

Overview

The device is a high-speed and high-precision tester for boards, which consists of an inspection mechanism for high-speed and high-precision inspection of boards and a work holder for board fixing.

With the upper and lower shutters with a double-sided automatic alignment compensation function, the device is an electrified inspection unit with a high-efficiency align/press inspection mechanism through parallel processing and a high-precision positioning mechanism that supports high-density and high-precision circuit boards. Our company only provides the O/S tester, not including the unit that transfers the substrate to the tester and the feed/discharge unit (material conveyor).

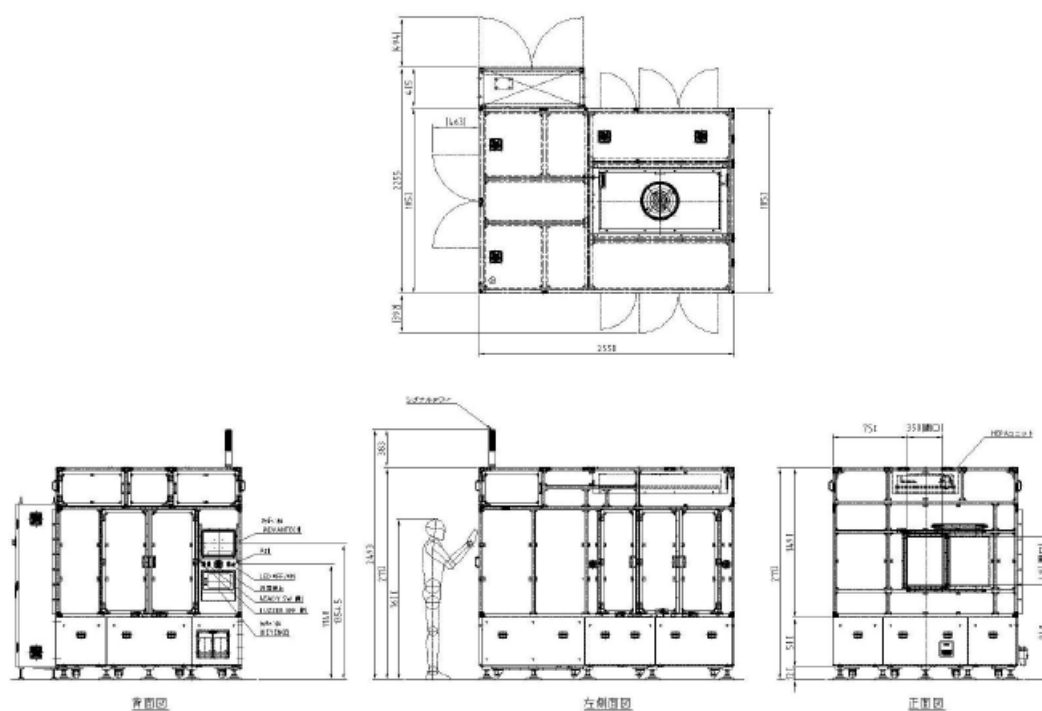
1 System Specifications**1.1 System Arrangement**

[GATS-7835E Tester Unit] (RMZ-1368)

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| • System controller (FAPC) | : 1 set |
| • Touch screen (for PC operation) | : 1 set |
| • Touch screen (alignment monitor, control operation): | : 1 set |
| • Keyboard (for PC operation) | : 1 set |
| • Printer | : 1 set |
| • Alignment camera | : Each set for upper/lower unit |
| • Correction camera | : Each set for upper/lower shuttle |
| • QR code reader | : 1 set (In-SightMicro / COGNEX) |
| • Laser displacement sensor | : 1 set (LK-G157 / KEYENCE) |
| • FFU (HEPA filter) | : 1 set (MAC-IIA-151DCCON / AIRTECH JAPAN) |

・ Particle counter

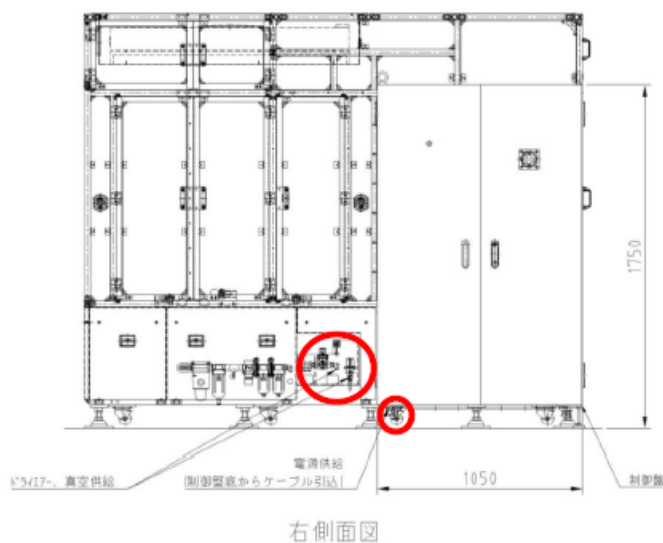
: 1 set (ZN-PD50-S /OMRON)



1.2 Appearance

(W) 1850mm × (D) 2550mm × (H) 2110mm (Excluding protrusions such as handles)

1.3 Power Position



2 General Specifications

	Category	Item	Specifications
1	Panel to be checked	Handling size ($\pm 0.5\text{mm}$)	X direction: 241mm Y direction: 240mm
		Check scope	X direction: 235mm Y direction: 235mm (However, when the size of jig head is larger than the panel (piece size), it may not be possible to check even within the above product range.)
		Edge amount	KOZ: 4mm
		Thickness	0.35~2mm
		Warping	2mm or less
2	Tester	Type	R5930 * Please confirm the specifications of tester attached.
3	Jig	Type	GATS standard jig
		Clamping unit	Upper side: 4Block16K (QD×4) * At the time of MAX deployment Lower side: 4Block16K (QD×4) * At the time of MAX deployment
		Checkable block size	The inspection is made with the block as the unit (each inspection component of multi-faceted package), and all components of multi-faceted package in the block is automatically checked by an automatic STEP&REPEAT function.

		Replacement	The standard jig of the device is equipped with a quick installation mechanism. The jig clamping and the jig cable are automatically connected by inserting the jig into the jig carrying track and pressing the setting switch. The jig can be easily replaced through a combination with the automatic jig correction described later.
		Compensation axis and Z axis after alignment	Upper press Z table with high-precision X-Y-θ axis Lower press Z table with high-precision θ axis
		Press	Max. 100kgf
		Cleaning unit	The pin of jig is cleaned by the upper and lower cleaning brushes installed on the shuttle.
4	Software	O/S	Windows 10 English version
		PLC	Produced by Mitsubishi Q series
5	Electrical control	Signal tower	Colors (5) Red, yellow, green, blue, white

3 Device Specifications (Tester Unit)

	Category	Item	Specifications
1	Entire Device	Dimensions	(W) 1850mm × (D) 2550mm × (H) 2110mm Note) Protrusions such as handles are excluded
		Weight	Tester unit: Approx. 4500kgw
		Pass line	Upper Shuttle : FL~1150mm Lower Shuttle : FL~1070mm
		Coating color	Munsell 10YR 9/0.5 (ivory white) (Our standard color)
2	Power	Power supply	Three-phase AC200V (±10%) 50/60Hz (±3Hz) 6.0Kva Control power: Single-phase AC100V, DC24V
		Compressed air	Working pressure: above 0.5MPa (dry and clean compressed air) Setting pressure: 0.5MPa±0.1MPa
		Vacuum	-80kpa or less, use flow rate (235NL/min)
3	Installation environmental conditions	Temperature	23°C±3°C
		Humidity	60% or less
		Floor strength	800 kg/m ² or more (vibration-free environment)
4	Device Precision	Repeat accuracy	±1.0μm
		Comprehensive positioning accuracy	±3.5μm
5	Work holding	Work holder	Hold with the edge amount of 4 sides. Install a panel alignment (X, Y) unit on the temporary stage.

		Vacuum sucker (Single-side inspection)	Hold by clamping chuck and vacuum sucker. Remove the panel mounting sucker and temp putting plate of the work holder, and install a vacuum sucker on the work holder.
6	Image processing	Piece alignment	Recognize the Align Mark of component that is input in advance, and make the alignment through image processing. With Panel Align / Block Align function. Binarization, gray-level graphics matching, etc.
		Correction	Use the upper and lower dedicated correction cameras installed on the shuttle to identify the correction PIN on the jig, adjust the jig center correctly, and perform the alignment.
7	Z-axis tracking		A laser displacement sensor is installed on the alignment camera to detect the warpage and torsion state of the substrate. The warpage and torsion are compensated by Z compensation at the check unit.
9	2DID superior communication		Support the production management system using QR codes.

4 Software Specifications

No.	Item	Specifications
1	Operation	(1) Automatic operation: Make the management and judgment processing for panel mounting with one panel as a unit => alignment => press => check => discharge (2) Manual operation: Make the conveyance by individual operation of each actuator and continuous operation (semi-automatic) of each unit
2	DUT-Align (main camera)	(1) Use the optical image processing function to identify the Align Mark of the DUT registered in advance, and compensate for errors generated during the panel conveyance, to ensure that the 4W jig is always in contact with the correct position. (2) Recognize Align Mark by gray-scale pattern matching
3	Jig correction	(1) Use the vertical correction camera installed on the Shuttle to identify the correction PIN on the jig and adjust the misalignment of the jig. (2) Image processing is the same as the main camera
4	Connector	(1) Make the I/O connection for the EFEM made by customer (2) Make the serial data output for the bad data