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DISCO

Electroformed Bond Hub Blades

ZH14SERIES

Hub blades that realize stable processing under high load conditions

Adopts the High-Rigidity V1 Bond

By improving the blade rigidity, the ZH14 series realizes stable processing without slanted cutting under high load conditions, including processing applications which require a high speed, deep cutting, or long blade exposure.

Reduces the risk of breakage and wavy cutting

The ZH14 blades improve processing stability in narrow streets and high rotation ranges by improving the breakage speed and reducing wavy cutting.

Realizes stable processing with a long exposure

By improving the blade rigidity, the ZH14 series realizes stable processing in process which require a long blade exposure, such as wafers with bumps.

Processing Quality Comparison (2 mm Thickness Si Processing)

ZH14 series can process with less slanted and wavy cutting compared to conventional blades.

Conventional	ZH14
SEM image	SEM image

Note: For this evaluation, a thin blade with long blade exposure was fabricated to simulate conditions where processing defects are likely to occur.

Workpiece:	Si (thickness: 2 mm)
Depth:	1 mm (Half cut)
Feed speed:	110 mm/s
Spindle revolution:	30,000 min^{-1}
Blade:	SD2000-**-50
Kerf:	25 µm
Exposure:	1.28 mm

Applications	Silicon wafers, compound semiconductor wafers (GaAs, GaP, etc.), oxide wafers ($LiTaO_3$) and other applications

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Specification

ZH14 - SD 2000 - V1 - 70 - A** D D × 60 E**

Grit type	Grit size	
SD	2000	#2000
	3000	#3000
	3500	#3500
	4000	#4000

Bond
V1

Concentration
50
70
90

Special specification

Exposure	
A	0.38 - 0.51
B	0.51 - 0.64
C	0.64 - 0.76
D	0.76 - 0.89
E	0.89 - 1.02
F	1.02 - 1.15
G	1.15 - 1.28

(mm)

Kerf width	
A	0.015 - 0.020
B	0.020 - 0.025
C	0.025 - 0.030
D	0.030 - 0.035
E	0.035 - 0.040

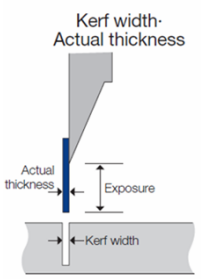
(mm)

Angle

Blade shape*

E, N, MA, MB, VA, VB

S User-specified specification

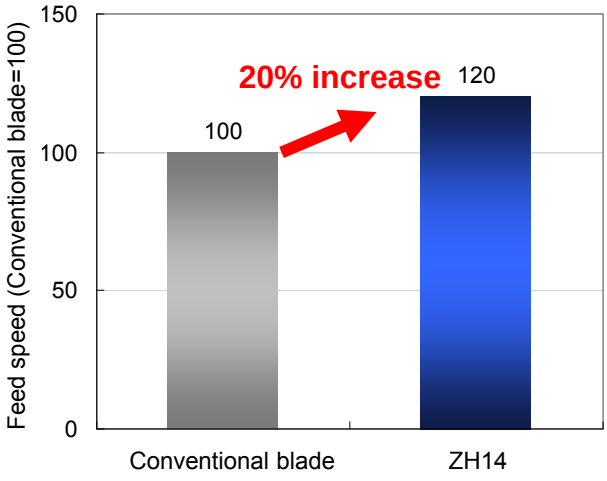


*Blade thicknesses of 0.1 mm (L kerf) or more are available.

Experimental Data

The improved rigidity of the ZH14 series compared to conventional blades means that blade breakage is less likely to occur.

■ Blade Breakage Speed Limit Comparison Data



Note: In a test to measure the blade breakage speed limit as the processing speed is increased, it was observed that the breakage speed limit was improved by approximately 20% compared to existing blades.

Note: This evaluation method is the one used that the trend that the breakage is likely to occur in high speed.

Workpiece	: Si 8”
Depth	: 0.725 mm (full cut)
Blade	: SD3500-**-70 ED
Spindle revolution	: 35,000 min-1

All DISCO products are covered by product-liability insurance.

When Ordering

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

When placing your first order with us, please explain the application, such as materials to process, sizes, machine, type, and other specifications.

We are ready to help you to determine which of our products is the most suited to your application.

Due to improvements in our products, product specifications may be changed without advanced notice.
Please confirm the product specifications with a DISCO representative.

To safely use these DISCO blades and wheels (hereafter “precision tools”)...
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 tool.
- FOLLOW the instruction manual for the equipment to mount the precision tool properly.
- DO NOT DROP OR HIT the precision tool. This may cause breakage or injury.
- Always CHECK the precision tool for chipping or any other damage before using it. DO NOT USE the tool if there is any damage.
- READ the operation manual of the cutting/grinding equipment before use.
- DO NOT USE the precision tool with modified or customized equipment.
- DO NOT USE a precision tool that has a different size from the one recommended for your equipment.
- DO NOT USE the precision tool for any other purpose than grinding, cutting, or polishing.
- Always USE water or coolant to prevent damage to the precision tool.

DISCO CORPORATION
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