This catalog outlines the standard specification for this equipment and may differ from the specification of products equipped with special accessories and specifications.

The specification of an individual product may change due to technical improvements. Please confirm the specification details when placing your order.

For further information regarding each product, please contact your local DISCO sales representatives.
Blade Dicing Saw

Automatic Dicing Saw

Automatic cutting and manual handling

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAD324</td>
<td>Compact model for ø150 mm wafers</td>
</tr>
<tr>
<td>DAD3221</td>
<td>Standard automatic model for ø150 mm wafers</td>
</tr>
<tr>
<td>DAD3231</td>
<td>Highly flexible configuration to meet processing needs</td>
</tr>
<tr>
<td>DAD3431</td>
<td>High precision model with X-axis air slider</td>
</tr>
<tr>
<td>DAD3241</td>
<td>Standard automatic model for ø200 mm wafers</td>
</tr>
<tr>
<td>DAD3351</td>
<td>Flexibility for diverse application needs</td>
</tr>
<tr>
<td>DAD3651</td>
<td>Ultracompact facing dual configuration</td>
</tr>
<tr>
<td>DAD3361</td>
<td>Highly extensible equipment for ø300 mm and 250x250 mm workpieces</td>
</tr>
<tr>
<td>DAD3661</td>
<td>Dual spindle mounted equipment with support for processing large package substrates</td>
</tr>
</tbody>
</table>

**Spindle**
- Layout: Single
- Output: 2.0 at 40,000 min⁻¹
- Max revolution speed: 40,000
- X-axis Max cutting speed: 0.1 - 800
- Y-axis Index step: 0.0001
- Z-axis Repeating accuracy: 0.001

**Dimensions (mm)**
- Width: Approx. 450
- Height: Approx. 450

**Weight (kg)**
- Approx. 420

**Features**
- Blade tip position relative to the chuck table surface is detected by an optical sensor. Processing quality is stable since the blade wear can be measured at any time during processing.
- Blade breakage sensor: Processing is stopped immediately if blade breakage occurs to minimize potential workplace damage.
- Measurement alignment: Detects the correct cutting location for workpieces with cutting lines that are not properly aligned due to warpage from baking and cutting steps.
- Ultrasonic-wave dicing unit: Ultrasonic-wave pulses promote active self-sharpening of the blade to ensure high quality and high speed processing of difficult to-cut materials such as SiC and glass.

**Optional Accessories**
- Measurement alignment
- Cutting line
- Bond type: Electroformed
- Special blade for ultrasonic-wave dicing

**Application example**
- SiC, glass, alumina ceramic, etc.
- Cathode: Electroformed

<table>
<thead>
<tr>
<th>Model</th>
<th>Optional Accessories</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAD324</td>
<td>Measurement alignment, Cutting line, Bond type: Electroformed, Special blade for ultrasonic-wave dicing</td>
</tr>
<tr>
<td>DAD3221</td>
<td></td>
</tr>
<tr>
<td>DAD3231</td>
<td></td>
</tr>
<tr>
<td>DAD3431</td>
<td></td>
</tr>
<tr>
<td>DAD3241</td>
<td></td>
</tr>
<tr>
<td>DAD3351</td>
<td></td>
</tr>
<tr>
<td>DAD3651</td>
<td></td>
</tr>
<tr>
<td>DAD3361</td>
<td></td>
</tr>
<tr>
<td>DAD3661</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Please consult a DISCO sales representative for information regarding which optional accessories are supported for each model.
Blade Dicing Saw

Fully Automatic Dicing Saw

Automatic wafer transfer, alignment, cutting, and cleaning & drying

DFD6240
Reduced-footprint fully automatic single-spindle dicing saw for ø200 mm wafers

DFD6341
Standard equipment which supports ø200 mm wafer processing

DFD6450
Next generation parallel dual dicing saw for a wide range of applications

DFD6363
2-way transfer* flagship model
Also supports DBG half-cuts

DFD6561
Space-saving with a reduced maintenance area

DFD6760
Dual chuck table configuration to minimize standby time for maximum efficiency

Max workpiece size

<table>
<thead>
<tr>
<th>Model</th>
<th>ø200</th>
<th>ø200</th>
<th>ø200</th>
<th>ø300</th>
<th>ø300</th>
<th>ø300</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>ø200</td>
<td>ø200</td>
<td>ø200</td>
<td>ø300</td>
<td>ø300</td>
<td>ø300</td>
</tr>
</tbody>
</table>

Spindle layout

- Single
- Dual
- Facing dual
- Facing dual
- Facing dual
- Facing dual

Max revolution speed

<table>
<thead>
<tr>
<th>Model</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>DFD6341</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>DFD6450</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>DFD6363</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>DFD6561</td>
<td>60,000</td>
<td>60,000</td>
</tr>
<tr>
<td>DFD6760</td>
<td>60,000</td>
<td>60,000</td>
</tr>
</tbody>
</table>

X-axis Feed speed range

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>0.1 - 600 mm/sec</td>
</tr>
<tr>
<td>DFD6341</td>
<td>0.1 - 1,000 mm/sec</td>
</tr>
<tr>
<td>DFD6450</td>
<td>0.1 - 600 mm/sec</td>
</tr>
<tr>
<td>DFD6363</td>
<td>0.1 - 1,000 mm/sec</td>
</tr>
<tr>
<td>DFD6561</td>
<td>0.1 - 1,000 mm/sec</td>
</tr>
<tr>
<td>DFD6760</td>
<td>0.1 - 1,000 mm/sec</td>
</tr>
</tbody>
</table>

Y-axis Index step

<table>
<thead>
<tr>
<th>Model</th>
<th>Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>0.0001</td>
</tr>
<tr>
<td>DFD6341</td>
<td>0.0001</td>
</tr>
<tr>
<td>DFD6450</td>
<td>0.0001</td>
</tr>
<tr>
<td>DFD6363</td>
<td>0.0001</td>
</tr>
<tr>
<td>DFD6561</td>
<td>0.0001</td>
</tr>
<tr>
<td>DFD6760</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Positioning accuracy

<table>
<thead>
<tr>
<th>Model</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>Within 0.003 / 210</td>
</tr>
<tr>
<td>DFD6341</td>
<td>Within 0.003 / 210</td>
</tr>
<tr>
<td>DFD6450</td>
<td>Within 0.003 / 250</td>
</tr>
<tr>
<td>DFD6363</td>
<td>Within 0.002 / 310</td>
</tr>
<tr>
<td>DFD6561</td>
<td>Within 0.002 / 310</td>
</tr>
<tr>
<td>DFD6760</td>
<td>Within 0.003 / 310</td>
</tr>
</tbody>
</table>

Z-axis Repeating accuracy

<table>
<thead>
<tr>
<th>Model</th>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>0.001</td>
</tr>
<tr>
<td>DFD6341</td>
<td>0.001</td>
</tr>
<tr>
<td>DFD6450</td>
<td>0.001</td>
</tr>
<tr>
<td>DFD6363</td>
<td>0.001</td>
</tr>
<tr>
<td>DFD6561</td>
<td>0.001</td>
</tr>
<tr>
<td>DFD6760</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Utilities

<table>
<thead>
<tr>
<th>Model</th>
<th>Dimensions (W×D×H) (mm)</th>
<th>Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFD6240</td>
<td>900 × 1,190 × 1,800</td>
<td>Approx. 1,200</td>
</tr>
<tr>
<td>DFD6341</td>
<td>1,160 × 1,860 × 1,860</td>
<td>Approx. 1,500</td>
</tr>
<tr>
<td>DFD6450</td>
<td>1,120 × 1,500 × 1,800</td>
<td>Approx. 1,400</td>
</tr>
<tr>
<td>DFD6363</td>
<td>1,420 × 1,550 × 1,860</td>
<td>Approx. 1,800</td>
</tr>
<tr>
<td>DFD6561</td>
<td>1,320 × 1,900 × 1,800</td>
<td>Approx. 2,750</td>
</tr>
</tbody>
</table>

Note: Please consult a DISCO sales representative for information regarding which optional accessories are supported for each model.

What is DBG?
The reverse of the conventional "Backside grinding Wafer cutting" process. Water half cut is performed first, then the dies are separated through backside grinding. Dies can be produced from large-diameter wafers by minimizing backside chipping and wafer damage during die separation (dicing).
Laser Saw

Ablation Process

A processing method utilizing high-intensity laser irradiation in brief intervals to perform cutting.

- Little to no heat damage to the workpiece.
- Non-contact processing with low impact and load.
- Ideal for hard workpieces that are very difficult to process.
- Able to reduce streets down to 10 µm in width. (depends on workpiece conditions)

Utilities

- Y-axis Positioning accuracy
- X-axis Max feed speed
- Processing method
- Max workpiece size

Related Products

- DD5020
- DD5030
- DD5031

Die Separator

High precision die separation after laser processing

Die Separator

- High precision die separation after laser processing
- Small die separation (5 mm)
- High precision DAF separation

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applications include to the device surface to reduce thermal adhesion of debris from laser ablation to increase reliability and yield.

Stealth Dicing

A processing method that focuses a laser within the workpiece to form a modified layer. Die separation is achieved with a tape expander.

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Stealth dicing process example

- Water thickness: 100 µm
- Wafer thickness: 200 µm

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Dedicated tape frame

- Exceedingly narrow kerf widths allow significant reductions in street width.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Die separator

- High precision die separation after laser processing
- Small die separation by breaking
- High precision DAF separation

Dedicated tape frame

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Stealth Dicing

A processing method that focuses a laser within the workpiece to form a modified layer. Die separation is achieved with a tape expander.

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Stealth dicing process example

- Water thickness: 100 µm
- Wafer thickness: 200 µm

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Dedicated tape frame

- Exceedingly narrow kerf widths allow significant reductions in street width.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Die separator

- High precision die separation after laser processing
- Small die separation by breaking
- High precision DAF separation

Dedicated tape frame

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Stealth Dicing

A processing method that focuses a laser within the workpiece to form a modified layer. Die separation is achieved with a tape expander.

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Stealth dicing process example

- Water thickness: 100 µm
- Wafer thickness: 200 µm

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Dedicated tape frame

- Exceedingly narrow kerf widths allow significant reductions in street width.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Die separator

- High precision die separation after laser processing
- Small die separation by breaking
- High precision DAF separation

Dedicated tape frame

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Stealth Dicing

A processing method that focuses a laser within the workpiece to form a modified layer. Die separation is achieved with a tape expander.

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Stealth dicing process example

- Water thickness: 100 µm
- Wafer thickness: 200 µm

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Dedicated tape frame

- Exceedingly narrow kerf widths allow significant reductions in street width.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Die separator

- High precision die separation after laser processing
- Small die separation by breaking
- High precision DAF separation

Dedicated tape frame

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Stealth Dicing

A processing method that focuses a laser within the workpiece to form a modified layer. Die separation is achieved with a tape expander.

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Stealth dicing process example

- Water thickness: 100 µm
- Wafer thickness: 200 µm

HogoMax

Water soluble protective film to prevent debris adhesion to the wafer surface during ablation.

- Applying HogoMax to the device surface reduces thermal adhesion of debris from laser ablation to increase reliability and yield.

Dedicated tape frame

- Exceedingly narrow kerf widths allow significant reductions in street width.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.

Die separator

- High precision die separation after laser processing
- Small die separation by breaking
- High precision DAF separation

Dedicated tape frame

- Controls cutting waste because only a subsurface layer is processed. This is suitable for workpieces that are vulnerable to contamination.
- A dry process that does not require cleaning, suitable for applications (such as MEMS) that are vulnerable to mechanical load.
- Extremely narrow kerf widths allow significant reductions in street width.
Grinder, Polisher, and Surface Planer

Grinder

High precision ultrathin backgrinding

- **DAG810**: A compact and versatile automatic single spindle grinder
  - Supports small-volume grinding with high precision

- **DFG8340**: Standard dual-spindle grinder
  - Designed to process hard materials such as sapphire and SiC

- **DFG8560**: Quad-spindle grinder
  - High-precision dual-axis equipment which supports hard and brittle materials including LiTaO₃ and SiC

- **DFG8830**: Integrated backgrinding and stress relief for both enhanced productivity and ultrathin processing
  - The DFP8761HC supports high cleaning processes for applications such as TSV

- **DFP8141**: CMP polisher specialized for processing hard and brittle materials such as sapphire and SiC
  - Realizes chemical-free dry polish stress relief

<table>
<thead>
<tr>
<th>Workpiece size</th>
<th>ø200</th>
<th>ø200</th>
<th>ø200</th>
<th>ø300</th>
<th>ø150</th>
<th>ø200</th>
<th>ø300</th>
<th>ø150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle number</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Output kW</td>
<td>4.2</td>
<td>4.2</td>
<td>4.2</td>
<td>4.8</td>
<td>6.3</td>
<td>6</td>
<td>6.3</td>
<td>7.5</td>
</tr>
<tr>
<td>Revolution speed</td>
<td>1,000 - 7,000</td>
<td>1,000 - 7,000</td>
<td>1,000 - 7,000</td>
<td>1,000 - 4,000</td>
<td>1,000 - 7,000</td>
<td>1,000 - 4,000</td>
<td>1,000 - 3,000 (Z1, Z2), 1,000 - 3,000 (Z3)</td>
<td></td>
</tr>
<tr>
<td>Number of chuck tables</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Height mm</td>
<td>Approx. 1,600</td>
<td>Approx. 3,950</td>
<td>Approx. 3,100</td>
<td>Approx. 6,000</td>
<td>Approx. 3,500</td>
<td>Approx. 6,700</td>
<td>Approx. 3,100</td>
<td>Approx. 1,900</td>
</tr>
</tbody>
</table>

Surface Planer

Ultrahigh-precision planarization of ductile materials using a diamond bit

- **DAS8920**: Compact automatic models ideal for small lot production and R&D
  - Fully-automatic model for ø200 mm wafers

- **DFS8910**: Fully-automatic dual spindle model for ø300 mm wafers

<table>
<thead>
<tr>
<th>Workpiece size</th>
<th>ø200</th>
<th>ø200</th>
<th>ø200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle number</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Revolution speed</td>
<td>1,000 - 7,000</td>
<td>1,000 - 7,000</td>
<td>1,000 - 7,000</td>
</tr>
<tr>
<td>Number of chuck tables</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Height mm</td>
<td>Approx. 1,600</td>
<td>Approx. 3,950</td>
<td>Approx. 3,100</td>
</tr>
</tbody>
</table>

- **DFS8960**: Fully-automatic dual spindle model for ø300 mm wafers

<table>
<thead>
<tr>
<th>Workpiece size</th>
<th>ø300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle number</td>
<td>2</td>
</tr>
<tr>
<td>Revolution speed</td>
<td>1,000 - 7,000</td>
</tr>
<tr>
<td>Number of chuck tables</td>
<td>2</td>
</tr>
<tr>
<td>Height mm</td>
<td>Approx. 3,500</td>
</tr>
</tbody>
</table>

Polisher

Equipment for polishing wafer back sides

- **DFP8140**: CMP polisher specialized for processing hard and brittle materials such as sapphire and SiC
  - Realizes chemical-free dry polish stress relief

<table>
<thead>
<tr>
<th>Workpiece size</th>
<th>ø200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle number</td>
<td>1</td>
</tr>
<tr>
<td>Revolution speed</td>
<td>1,000 - 4,000</td>
</tr>
<tr>
<td>Number of chuck tables</td>
<td>1</td>
</tr>
<tr>
<td>Height mm</td>
<td>Approx. 3,100</td>
</tr>
</tbody>
</table>

Surface Planer Processing Example

- **Bump planarization**
- **LED phosphor resin planarization**
- **Protective tape planarization**

Related Products

Multifunction Wafer Mounter

An integrated solution for DAF frame mounting and protective tape peeling from thinned wafers.

- **DFM2800**: High-yield thin wafer processing
  - Linear stage travel: ø300
### Hub Blade

The combination of an ultra-thin diamond blade and an aluminum hub provides enhanced operational efficiency and stable cutting results.

**ZH05**
- High-precision concentration control for extremely stable and consistent processing results
- Designed to prevent blade tip collapse
- Concentration range: Low, High
- Blade tip shape and groove comparison

**ZH14**
- Achieves stable processing under high-load conditions throughout the high-strength V1 bond
- Designed for continuous processing of oxide wafers
- Concentration range: Low, High
- Blade tip shape and groove comparison

**ZHDG**
- Electroformed hub blades for high-quality substrate dicing
- Electroformed blade with a newly-developed bond material to match the abrasive concentrations
- Concentration range: Low, High
- Blade tip shape and groove comparison

**ZHDG Series**
- Electroformed hub blades for high-quality substrate dicing
- Electroformed blade with a newly-developed bond material to match the abrasive concentrations
- Concentration range: Low, High
- Blade tip shape and groove comparison

**Z05**
- Ultra-highest cutting performance for a wide range of workpieces and applications
- Through the control of abrasive concentrations, our blades can be used for different Concentration levels
- Concentration range: Low, High
- Blade tip shape and groove comparison

**Z09**
- Electroformed blades optimized for high quality cutting with fine grit sizes
- High-strength bond for high-speed and high-straightness
- Concentration range: Low, High
- Blade tip shape and groove comparison

**Z07**
- Porous blade structure for high-grade processing of hard and composite materials
- Durable solution for SiC and other difficult-to-cut materials
- Concentration range: Low, High
- Blade tip shape and groove comparison

---

**Hubless Blade**

Bond type, blade thickness, grit size and outer diameter can be selected to meet processing requirements for a variety of workpieces such as silicon, glass or ceramics.

**Z05**
- Ultra-highest cutting performance for a wide range of workpieces and applications
- Through the control of abrasive concentrations, our blades can be used for different Concentration levels
- Concentration range: Low, High
- Blade tip shape and groove comparison

**Z09**
- Electroformed blades optimized for high quality cutting with fine grit sizes
- High-strength bond for high-speed and high-straightness
- Concentration range: Low, High
- Blade tip shape and groove comparison

**Z07**
- Porous blade structure for high-grade processing of hard and composite materials
- Durable solution for SiC and other difficult-to-cut materials
- Concentration range: Low, High
- Blade tip shape and groove comparison

---

**Related Products**

**Color Case, Case Holder for Hub/Hubless Blade**

- Cases for hub and hubless blades, which prevent blade mounting errors
- The probability of blade mounting errors can be reduced when different types of blades are used for each equipment and spindle

---

**Blade Life**

- Conventional blade
- Hubless blade
- Color Case for Hub Blade
- Color Case for Hubless Blade
- Case Holder

---

**Applications by Grit Size**

- Green ceramics, IC packages, etc.
- Electronics parts, optical component material, IC packages, etc.
- Green ceramics, IC packages, etc.

---

**Blade Type**

- Con
- ZHCR
- ZHFX
- ZHDG
- ZHZZ
- Z05
- Z09
- Z07
- ZH05
- ZH14
- ZHZZ
- Z05
- Z09
- Z07
- ZH05
- ZH14
- ZHZZ
- Z05
- Z09
- Z07
**Grinding Wheel**

**GF13**
- Improved productivity and grinding quality
- Grinding wheel for semiconductor wafers
  - Supports SDBG processing

**GFCP**
- Simultaneous grinding of different materials
- Wheel for package grinding
  - Supports package grinding with various specifications using customizable vitrified bonds.

**DP08**
- For chemical-free stress relief
  - Support for the Dicing Before Grinding (DBG) process as well as normal wafer polishing.

**Gettering DP**
- High die strength equal to normal processing while maintaining gettering performance

**Product lineup**

<table>
<thead>
<tr>
<th>Applications</th>
<th>Bond</th>
<th>Grit size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rough grinding</td>
<td>Resin</td>
<td>SDC340, SDC40</td>
</tr>
<tr>
<td>Fine grinding</td>
<td>Vitrified</td>
<td>SDC600, SDC650</td>
</tr>
</tbody>
</table>

**Related Products**

**Wheel Guard**
- Protects wheel segments for streamlined wheel replacement and easier handling.
- Without careful handling, some wheel segments may crack or break.

**Dry Polishing Wheel**

**Processing examples of various materials (Surface roughness data)**

Data measured using AFM

<table>
<thead>
<tr>
<th>Applications</th>
<th>Bond</th>
<th>Grit size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sapphire grinding</td>
<td>SiC</td>
<td>10 nm</td>
</tr>
<tr>
<td>Sapphire polishing</td>
<td>SiC</td>
<td>1 nm</td>
</tr>
<tr>
<td>LTatO3 grinding</td>
<td>SiC</td>
<td>18 nm</td>
</tr>
<tr>
<td>SiC polishing</td>
<td>Silicon</td>
<td>6 nm</td>
</tr>
</tbody>
</table>

**Applications**

- Silicon, SiC, LiTaO3, GaAs
- Semiconductor packages, etc.
- Composite materials, such as silicon, resin, metal
**Deionized Water Recycling Unit**

**DWR1710 / DWR1722**

- Multi-function, super-compact deionized water recycling unit for dicing saws
- Integrated deionized water production, water temperature control, filtration and cutting water treatment.
- Reduces city water consumption by 20% by recycling used water.
- Provides low-resistivity deionized water with a resistivity of 12 or higher.

**Automatic cleaning system**

**DCS1441 / DCS1460**

- Performs spin cleaning and drying of workpieces processed with a automatic dicing saw.
- The highly effective atomizing cleaning nozzle can be installed as an option.
- The cleaning sequence can be fully optimized.
- The highly effective atomizing cleaning nozzle performs spin cleaning and drying of workpieces.

**Water Temperature Control Unit**

**DTU152 / DTU156 / DTU1540 / DTU1550**

- Optimizes the temperature and pressure of both cutting and cooling water.
- Ensures uniform cutting and cooling with complete water temperature regulation.
- Regulates both cutting and cooling water at a constant temperature.

**CC Filter Unit**

- The high-capacity, highly functional CC Filter Unit reduces filtration running costs.
- Can be combined with the DWR1710 to reduce maintenance requirements for cutting water recycling.
- The high-capacity CC Filter Unit optimizes water temperature, pressure, and temperature fluctuations.

**Cutting Water Filtration Unit for Dicing Saws**

**DCS1440**

- Optimizes the temperature and pressure of both cutting and cooling water.
- Ensures uniform cutting and cooling with complete water temperature regulation.
- Regulates both cutting and cooling water at a constant temperature.

**Resistivity Management Unit for Dicing Saws**

**CC Filter Unit**

- Reduces particle adhesion due to charging caused by dicing and device damage caused by static electricity.
- Direct control from the dicing saw enables easy operation.
- In case of low-resistivity specifications, the resistivity fluctuation range is ± 10% of ± 0.06 MΩ·cm.

**Cutting Water Additives for Dicing**

**StayClean-A / StayClean-F / StayClean-R**

- Prevents particle adhesion.
- Prevents particles from adhering to the pad section.
- Prevents particles from becoming charged to the pad section.
- *When the prepared cooling water temperature is -2 ºC lower than the set temperature.

<table>
<thead>
<tr>
<th>StayClean-A / StayClean-F / StayClean-R</th>
<th>DWR1710 / DWR1722</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting water system</td>
<td>Constant flow</td>
</tr>
<tr>
<td>Filtration capacity</td>
<td>25</td>
</tr>
<tr>
<td>Temperature setting range</td>
<td>-5 to 25</td>
</tr>
<tr>
<td>Flow rate range</td>
<td>3 - 15 L/min</td>
</tr>
</tbody>
</table>

*The flow rate is constant within the range from 3 to 15 L/min at the supply water temperature from 20 to 25 ºC.*