Ultrasonic-wave Dicing Unit

Realizes high quality and high speed processing of difficult-to-cut materials

Targets for ultrasonic-wave processing
Ultrasonic-wave processing aims to achieve good processing quality and high speed dicing of difficult-to-cut materials as typified by SiC (silicon carbide), glass and alumina ceramics.

Features of ultrasonic-wave processing
Transmitting ultrasonic-wave oscillations to the blade improves water circulation at the processing point (elimination of clogging caused by the cutting dust discharge effect and cooling of the processing point) and promotes self-sharpening of the blade (elimination of blade glazing). Thus, normal blade condition can be maintained and process load can be reduced making highly efficient dicing possible.

Ultrasonic-wave oscillation mechanism

Application example: SiC wafer
High feed speed and good processing quality can be realized

Ultrasonic wave on
Workpiece: 0.35 mm thick 4H-SiC wafer
Blade: 50 μm thick U09ZA- SD1500
Feed speed: 10 mm/s 1Pass

Application example: Glass
Greatly improved chipping and reduced street widths are realized by using the #2000 grit size, which previously could not be used.

Ultrasonic wave off Ultrasonic wave on
Workpiece: 0.3 mm thick borocillicate glass
Blade: 50 μm thick U09ZD- SD2000
Feed speed: 3 mm/s 1Pass

Unit configuration
• Ultrasonic-wave amplitude generation power unit
• Dedicated mount and blade
• Ultrasonic-wave oscillation measurement sensor
• Software

Retrofit available
Since this unit can be retrofitted to already shipped dicing saws, introducing ultrasonic-wave applications to your production line is a simple process. In addition, normal blades can be used even after the retrofit.
### U09 SERIES

**Blade for ultrasonic-wave dicing unit**

#### U09ZD - SD2000 - Y1 - 60 58 × 0.05AS × 7F - V

<table>
<thead>
<tr>
<th>Type</th>
<th>Grit size</th>
<th>Bond</th>
<th>Concentration</th>
<th>O.D.</th>
<th>Thickness</th>
<th>Type of base</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>U09Z</td>
<td>NBC-Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09ZA</td>
<td>Z05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09ZP</td>
<td>ZP07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09ZD</td>
<td>Z09</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09M</td>
<td>B1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09R</td>
<td>P1A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09RA</td>
<td>R07</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U09RB</td>
<td>P08</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>