

# ADAMAS

(THAILAND) CO.,LTD.



## Diamond & CBN Tool Catalogue

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# Superior Quality, Global Standards

Adamas Thailand Co., Ltd. has been manufacturing of Diamond and CBN Tools since 1994, and we are committed to providing our customers with the highest quality products and services.



Fig 1. Adamas (Thailand) Co., Ltd.

The benefits, advantages, and cost-effectiveness of using Diamond and CBN Tools: Diamond and CBN Tools are a versatile tool that can be used for a variety of applications, including grinding, cutting, and polishing.

They are extremely durable and can last for a long time, making them a cost-effective investment.

They are capable of producing smooth, precise cuts, which can save time and improve the quality of the finished product.

They are also safer to use than other types of cutting tools, as they produce less dust and sparks.

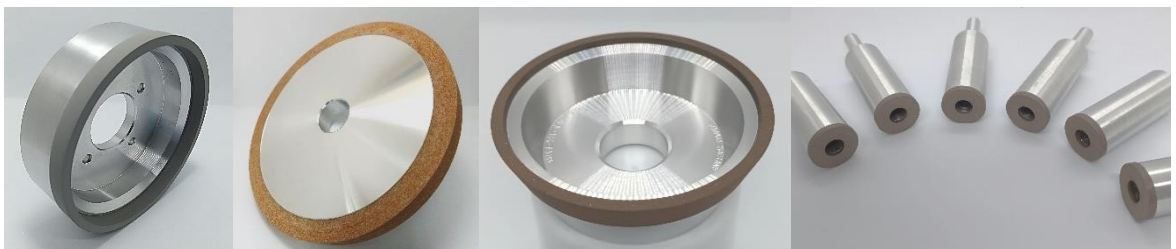


Fig 2. Sample products of Adamas (Thailand) Co.,Ltd.

In addition to manufacturing Diamond and CBN Tools, Adamas Thailand Co., Ltd. also produces spacer and collar with a low tolerance of the thickness only 3-5 micrometer. We also offer services of repair shape of the grinding wheel and rework cup wheel.

General principles of cutting, grinding, and polishing materials require the use of harder materials. Let's do it with a softer material. To achieve efficient and accurate cutting, grinding and polishing of various materials.

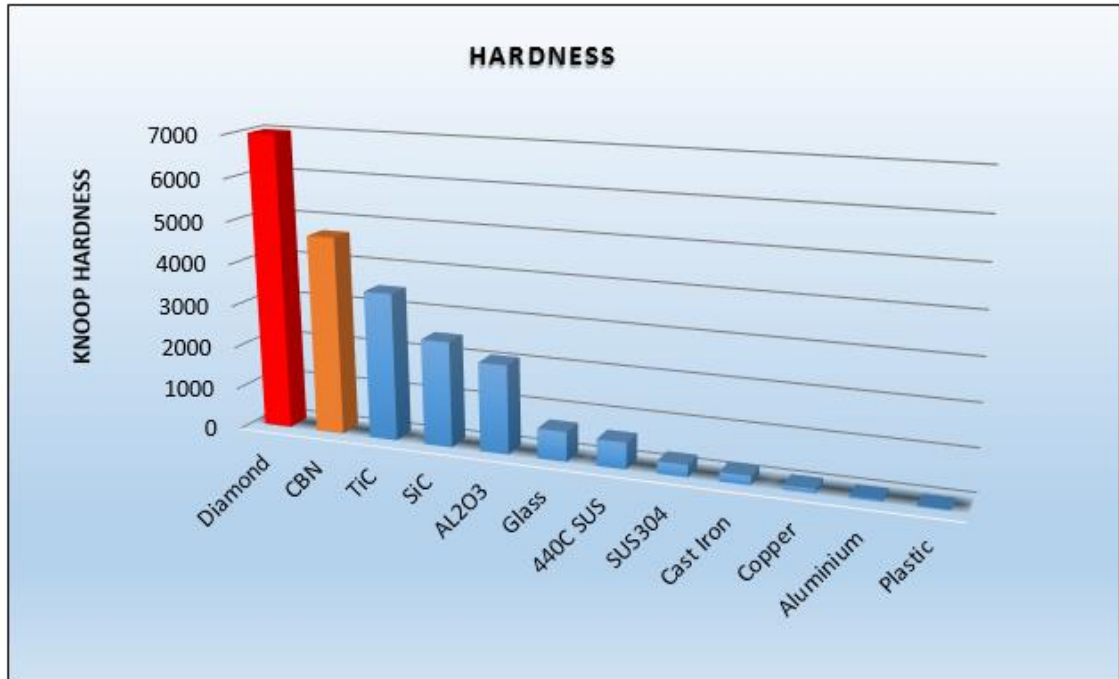


Fig 3. Hardness of key material

As shown in Fig 3., Diamond is the hardest material, followed by CBN. Both materials have good cutting, grinding, polishing, and other properties. Therefore, they are used to make diamond wheels for various purposes, such as:

- Cutting hard materials such as metal, stone, and glass.
- Grinding materials to be smooth, such as metal workpieces and jewelry.
- Polishing materials to be shiny, such as metal workpieces and jewelry.
- Grinding surfaces to be smooth, such as concrete surfaces and metal surfaces.

Diamond and CBN Tools are therefore important tools in various industries, such as the metal and machinery industry, the jewelry industry, the construction industry, and other industries.

## Properties of Diamond and CBN

Property	Diamond	CBN	Unit
Density	3.52	3.48	g/cm <sup>3</sup>
Hardness (Mohs)	10	9-10	-
Hardness (Knoops)	7000	4700	kgf/mm <sup>2</sup>
Thermal stability	600-700	1100-1400	°C
Chemical property	C	BN	-

Table 1. Physical properties of Diamond and CBN

Although diamond is the hardest material and is harder than CBN, but diamond is still not suitable for grinding metal materials. This is because during metal grinding, high grinding resistance occurs due to friction between the workpiece and abrasive grits. It causes a high temperature in that area. For diamonds, when the temperature is around 600 C°, a chemical reaction will occur, Oxidation or there is a combustion occurring, because diamond contains carbon, a flammable element. This causes it to lose its size and shape, unlike CBN which can withstand temperatures as high as 1,200 C°. CBN does not chemically react with metals so it retains its size and shape.

Therefore, steel materials should use CBN, and general hard and brittle materials should use diamond.

## Hardness of bonding

It is the strength of the bonding that holds the abrasive grits and how strong it is. This strength affects the overall efficiency of use, such as the quality of the workpiece. The surface of the workpiece, edges of cuts, chipping, cracking, etc., time spent working and production costs.

From Figure 4. it shows an illustration of the hardness of bonding.

Picture (A) is too weak and the clamping force is too weak, causing it to fall off easily. Resulting in a short work life.

Picture (B) shows that strength is the best. There is a protrusion from the bond of the abrasive grits, making grinding work better. During use, the Bond breaks and the abrasive grits pops out. Keep it sharp all the time.

Picture (C) is too hard so the abrasive grits doesn't come out. You must waste time doing dressing often, but the lifespan will be the longest.

Therefore, in determining the hardness The user must consider the overall performance. Which way to choose? Between wanting to focus on good quality work or choose to focus on low production costs for work.

We have 3 sizes of hardness to choose from: soft, medium, and hard, using the letters J, N, and R respectively.

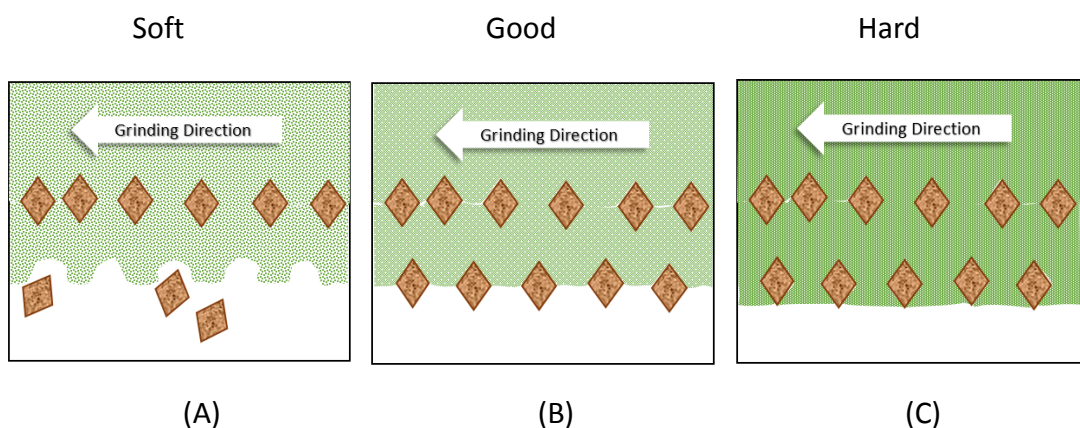


Fig 4. Hardness of bonding

## Structure of grinding wheel

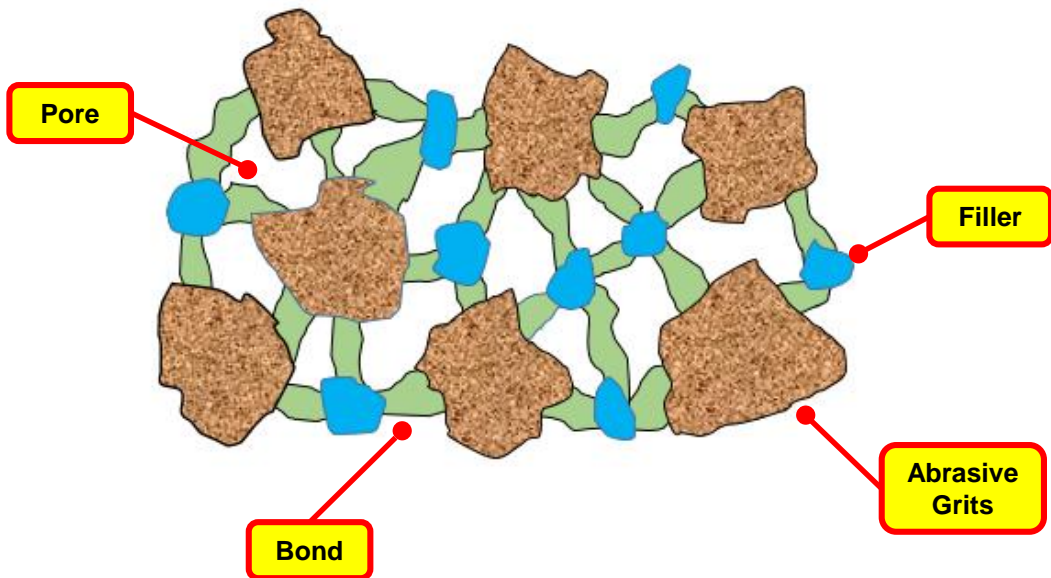


Fig 5. This illustration shows grinding wheel structure, abrasive grits, bond, porosity, and filler components.

The structure of the Diamond Wheel consists of Abrasive Grits, Bond, Filler and Pore as shown in the Fig 3. Each one has the following functions.

- Abrasive Grains, Its function is to grinding the work piece.
- Bond, Its function is to holds the abrasive grits
- Filler, It is small amounts of various materials or elements added to the main material of Bond material to increase special properties such as increased strength, wear resistance, and better heat dissipation. electrical conductivity, etc.
- Pore, it is porous and contains chip pockets. Acts as a bag for collecting scraps from grinding. To increase grinding efficiency. But if there is too much, it will make the structure not strong.

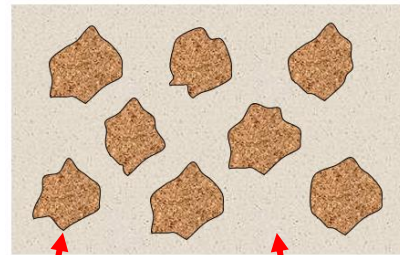
## Bonding Type

Our company offers three types of bonds, Resin bond, Metal bond, and Vitrified bond. Each type of bond has different properties. Therefore, it is necessary to consider the use, workpiece material, grinding method, wheel shape, and tools or machines used. See the Table 3. Application of diamond grinding wheels on page 10 for reference.

## Resin Bond

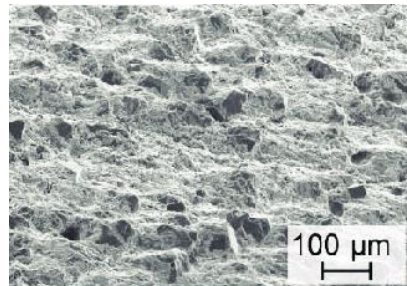
Resin bonds are manufactured with a mixture of phenolic or polyimide resins and fillers. Phenolic resin is strong. It has moderate hardness and heat resistance. While polyimide resin is very strong. It has high hardness and heat resistance. Used to increase the wear resistance of grinding wheels. Phenolic resin wheels are used for medium grinding or final grinding of DIAMOND/CBN grinding wheels. However, the addition of filler gives both types of resin good grinding quality and can be used in both grinding modes, wet and dry.

### Resin Bond Structure



Abrasive Grits

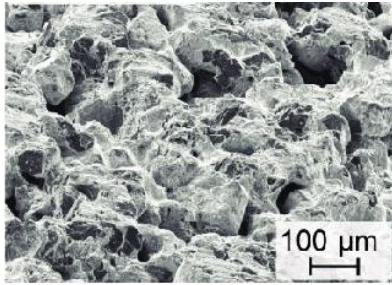
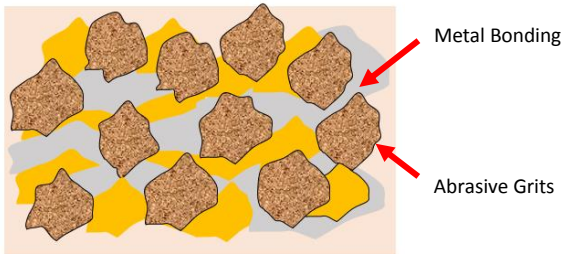
Resin Bonding





## Metal Bond

### Metal Bond Structure



Metal bonds are produced by the brazing process of the compound of various metal powders such as Tin, Brass, Copper, Cobalt, Iron, Nickel, Tungsten, Silver and so on. They are well known for their excellent shape holding ability, high wear resistance, strength with a longer life of wheels for brittle materials (glass, ferrite, Si Ge and ceramics).

However, they do require periodic truing and dressing during use.

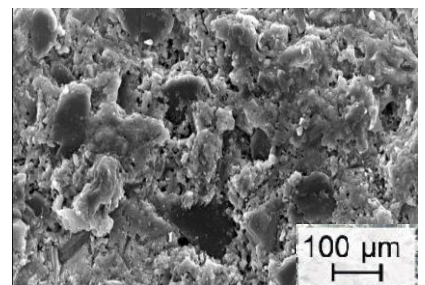
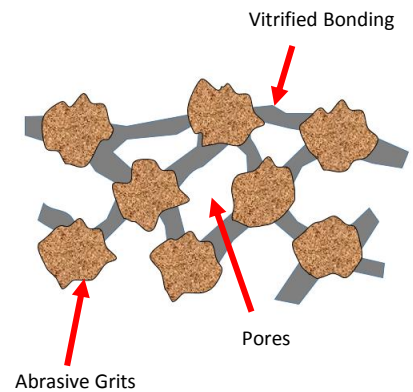
## Vitrified Bond

Vitrified bond is formed by fritted glass, which is glass that is porous to allow gases or liquids to pass through. Made by burning glass particles together at high temperatures until they become a hard but porous substance.

This, also known as ceramic bond. It has strong bonding between resin bond and metal bond.

Vitrified bond wheels are free cutting. Provides good surface roughness, good wear resistance, maintains straightness and shape. The porosity (pores) or open structure of vitrified grinding wheels can be controlled to provide chip pocket, allow coolant in and protect. Wheels can be widely used in automobile parts, Bearings, Camshafts, Injection parts, Engine cylinders, Gear boxes, CVJ etc..

### Vitrified Bond Structure



## Concentration

Its definition is the amount of abrasive grits contained in a volume of 1 cubic centimeter ( $\text{cm}^3$ ). The larger amount of abrasive grits will directly affect the greater the cutting ability, sharpness, cutting time and service life, of course, the price will increase as well. But choosing the concentration You need to consider the quality of the cut, such as chipping and cracking.

Especially in very brittle materials such as glass, if you choose to use a concentration too much will result in poor quality, such as chipping of the cutting edge. The optimum value is 30 to 50 %.

Choosing concentration the user must consider two main things, efficiency (such as cutting time, service life, etc.) and price. Concentration value our standard sizes are 25, 50, 75, 100, 125 and 150, which can be seen from Table 2.

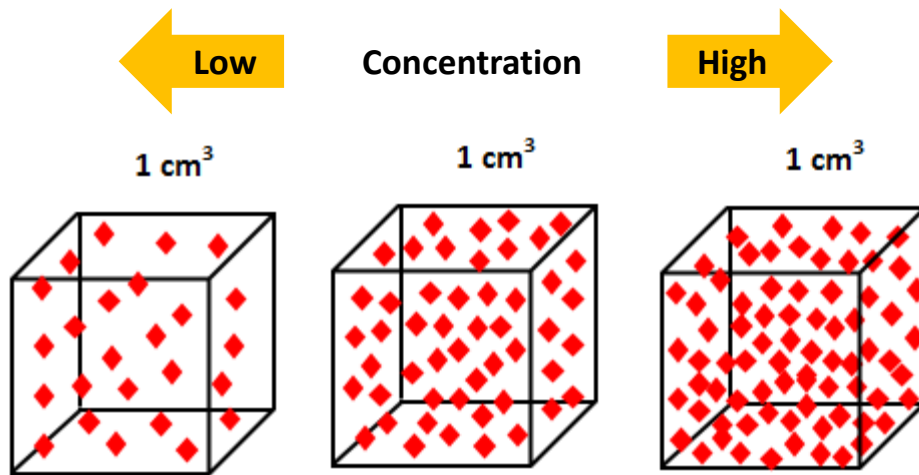


Fig 6. Concentration of grits in  $1 \text{ cm}^3$

Concentration (%)	25	50	75	100	125	150
cts/ $\text{cm}^3$	1.1	2.2	3.3	4.4	5.5	6.6
Grit. Vol. (%)	6.25	12.5	18.75	25	31.25	37.5

Table 2. Concentration

## APPLICATION OF DIAMOND GRINDING WHEELS

WORKPIECE MATERIAL		GRINDING METHOD OR SHAPE OF ABRASIVES					APPLICATION	
		ST TYPE	CUP TYPE	CUTTING TYPE	FLUNGE TYPE	CORE DRILL	MACHINERY	OTHERS
TUNGSTEN CARBIDE AND OTHERS	T.C. ALLOYS	B, M	B, M, V	B, M	P	M	ALL KINDS OF CUTTING TOOLS	
	SINTERED T.C. ALLOYS	P	P	P	B, P	P	WEAR RESISTANT PARTS	
	CERMET, PCD, PCBN	B, V, M	B, V, M	B, M	M, B	M, B	T.A TIP	
CERAMIC	REFRACTORY MATERIAL	M	M	M	M, P	M		TILE
	GRAPHITE	M	M	M, P	B, M, P	M		MATERIAL FOR FURNACE
	Al <sub>2</sub> O <sub>3</sub> , ZrO <sub>2</sub> , ETC	B, M	B, M	B, M	B, M, P	M	THROW-AWAY TIP CUTTER	
	LiNbO <sub>3</sub> , ETC	B, M	B, M	B, M	B, M, P	M	THROW-AWAY TIP CUTTER	
	SiC, SiN, ETC	B	B	B, M	M, P	M		
AUTOMOBILE GLASS	OPTICAL GLASS	M	B, M	M	M, P	M		
	FLAT GLASS	M	B, M	B, M			BACK MIRROR WINDOW GLASS	MIRROR, WINDOW FURNITURE
	TUBE GLASS	M	B, M	B, M	M, P			PHYSICAL INSTRUMENT
	QUARTS GLASS	M	B, M	B, M, P	M	M		
	OTHERS	M	M	M		M		INDUSTRIAL PRODUCTS
BUILDING AND CONSTRUCTION MATERIAL	STONE		B, M	M		M		TOMB STONE BUILDING MATERIAL
	CONCRETE ASPHALT			M		M		ROAD & BUILDING
	SYNTHETIC MATERIAL	M	M	M		M		MATERIAL FOR WALL
JEWELRY AND SEMI JEWELRY	DIAMOND	B, M, V	B, M, V				WEAR RESISTANT PARTS	MEDICAL SUPPLIES
	RUBY	B, M, V	B, M, V					
	CRYSTAL	B, M	B, M, V					INDUSTRIAL PRODUCTS
	SEMI-JEWELRY	M	B, M	M	M, P	M		
FERRITE	PERMANENT MAGNET	M	M	M	P			
	AUDIO-FREQUENCY	B, M	B, M	B, M	B, M, P			
	HIGH-FREQUENCY	B, M	B, M	B, M	B, M, P			
SEMI CONDUCTOR	St, Ge	M	B, M, V, P	B, M, P	M			
	Ga, AS, OTHERS	M	B, M, V, P	B, M, P	M			
PLASTIC	ACRILIC RESIN	M, P	M, P	M, P	M, P	P		INDUSTRIAL PRODUCTS
	FRP	M, P	M, P	M, P	P	P		INSTRUMENT
	PLASTIC	P	P				BRAKE LINING	
	RUBBER	P	P	P	P		TIRE	
OTHERS	SHELL	P	P	P	P	P		"PADUK" STONE
	TEETH	P	P		P			DENTAL INSTRUMENT
METAL	CAST IRON	B, M	B, M				MACHINERY PART	
	SEMI-ALLOYS			M, P				
	Sn-Co		B	B, M, P				

M : Metal bond B : RESIN BOND V : VITRIFIED BOND P : ELECTROPLATED BOND

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Table 3. Application of diamond grinding wheels

## APPLICATION OF CBN GRINDING WHEELS

WORKPIECE MATERIAL		APPLICATION			
		INTERNAL-COMBUSTION ENGINE	NORMAL MACHINERY PARTS	TOOLS	ELECTRONIC PARTS
HARDENED TOOL	H.S.S. (SK)		VANE-PUMP PARTS	ROLL SPINDLE AND ANVIL OF MICROMETER	END MILL TAP DRILL HOB. BITE
	HARDENED TOOL ALLOY	SKS			
		SKD	ROLL, GAUGE	MOLD & DIES	
CARBON STEEL			KNIFE, RAZOR BLADE	MOLD	
STRUCTURAL ALLOY	S-C			MISSION PARTS	
	SCM	SNC	FULL GEAR INJECTION	PRESSURE CYLINDER MISSION PARTS	
	SNCM				
SACM	CRANK GEAR PARTS FOR PUMP		MOLD		
BEARING STEEL	SUJ			BEARING	
CAM IRON			OIL SEAL CAM	COMPRESSOR PARTS MACHINE TOOL PARTS	
SINTERED METAL (WITH Fc)			POWER STEERING PARTS	COMPRESSOR PARTS	
MAGNETIC ALLOY	Sn-Co				VIDEO DRUM HEAD MAGNET
SUPER ALLOY				JET ENGINE	

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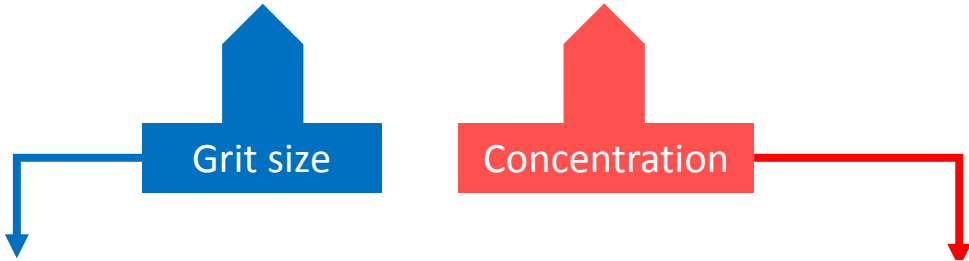
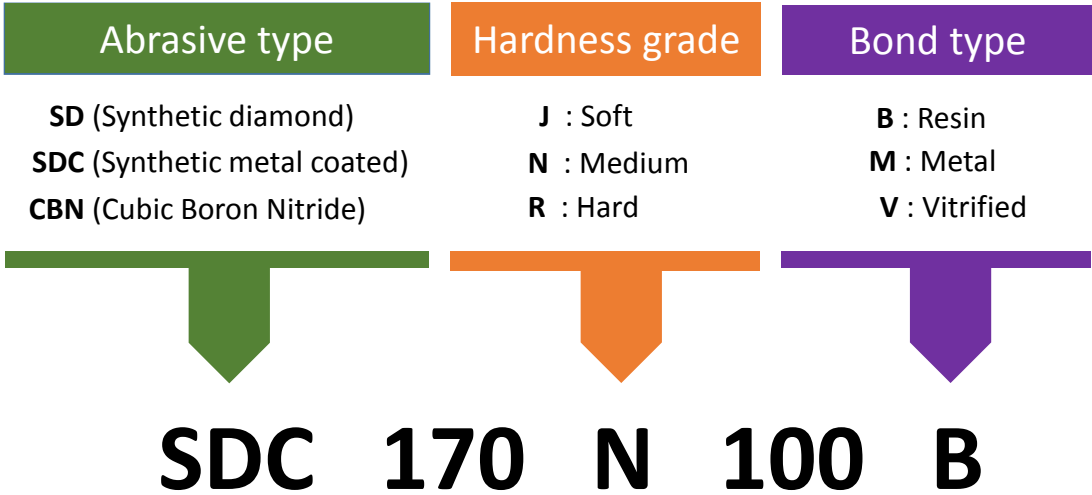
Table 4. Application of CBN grinding wheels

## How to order Diamond and CBN Tools

To meet your requirements, We need the following information.

- 1) Shape and dimension of them
- 2) Grit size of Diamond or CBN
- 3) Concentration
- 4) Bond (Resin, Metal, Vitrified)
- 5) Working Condition
  - Machine name & Power
  - RPM of Diamond or CBN Tools
  - RPM of workpiece
  - Table speed (mm/min.)
  - Depth/pass (mm/min.)
  - Infeed (mm/min.)
  - Total stock removal
  - Wet or Dry application
  - Cycle time
  - Grinding method (through, feed, Infeed)
  - Coolant
  - Dressing method
- 6) Work piece
  - Material of workpiece
  - Shape of workpiece (dimension)
  - Hardness of workpiece
- 7) Required quality
  - Surface roughness
  - Concentricity
  - Straightness
  - Others
- 8) Special requirements
  - Marking

# Diamond and CBN Grinding Wheel Parameter



Application	US (JIS) MESH	FEPA (μm)
GRINDING	30/40#	D602
	40/50#	D427
	50/60#	D301
	60/80#	D252
	80/100#	D181
	100/120#	D151
	120/140#	D126
	140/170#	D107
	170/200#	D91
	200/230#	D76
	230/270#	D64
	270/325#	D54
	325/400#	D46
	400/500#	40-60

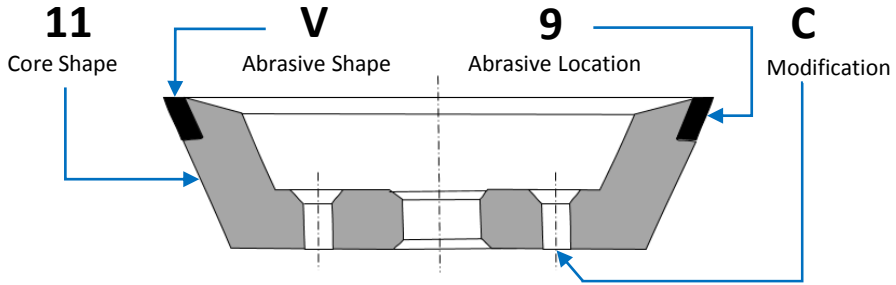
Application	US (JIS) MESH	FEPA (μm)
LAPPING	500#	30-40
	600#	22-36
	800#	20-30
	1000#	15-25
	1200#	10-12
	1500#	8-16
POLISHING	1800#	6-12
	2000#	5-10
	3000#	4-8
	5000#	3-6
	8000#	2-4
	12000#	1-3
	14000#	0-2

%	ct/cm <sup>3</sup>
25	1.1
50	2.2
75	3.3
100	4.4
125	5.5
150	6.6

Remark : GRIT SIZE (μ) = 15000/MESH SIZE

\* Other sizes, please contact the sales department.

# The Shapes Coding System of Diamond and CBN Tools



Core Shape	Abrasive Shape	Abrasive Location	Modification
1	A	1 Periphery	B Drill and Counter Bore
2	AH		
3	B		C Drill and Counter Sink
4	C	2 Side	
6	CH		H Plain Hole
9	D		T Threaded Hole
11	DD	3 Both Sides	M Holes Plain and Threaded
12	E		P Relieved One Side
14	EE	6 Part of Periphery	R Relieved Two Side
15	F	8 Through out	S Segmented Abrasive Section
	FF	9 Corner or Periphery	Q Inserted
	G		
	H		
	J		
	K		
	L		
	LL		
	M		
	P		
	Q		
	QQ		
	S		
	U		
	V		
	Y		

# Wheel Shapes

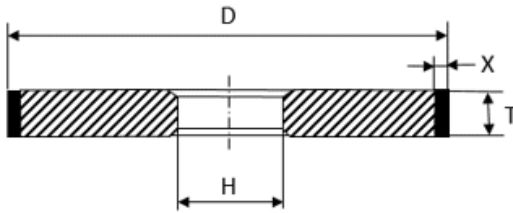
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1A1	16
1A1R	16
1E1	17
1EE1	17
1V1	18
1FF1	18
3A1	19
4A2	19
4B2	20
6A9	20

Type	Page
6A2	21
6A2C	21
9A3	22
11A2	22
11B2	23
11C9	23
11V9	24
11Y9	24
12A2	25
12V9	25

Type	Page
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14EE1	26
14U1	27
3A2	27



### Type : 1A1

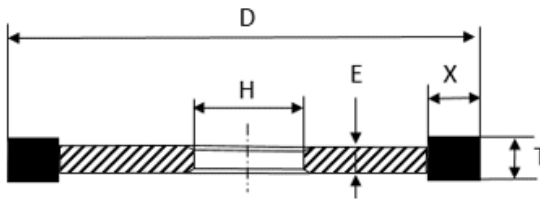


D : Wheel diameter  
 T : Wheel thickness  
 X : Depth of abrasive section  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	H	Available bonds
30 ~ 45	2 ~ 15	3,5,10	As specified by you .	B
		5,10		M
50,75,100	2 ~ 40	3,5,10,15,20		B
	2 ~ 15	5,10,15,20		M
	5 ~ 40	5,10,15,20		V
125,150,175	5 ~ 40	3,5,10,15,20		B
	5 ~ 15	5,10,15,20		M
	5 ~ 40	5,10,15,20		V
200,220	5 ~ 15	5,10,15,20		M
	5 ~ 40			B,V
* Other sizes, please contact the sales department. *				

### Type : 1A1R

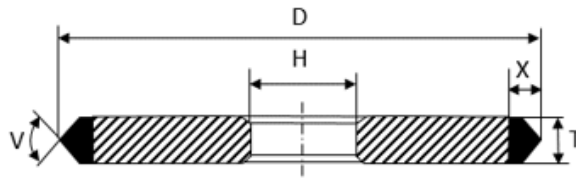


D : Wheel diameter  
 T : Wheel thickness  
 X : Depth of abrasive section  
 E : Back thickness  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	E	H	Available bonds
75,100	0.4 ~ 0.7	3,5	0.3 ~ 0.6	As specified by you .	B
	0.5 ~ 1.0		0.4 ~ 0.9		M
125,150,175	0.5 ~ 2.0	3,5	0.4 ~ 1.9		B,M
	1.0 ~ 2.0	3,5,8	0.8 ~ 1.9		B,M
200,220	1.0 ~ 2.0	3,5,8	0.8 ~ 1.9		
* Other sizes, please contact the sales department. *					

### Type : 1E1

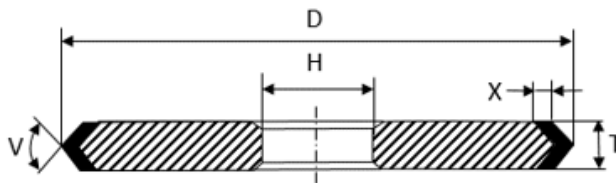


- D : Wheel diameter
- T : Wheel thickness
- X : Depth of abrasive section
- V : Rim angle
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	V	H	Available bonds
75,100,125,150	3	3	$\geq 90^\circ$	As specified by you .	B
		5	$\geq 60^\circ$		B,M
		8	$\geq 30^\circ$		B,M
	5	5	$\geq 90^\circ$		B,M
		8	$\geq 60^\circ$		
		10	$\geq 45^\circ$		
175,200,220	5	5	$\geq 90^\circ$		B,M
		8	$\geq 60^\circ$		
		10	$\geq 45^\circ$		
* Other sizes, please contact the sales department. *					

### Type : 1EE1

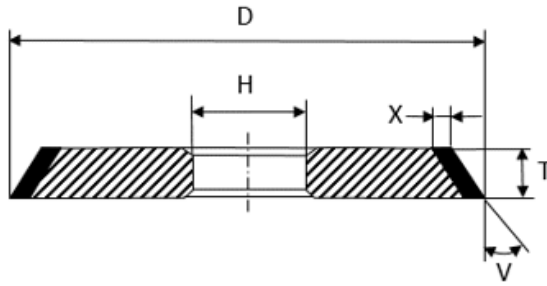


- D : Wheel diameter
- T : Wheel thickness
- X : Depth of abrasive section
- V : Rim angle
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	V	H	Available bonds
75,100,125,150,175	3,5	3,5	$\geq 30^\circ$	As specified by you .	B,M
	10		$\geq 45^\circ$		
	15		$\geq 60^\circ$		
200,220	5,10	3,5	$\geq 60^\circ$		B,M
	15		$\geq 90^\circ$		
* Other sizes, please contact the sales department. *					

### Type : 1V1

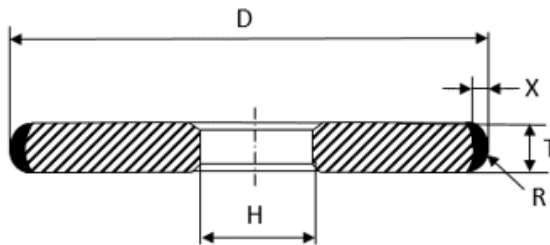


D : Wheel diameter  
 T : Wheel thickness  
 X : Depth of abrasive section  
 V : Rim angle  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	V	H	Available bonds
75	5 ~ 20	3,5	30° ~ 45°	As specified by you .	B
	5 ~ 15				M
100,125,150	5 ~ 20	3,5,7	15° ~ 45°		B
	5 ~ 15				M
175,200,220	5 ~ 20	3,5,7	15° ~ 45°		B
	5 ~ 15				M
* Other sizes, please contact the sales department. *					

### Type : 1FF1

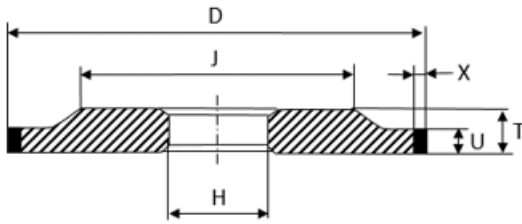


D : Wheel diameter  
 T : Wheel thickness  
 X : Depth of abrasive section  
 R : Rim radius  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	X	R	H	Available bonds
50,75	3 ~ 10	3,5,10	0.5T	As specified by you .	B
		5,10			M
100,125,150	3 ~ 20	3,5,10			B
	3 ~ 15	5,10			
175,200,220	5 ~ 20	3,5,7			B
	5 ~ 15	5,7			
* Other sizes, please contact the sales department. *					

### Type : 3A1

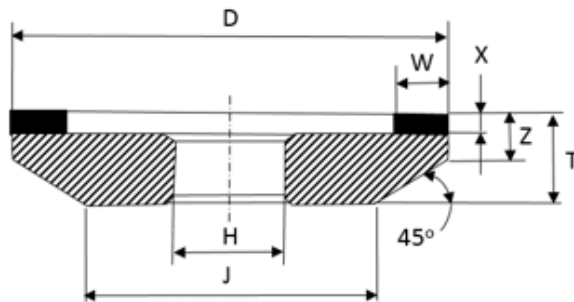


- D : Wheel diameter
- T : Wheel thickness
- X : Depth of abrasive section
- J : Hub diameter
- U : Face thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	H	Available bonds
75	10,15,20	3,5	3,5	As specified by you .	B
			5		M
100	10,15,20,25	3,5,10	3,5,8		B
			5,8		M,V
125	10,15,20,25,30	3,5,10	5,8,10		B,M,V
150,175			5,10,15		B,M,V
200,220			5,10,15	B,M,V	
* Other sizes, please contact the sales department. *					

### Type : 4A2

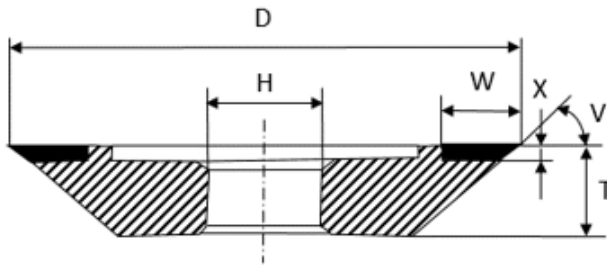


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- X : Depth of abrasive section
- J : Hub diameter
- Z : Back thickness at rim
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	H	Available bonds
75,100	8 ~ 15	3,5	3,5	As specified by you .	B,M,V
125,150	10 ~ 25	3,5,10	3,5,7		
175,200,220	15 ~ 25	5,10,15	3,5,7		
* Other sizes, please contact the sales department. *					

## Type : 4B2

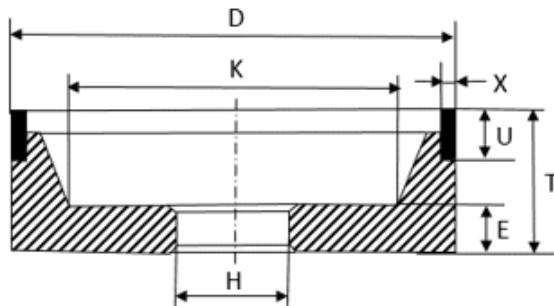


D : Wheel diameter  
 T : Wheel thickness  
 W : Rim width  
 X : Depth of abrasive section  
 V : Rim angle  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	V	H	Available bonds
100	7	5,8,10	1.5~2	15°, 30°, 45°	As specified by you .	B,M
125	7 ~ 10	5,8,10,12	1.5~3			
150,175,200	7 ~ 12	5,8,10,12	1.5~3			
* Other sizes, please contact the sales department. *						

## Type : 6A9

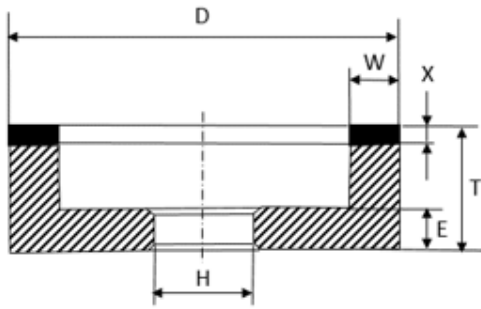


D : Wheel diameter  
 T : Wheel thickness  
 U : Length of insert  
 X : Depth of abrasive section  
 K : Inside flat diameter  
 E : Back thickness  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	E	H	Available bonds
75,100,125	25,30	5~12	1.5,3 3	10	As specified by you .	B M,V
150,175,200,220	30,35	5~12	3	10,20		B,M,V
* Other sizes, please contact the sales department. *						

## Type : 6A2, 6A2C



D : Wheel diameter

T : Wheel thickness

W : Rim width

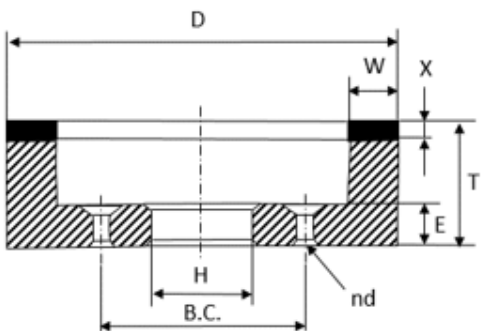
X : Depth of abrasive section

E : Back thickness

H : Hole diameter

\* B.C. : Pitch circle diameter(P.C.D.)

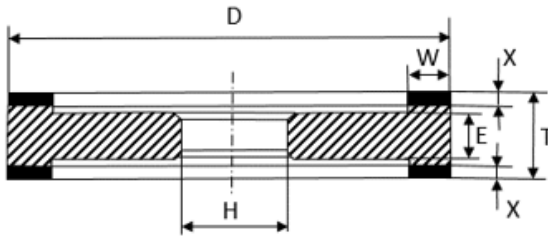
\* nd : Number of holes and diameter



B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	E	H	B.C. , nd	Available bonds
75,100,125	15~30	5,10,15	3,5,10	5,10	As specified by you .	As specified by you .	B,M,V
150,175	15~40	5,10,15,20		5,10,15			
200,220	20~50	5,10,15		5,10,15			
* Other sizes, please contact the sales department. *							

### Type : 9A3

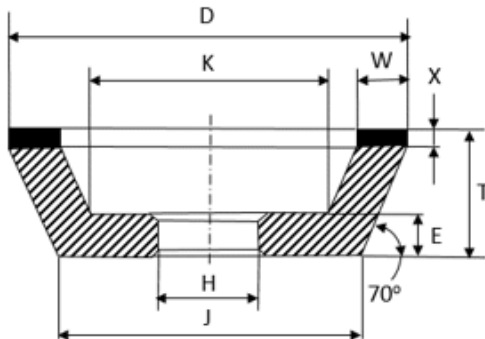


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- X : Depth of abrasive section
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	E	H	Available bonds
100,125	20~30	5,10	1.5,2,3	10	As specified by you .	B,M
150,175,200,220		5,10,15	1.5,2,3,5			
* Other sizes, please contact the sales department. *						

### Type : 11A2

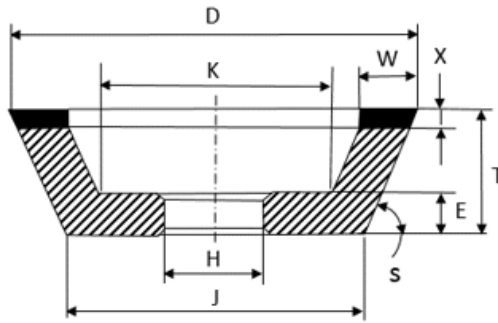


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- X : Depth of abrasive section
- J : Hub diameter
- K : Inside flat diameter
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	E	H	Available bonds
75	25~30	5,10	5,8	10	As specified by you .	B,M,V
100,125	30~35	5,10	5,8,10			
150,175	35~40	5,10,15,20	5,10,15,20			
200,220	40~45	5,10,15	5,10,15			
* Other sizes, please contact the sales department. *						

### Type : 11B2

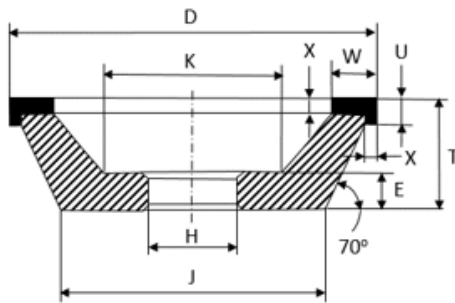


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- X : Depth of abrasive section
- J : Hub diameter
- K : Inside flat diameter
- S : Back angle
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	S	E	H	Available bonds
75	25~30	5,10	5,8	70°	10	As specified by you .	B,M,V
100,125	25~30	5,10	5,8,10	60°,70°			
150,175,200,220	25~40	5,10,15	5,8,10	45°,60°,70°			
* Other sizes, please contact the sales department. *							

### Type : 11C9



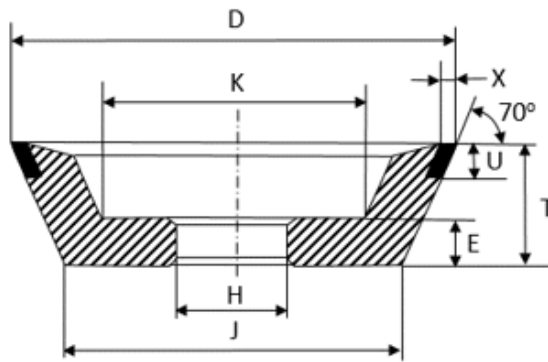
- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- U : Face thickness
- X : Depth of abrasive section
- J : Hub diameter
- K : Inside flat diameter
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	U	X	E	H	Available bonds
75,100	25~30	10,15	3,5	3,5	10	As specified by you .	B,M
125,150	25~35		3,5,10				
175,200,220	30~40		3,5,10				
* Other sizes, please contact the sales department. *							



## Type : 11V9

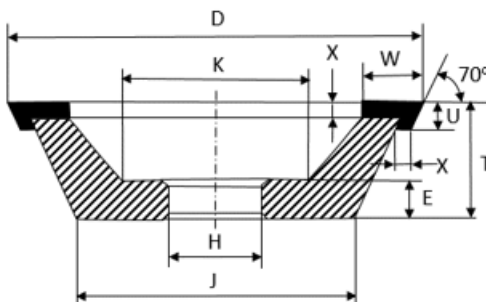


D : Wheel diameter  
 T : Wheel thickness  
 U : Length of insert  
 X : Depth of abrasive section  
 J : Hub diameter  
 K : Inside flat diameter  
 E : Back thickness  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	E	H	Available bonds
75	25~30	5~10	3,5	10	As specified by you .	B,M
100	30~35					
125,150	30~40					
* Other sizes, please contact the sales department. *						

## Type : 11Y9

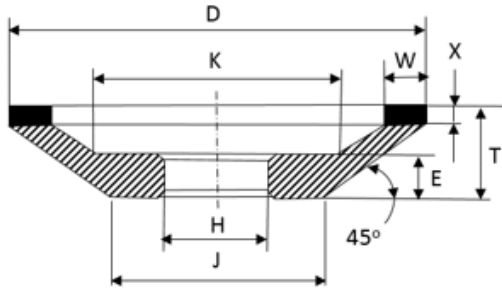


D : Wheel diameter  
 T : Wheel thickness  
 W : Rim width  
 U : Face thickness  
 X : Depth of abrasive section  
 J : Hub diameter  
 K : Inside flat diameter  
 E : Back thickness  
 H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	U	X	E	H	Available bonds
75,100	25~30	5,10	5,7	2,3	10	As specified by you .	B,M
125,150	25~35	5,10	5,7	2,3			
175,200,220	30~40	5,10,15	5,7,9	2,3,5			
* Other sizes, please contact the sales department. *							

### Type : 12A2

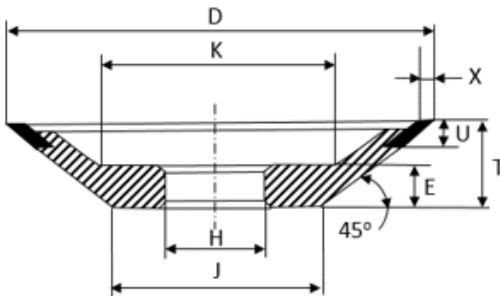


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- X : Depth of abrasive section
- J : Hub diameter
- K : Inside flat diameter
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	X	E	H	Available bonds
75	25~30	5,10	5	10	As specified by you .	B,M,V
100,125	30~35	5,10	5,8			
150,175	30~40	5,10,15,20	5,8,10			
200,220	30~45	5,10,15	5,8,10			
* Other sizes, please contact the sales department. *						

### Type : 12V9

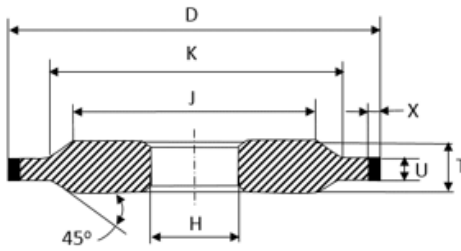


- D : Wheel diameter
- T : Wheel thickness
- U : Length of insert
- X : Depth of abrasive section
- J : Hub diameter
- K : Inside flat diameter
- E : Back thickness
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	E	H	Available bonds
75	20,25	5,10	3,5	10	As specified by you .	B,M
100	20,25					
125,150	25,30					
175,200	25,30,35					
* Other sizes, please contact the sales department. *						

### Type : 14A1

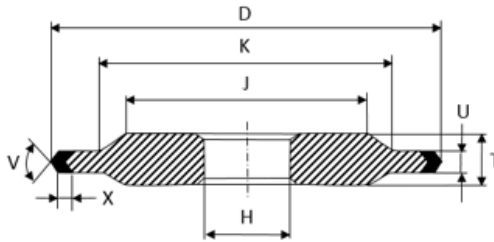


- D : Wheel diameter
- T : Wheel thickness
- U : Face thickness
- X : Depth of abrasive section
- J : Hub diameter
- K : Total hub diameter
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	H	Available bonds
50,75	7~10	1.2~5.0	3,5	As specified by you .	B,M
		5~8			V
100,125,150	7~20	1.2~15			B,M
		5~15			V
175,200,220	7~25	1.2~15			B,M
		5~15			V
* Other sizes, please contact the sales department. *					

### Type : 14EE1

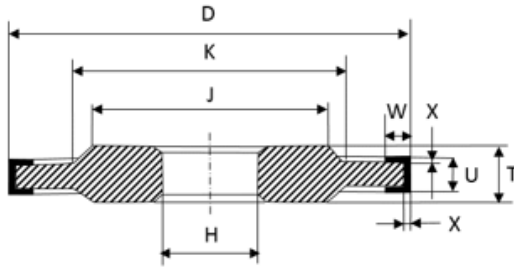


- D : Wheel diameter
- T : Wheel thickness
- U : Face thickness
- X : Depth of abrasive section
- V : Rim angle
- J : Hub diameter
- K : Total hub diameter
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	U	X	V	H	Available bonds
75,100,125,150,175	15~30	3,5	3,5	$\geq 30^\circ$	As specified by you .	B,M
		10		$\geq 45^\circ$		
		15		$\geq 60^\circ$		
200,220	15~30	5,10	3,5	$\geq 60^\circ$	As specified by you .	B,M
		15		$\geq 90^\circ$		
* Other sizes, please contact the sales department. *						

### Type : 14U1

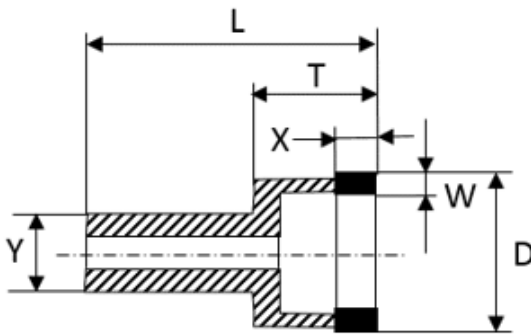


- D : Wheel diameter
- T : Wheel thickness
- W : Rim width
- U : Face thickness
- X : Depth of abrasive section
- J : Hub diameter
- K : Total hub diameter
- H : Hole diameter

B : Resin Bond M : Metal Bond V : Vitrified Bond

D	T	W	U	X	H	Available bonds
100,125	15~20	5,10	10	3	As specified by you .	B,M
150,175	20~30	5,10,15		3,5		
200,220	20~40	5,10,15		3,5		
* Other sizes, please contact the sales department. *						

### Type : 3A2 Core drill



- D : Wheel diameter
- W : Rim width
- X : Depth of abrasive section
- L : Mandrel length
- Y : Mandrel diameter
- T : Core length

B : Resin Bond M : Metal Bond V : Vitrified Bond

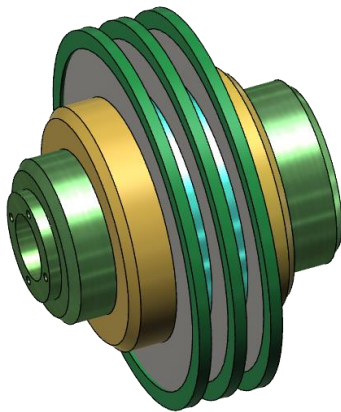
D	W	X	T	Y	L	Available bonds
20~25	5~8	2~5	As specified by you .	As specified by you .	80~100	B,M
30~40	5~10					
45~60	5~15					
* Other sizes, please contact the sales department. *						

## Others Products and serviced

### 1. Spacer and collar

The spacer that use for separating multiple cutting wheel or other types of work that require a spacer as a separator. The collar is used to splice the workpiece on both sides, which is used for work that must be assembled on a round shaft. We can produce both of them. The main materials used to make are aluminum, steel and stainless steel. The standard tolerance and special tolerance that we can make are within 5 micrometers and 3 micrometers respectively.

The Fig 4. and Fig 5. shows an example of the use of spacer and collar in assembling a stack cutting wheel. Table 5. are the sizes of spacer and collar that our company can do.



Assembly part of a stack cutting wheel

- ① Flange Wheel
- ② Flange Wheel Lock nut
- ③ Collar
- ④ Cutting wheel
- ⑤ Spacer

Fig 4. Example of using Spacer and collar in a stack cutting wheel

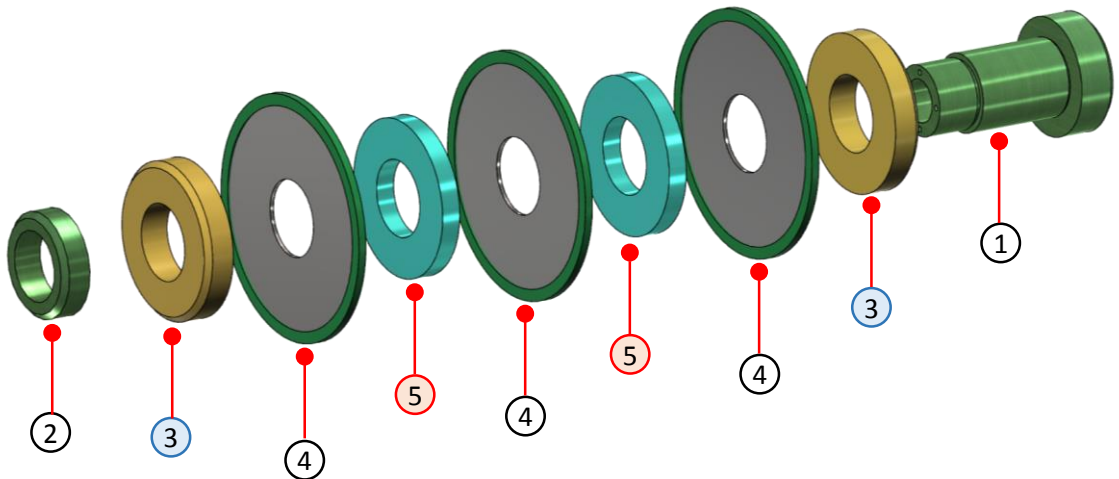


Fig 5. Re-assembly part of a Stack cutting wheel, 3 and 5 are collar and spacer respectively

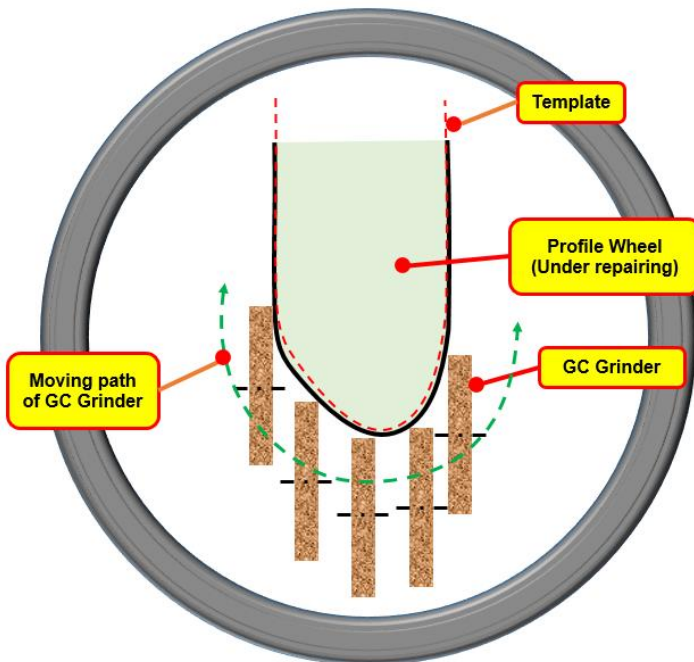
	Max	Min
OD (mm.)	200	25
Thickness (mm.)	40	0.18

Table 5. . Shown the size of S28er and Collar that we can do

## 2. Repair shape of the grinding wheel

The shape of new grinding wheel is the same as in the template, but after a period of use, There will be wear and causing the shape of the grinding wheel to be different from the original. But we can solve this problem, using a profile grinding machine, the shape returns to the same as in the template. Our company provides this service as well.

In Table 6. are the sizes of the grinding wheel that we can do.



**Principles of repairing shape of a grinding wheel with the profile grinder machine**



**Profile grinding machine**

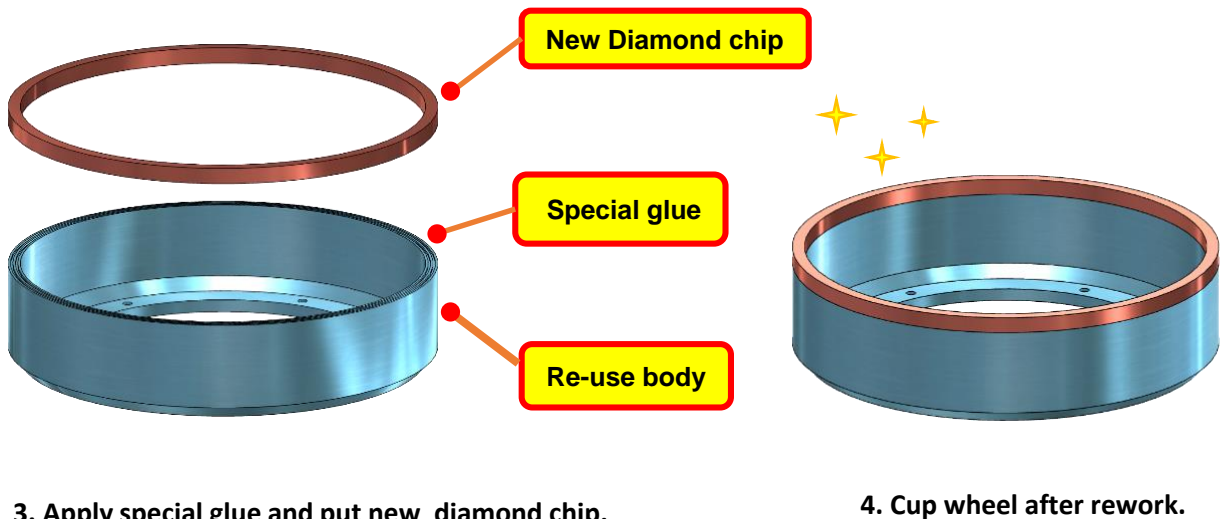
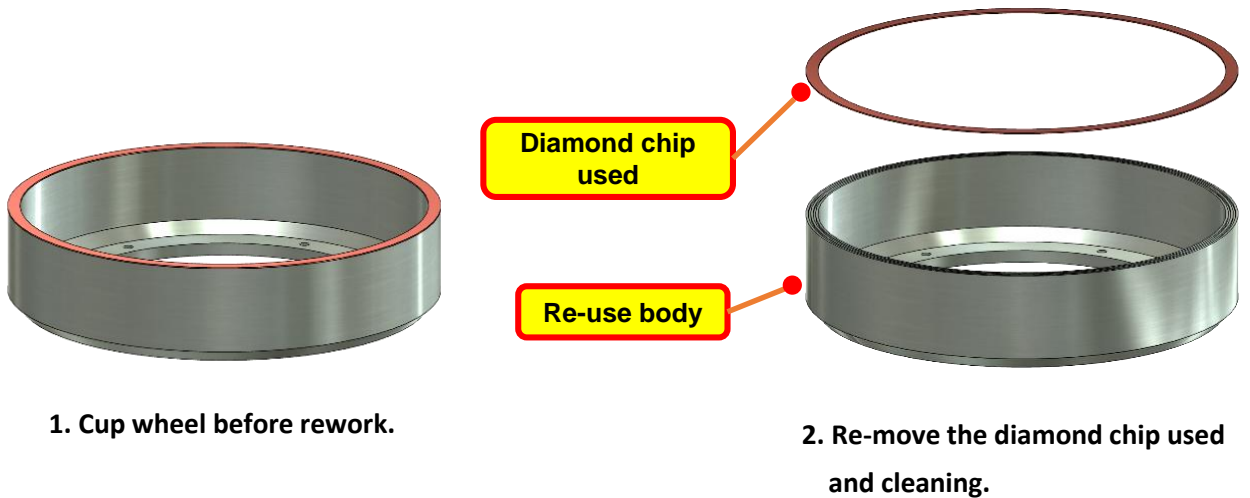
	Max	Min
OD (mm.)	250	25
Thickness (mm.)	20	0.5

Table 6. shown the size of the grinding wheel that we can do

### 3. Rework cup wheel

Because large cup wheels are expensive, only the diamond chip parts wear out but the body parts can still be reused many times. We just need to replace the diamond chip with a new one. We can save a lot of money on using it. Our company also provides this service.

In Table 7. are the sizes of a cup wheel that our company can do.

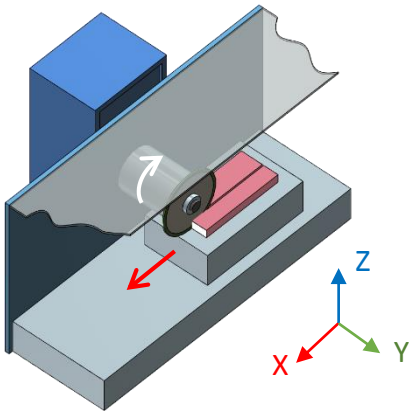


	Max	Min
OD (mm.)	400	15
Thickness (mm.)	150	10

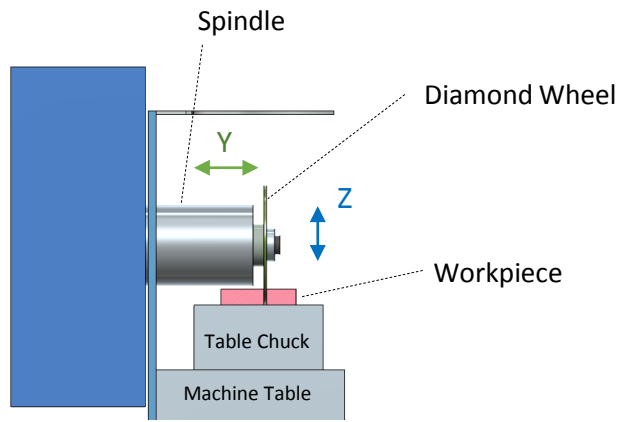
Table 7. shown the size of a cup wheel that we can do

# Applications (Example)

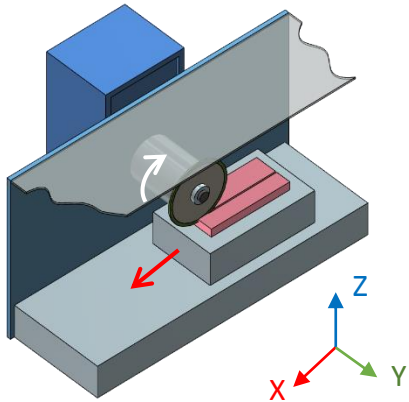
## 1) Cutting or Slicing



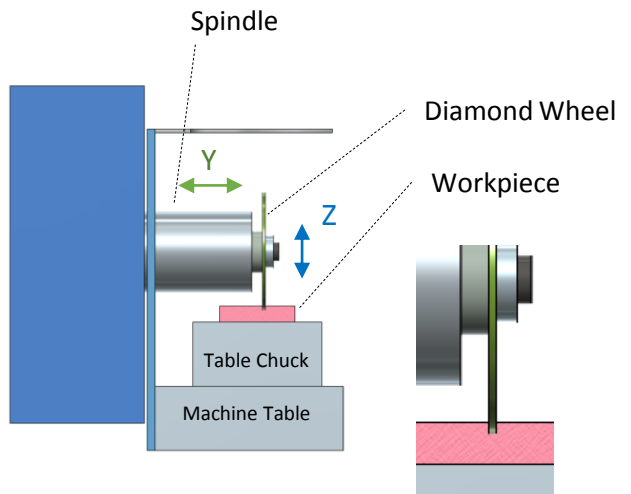
Cutting or Slicing Machine



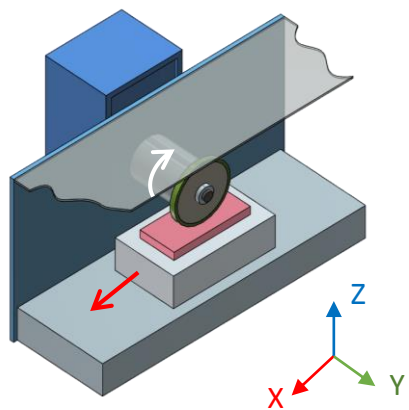
## 2) Grooving



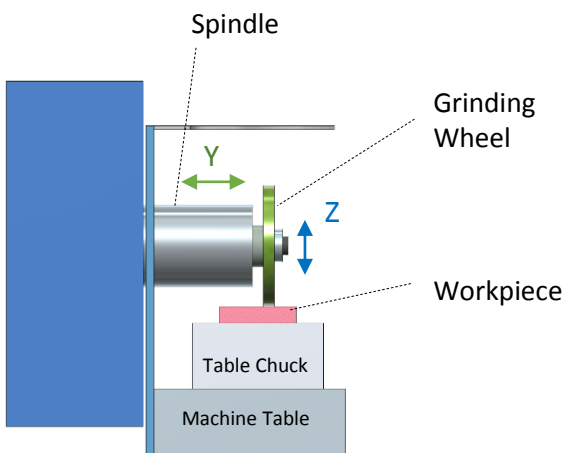
Cutting or Slicing Machine



## 3) Surface Grinding



Surface Grinding Machine





## Applications (Example)

4) Sharpen Drill



5) Sharpen Carbide turning blades



6) Sharpen circular saw blade



7) Sharpen Electric Planer blade



8) Sharpen endmill





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