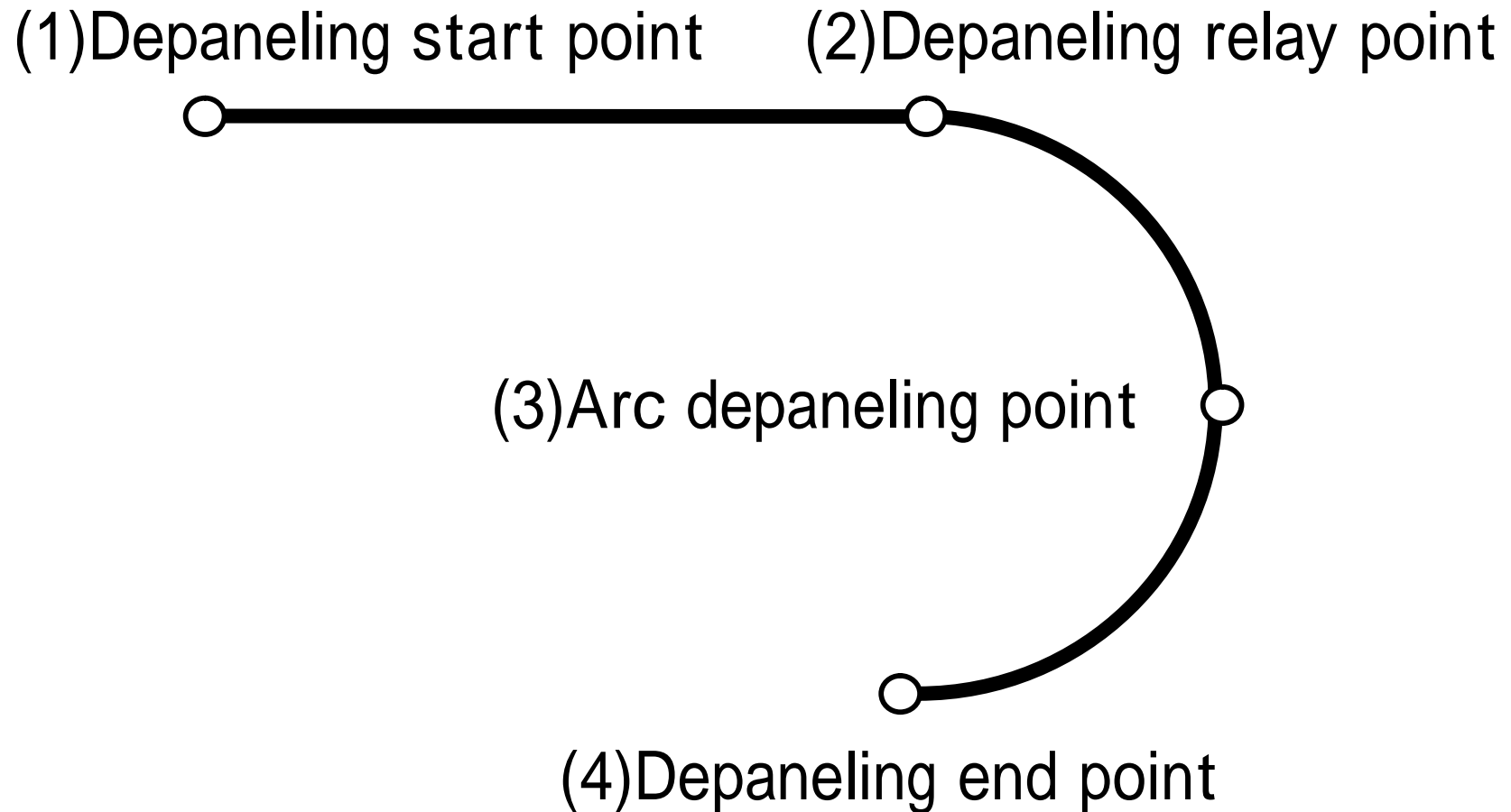
PC Board Depaneling Software

- Created using the customizing function which is included in the standard system software.

Will be supplied to customers as teaching data.

- System software version upgrade is necessary.
Assign the signal “Completion of mechanical initialization” to #sysOut12 (free/changeover).

Point Type



Program Data Settings

- Standby time at the start points
- Standby time at the relay points
- Standby time before air is blown
- Blowing time of air

Standby Time at the Start Points

- The period of time from when the Z-axis moves down until depaneling starts.
- If the workpiece becomes unstable when the Z-axis moves down, and the blade interferes with the workpiece, standby is necessary until the workpiece becomes stable.
- After the elapse of the “standby time at the start point”, the Z-axis will start to move.

Standby time at the relay points

- A sudden change of load occurs to the blade at the relay points.
- To reduce the load on the blade, the blade stops temporarily at the relay points.
- This stop time is set as the “standby time at the relay points”.

Standby Time Before Air Is Blown

Blowing Time of Air

- Air can be blown at the depaneling end point to avoid the blade interfering with the workpiece.
- If the vacuum is set to be turned off at the end of depaneling, once the vacuum is turned off, air will blow for the set “blowing time of air” after the temporary stop for the set “standby time before air is blown”.

Router & Air Control Signal

The router and air can be controlled via IO-SYS.

- #sysIn2: Spindle error
- #sysOut9: Spindle motor
- #sysOut10: Vacuum
- #sysOut11: Air blow
- #sysOut12: Completion of mechanical initialization
Connected to the unit box power supply relay.

Notes for IO

- ◆ The PC board depaneling JR desktop robots are available only in NPN specifications.
- ◆ PNP specifications are not available.
- ◆ The above situations also apply to the PC board depaneling CAST series.

This is because the router control unit is run on NPN.

CE Marking

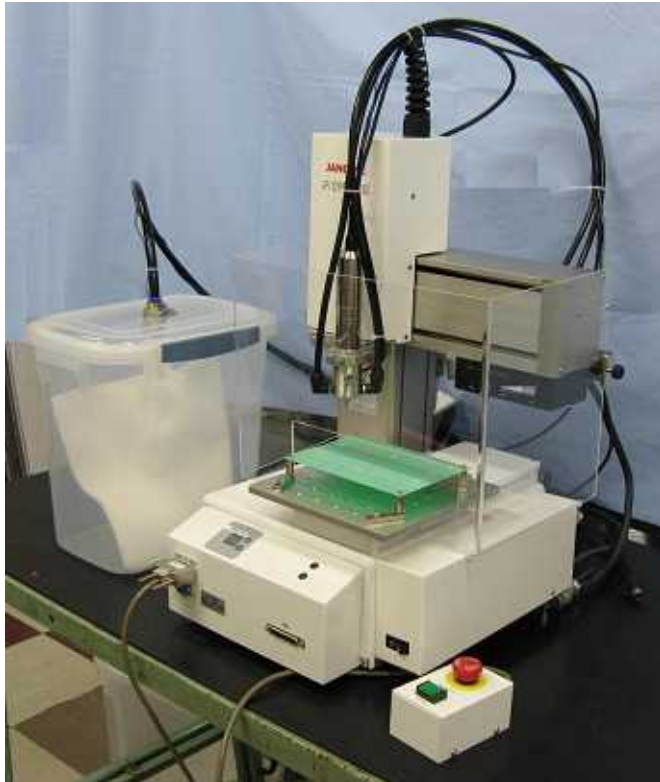
- Janome will implement in February 2009.
- Janome will issue a self-declaration of conformity at the end of May.

LVD: Low Voltage Directive

EMC: Electro-Magnetic Compatibility

MD: Machinery Directive

PC Board Depaneling Desktop Robot JR2003NERT



End