BRINGING YOUR PROCESS TO PRODUCTION

7220 Series

Fully Automatic Dicing System

ADT = Dicing

Advanced Dicing Technologies

BRINGING YOUR

7220 Series

Fully Automatic Dicing System

Semiconductor manufacturers face new production challenges as they struggle to improve dicing quality and throughput while minimizing cost. At ADT, we strive to be attentive to our customers. Hence, our 7220 Fully Automatic Systems come with innovative features that set new industry standards for automation, productivity, cut quality, ease-of-use and affordability.

The 7220 series offers a wide range of advanced automation and process monitoring options to meet the throughput and quality requirements of your most challenging dicing applications: Silicon, Glass on Silicon, Glass, BGA & QFN packages, LTCC, Ceramic, PCB and other hard material applications.

Features & Benefits

- Efficient Wafer Handling system streamlines wafers for greater productivity
- Continuous Digital Magnification Vision system provides fast and accurate alignment for maximum throughput
- Blade Wear Prediction algorithm reduces height measurement time and increases UPH
- Touch Panel Display supports a user-friendly graphical interface (GUI)
- Atomized Wafer Cleaning technology for superior process results
- Dedicated Dressing Cassette to enable automatic blade dressing
- Built-in Inspection Tray for in-process quality assessment
- Small footprint

Atomized Cleaning Technology

Main Screen (General View)

Vision Screen

7220 Options

Dicing Floor Management (DFM)

DFM (Dicing Floor Management) is a software tool based on SECS/GEM communication protocol that collects data and monitors all dicing saw machines at the production floor.
The DFM system generates detailed reports such as UPH, up time, production data, lot tracking and other useful information for the production managers.
The DFM system supports up to 22 different dicing saw machines.

Large Dress Station

Blades dressing is essential for maintaining the cut quality over time and extending the blade life thus contributing to both improving yield and reducing CoO. It exposes new diamonds, removes tape and materials residues and reshapes the blade edge. A dedicated off chuck dress station allows to automatically preform the dressing during the dicing cycle without operator's assistance except for replacing the dressing block. The dressing station supports up to 3mm thick dressing boards.

Geometric Model Finder (GMF)

The Geometric Model Finder (GMF) uses geometric features (e.g., contours) to enhance the vision performance and improve alignment performance.
The GMF is capable to overcome uneven /inconsistent changes in illumination, color variation, contamination or background of the eye point.

Height on Part

Height on Part feature enables accurate determination of the position of the upper surface of the workpiece in order to aid in ensuring constant cut depth from the top of the substrate.
The process entails measuring the surface by moving a sensor to a predefined location, then extracting the sensor probe to take the reading.

DUCTION

High Flexibility

Special 7200-300m 2″ or 4″ for processing large workpieces

7200-300 2″

2″, Air-bearing spindle, DC- brushless motor capable to 60krpm.
Compatible with 2″- 3″hub and annular blades. Covering up to 12″ round product or square chuck (253 mm x 243 mm) with frame.
Optimized for large panels and multi panels such as:

- PCB, QFN and BGA Panels
- High-brightness LED Packages
- 12″ and 8″ Silicon Wafers
- SAW Filters

7200-300 4″

4″, Air-bearing spindle (2.5KW), DC- brushless motor capable to 30krpm.
Covering up to 12″ round product or square substrates (253 mm x 243 mm) with frame. Optimized for multi-angle dicing suitable for variety of products such as:

- Ceramic substrates
- Alumina
- Hybrids
- Thick film devices and more...

Customization

For any software or hardware modification on the Dicing System please contact your local representative. Contact information is available on ADT website.

7220 Models

7222

2″, Air-bearing spindle, DC-brushless motor capable to 60krpm. Compatible with 2″- 3″ hub and annular blades. Covering up to 8″ round products. Optimized for variety of products such as:

- Silicon wafers
- Thin-film devices
- High-brightness LED packages
- SAW filters
- Glass wafers, IR filters
- PZT transducers

7223

2″, High power air- bearing spindle (2.4 KW) DC-brushless motor capable to 60krpm. Compatible with 2″- 3″ hub and annular blades. Covering up to 8″ round products and rectangle products (up to 212mm x 142mm). Optimized for package singulation and hard materials:

- Packages (QFN, BGA)
- Quartz
- Ceramic LED packages
- PCB

7224

4″, High power air-bearing spindle (2.5KW), DC- brushless motor capable to 30krpm. Compatible with 4″ and 5″ annular blades. Covering up to 8″ products. Optimized for thick and hard materials:

- Ceramic substrates
- Alumina
- Hybrids

7220 Series

Specifications

	7222	7223	7224
Work piece Size ø200mm	Round: Up to ø200mm	Round: Up to ø200mm Rectangular: Up to 212 mm x 142 mm	Round: Up to ø200mm
Spindle	Air-bearing, DC-brushless 60,000 rpm / 1.2 KW	Air-bearing, DC-brushless 60,000 rpm / 2.4 KW	Air-bearing, DC-brushless 30,000 rpm / 2.5 KW
Work piece Size ø300mm	**7200-300 2"**		**7200-300 4"**
		Round: Up to ø300mm Rectangular: Up to 253 mm x 243 mm	
Blade Size	2" - 3"		4" - 5"
Y Axis Drive Control Resolution Cumulative Accuracy (ø200mm) Cumulative Accuracy (ø300mm) Indexing Accuracy	Ball bearing lead screw with stepper motor Linear encoder 0.1 µm 1.5 µm 3.0 µm 1.0 µm		
X Axis Drive Feed rate	Air Slide Ball bearing lead screw with DC-brushless motor Up to 600 mm/sec		
Z Axis Drive Resolution Repeatability	Ball bearing lead screw with stepper motor 0.2 µm 1.0 µm		
θ Axis Drive Repeatability Stroke	Closed-loop, Direct-drive, DC-brushless 2 arc-sec 350°		
Vision System	Digital camera, High bright LED illumination (vertical & oblique) Continuous Digital Magnification from x70 to x280 or from x50 to x200 (optional)		
Cleaning Station Spinning speed Cleaning Methode	Full rinse and dry cycle 100-2,000 rpm Atomized cleaning capabilities		
Wafer Handling system	Slot to slot integrity and Inspection drawer		
Options	BBD (Broken Blade Detector) - only for 2" or 3", Coating/Decoating System Dress cassette, UV curing station, ESD (Electrostatic Discharge) kit, Barcode reader, Dress station, 360° turn table rotation, SECS-GEM host communication		
User Interface	Flat 17" touch screen GUI (Graphic User Interface) Multilanguage support Keyboard & Mouse		
Utilities* Electrical Air Spindel Coolant Cutting water (DI/tap) *pending model and applicaqtion	200-240 VAC, 50/60 Hz, single phase 700 L/min @ 5.5 bar 500 L/min compressed air, 200 L/min process air/N2 1.1 L/min Blade / process coolant -Up to 7 L/min Max		
Dimensions (WxDxH) ø200mm ø300mm	965 mm x 1460 mm x 1700 mm 1100 mm x 1785 mm x 1700 mm		
Weight ø200mm ø300mm	1,200 kg 1,350 kg		
Environmental	Room Temperature:20°C ± 1°C (68°F ± 1.8°F), Humidity: Less than 70% relative humidity (non-condensing) Cutting water / Spindle Water Temperature ± 1°C (± 1.8°F), Floor must be vibration free B57		

Note: Specifications are subject to change without notice.

ADT Advanced Dicing Technologies

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