



DISCO

Kiru · Kezuru · Migaku Technologies

Fully Automatic Dicing Saw

DFD6450

Next-Generation Parallel Dual Dicing Saw



Parallel Dual Dicing Saw with 6000 Series Features

Featuring parallel dual-spindles, DFD6450 combines the best aspects of predecessor DFD651 with the superior usability and process quality of the DFD6000 Series Dicing Saws. Designed to handle a wide range of dicing and grooving applications, DFD6450 processes silicon and compound semiconductor wafers, ceramics and other materials for electronic components, and glass and other materials for optical components.

A Parallel Dual Design Unique to Disco

DFD6450's parallel dual-spindle design, unique to Disco, has several benefits. Because the spindles are supported at the rear of the machine, they are easily accessible from the front for blade changes and other maintenance. Further, the design supports specialized applications such as multiple blades on each spindle for package singulation.



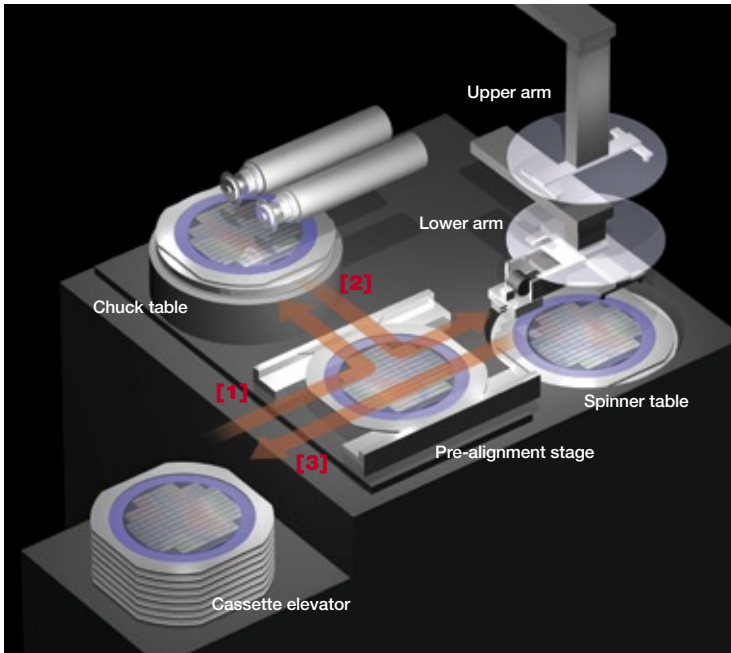
ISO 9001
JQA-0954



REGISTERED ORGANIZATION
No. E892-ISO 14001



Fully Automatic Dicing Saw DFD6450



DFD6450 Workpiece Flow System

- [1] Lower arm moves workpiece from cassette to pre-alignment stage. Lower arm moves workpiece to chuck table → **cutting** →
- [2] Upper arm moves workpiece to spinner table → **cleaning and drying** →
- [3] Lower arm returns workpiece to cassette

Improved Usability

- 15-inch LCD touch panel with Graphical User Interface allows for easy and intuitive operation.
- Shaft lock feature makes blade changes easy and quick.
- Coolant water flow rate controller is programmable via the touch panel for each device data.

Spindle Lineup

A range of spindles supports diverse workpieces and applications.

- [Standard] 1.0 kW air spindle (uses 2" blades, rated torque: 0.16 N-m).
- [Option] 1.0 kW air spindle with higher torque (uses 2" blades, rated torque: 0.24 N-m).
- 2.2 kW air spindle (uses 3" blades, rated torque: 0.7N-m).
- 2.2 kW mechanical spindle (uses 3" blades, rated torque: 1.05 N-m)

Advanced Options

- Transformer/UPS, CO₂ Injector, and booster pump can be installed internally; yet, due to DFD6450's advanced design, footprint is similar to that of DFD651.
- Atomizing nozzle technology (Japan patent No. 3410385) for the spinner table yields extremely clean workpieces after processing.
- Ionizer prevents electrostatic build up during workpiece transport.



Control screen

DFD6450 Specifications

Workpiece Size		-	ø8"
X-axis	Cutting range	mm	250
	Transfer speed input range	mm/s	0.1 ~ 600
Y1-axis	Cutting range	mm	250
	Index step	mm	0.0001
	Positioning accuracy	mm	0.003 or less/250 (Single error) 0.002 or less/5
Y2-axis	Cutting range	mm	30
	Index step	mm	0.0001
	Positioning accuracy	mm	0.002 or less/26
Z-axis	Max. stroke	mm	36.2 (for ø2" blade)
	Moving resolution	mm	0.00005
	Repeatability accuracy	mm	0.001
	Max. blade size	mm	ø60
θ-axis	Max. rotating angle	deg	380
Spindle	Output	kW	1.0 at 60,000 min ⁻¹
	Rated torque	N-m	0.16 (1kW spindle)
	Revolution speed range	min ⁻¹	6,000 ~ 60,000 (1kW spindle)
Applicable Tape Frame	-	-	2-8-1
Utilities	Power supply	-	200 ~ 240 V AC±10 %, 3-phase (50/60 Hz)
		-	For other than the above voltages, a transformer is necessary.
Power consumption			
	When processing	kW	2.1 (for reference)
	During warm-up	kW	1.8 (for reference)
	Max. power	kVA	6.9
	Air pressure	MPa	0.5 ~ 0.8
	Air max. consumption	L/min(ANR)	378
	Clean air pressure	MPa	0.5 ~ 0.8
	Clean air max. consumption	L/min(ANR)	216
Cutting water, water curtain and other			
	Pressure	MPa	0.3 ~ 0.4
	Flow rate	L/min	Cutting water: 12 Water curtain: 1 Others: 1
Cooling water			
	Pressure	MPa	0.3 ~ 0.4
	Max. flow rate	L/min	3.0 at 0.3 MPa
	Exhaust duct capacity	m ³ /min	5.0
	Machine dimensions (W x D x H) mm		1,120 x 1,500 x 1,600
	Machine weight	kg	Approx. 1,400 (without transformer for overseas use) Approx. 1,480 (with transformer for overseas use)

Environmental conditions

- Use clean, oil-free air at a dew point of -15 °C or less. (Use a residual oil: 0.1 ppm. Filtration rating: 0.01 μm/99.5 % or more).
- Keep room temperature fluctuations within ±1 °C of the set value. (Set value should be between 20 - 25 °C).
- Keep cutting water and cleaning water 2 °C above room temperature (fluctuations within ±1 °C).
- Keep spindle cooling water the same as room temperature between 20 - 25 °C (fluctuations within ±1 °C).
- The machines should be used in an environment, free from external vibration. Do not install machine near a ventilation opening, heat generation equipment or oil mist generating parts.
- This machine uses water. In case of water leakage, please install the machine on the floor with sufficient waterproofing and drainage features.
- All pressures specified above are gauge pressures.
- As the above specification may change due to technical modifications. Please confirm when placing your order.
- For further information, please contact your local sales representative.

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