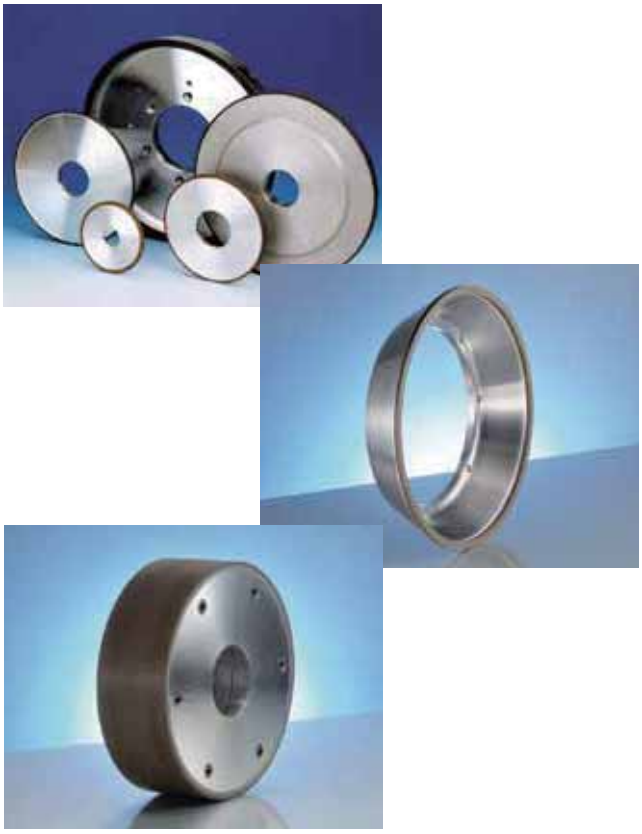
Resin Bond Wheel

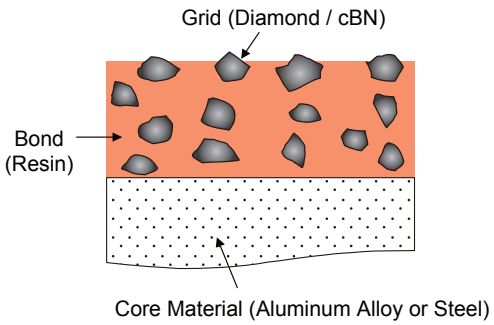
The main component of resin bond is thermo-hardening resin. Phenol resin is mainly used but polyimide resin, which has better heat resistance, is becoming more common.

Our products are widely used in many kinds of materials.



■Features

1. Elastic property of (resin) bond leads to excellent surface roughness.
2. Excellent durability of grinding ability for various kind of materials hard to be ground.



■Applications

Metal material such as cemented carbide, cermet, and high speed steel

From rough to finish grinding for certain materials such as fine ceramics, ferrite, and glass

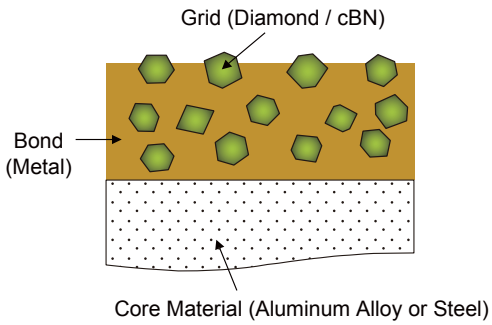
Metal Bond Wheel

Metal Bond consists of various types of alloys: copper, tin, steel, cobalt, and tungsten.

MT Bond Wheel applying (our) special metal bond has excellent grinding ability as well as long tool life and is highly recommended for ceramics, carbide, and cermet.

■Features

1. Higher wear resistance and abrasive retention lead to long tool life.
2. Good grinding ability on glass and ferrite by brittle (fracturing) mode.



■Applications

Rough grinding for certain material such as glass, ceramics, ferrite, semiconductor material, and stone

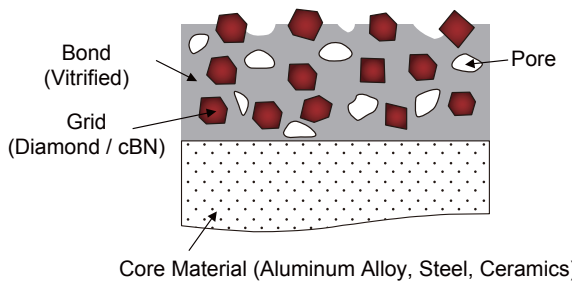
Vitrified Bond Wheel

Vitrified Bond is glass-basd ceramic and has been used for conventional grinding wheels through the ages.

We have abundant lineup : “VITMATE” applying cBN, “EG WHEEL” for cemented carbide and ceramic, and “NANOMATE” which is applicable to super finish grinding of semiconductor materials.

■Features

1. Good grinding ability due to pores
2. Trueing and dressing of VITMATE can be operated with a Rotary Dresser on the machine
3. Special adhesion technology can be applied for high speed grinding.



■Applications

Steel, cemented carbide, semiconductor material, and ceramics, etc.

Suitable for high efficiency processes of high speed grinding

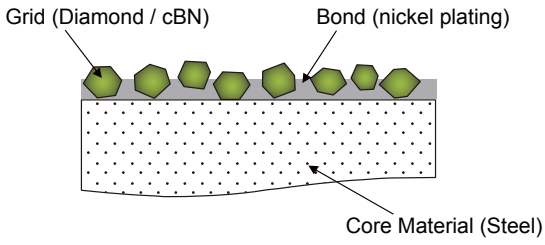
Electroplated Wheel

Abrasives are fixed by Ni plating on the surface of steeel bodys which have various kind of precise forms.

Our products are widely used in many kinds of materials.

■Features

1. Excellent durability of grinding ability due to large protrusion (following good chip discharging property).
2. Excellent profile maintaining property due to large number of active grains.
3. Easy to be formed and body is reusable



■Applications

Form grinding of cemented carbide, ceramics, magnetic material and steel, etc.

Dry grinding of rubber and FRP, etc.

Wheel Figure

□About Truing and Dressing

Truing and Dressing are important in allowing full grinding ability and effective wheel use.

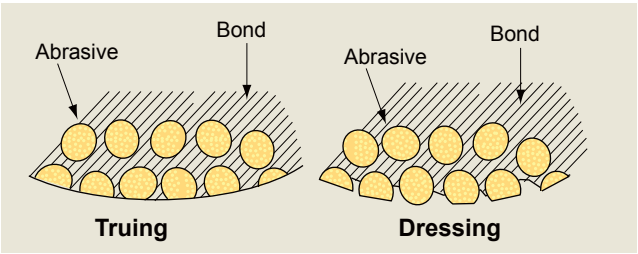
Truing is wheel forming process including run-out elimination.

Table 1. Method of Truing for Each Type of Diamond and cBN Wheel

Truing Method and Tool			Applicable Abrasive	Applicable Bond (*1 *2)	Forming	Remarks
Diamond Tool Method	Rotating Type	Rotary Dresser	Dia	V	Possible	Used mostly with cBN wheel; cannot be applied to diamond except in some cases
			cBN	V.B	Possible	
		Metal Wheel	Dia	V	Possible	
			cBN	V.B.M	Possible	
		Electrodeposition Arbor	cBN	V.B	Not Possible	
	Static Type	Single Point, Multi-point Dresser	cBN	V.B	Not Possible	
		Impregnated Dresser	cBN	V.B	Not Possible	
		Block Dresser	cBN	V.B	Possible	
		Electrodeposition Block Dresser	cBN	V.B.(M)	Not Possible	
Conventional Wheel Method	Rotating Type	Grinding Wheel	Dia	B.V.M	Possible	Rotating Type can be used for most diamond and cBN but Static Type is very limited
			cBN	B.V.M	Possible	
	Static Type	Stick	Dia	B.V.(M)	Not Possible	
			cBN	B.V.(M)	Not Possible	
Soft Steel Method	Rotating Type	Soft Steel Roll	Dia	B	Not Possible	Simple way applied from long ago; forming is not possible
			cBN	B	Not Possible	
	Static Type	Soft Steel Block	Dia	B	Not Possible	
			cBN	B	Not Possible	
Loose Abrasive Method	Lapping		Dia	B.V.M	Not Possible	Specialized equipment is required
			cBN	B.V.M	Not Possible	
Crash Method	Steel Roll		Dia	V	Possible	
			cBN	V	Possible	
Electro-discharge Machining	Electrode		Dia	M	Possible	
			cBN	M	Possible	

*1 : B: Resin Bond , M: Metal Bond, V: Vitrified Bond
*2 : Order of easiness for truing; ( ) is not general

Fig.1. Illustration of Truing and Dressing



Dressing is abrasive projecting process by removing bond and chips on wheel surface.

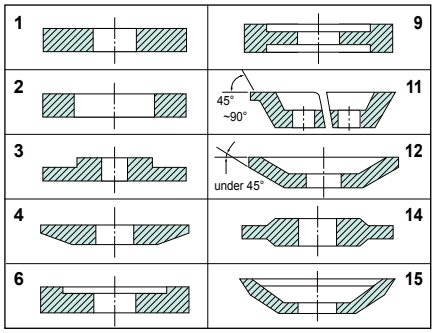
Table 2. Method of Dressing for Each Type of Diamond and cBN Wheel

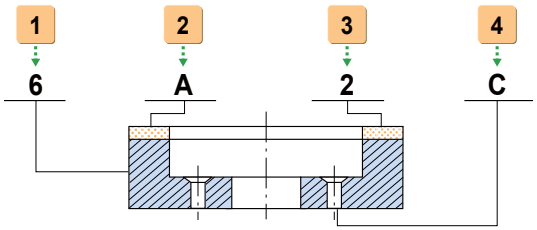
Dressing Method and Tool			Applicable Abrasive	Applicable Bond
Diamond Tool Method	Rotating Type	Rotary Dresser	Dia	V
			cBN	V
		Metal Wheel	Dia	V
			cBN	V
	Static Type	Single Point, Multi-point Dresser	cBN	V
		Impregnated Dresser	cBN	V
		Block Dresser	cBN	V
Conventional Wheel Method	Rotating Type	Grinding Wheel	Dia	B.V.M
			cBN	B.V.M
	Static Type	Stick	Dia	B.V.M
			cBN	B.V.M
Soft Steel Method	Rotating Type	Soft Steel Roll	Dia	B
			cBN	B
	Static Type	Soft Steel Block	Dia	B
			cBN	B
Free Abrasive Method	Lapping		Dia, cBN	B.V.M
	Blasting		Dia, cBN	B.V.M
Crash Method	Steel Roll		Dia, cBN	V
Electro-discharge Machining			Dia, cBN	M
Electro-chemical Machining			Dia, cBN	M

*1 : B: Resin Bond, M: Metal Bond, V: Vitrified Bond Order of easiness for dressing

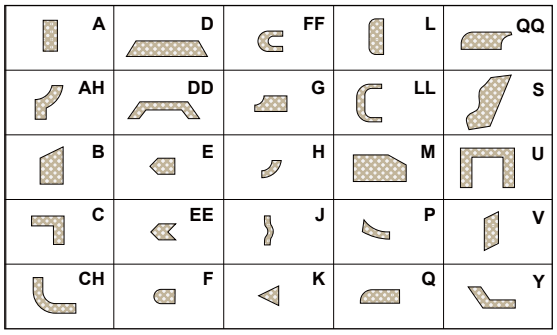
☐Identification Method of Wheel Shape

1 Standard Body Shape





2 Cross Sectional Shape of Abrasive Layer



3 Abrasive Layer Position & Symbol Reference to B

Symbol	Position	Diagram
1	Periphery	
2	Side	
3	Both Sides	
4	Incline or Roundness, Inside	
5	Incline or Roundness, Outside	
6	Part of Periphery	
7	Part of Side	
8	Whole	
9	Edge	
10	Internal	

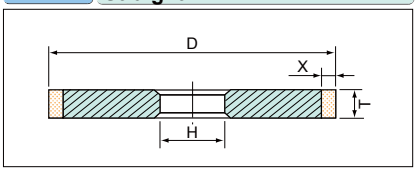
4 Modification & Symbol

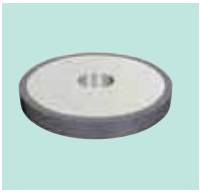
Symbol	Modification	Diagram
B	Spot Facing Hole	
C	Countersinking Hole	
H	Straight Hole	
M	Straight & Threading Hole	
P	Relief at One Side	
Q	Insert of Abrasive Layer	
R	Relief at Both Sides	
S	Segmented Abrasive Layer	
SS	Slot Segmented Abrasive Layer	
T	Threading Hole	
V	Reverse Attachment of Abrasive Layer	
W	With Shaft	
Y	Reverse Insert of Abrasive layer	

Wheel Figure

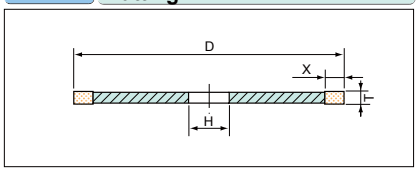
☐Standard Wheel Shape 1

1A1 Straight

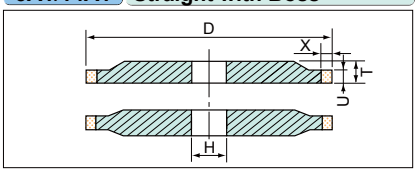


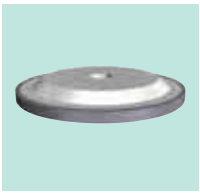


1A1R Cutting

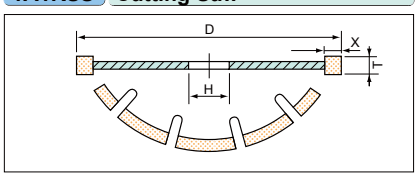


3A1/14A1 Straight with Boss

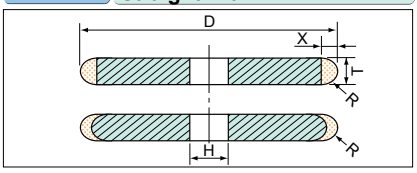




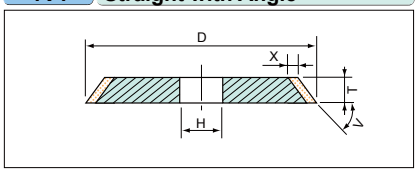
1A1RSS Cutting Saw

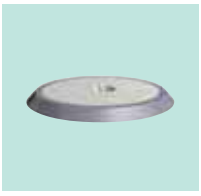


1F1/1FF1 Straight with R

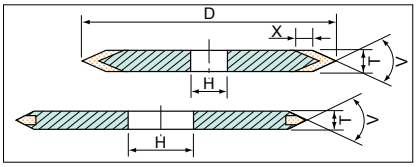


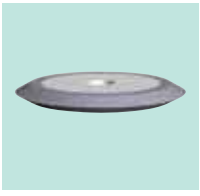
1V1 Straight with Angle



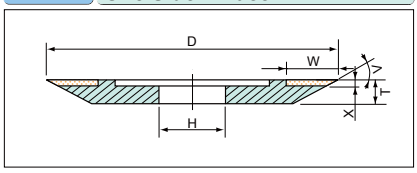


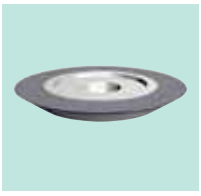
1EE1/1E6Q V Face



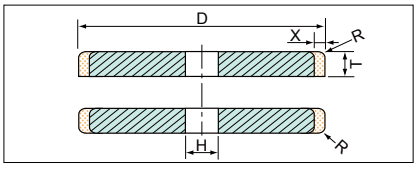


4B2 One Side V Face

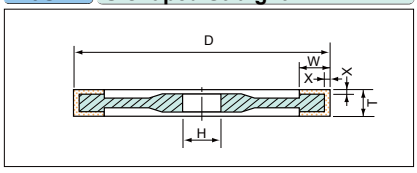




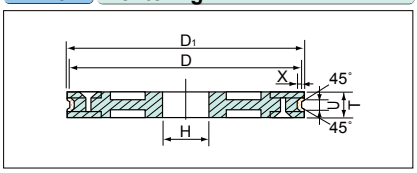
1Q1/1L1 Chipbreaker

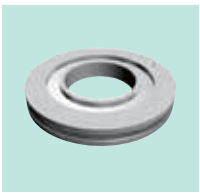


9U1 U-shaped Straight



1DD6Y Centering





1FF6Y/1EE6Y/1LL6Y/1DD6Y Pencil Edge