



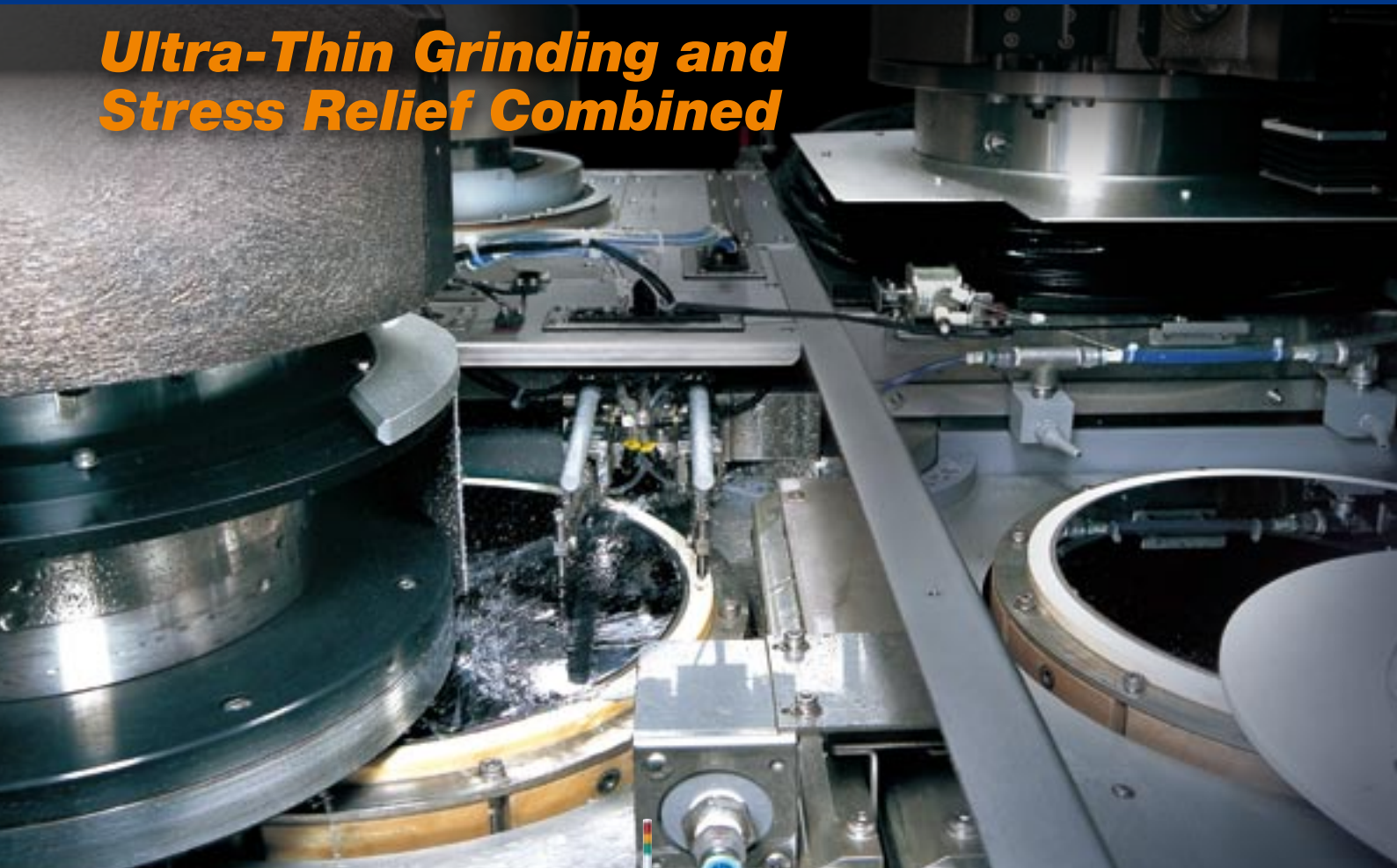
**DISCO**

Kiru · Kezuru · Migaku Technologies



# Fully Automatic Grinder/Polisher **DGP8760**

## *Ultra-Thin Grinding and Stress Relief Combined*



### **Grinding and Stress Relief Unified**

DGP8760 unifies 300 mm wafer grinding and advanced stress relief options in one low-footprint system.

### **Advanced 3-Spindle 4-Chuck Design**

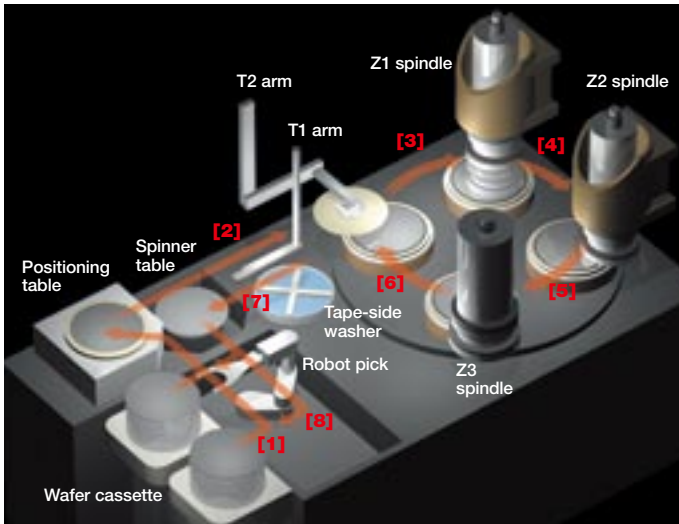
Featuring 3 spindles, DGP8760 combines ultra-thin grinding and stress relief into one complete and uninterrupted process. By keeping each wafer on the same chuck table from start to finish, the efficient turntable-based design minimizes wafer handling and increases process stability for 50  $\mu\text{m}$  finishing and other vanguard applications.

### **Reduced Footprint**

Owing to its 3-spindle 4-chuck design and compact wafer transfer system, DGP8760's footprint is more than 36 % smaller than that of DFG8560 and DFP8160 combined. Additionally, the vacuum unit is completely contained within the machine case for extra compactness.



# Fully Automatic Grinder/Polisher DGP8760



## DGP8760 Work flow

- [1] The robot pick removes the wafer from the cassette and places on the positioning table, where centering takes place.
- [2] The T1 arm places the wafer on the chuck table.
- [3] The wafer proceeds to Z1 for rough grinding.
- [4] The wafer proceeds to Z2 for fine grinding.
- [5] The wafer proceeds to Z3 for dry polishing (or ultra-high-mesh wheel grinding).
- [6][7] The T2 arm removes the wafer from the chuck table and places it on the spinner table, where washing and drying take place.
- [8] Finally, the robot pick removes the wafer from the spinner table and places it in the cassette.

## Robust Applications Support

Rough grinding, fine grinding, and stress relief-because it supports all three functions, DGP8760's portfolio of applications is large and robust. Stress relief using dry polishing and super fine grinding using the Polgrind wheel (option) .

## In-line Expandability

DGP8760 can be configured in-line with DFM2700 for DAF (Die Attach Film) lamination and other tape functions. It can also be configured in-line with DISCO's DBG (Dicing Before Grinding) system.

## DISCO 8000 Series Compatibility

DGP8760's grinding wheels, polishing wheels, dresser boards, spindles, and chuck tables are all compatible with DISCO 8000 Series machines. In addition, operation method and GUI (Graphical User Interface) are based on proven 8000 Series technology.



LCD touch screen

## 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 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 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.

## DGP8760 Specifications

<b>Wafer Diameter</b>	mm	Max. ø300 (ø8" - ø12")
<b>Grinding Method</b>	Z1 and Z2 axis	In-feed grinding with wafer rotation
	Z3 axis	Anomalous in-feed polishing with wafer rotation
<b>Spindle</b>	Type	Air bearing with high frequency motor
	Number of axes	3
	Output	Z1 and Z2 axes kW 4.8
		Z3 axis kW 7.5
	Revolution speed	Z1 and Z2 axes min <sup>-1</sup> 1,000 - 4,000
		Z3 axis min <sup>-1</sup> 1,000 - 3,000
	Z-axis vertical stroke	Z1 and Z2 axes mm 120 (with zero point)
		Z3 axis mm 50
	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 movemnet	μm 0.1
	Min. Z-axis vertical movement resolution	μm 0.1
<b>Wafer Chuck Table</b>	Chuck table type	Porous chuck table
	Holding method	Vacuum
	Number of revolutions	min <sup>-1</sup> 0 - 300
	Number of chuck tables	4
	Chuck table cleaning	Backflushing of water and compressed air is combined with Leveling stone cleaning and brush cleaning
	Wafer cleaning	Water washing by atomizing nozzle
	Spark out (chuck table revolutions setting)	0 - 999
<b>Grinding Wheels</b>	Diamond wheel	Z1 and Z2 axes mm ø300
	Dry polishing wheel	Z3 axis mm ø450
<b>Wafer Handling Section/Wafer Cleaning Section</b>		
	Cassette storage quantity	2
	Cassette flow	Same flow and open flow
	Spinner unit	Water washing by atomizing nozzle and drying
<b>Vacuum</b>	Discharge Pump	26/34 m <sup>3</sup> /h, 50/60 Hz
	speed	Vacuum Unit 20/28 m <sup>3</sup> /h, 50/60 Hz (at -70 kPa)
	Achievable pressure	kPa -90 (at water supply temperature 15 °C and flow rate 1 L/min)
	Electric motor	kW 1.5
	Water flow rate	L/min 2.0 (when water supply temperature is less than 30 °C) 1.5 (when water supply temperature is less than 25 °C) 1.0 (when water supply temperature is less than 20 °C)
<b>Grinding Accuracy (when grinding ø300 mm wafers with included chuck tables)</b>		
	Thickness variation within one wafer	μm less than 3.0
	Thickness variation between wafers	μm ±3.0
	Finish surface roughness	μm Ra less than 0.005 (when using only Z1 and Z2 fly approx 0.13 (#2000 fine grinding).)
<b>Utilities</b>	Power supply	200 V AC±10%, 3-phase (50/60 Hz) For other than the above voltages, a transformer is necessary
	Power consumption	During processing kW 8.4 (for reference)
		During warm-up kW 2.8 (for reference)
	Max. power	kVA 26
	Air pressure	Main body MPa 0.6 - 0.8
		Polishing residue collector MPa 0.3 - 0.5
	Air flow rate	Main body L/min (ANR) During max. flow: 1,300 or less Average during processing: 700 or less During warming up: 450 or less
		Polishing residue collector L/min (ANR) 50 or higher
	Water pressure	Grinding and cleaning MPa 0.3 - 0.4
		Cooling water and vacuum pump MPa 0.2 - 0.3
		Vacuum pump MPa 0.05 - 0.45
		Polishing residue collector MPa 0.2 - 0.3
	Water flow	Grinding and cleaning L/min 25 or higher
		Cooling water L/min 9.5 or higher
		Vacuum pump L/min 2.0 (when water supply temperature is less than 30 °C) 1.5 (when water supply temperature is less than 25 °C) 1.0 (when water supply temperature is less than 20 °C)
		Polishing residue collector L/min 4
	Exhaust duct capacity	m <sup>3</sup> /min 4
	Machine dimensions (W x D x H)	mm 1,690 x 3,450 x 1,800
	Machine weight	kg 5,700

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



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