AUTOTRONIK BS281

- BS281 The flexible smart feeder Prototype machine

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Full-vision alignment system on-the-fly and bottom vision cameras.

- AC servo motion control with linear encoders for smooth, high-speed movement and high accuracy and repeatability.
- Places 0201 through 100 x 150 mm components, including MBGAs, micro lead frames (MLFs), CSPs, µBGAs, BGAs and QFPs with lead pitch down to 15 mil
- Places 2,500 components per hour (IPC 9850).
- Up to 64 feeder slots allow commonly used components to be kept resident on the machine.
- Smart plug-and-play tape and stick feeders link to feeder position, component and indexing data in the system software to reduce job setup and changeover times. Ultra-smooth, electronic tape feeders index parts to the same place every time-set it up once and never have to do it again.

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- Cut-tape strip holders eliminate need to purchase entire reels of components for smaller jobs. (Holds up to 40 individual cut tape strips.)
- Waffle holder available for tray components.
- Weighs 150 kg and built for maximum stability and repeatability, with welded steel frame construction.
- Handles single and double-side boards of 415 mm x 320 mm (see feeder layout options and PCB size) .
- Only 32" long x 46" wide, ideal for limited production areas.
- Uses the same feeders and software as other MC series machines for job portability and production scalability.

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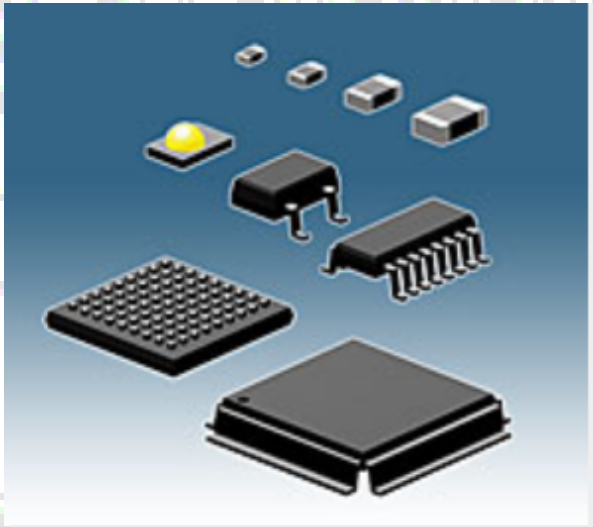

Large, precise component placement range

MC-400 places SMDs from 0201 to 100 mm x 150 mm, including BGAs, MBGAs, CSPs and µBGAs, micro lead frames (MLFs), flip chips, ultra-fine pitch to 15 mil and odd-form components.

On-the-fly and bottom vision alignment systems ensure accurate alignment of component connection points (leads, balls, bumps) to pads, with ±0.05 mm placement accuracy and ±0.01 mm repeatability.

01005 placement capability is available as an option.

Move quickly from prototyping to production

With placement rates of 2,500 cph (IPC 9850), up to 64 feeder slots, and quality components such as X-Y linear encoders and smart feeders, users can move from prototype into production on the same machine, saving programming and job setup time. System software will optimize your feeder locations and placement sequences to achieve the greatest possible throughput.

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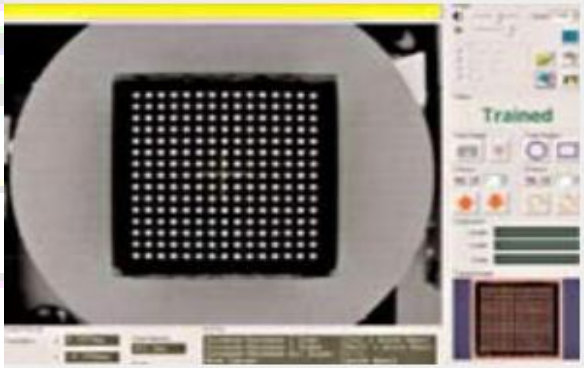


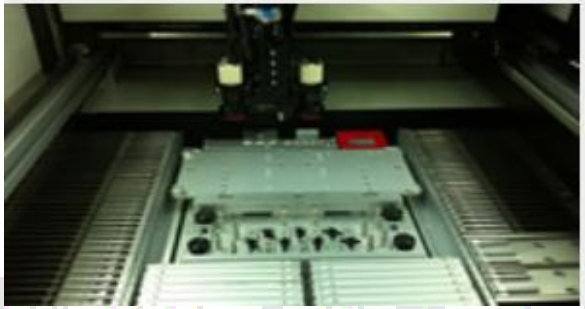
Mistake-proof process

Programming this Windows®-based system is easy with its expandable component library, universal CAD data import, and teach-in programming.

Virtual PCB Simulator displays a preview of the assembled circuit board so that component types, placements, polarity and orientations can be verified before production starts.

Visual Inspector verifies solder paste application and/or component placement on first article assembly.

Automatic, vision-assisted pick-up position adjustment can be activated to prevent pick-up errors from tapes with loose tolerances.



Reduce inventory costs

For prototyping and other small jobs, keep costs down by purchasing only the quantity of components needed. Cut strip tape holders for the MC-400 are available for 8 mm, 12 mm, 16 mm and 24 mm tapes. The machine holds up to 40 (8 mm) cut strips, in addition to up to 32 slots available for tape and stick feeders.

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Placement Specifications	
Number of Placement Heads	1
Placement Rate (IPC-9850)*	2,500 CPH
Placement Rate (Max.)	3,000 CPH
Placement Accuracy	±0.05 mm (0.002")
Minimum Component Size	0201 (01005 optional)
Maximum Component Size	16 mm x 14 mm (0.63" x 0.55") w/on-the-fly vision (included) 100 mm x 150 mm (3.94" x 5.9") w/bottom vision (included)
Minimum Component Lead Pitch	15 mil
BGA/CSP/MBGA/MLF Placement Capability	Yes - Standard
Alignment Method	Full Vision Alignment System
X/Y Repeatability	±0.01 mm

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Pick Up Specifications	
Tool Changer	Included
Number of Tools	15
Accepts Additional Tool Changers	Yes
Integral Vacuum	Yes
PCB Specifications	
PCB Loading Method	Manual
Max. Placement Area	415 mm x 320 mm (16.3 " x 12.5")
Fiducial Recognition/ Coordinate Correction	Yes
Bad Mark Detection	Yes
Feeder Capacity	
Maximum Number of Feeder Ports	64 (click for feeder configurations)

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Programming	
Operating System	Windows® Based
PC, Keyboard, Mouse	Yes
Monitor	Flat LCD
Teaching Camera	Yes
Numeric Data Entry	Yes
CAD Download	Yes
Step and Repeat for Matrix Boards	Yes
Bar Code Reader for Feeders & Packaging	Yes
MIS and Optimization Functions	Yes
Off-Line Programming	Yes

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Dispenser Specifications	
Dispensing Head	Optional
Dispense Method	Time/Pressure
Dot Size / Placement Speed	Down to 0.5 mm / Up to 8,000 dots./sec
Mechanical Specifications	
X-Y Axis Drive Mechanism	Belt
X-Y Axis Drive Motors	AC Servo
X-Y Axis Encoding	Linear
X-Y Axis Resolution	0.005 mm (0.0002")
Z Axis Drive Motor	DC Servo
Z Axis Encoding	Rotary
Z Axis Resolution	0.01 mm (0.0004")
Θ Axis Drive Motor	DC Servo
Θ Axis Encoding	Rotary
Θ Axis Resolution	0.045°
Θ Axis Range of Motion	(0.09°/step)

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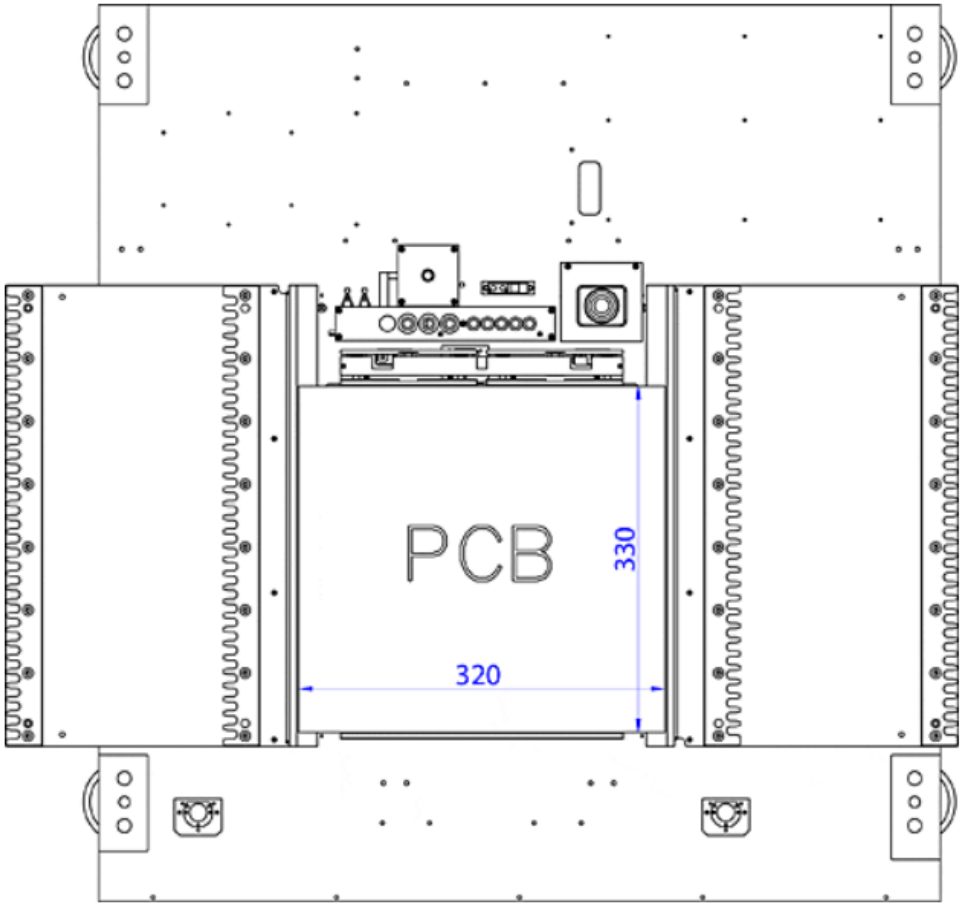
- BS281 PCB size and feeder layout option 1



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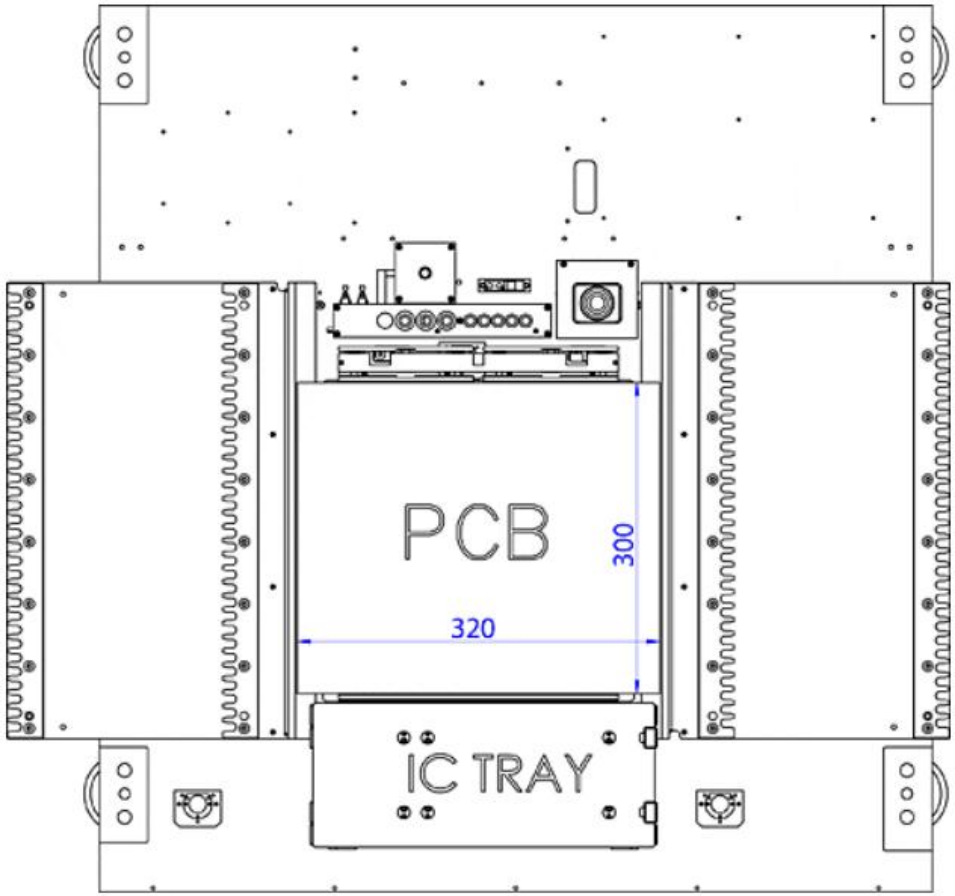
- BS281 PCB size and feeder layout option 2



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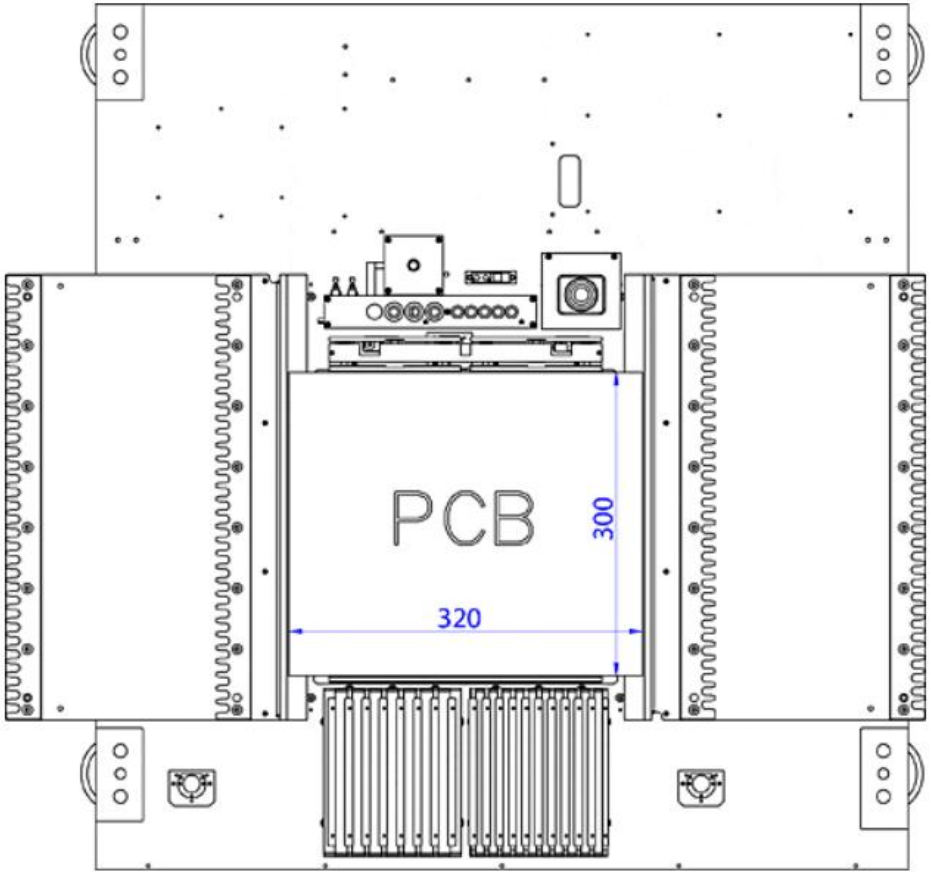
- BS281 PCB size and feeder layout option 3



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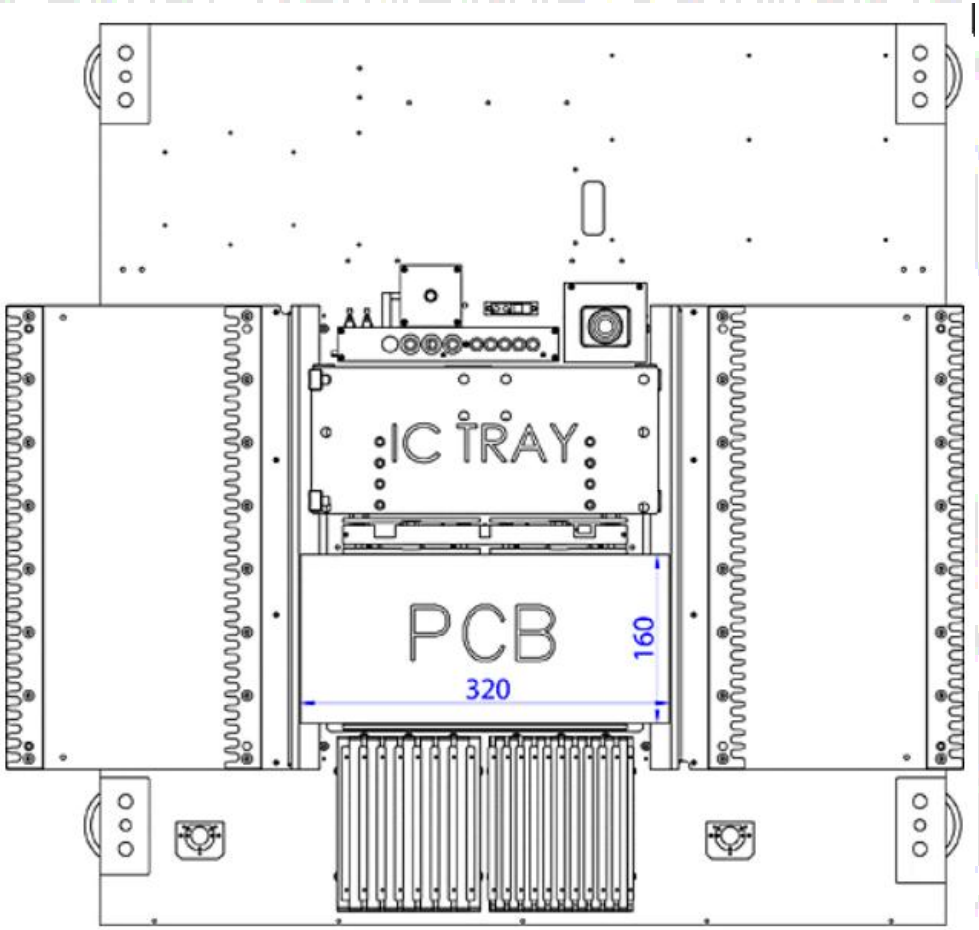
- BS281 PCB size and feeder layout option 4



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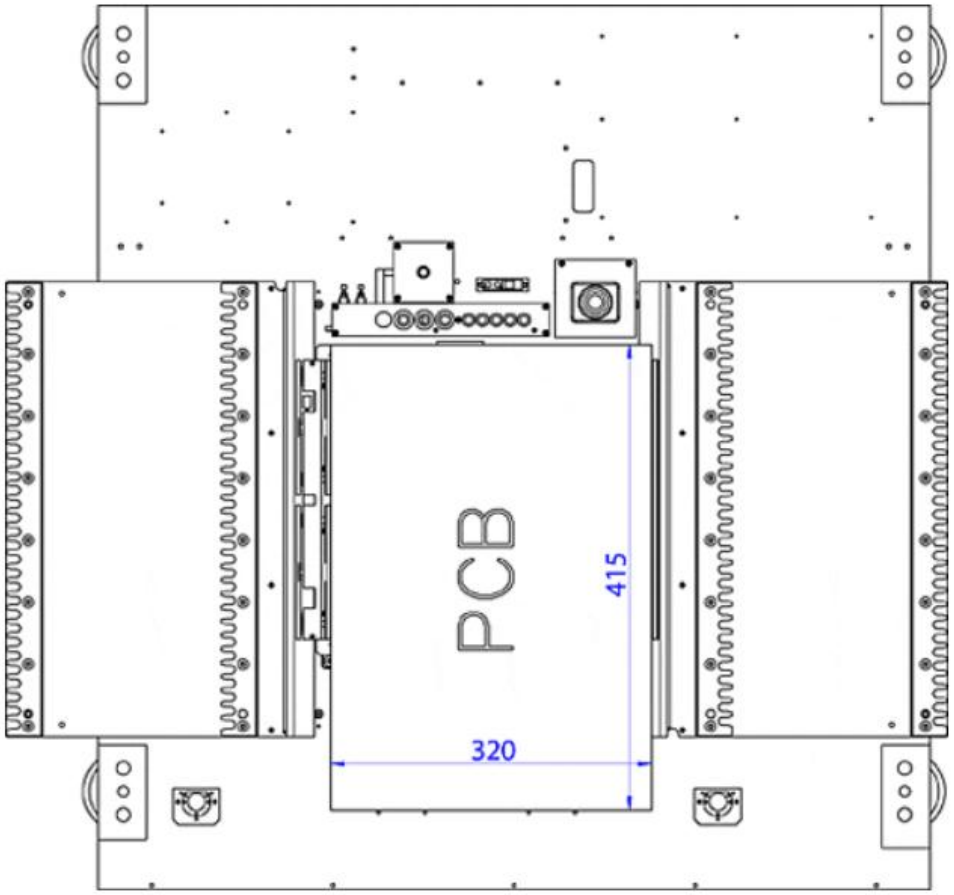
- BS281 PCB size and feeder layout option 4



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- BS281 PCB size and feeder layout option 4