Vitrified Bond Blades

VT07/12 SERIES

Vitrified bond blade for high-load processing

The VT07/12 series can handle various materials from processing of difficult-to-cut workpieces to edge trimming of silicon wafers.

This bond series employs a vitrified bond that has been difficult to manufacture into thin blades so far. These blades can process with an acute degree of straightness and dimensional accuracy for high-load processing by using the excellent rigidity and cutting ability of the vitrified bond. As a result, VT07/12 realizes quality processing for difficult-to-cut materials such as silicon nitride. Thanks to the enhanced bond line-up, this bond series also realizes processing in various fields, such as edge trimming of silicon wafers.

- Realizes thin blades with a vitrified bond.
- Able to process with a high degree of straightness and dimensional accuracy for high-load processing.
- Realizes high quality processing for hard ceramics and sapphire.
- Realizes high quality edge trimming.

SiC processing

Compared to the existing blade, the VT12 blade can achieve a higher grade of processing for SiC, which has an extremely high hardness.

Uses of each bond

<table>
<thead>
<tr>
<th>Bond</th>
<th>Applications</th>
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<tbody>
<tr>
<td>VT07</td>
<td>VC100 For processing under high load or of hard-to-process materials (e.g., sapphire, silicon or deep groove processing)</td>
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<tr>
<td></td>
<td>VC200 For edge trimming (silicon)</td>
</tr>
<tr>
<td>VT12</td>
<td>VC400 SiC and composite materials which the metal and resin layers are placed on the hard-to-cut materials</td>
</tr>
</tbody>
</table>

Applications

Si₃N₄, SiC, Crystal, Sapphire, etc
Vitrified Bond Blades

**VT07/12 SERIES**

### Specifications

<table>
<thead>
<tr>
<th>Grit type</th>
<th>SD</th>
<th>Bond</th>
<th>Concentration</th>
<th>Special specification</th>
<th>O.D.</th>
<th>Thickness</th>
<th>Thickness accuracy</th>
<th>L.D.</th>
<th>Surface treatment</th>
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<tbody>
<tr>
<td>VT07</td>
<td>SD</td>
<td>VC100</td>
<td>75</td>
<td></td>
<td>54</td>
<td>0.2</td>
<td>A3</td>
<td>40</td>
<td>L</td>
</tr>
<tr>
<td>VT12</td>
<td>SD</td>
<td>VC400</td>
<td>120</td>
<td></td>
<td>54</td>
<td>0.1</td>
<td>A2</td>
<td>40</td>
<td>L</td>
</tr>
</tbody>
</table>

#### VT07 - SD 400 - VC100 - 75 - A****

- **Grit type**: SD
- **Bond**: VC100
- **Thickness**: 54 × 0.2 A3 × 40 - L
- **Grit size**: 280 #280 1000 #1000
- **Concentration**: 50
- **Thickness accuracy**: ±0.002
- **Special specification**: Lapping specification

#### VT12 - SD 400 - VC400 - 120 - A****

- **Grit type**: SD
- **Bond**: VC400
- **Thickness**: 54 × 0.1 A2 × 40
- **Grit size**: 240 #240 1000 #1000
- **Concentration**: 100
- **Thickness accuracy**: ±0.002
- **Special specification**: Lapping specification

### Experimental Data

#### Deep-groove processing

Compared to the existing blade, the VT07 blade can achieve a higher grade of processing for sapphire, which has an extremely high hardness.

- **Workpiece**: Sapphire 0.7 mm
- **Blade**: VT07 - SD400 - VC100 - 150
- **Spindle revolution**: 15,000 min⁻¹
- **Size**: 56 x 0.3 x 40 mm

#### Edge trimming of silicon wafers

The wafer edge trimmed by the VT07/VT12 blade (VC200 bond) has the same quality realized by the resin blade processing.

- **Workpiece**: Si
- **Blade**: VT07 - SD2000 - VC200 - 100
- **Blade size**: 58 x 1 x 40 mm
- **Feed rate**: 5 degree/s
- **Depth**: 0.5 mm into Si wafer
- **Spindle revolution**: 20,000 min⁻¹
- **Size**: 36 x 1 x 40 mm

### Cautions during usage

Note the below points on its characteristics when using the vitrified bond.

1. Since the VT07/12 Series is nonconductive, contact setup (conductive type) cannot be used.
2. Since there is a danger of blade breakage when using the VT07/12 Series at high rpm, use at the specified rpm.
3. When using the VT07/12 Series on a machine with the standard BBD (Blade Breakage Detector Unit) the settings must be changed since there is a possibility of incorrect detection.
4. Since there is a fear of blade breakage, do not conduct the chopper cut setup (CCS) before dressing.

Note: For details, contact your DISCO sales representative.

#### When ordering

Please contact a DISCO representative with your product needs such as type, wheel size, and quantity.

When you place the first order with us, please explain application information such as materials to grind, sizes, machine, type, and other specification.

We are ready to help you to determine which is our most appropriate product type for your application.

Due to improvements in our products, it is possible that product specifications may be changed without advanced notice.

Please confirm the product specifications with a DISCO representative.

### To use these DISCO blades and wheels (hereafter precision tooling) safely...

Please read carefully and follow the instructions below to prevent any accidents or injuries.

- Use a safety cover (nozzle case, cover), equipped as a standard accessory, to avoid injury.
- Do not exceed the specified rpm limit indicated on the precision tooling.
- Follow the instruction manual of the equipment to mount the precision tooling properly.
- Do not drop or hit the precision tooling. This may cause breakage or injury.
- Always check the precision tooling for chipping or any other damage before starting to use it. Do not use the tooling if there is any damage.
- Do not use the precision tooling with modified or customized equipment.
- Do not use the precision tooling that has a different size from the one recommended for your equipment.
- Always use water or coolant to prevent precision tooling damage.

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