

PCB Depaneling Off-line Router System

Moebius 



Nov. 2016 (Rev.1.0)

1. Hardware Specification

System	Dimension	1100 x 1200 x 1600 (mm; WxDxH)
	Weight	Approx. 580 Kg
	Color	White
	Usage Environment	15~30 °C, 15~80%RH (Non-considering)
	Power Supply	AC 200~230V (1-phase, 50/60Hz) for Router
	Air Supply	5~6 kg/cm ² (0.5~0.6 Mpa)
	Energy Consumption	2.2 KVA, 60~70 L/min
	Noise Level	70 ± 3 dB
Target PCB	PCB Size	Max. 350 x 400 mm
	PCB Thickness	0.4~3.0 mm
	PCB Material	FR4, CEM3, Paper phenol
	PCB Clearance	Within ±0.1 mm
Technical	Working Table	Double shuttling tables
	Moebius Mode (Transform)	1+ 1 Mode (Single) & 2 x 2 Mode (Dual)
	Spindle Pitch Adjust	Automatic adjustment driven by AC servo motor
Information	Axis Motor	6 axes AC servo motor (X, Y, Z, W, H1, H2) -> Ultra High Speed Z-Axis Head
	Control	PC based control system (win 7)
	Display	17" TFT LCD touch monitor
	PTP Speed	Max. 1000 mm/sec
	Cutting Speed	Max. 50 mm/sec
	Repeatability	±0.02 mm
	Position Accuracy	±0.02 mm
	Cutting Accuracy	±0.1 mm
	Spindle Motor	250W, Max. 60K rpm
	Spindle No.	2 (as standard) ~4 (spindles optionally available)
	Spindle Pitch	Min. 38.5 mm ~ Max. 180 mm at 2 spindle motors
	Bit Diameter	φ0.8, φ1.0, φ1.2, φ1.5, φ2.0 (Left-handed direction)
	Bit Change	Knob type manually
	PCB Clamping	Fixed at dedicated Fixture Jig
	PCB Load Height	945 + 30 mm
	ESD Protection	1 set of Ionizer System (Area ionizing type)

1. Hardware Specification (continued...)

Dust Collector	Quantity	1 dust collector required
	Dimension	850 x 770 x 1809 (mm; WxDxH)
	Weight	390 Kg
	Power Supply	AC 220V (3-phase, 60Hz) or AC 380V (3-phase, 50Hz)
	Air Supply	0.5~0.6 Mpa
	Output	3.7 KW (5 HP)
	Airflow	35 m ³ /min
	Bucket Capacity	45 Liter
	Dust Removal	Bottom flow

(Note) Specification is subject to change without prior notice for improvement.

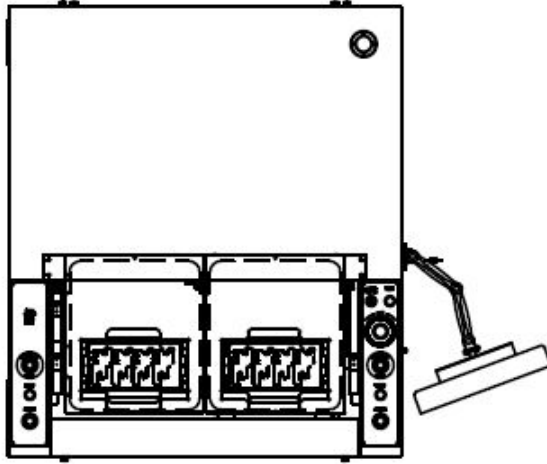
2. Software Specification

System	Control	Industrial PC based control system
	Display	17" TFT LCD touch monitor
	Quantity of PC/Monitor	Each 1 set required
Program	Environment	Windows 7
	User Interface	GUI (Graphical User Interface)
	Teaching Method	CCD camera plus MPG ⁽²⁾ dial aided easy teaching
	Teaching Time	Less than 15 min/product
	UI Language	English / Korean
	Program Backup	Real-time backup by RAID function with 2 HDD

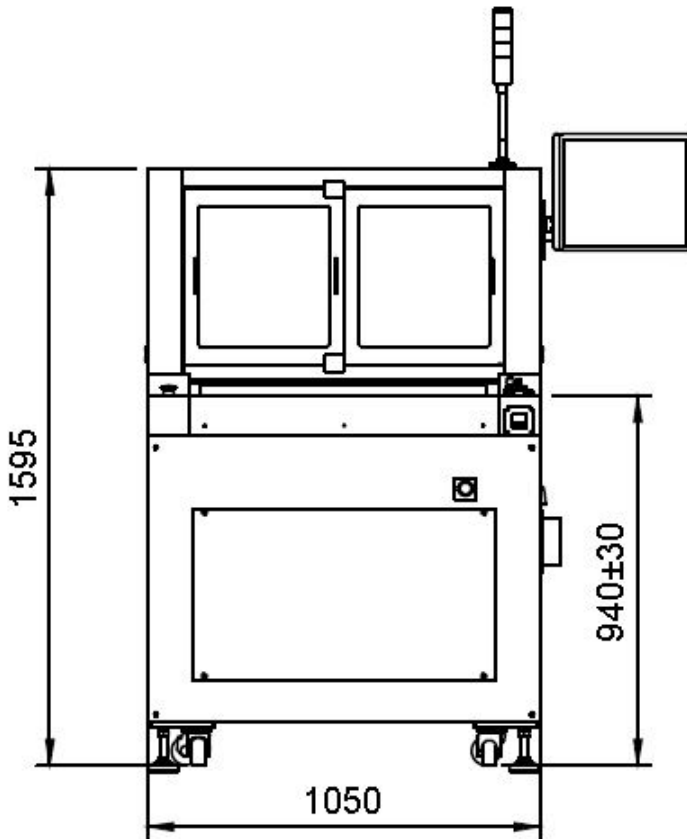
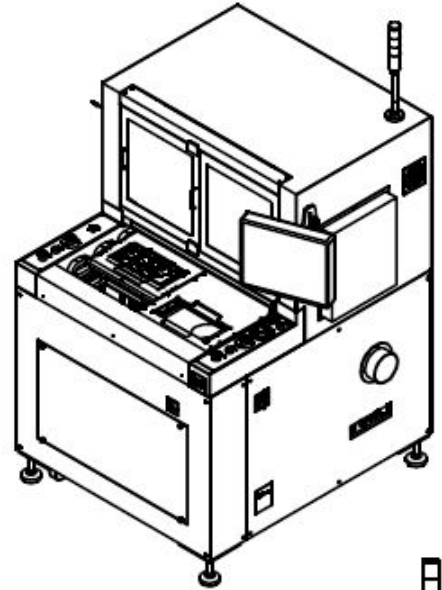
(1) D/C : Dust Collector

(2) MPG : Manual Pulse Generator

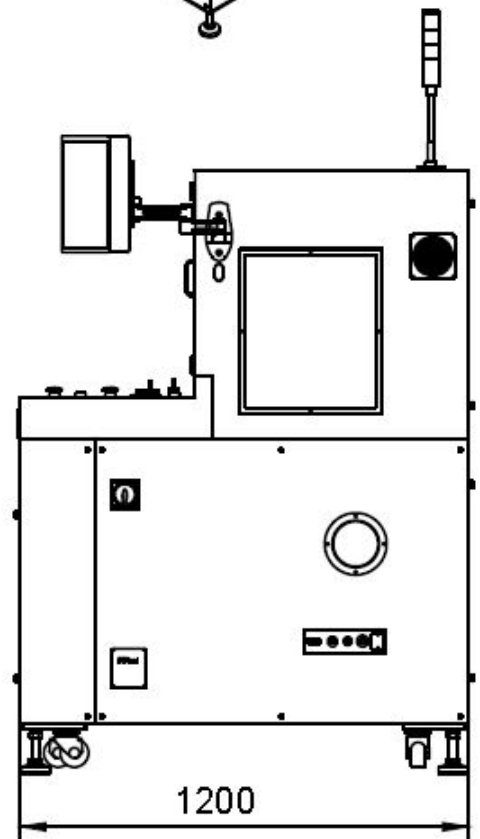
3. Equipment Layout



<Top View>



<Front View>



<Side View>

4. Special Features & Advantages

(1) Multi-Head Technology

- Simultaneous operation with two(2) spindle motors
- Enables the highest throughput with multi-head even at stand-alone station
- Automatic spindle pitch adjustment by AC servo motor
- Cycle Time : **2~3 sec/PCB (based on mobile PCB)**
- Production Volume per day : **Max. More than 23K PCB (based on 22hr operation)**
- Effect to reduce User's investment cost in space, operator, and system compared to competitor's stand-alone router (**Our 1 system = Competitor's 2 system**)

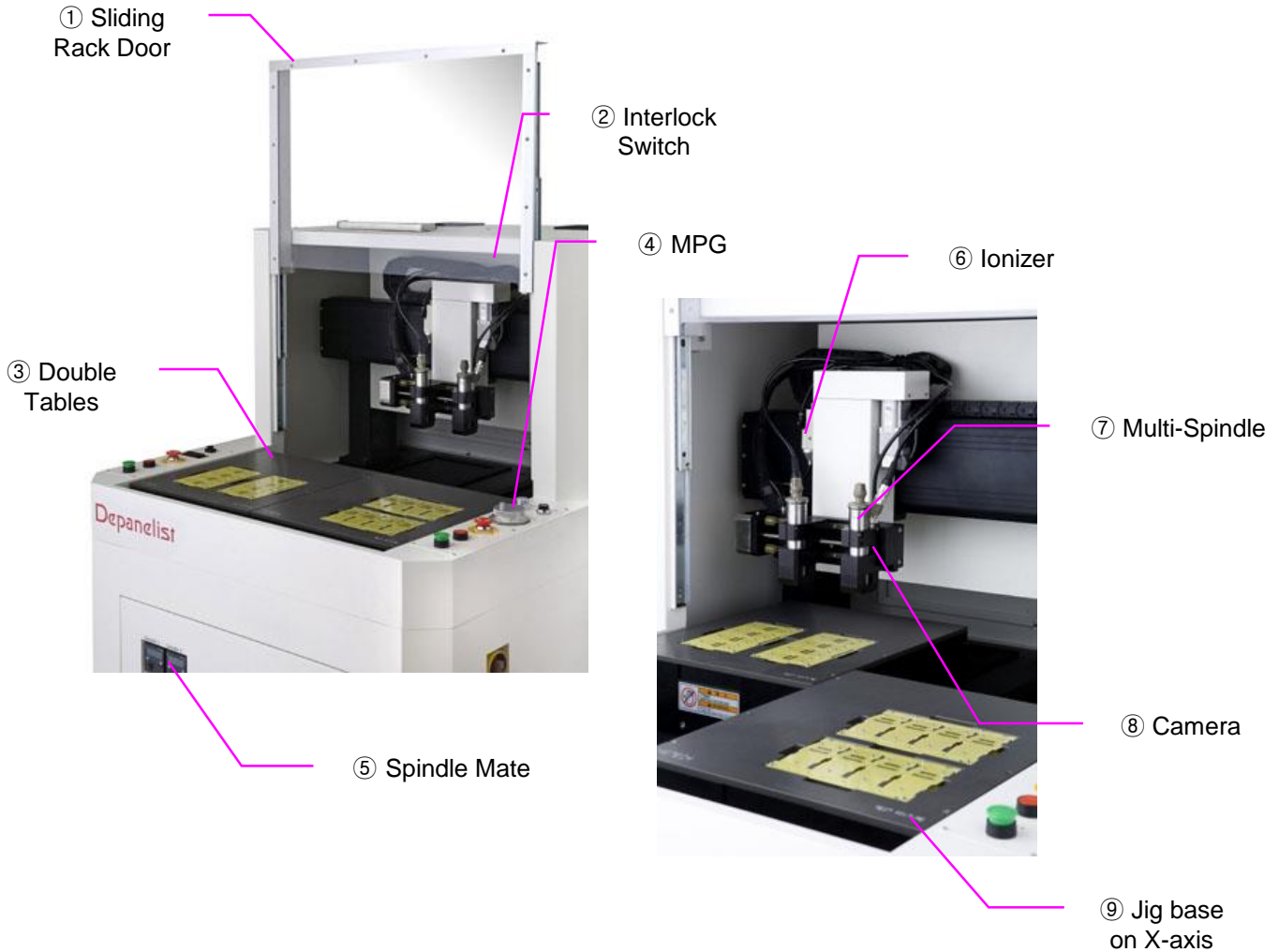
(2) Flexibility

- 'Mixed Production' enabled with independently working double(2) tables
- Individual operation with two different models on each table
- Simultaneous operation with one model on both table
- Minimize idle time with double tables
- Powerful program copy & offset function to extremely reduce teaching time
- Synchronous use of twin table for large size PCB

(3) Convenience & Efficiency

- Easiest & quickest program teaching by Camera & MPG
- Teaching time for new product : **less than 15 min**
- Minimize program teaching time with powerful and convenient 'Program Copy Function'
- Changeover time : **less than 2 min**
- 'Spindle Mate' : Diagnostic spindle status (each spindle's current) checking with pre-warning to prevent PCB damage
- Computer based control & user friendly GUI based on Windows XP environment
- Large sized 15" Touch LCD monitor applied for operator's easy manipulation
- ESD protecting 1 sets of Ionizer System (Area ionizing type)

5. Configuration



① Sliding Rack Door

By special structure, easy and light to handle, even for female operator

② Interlock Switch

For safety, when door is open during operation, machine emergently stops.

③ Double table

Enables for highest throughput and flexibility with multi-spindles

④ MPG

As a special dial, it helps to make program very easily and conveniently

⑤ Spindle Mate

Diagnostic spindle status (each spindle's current) checking with pre-warning to prevent PCB damage

⑥ Ionizer System

Helps ESD protection and efficient dust removal.

⑦ Multi-Spindle

Automatic spindle pitch adjustment with range between 38.5~180mm

⑧ Camera

Helps easy and fast program teaching

⑨ Jig Base

Moving along with X-axis with bottom-ward dust suction

6. Multi-Spindle Head



- High power and high performance with 2~5 spindle motors available
- All multi-spindles to adjust its pitch automatically by AC servo motor
- No of spindle to be considered upon customer's PCB design and target volume
- High-Frequency Spindle motor at 150W and Max. 60,000 rpm
- Knob type quick and easy bit change
- Area ionizing type Ionizer System
- CCD camera installed for quick and easy teaching

7. Graphical User Interface



- Highly graphical interface for user's better view
- Easy touch manipulation with big fonts and buttons in large sized display (15")
- Easy to recognize all status of operation and information



- Quick and easy teaching with CCD camera and MPG dial
- Powerful 'Program Copy Function' to minimize teaching time
- Guide Marks displayed to prevent operator's mistakes when teaching



- 3 sections of Bit Reuse Function available to reduce a cost of router bit.
- Bit life tracking function
- When bit reaches its life, system stops with bit change message.