

AP+ Automated Die Sorter A Highly Flexible Packaging Solution

AP+ Automated Die Sorter

The new AP+ marks the latest generation of automated die sorter from Royce Instruments, designed to address the needs of engineers seeking a user-friendly flexible tool capable of handling the most varied and complex sorting requirements.

A Highly Flexible System Capable of Quickly Changing Between Different Inputs and Outputs

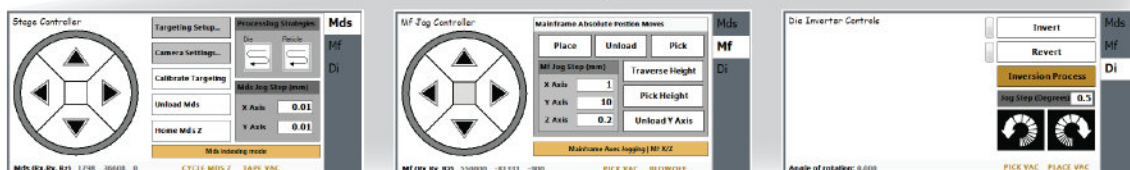
Choose from wafer on tape, waaffle pack, Gel-Pak®, JEDEC tray or your own custom tray with or without a wafer map. 180 degree die inversion, optical inspection and a wide variety of output fixtures including placement to tape and reel are available. Full input to output die level traceability is maintained for all combinations of input and output fixtures

Addressing Today's Challenging Die Sort Applications

Quick change tooling allows a wide variety of processes to be handled on a single system. The non-surface contact edge grippers allow MEMs and optical devices with sensitive surfaces to be handled without touching or applying vacuum to the top of the device, while customizable eject heads and pick-up tools allow die as thin as 50 micron thick GaAs with air bridges and vias to be successfully processed. Integrated wafer mapping software allows wafers with multiple die sizes (multi-project/Pizza mask wafers) to be easily processed. With the wafer map file support option, customers can load their map file directly into the AP+, or the built-in map creator can be used to create a map for untested wafers.



Touchscreen Control Using Die Sort Manager



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AP+ Automated Die Sorter Specifications

Die Size Range

- 0.2 mm sq to > 25 mm sq for tray placement, 0.5 mm sq to 17 mm sq for tape placement

Die Input

- Film frames
- Grip/hoop rings (up to 300 mm diameter wafers)
- Gel-Pak® (2 or 4 in.)
- Waffle packs (2 or 4 in.)
- JEDEC trays
- Custom trays

Pick-up Technology

- Surface or top edge contact vacuum tips (rubber, Vespel, tungsten carbide, elastomer)
- Optional non-surface contact Vespel edge grip

Die Output

- Carrier tape (8-24 mm tape width, heat seal or pressure seal)
- Waffle packs (2 or 4 in.)
- Gel-Pak® (2 or 4 in.)
- JEDEC trays
- Film frames
- Grip/hoop rings
- Custom

Placement

- ± 12.5 micron placement repeatability

Die Sort Modes

- Wafer mapping (SEMI E142, Electroglas 40x0, August Simplified INF, SEMI G85-0703, SEMI G85-1101, custom, create your own)
- Ink dot recognition
- Pick all die

Throughput

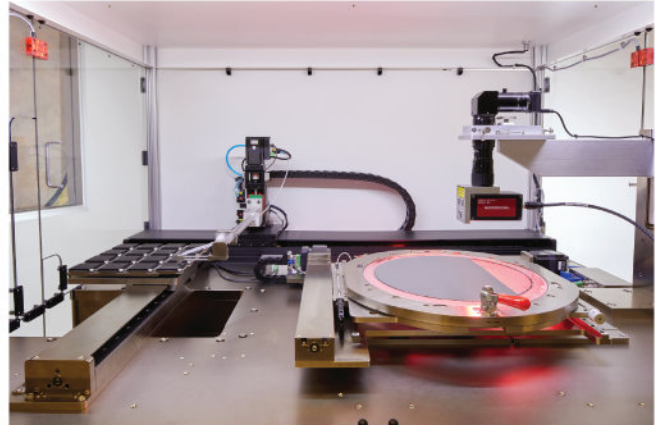
- Application dependent, 2 seconds minimum time per cycle

Optional Add-ons

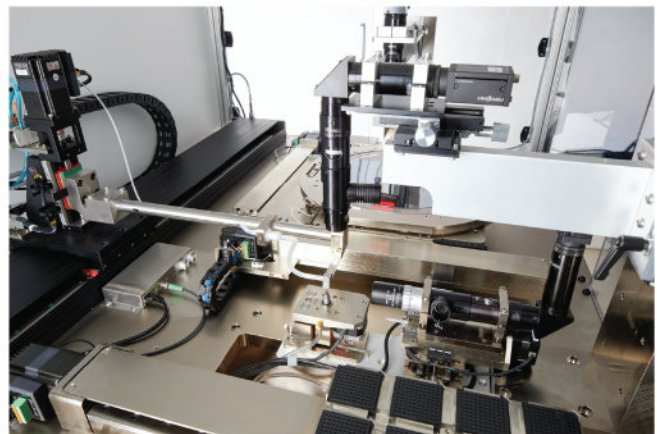
- Die inverter
- Post-place vision inspection of die in carrier tape
- Top surface, bottom surface and edge inspection (application dependent)
- Ionizer
- HEPA filter

Product Dimensions and Facility Requirements

- 2058 mm (81 in) long x 1105 mm (43.5 in) deep x 2235 mm (88 in) high (with cover open)
- Compressed Air at 550 kPa to 690 kPa (80 to 100 psi), Vacuum at -65 kPa (20 in Hg) Electrical at 120-240 VAC $\pm 10\%$



AP+ configured with motorized output stage for device placement to tray



Ongoing development of vision inspection



VERSATILITY PRECISION PERFORMANCE



Accelonix BV
Luchthavenweg 18b • NL-5657 EB •
Eindhoven • The Netherlands •
T: +31 40 750 1650 • E: info@accelonix.nl