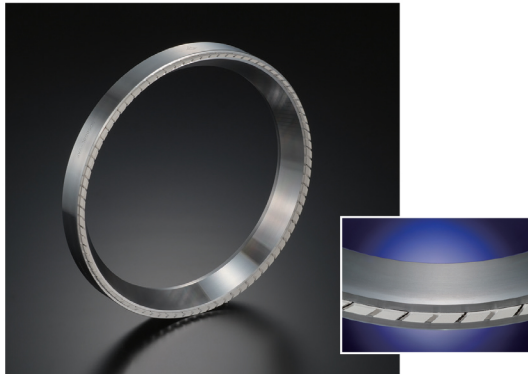


## For Finishing Si Wafers / Nanomate Premium

### Outstanding Performance in Final Mirror-Finishing of Silicon Wafers and Device BG

Ultra fine diamond grit and Ultra fine ceramics revolutionized the conventional wisdom of grinding wheels. Application of both acquired material technology and production technology has allowed Ultra fine grinding. Its effectiveness to reduce grinding damage in layers of brittle material such as polish-reduction of  $\phi 300$  mm silicon wafer and prevent cracks on a thin layer device wafer.



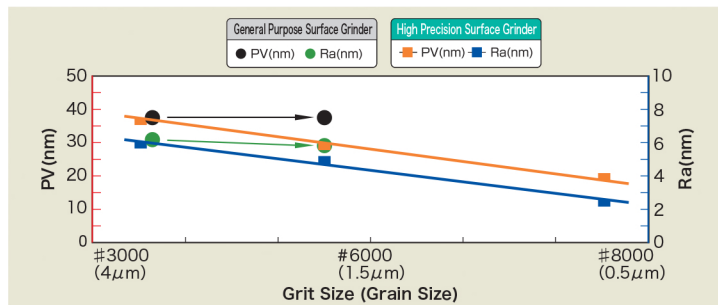
#### ■ Features

- Extremely flat, low damage, and smooth grinding possible.
- Grinding of 300 mm silicon wafers as thin as 3  $\mu\text{m}$  is possible.
- Polished surface quality equivalent to polishing is possible.

#### ■ Applications

- Ultra-precision surface grinding of various semiconductor wafers

Relation Between Grit Size and Surface Wafer



12 Inch Si Wafer / Comparison Data by Grain Size

	Grain Size	
	4 $\mu\text{m}$	0.5 $\mu\text{m}$
Surface Roughness	Sa:15.3 nm SV:102 nm	Sa:1.1 nm SV:9.6 nm
Surface Damage Depth	1.0 $\mu\text{m}$	0.14 $\mu\text{m}$

## For Si Wafers / Nanomate Cellfied

### Demonstrates Performance in Si as Sliced Wafer Grinding

It has a bond structure with high porosity and excellent chip evacuation, and achieves both lower load and longer life in the processing of silicon wafers.



#### ■ Features

- Achieves both low load processing and long life

#### ■ Applications

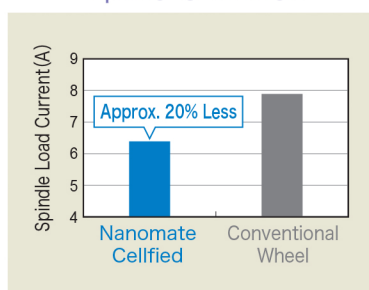
- Thickness processing of as-sliced Si wafers

#### ■ Machining Examples

□ Comparison with Conventional Wheel (Nanomate V-Heart)

- |                        |   |
|------------------------|---|
| 1) Machine             | Vertical Axis Rotary Surface Grinder  |
| 2) Wheel Specification | ① Conventional Wheel ② Nanomate Cellfied<br>$\phi 200$ -3W #4000 (3 $\mu\text{m}$ )                               |
| 3) Workpiece           | 12 inch Silicon Wafer   |
| 4) Coolant             | City Water  |
| 5) Conditions          | Wheel Rotation Speed: 1,500 $\text{min}^{-1}$<br>Chuck Rotation Speed: 300 $\text{min}^{-1}$<br>Spark Out : 5 sec |

Spindle Load Current



Wheel Wear Rate

