



Electroformed Bond Hub Blades

# ZHZZ SERIES

## Ultrathin hub blades for stable dicing of narrow street wafers

**The thinnest hub blades in the industry, only 10  $\mu\text{m}$  wide. A new high-strength bond, the H1 bond, reduces blade breakage and wavy cutting when dicing with thin kerfs**

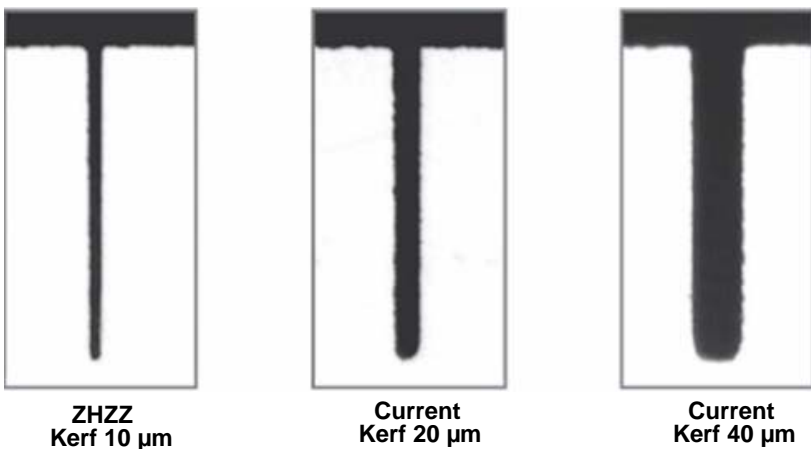
ZHZZ series hub blades were developed with a focus on narrow street dicing and other processing methods that use thin blades. The newly developed high-strength H1 bond is employed to improve quality when cutting thin kerfs, while also achieving stable processing. The lineup includes a 10  $\mu\text{m}$  wide blade that is the thinnest in the industry, contributing to the drive for narrower streets.

- Reduces blade breakage and wavy cutting for thin kerfs.
- Enables stable processing of narrow streets.
- Ultrathin 10  $\mu\text{m}$  hub blade.



### ■ Photographs of cut grooves

The ZHZZ series can produce a 10  $\mu\text{m}$  kerf. This is an extremely thin blade compared to 20 to 40  $\mu\text{m}$  blades, and has the proven ability to cut straight grooves.



#### Applications

Silicon wafers and compound semiconductor (GaAs, Gap, etc) wafers, etc.

**Specifications**

Bond type: H1      Special specification: A\*\*\*A A

**ZHZZ – SD 4800 – H1 – 70 – A\*\*\*A A A**

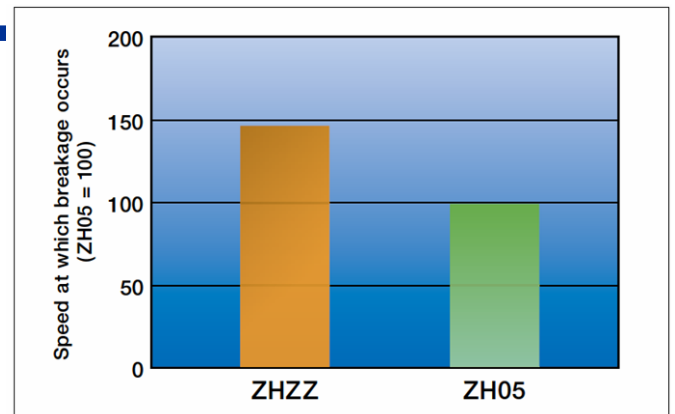
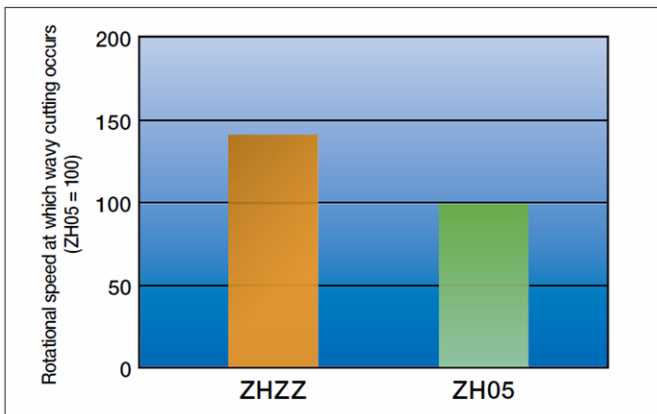
Grit type	Grit size	Concentration	Exposure	Kerf width
SD	2000	50	Z 0.25 - 0.38	Z 0.010 - 0.015
	3000	70	A 0.38 - 0.51	A 0.015 - 0.020
	3500	90	B 0.51 - 0.64	B 0.020 - 0.025
	4000	110	C 0.64 - 0.76	(mm)
	4500		(mm)	
4800				

**Experimental Data**

**Wavy cutting rotational speed comparison**

The ZHZZ series does not exhibit wavy cutting until very high rotational speeds are reached. Compared to previous products, wavy cutting occurs less frequently.

ZHZZ series blades can be pushed to a higher feed speed. Only then does the traditional breakage occur. Meaning that compared to standard blades, breakage will occur less frequently.



Evaluation was done by using the tendency for wavy cutting to occur more easily at higher rotational speeds. The rotational speed was gradually increased to determine at what rotational speed wavy cutting began.

Evaluation by using the tendency for blade breakage to occur more easily at higher feed speeds. The feed speed was increased rapidly to determine at which feed speed breakage would occur.

Workpiece : Si ø6"  
 Depth : 400 µm (half cut)  
 Feed speed : 90 mm/s  
 Blade : ZHZZ-SD3500-H1-70  
 ZH05-SD3500-N1-70

Workpiece : Si ø8"  
 Depth : 680 µm  
 Spindle revolution : 35,000 min<sup>-1</sup>  
 Blade : ZHZZ-SD3000-H1-50  
 ZH05-SD3000-N1-50

**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.
- READ the operation manual of the cutting/grinding equipment before use.
- DO NOT USE the precision tooling with modified or customized equipment.
- DO NOT USE precision tooling that has a different size from the one recommended for your equipment.
- DO NOT USE the precision tooling for any other purpose than grinding, cutting, or polishing.
- Always USE water or coolant to prevent precision tooling damage.