DISCO

Kiru·Kezuru·Migaku Technologies

Fully Automatic Polisher

DFP8140/8160

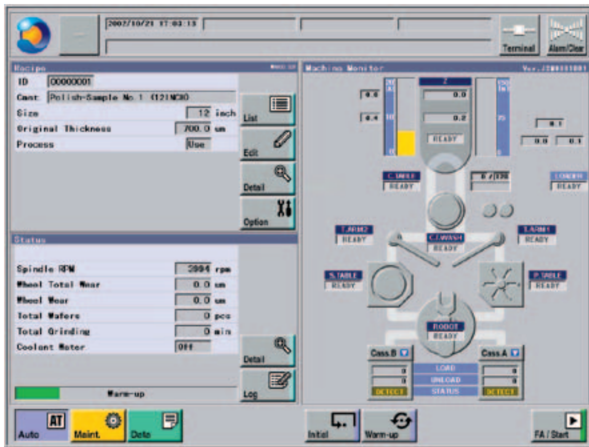
Chemical- and slurry-free stress relief

Improved yield

Relieve wafer stress without slurry, chemicals or water. The DFP8140/8160 effectively removes the grinding induced damage layer by utilizing a dry polishing process. This process greatly reduces wafer breakage and warpage while improving die strength. The result is superior product yield, even for today's thin wafers.

In-line system

The DFP8140/8160's design allows it to be integrated with DISCO grinders for an in-line wafer thinning solution that grinds, dry polishes, and transports wafers safely and securely (in-line system requires optional accessories).



LCD touch screen

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Environmentally friendly process

Unlike chemical etching or CMP, the dry polishing process does not require costly waste treatment and disposal. Dry polishing with the DFP8140/8160 is environmentally friendly while maintaining a lower cost of ownership than other stress relief processes.

Easy operation

The DFP8140/8160 utilizes the same operator interface and machine layout as the DISCO Fully Automatic Grinder (DFG8540/8560). This ensures reduced training time for operators familiar with DISCO equipment. For those new to the 8000 Series, the touch-screen graphical user interface with real-time process data makes both operation and maintenance tasks easy to learn and accomplish.

Handy panel

DFP8140/8160 Specifications

			DFP8140	DFP8160
Wafer diameter		-	Max. ø8"(ø4" - ø8")	Max.ø300mm(ø8" - ø12")
Processing method		-	Anomalous In-feed grinding with wafer rotation	
Spindle	Type	-	Air bearing with high frequency motor	
	Number of axes	-	1	
	Output	kW	4.8	7.5
	Revolution speed	min⁻¹	1,000 - 4,000	1,000 - 3,000
	Z-axis vertical stroke	mm	100(with zero point)	72(with zero point)
	Z-axis vertical grinding feed speed	mm/s	0.0001 - 0.08	
	Z-axis vertical fast feed speed	mm/s	50	
	Min. Z-axis vertical movement	µm	0.1	
	Min. Z-axis vertical movement resolution	µm	0.1	
Wafer chuck table	Chuck table type	-	Porous chuck table	
	Chuck method	-	Vacuum	
	Number of revolutions	min⁻¹	0 - 300	
	Number of chuck tables	-	1	
	Chuck table cleaning	-	Backflushing of water and compressed air is combined with Leveling stone cleaning and brush cleaning	
	Wafer cleaning	-	Washing using an atomizing nozzle	
	Internal load sensor	-	Thin force sensor	
	Spark Out (chuck table revolutions setting)	-	0 - 999	
	Y-axis processing stroke	mm	420	510
	Y-axis feed speed	mm/s	0.5 - 200	
	Y-axis min. resolution	mm	0.002	
Dry polishing wheel		mm	ø300	ø450
Wafer handling section / Wafer cleaning section				
	Cassette storage quantity	-	2	
	Cassette flow	-	Same flow and open flow	
	Spinner unit	-	Water washing by atomizing nozzle and drying	
Vacuum unit	Discharge speed	m³/h	29/36 50/60 Hz	
	Achievable pressure	kPa	-90 (water supply temperature 15 °C, water supply flow rate 1 L/min)	
	Electric motor	kW	1.5	
	Water flow rate			
	When supplied water temperature is greater than 22 °C	L/min	3	
	When supplied water temperature is less than 22 °C	L/min	1	
Polishing residue collector	System	-	Wet cyclone system	
	Cylinder volume	m³/min	4.0	
	Motor	kW	1.0	
	Water used	L/min	4.0	
Processing accuracy				
	Variation in removal amount	µm	±1 or less (when removing 2 µm in average)	

			DFP8140	DFP8160
Utilities	Power supply	V	200 V AC ±10 %, 3-phase (50/60 Hz) For other than the above voltages, a transformer is necessary	
	Power consumption			
	When processing	kW	4.6 (for reference)	6.5 (for reference)
	During warm-up	kW	2.8 (for reference)	5.0 (for reference)
	Max. power	kVA	12	19
	Air pressure			
	Main body	MPa	0.5 - 0.8	
	Polishing residue collector	MPa	0.3 - 0.5	
	Air flow rate			
	Main body	L/min(ANR)	550 or higher	
	Polishing residue collector	L/min(ANR)	50 or higher	
	Water pressure			
	Grinding and cleaning	MPa	0.3 - 0.4	
	Cooling	MPa	0.2 - 0.3	
	Vacuum pump	MPa	0.052 - 0.49	
	Polishing residue collector	MPa	0.2 - 0.3	
	Water flow rate			
	Grinding and cleaning	L/min	20 or higher	
	Cooling	L/min	4 or higher	
	Vacuum pump			
	When supplied water temperature is greater than 22 °C	L/min	3	
	When supplied water temperature is less than 22 °C	L/min	1	
	Polishing residue collector	L/min	4 or higher	
	Exhaust duct capacity	m³/min	4 or higher	
	Machine dimensions (WxDxH)	mm	1,200 x 2,670 x 1,800	1,400 x 3,322 x 1,800
	Machine weight	kg	1,900	2,400

A vacuum unit and polishing residue collector are installed as standard.

Environmental conditions

- Use clean, oil-free air at a dew point of -15 °C or less. (Use a residual oil: 0.1 ppm Wt/Wt. 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 self-grinding water and cleaning water 2 °C above room temperature (fluctuations within 1 °C over one hour).
- Keep spindle cooling water temperature between 20 - 25 °C (fluctuations within 2 °C over an hour).
- 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 treatments.

* All the pressures are described using a gauge pressure.
* The above specifications may change due to technical modifications. Please confirm when placing your order.
* For further information please contact your local sales representatives.

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