



**DISCO**

Kiru · Kezuru · Migaku Technologies



# Electroformed Bond Hub Blades **ZH05 SERIES**

## Advanced hub blades for improved process stability and consistency



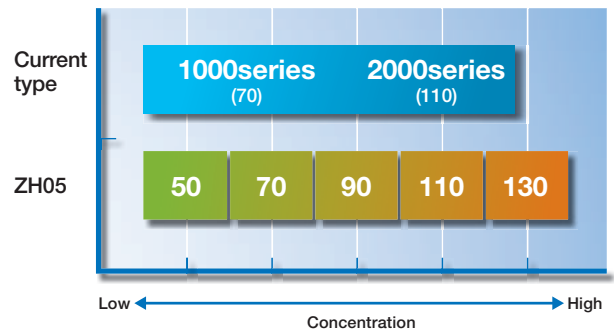
### The high-precision concentration control of the ZH05 Series allows for extremely stable and consistent process results.

Newly developed concentration control technology has made possible five distinct levels of concentration. This wider range of choices offers improved balance between blade life and process quality (in particular, backside chipping).

- 5 concentration levels support diverse applications.
- The ZH05 Series offers shorter precut times and lower chance of blade breakage due to flying die.



#### ■ Concentration range



During dicing, concentration affects both the speed of blade wear and the size of chipping. By selecting precisely a concentration\* that is appropriate to the application, both wear rate and process quality can be made more stable and consistent.

\*Concentration refers to the percentage of diamond grit in the abrasive portion of the blade. For example, a concentration level of 100 indicates 25 % diamond grit by volume.

#### Applications

*Silicon and compound semiconductor (GaAs, GaP, etc.) wafers, Oxide wafers (LiTaO<sub>3</sub>, etc.), etc.*

## Specifications

<b>Grit type</b> SD		<b>Bond type</b> N1		<b>Special specification</b> A**** D D	
<b>ZH05 - SD 2000 - N1 - 110 - A**** D D</b>					
Grit size	Concentration	Exposure	Kerf width <sup>*1</sup>		
1500 #1500	50	A 0.38 - 0.51	A	0.015 - 0.020	
1700 #1700	70	B 0.51 - 0.64	B	0.020 - 0.025	
1800 #1800	90	C 0.64 - 0.76	C	0.025 - 0.030	
2000 #2000	110	D 0.76 - 0.89	D	0.030 - 0.035	
2500 #2500	130	E 0.89 - 1.02	E	0.035 - 0.040	
3000 #3000		F 1.02 - 1.15	F	0.040 - 0.050	
3500 #3500		G 1.15 - 1.28	G	0.050 - 0.060	
4000 #4000		H 1.28 - 1.41	H	0.060 - 0.070	
4500 #4500		I 1.41 - 1.54	I	0.070 - 0.080	
4800 #4800		J 1.54 - 1.67	J	0.080 - 0.090	
5000 #5000		K 1.67 - 1.80	K	0.090 - 0.100	
		(mm)		(mm)	

\*1 Maximum kerf width of 0.2 mm are available

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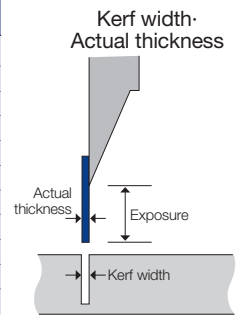
### Standard sizes<sup>\*2</sup>

Kerf width	Exposure	Exposure						
		A	B	C	D	E	F	G
mm		0.38 - 0.51	0.51 - 0.64	0.64 - 0.76	0.76 - 0.89	0.89 - 1.02	1.02 - 1.15	1.15 - 1.28
A	0.015 - 0.020	AA	BA					
B	0.020 - 0.025	AB	BB	CB				
C	0.025 - 0.030		BC	CC	DC			
D	0.030 - 0.035		BD	CD	DD	ED		
E	0.035 - 0.040			CE	DE	EE	FE	
F	0.040 - 0.050			CF	DF	EF	FF	GF
G	0.050 - 0.060			CG	DG	EG	FG	GG

\*2 Please contact a DISCO representative for details.

### Standard concentrations

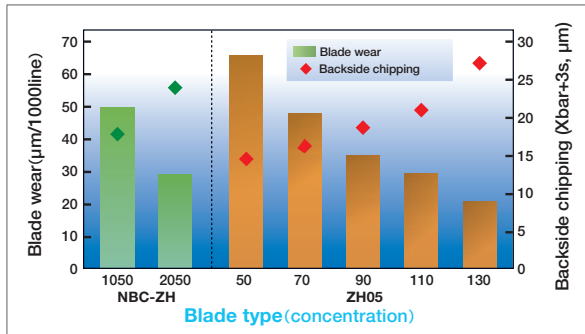
Grit size	Concentration				
	50	70	90	110	130
#1500	✓	✓	✓	✓	✓
#1700	✓	✓	✓	✓	✓
#1800	✓	✓	✓	✓	✓
#2000	✓	✓	✓	✓	✓
#2500	✓	✓	✓	✓	✓
#3000	✓	✓	✓	✓	✓
#3500	✓	✓	✓	✓	✓
#4000	✓	✓	✓	✓	✓
#4500	✓	✓	✓		
#4800	✓	✓	✓		
#5000	✓	✓	✓		



## Experimental data

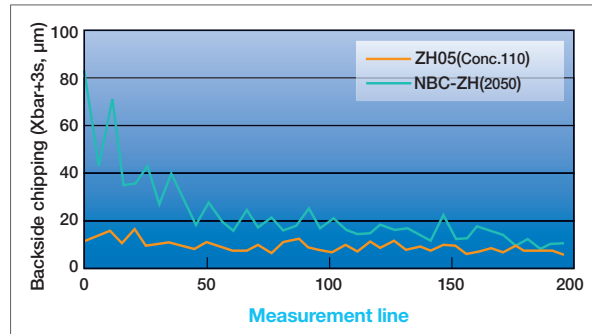
By increasing the concentration options for ZH05, it is possible to precisely respond to customer needs. It also has the potential to shorten the precut time.

### Relationship of blade wear to backside chipping



Workpiece: Si+Oxide layer φ6"  
Depth: 400 μm (full cut)  
Feed speed: 60 m/s  
Spindle revolution: 30,000 min<sup>-1</sup>

### Reduction in precut time



Workpiece: Si φ6"  
Depth: 400 μm (full cut)  
Feed speed: 10, 20, 30 m/s (each of 10lines)  
40, 50 m/s (each of 20lines)  
60 m/s (each of 130lines)  
Spindle revolution: 30,000 min<sup>-1</sup>

### When ordering

Please contact a DISCO representative with your product needs such as type, thickness, outer and inner diameter, and quantity.

When you place the first order with us, please explain application information such as materials to cut or grind, sizes, shape, 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.



### DISCO CORPORATION

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