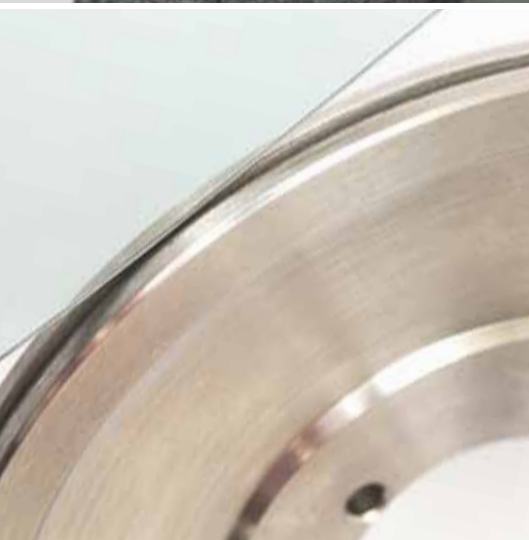




SUPERABRASIVE GRINDING WHEELS



Automotive
Bearing
Glass
Cutting tools
Medical
Turbine
Stationary dresser





- 1975. Founded in Seoul, Korea
- 1981. Established subsidiary in California, USA
- 1985. Headquarters moved to Osan, Korea
- 1993. ISO9001 certified (TÜV)
 - Established plant in Fujian, China
- 1995. Opened sales office in Nagoya, Japan
- 1997. Established plant in Weihai, China
- 2002. Established plant in Shanghai, China
 - Acquired revised ISO 9001 and ISO 14001
- 2003. oSa (Organization for the Safety of Abrasives) certified
- 2004. Opened sales office in Frankfurt, Germany
- 2005. Selected as "Certified excellent company of quality competitiveness" by the Korean government
- 2008. Awarded \$100M export Presidential award
- 2011. Selected as "World class 300 company" by the Korean government (First round)
- 2012. Established plant in Jakarta, Indonesia
- 2013. Opened new facility in Dongtan (R&D center and new business development)
 - Opened sales subsidiary in India
- 2015. Opened sales subsidiary in Mexico
- 2016. Certified KOSHA 18001 (Safety and Health Management System)
- 2017. Designated as a Compliance Program Trader (Ministry of Trade, Industry and Energy)



TÜV





Worldwide competence -

The most advanced technology for diamond tools and quality

EHWA has become an international benchmark for success because of our ability to adapt quickly to the changing markets and diverse needs of customers, and by leading the way in applying the most advanced technology for manufacturing industrial diamond tools.

Since 1975, EHWA has been able to greatly expand its market share throughout the world because we have established a world renowned reputation of high quality products, service and expertise in the industry. EHWA is deeply committed to keeping customers up-to-date and equipped with the most competitive products and technical information. Our success can only be measured by the success of our customers.

The key to our flexibility and strength in the global marketplace is our many alliances with reliable overseas partners and customers throughout the world. EHWA purchases only the highest quality raw materials, industrial diamonds and CBN from reputable sources. In addition to having strong supply lines with major suppliers, EHWA has successfully teamed up with high-tech manufacturers in Europe, Japan, and U.S. under several joint-ventures for the research and development of high precision diamond tools, rotary dressers, and precision electroplated diamond tools.

The success of a company depends on its ability to adapt and compete in the global marketplace. EHWA is able to survive in the age of globalization because we are already globalized.

EHWA diamond tools are your partner for success.



EHWA = Cooperation

'E(二)' means Two Parties: EHWA and People such as customers, employees, partners and our society. 'HWA(和)' means Cooperation. Our philosophy is to nurture and grow long-term partnerships with our customers. Ever since 1975 when EHWA was established, EHWA has been striving to develop into the very best in our industry not only in size but more importantly in quality. We are convinced that we are the best partner for you.

Contents

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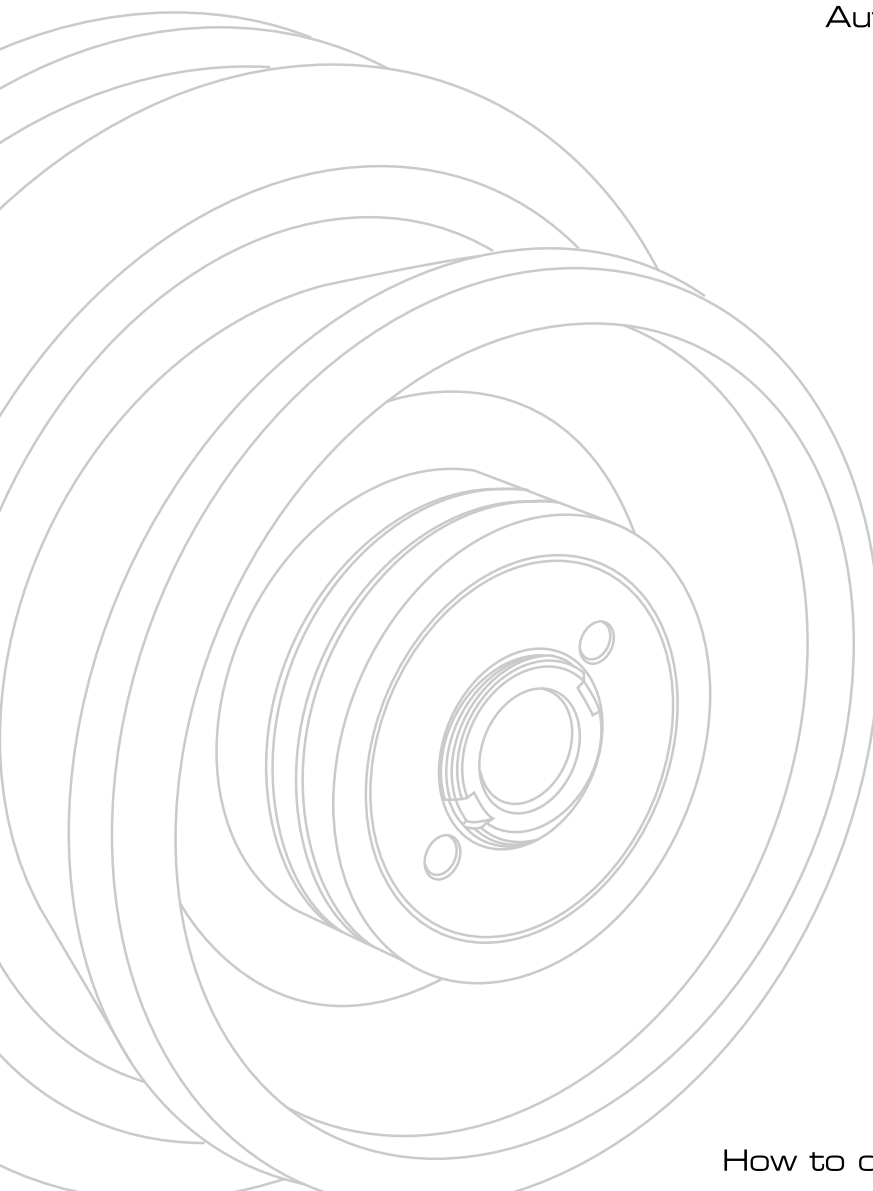
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Superabrasive grinding wheels

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Superabrasive grinding wheels

Diamond tools for

nd

Applications



08-15

Automotive
engine • turbochager



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gear • steering • brake



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Medical



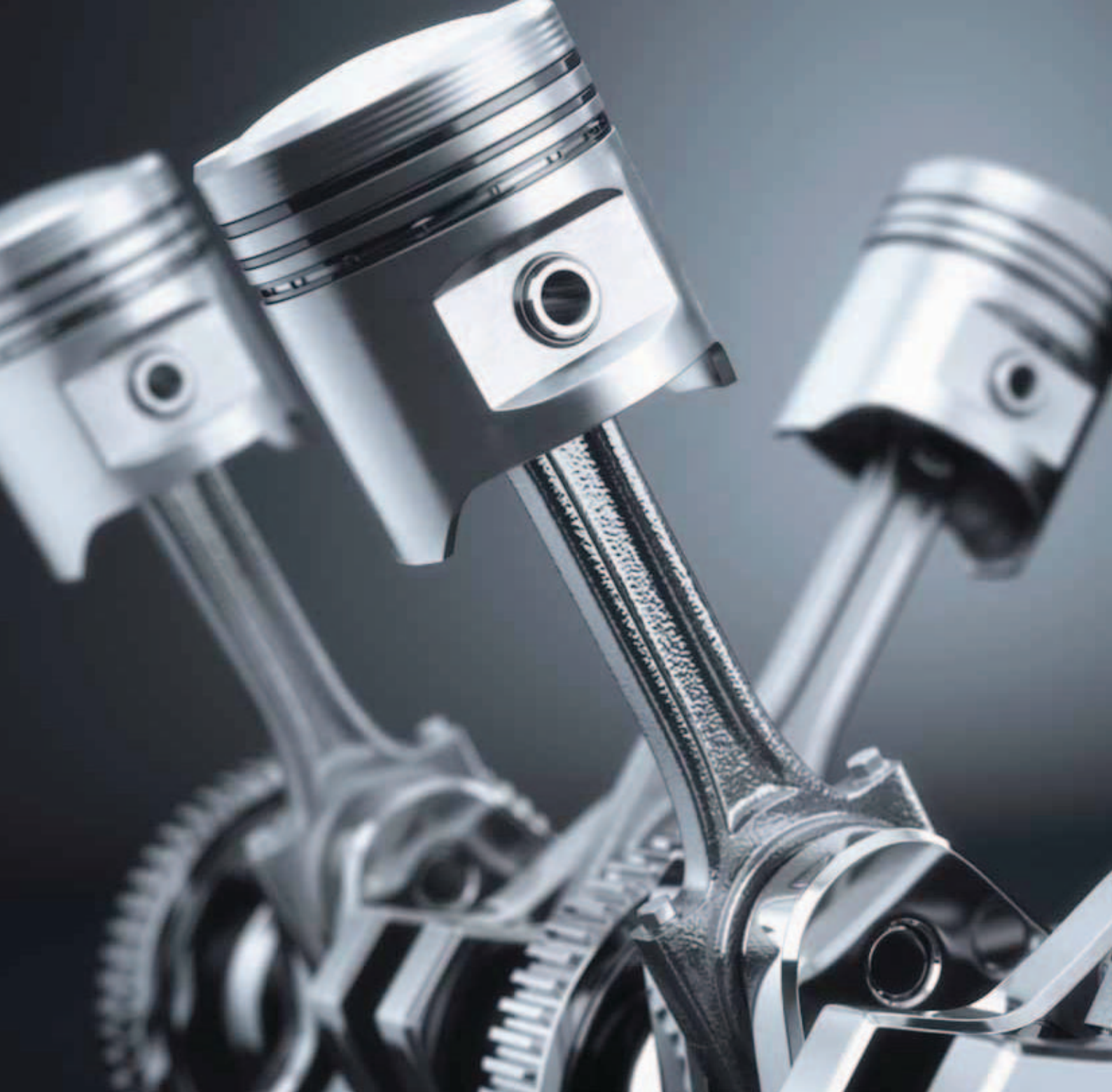
54-55

Turbine



56-59

**Stationary
dresser**



Vitrified CBN wheel
For camshaft



Vitrified CBN wheel
For crankshaft



EHWA industrial diamond tools are widely used in this industry, and play a key role in machining main automotive components including the cylinder head and the cylinder block.

Diamond tools for **Automotive**

engine • turbochager



Nozzle bore grinding wheel
For fuel injection



Metal honing stones
For cylinder block and connecting rod



Rotary dresser
For turbocharger

Automotive | engine

Camshaft grinding



Vitrified CBN wheel
For camshaft



Camshaft grinding

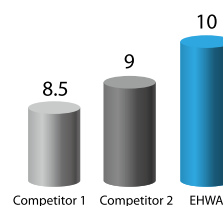
■ Benefits of EHWA vitrified CBN wheels for camshafts

- High removal rate & low grinding force
- Excellent surface finish and profile stability
- Increased dressing intervals and longer wheel life

■ Increased material removal rate

EHWA vitrified wheels enable the removal rate to increase up to 18% when grinding camshafts, compared to the competitor's.

- **Work material** – chrome molybdenum steel (Sintering)
- **EHWA wheel specification** – B126L200VEW
- v_s (wheel speed) – 120m/s
- v_f (feed rate) – 0.08mm/s
- ∂_e (stock removal) – 0.8mm
- d_w (work diameter) – 30-50mm camLobe
- d_s (wheel diameter) – 450mm



Qw' (removal rate)

$$Qw' = \pi \times d_w \times v_f \times \partial_p / b_s \text{ [mm}^3\text{/mm/s]}$$

d_w - work diameter

v_f - feed rate

∂_p - lobe width

b_s - wheel width

Automotive | engine

Crankshaft grinding



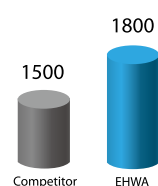
Crankshaft grinding

■ Benefits of EHWA vitrified CBN wheels for crankshafts

- Longer dressing intervals and tool life
- Consistent surface finish and high profile stability
- Reduced thermal and mechanical damage to workpiece

■ Wheel life increased by 20%

- Work material – FCD (casting)
- EHWA wheel specification – B151L200VEWN
- v_s (wheel speed) – 80m/s
- v_f (feed rate) – 0.05mm/s
- ∂_e (stock removal) – 1.2mm
- d_w (work diameter) – 60mm
- d_s (wheel diameter) – 650mm



G-RATIO

G-ratio =
workpiece's removal volume /
CBN wheel wear volume

Automotive | engine

Injector bore grinding



Bore grinding wheel
For fuel injection



Seat grinding wheel

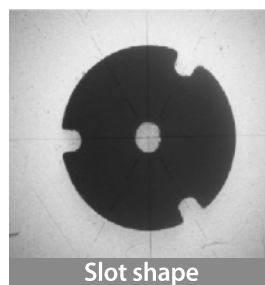


| Advantages |

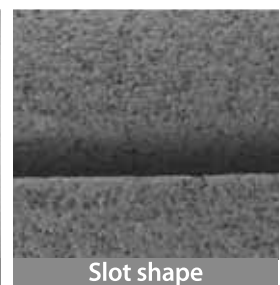
- Free cutting abrasive
- Longer dressing interval & more efficient utilization
- Consistent grinding performance
- Highly precise wheel shape including coolant hole and slots

| Standard Specifications |

Grinding	Bore, Seat
Coolant hole size	H 0.5~1.0mm
Wheel size	D 1.5~20mm
CBN grit size	29μm~76μm
Slot	0.4~1.5mm



Slot shape



Slot shape

Automotive | engine

Metal honing stones

Metal honing stones

For cylinder block and connecting rod



For cylinder block



| Advantages |

- Longer tool life & cost saving

Type	Stone mesh	Bond modification
Rough	D251~D91	MB,MS,MJ series
Semi-Finish	D76~D30	
Finish	D25~D8	MJ,MH series

For connecting rod



| Advantages |

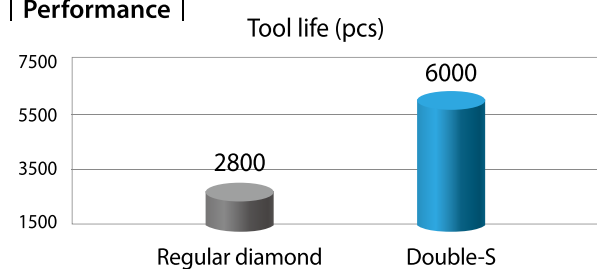
- Longer tool life & cost saving

Stone Mesh	Bond modification
D151~D25	MJ,MH,MS series

| Double -S |

- Newly developed diamond with special coating
- Excellent roundness and surface finish
- Double the tool life

| Performance |



Rotary dresser



| Engine valve |

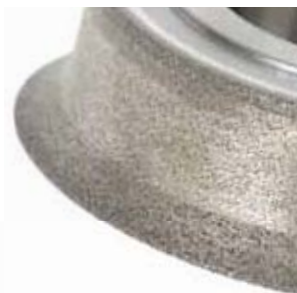
The valve consists of a head, face and stem. It is installed to control the mixed gas required for power stroke into the combustion chamber and to exhaust the gas generated after combustion.

| Advantages |

- Customized design
- Highly precise dressing with long life
- Able to be designed as either a single product or an assembly

Rotary dresser Grinding part

01 Face and neck



02 Stem centerless



03 Groove and chamfer



Automotive | turbochager

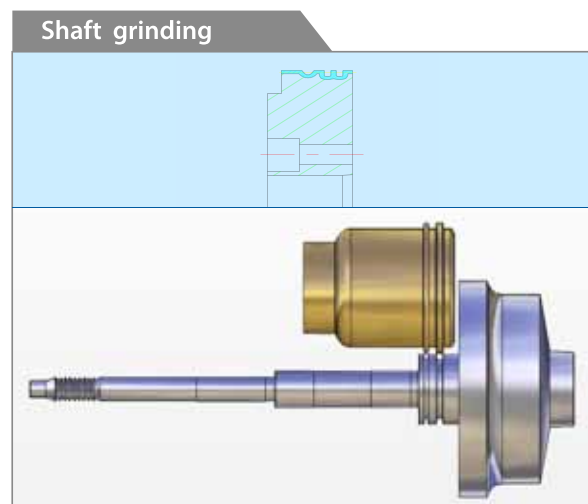
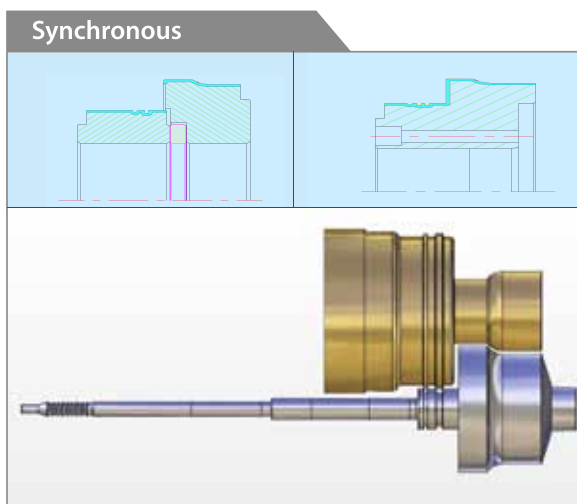
Rotary dresser



A turbocharger, or colloquially turbo, is a turbine-driven-forced-induction device that increases the efficiency of an internal combustion of engine and output of power by forcing extra air into the combustion chamber.

| Advantages |

- Customized design
- Highly precise dressing with longer life
- Increased tool life with CVD reinforcement in key wear areas





Gear grinding dresser
For gear



Metal honing stone
For gear



Vitrified CBN wheel
For gear and
shaft angular grinding



Vitrified CBN wheel
For gear internal grinding

Diamond tools for
Automotive

gear • steering • brake



Vitrified CBN wheel
For CV joint



Rotary dresser
For CV joint



CBN segment
For brake disc



BSL & electroplated wheel
For brake pad

Gear grinding dresser



Workpiece



Gear grinding dresser

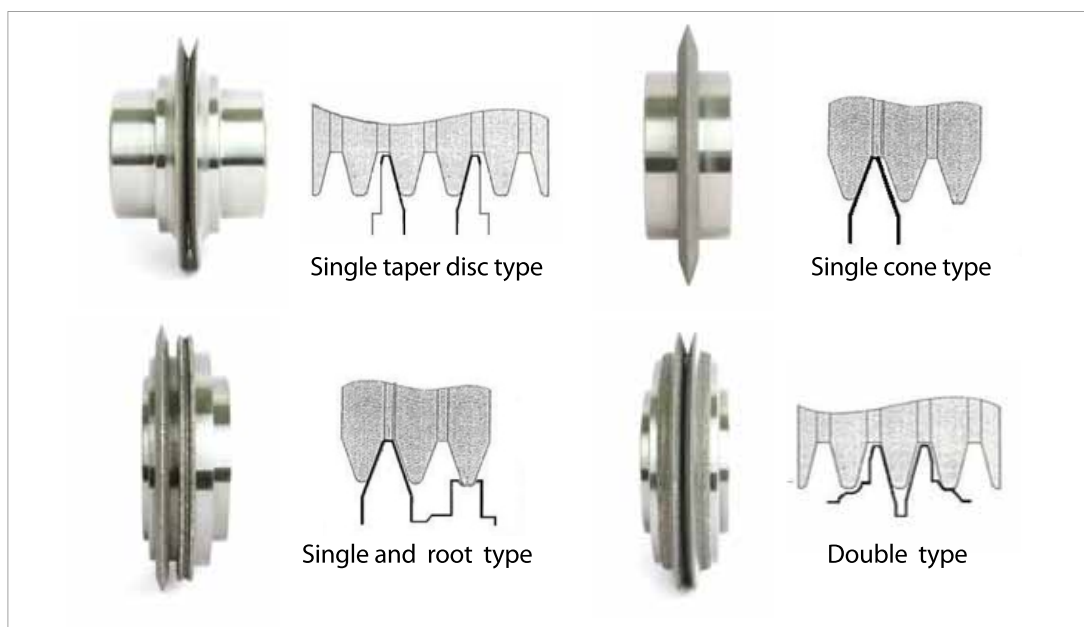
For dressing of worm wheel for gear grinding



| Advantages |

- Highly precise gear dresser due to strict raw material management
- Achieve the optimal gear profile with EHWA's precisely polished gear dresser

| Type of dresser |



Automotive | gear

Metal honing stone



Metal honing stone

For pinion gear, speed gear, sleeve gear, DCT gear, etc.



Pinion, speed, DCT gear

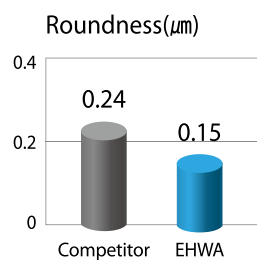
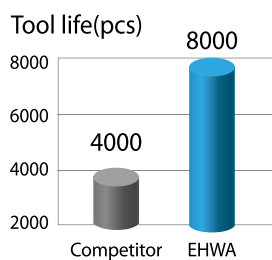


| Advantages |

- Longer tool life & cost saving
- Less grinding load
- Excellent roundness

Stone mesh	Bond modification
D181~D15	MB,MH, MS,MJ series

| Performance |



Synchro sleeve gear



| Advantages |

- Effective inner diameter honing of a sleeve gear
- Longer tool life and better precision than a competitor's product

Stone mesh	Bond modification
D76~D20	MB,MS series



Sleeve gear honing stone



Workpiece

Automotive | gear

Angular grinding



Vitrified CBN wheel
For angular grinding



| Advantages |

- Excellent grinding performance for gear component
- Longer dressing interval for cost saving and high production capacity
- High removal rate due to the free cutting capability
- Reduced cycle time
- Less mechanical & thermal damage to grinding surface

| Grinding condition |

- **Wheel speed** : 25 ~ 80 m/s
- **Removal amount** : 0.1 ~ 0.35mm D
- **Dressing amount** : $5\mu\text{m}$ ~ $30\mu\text{m}$
- **Dresser** : diamond rotary dresser
- **Spindle axle degree** : 15 ~ 30 ~ 45
- **Shank material** : steel , aluminum alloy



Automotive | gear

Internal grinding

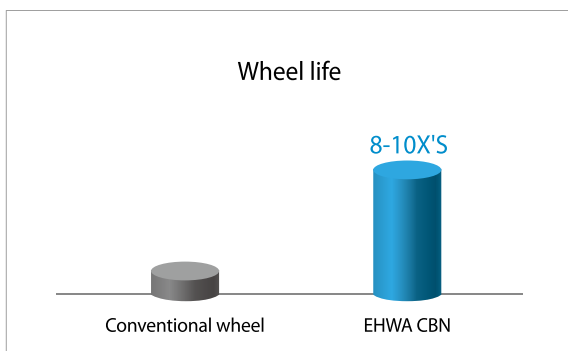


CBN wheel
For internal grinding



| Advantages |

- Excellent surface quality
- Longer wheel life and cost saving
- Faster setup of production line
- High stock removal rate



Automotive | steering

CV Joint grinding



Vitrified CBN wheel
For CV joint

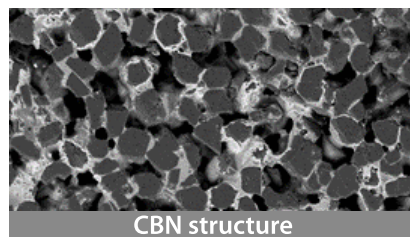


| Advantages |

- High stock removal for improved production capacity
- Outstanding surface quality with low heat and tight tolerance
- Longer dressing intervals & less wheel wear to reduce cost and improve consistency
- EHWA has specialized solution for cv joint part grinding

Cage window grinding

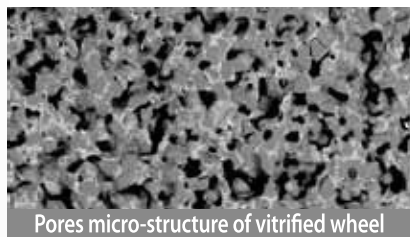
Standard specification
B126M180VBTM



CBN structure

Outer race grinding

Standard specification
B181M160VBTM



Pores micro-structure of vitrified wheel

Automotive | steering

CV Joint grinding rotary dresser



Rotary dresser
For CV joint



| CV joint |

Components that transmit the power of the engine delivered to the transmission to the wheels at constant speed.

| Advantages |

- Customized design
- Highly precise tolerance
- Outstanding grinding performance due to high diamond exposure

Inner race



Cage



Outer diameter of
outer race

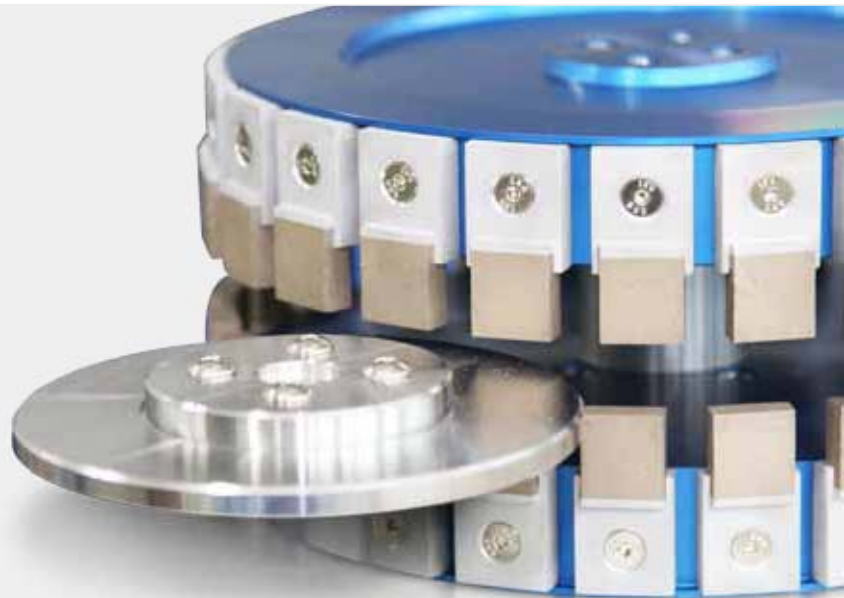


Automotive | brake disc

CBN segments



CBN segments
For brake disc

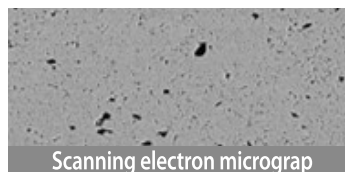


| Advantages |

- Longer tool life & cost saving
- Shorter cycle time due to high grinding speed

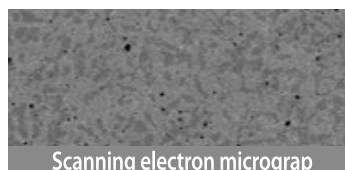
| Bond modification |

Workpiece
4WD (FC)



- Stone mesh : D181~D54
- Bond modification : MH series

Workpiece
2WD (SUS)



- Stone mesh : D181~D54
- Bond modification : MP series

Automotive | brake pad

BSL & Electroplated wheels



BSL & Electroplated wheels
For brake pad

Workpiece : Brake pad



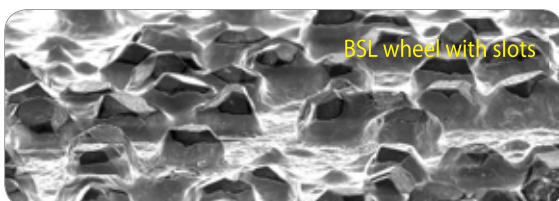
BSL wheel



BSL wheel with slots

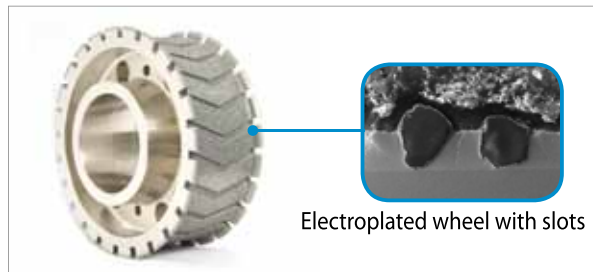
| Advantages |

- Excellent free cutting performance & easy chip flow due to high diamond exposure
- Longer wheel life than E/P wheels reduce cost



BSL wheel with slots

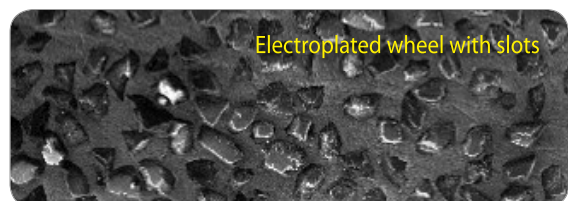
Electroplated wheel



Electroplated wheel with slots

| Advantages |

- Synchronized for chamfer, slot, and face grinding
- Available in various, complex designs
- Proper for various materials such as composites, ceramic and rubber
- Outstanding grinding performance
- Can be refurbished multiple times



Electroplated wheel with slots



Vitrified CBN wheel
For bearing



Superfinish CBN honing stone
For bearing



Rotary dresser
For water pump, ball bearing



Metal cup dresser
For bearing ID grinding

EHWA industrial diamond tools are indispensable in modern industries and are often applied to bearing and aerospace industries. In particular, EHWA has been providing the worldwide leading aerospace engine manufacturing and bearing companies as its main customers with the very best products.

Diamond tools for **Bearing**



Double disc surface
grinding wheel
For bearing



Taper roller face
grinding wheel
For bearing



Rotary dresser
For LM guide



Rotary dresser
For ball screw

Bearing

Vitrified CBN wheel



Grinding parts

① ID (Inner race internal diameter) / ② IR (Inner race) / ③ OR (Outer race) / ④ Lip / ⑤ Ring face

| Advantages |

- Higher removal rates and shorter cycle times
- Reduced grinding force
- Reduced mechanical & thermal damage to bearing
- Stable and precise grinding performance for superior quality, surface finish, cylindricity and less size deviation

| Grinding Condition |

- **Wheel speed** : 30 ~ 80 m/s
- **Removal amount** : 0.1 ~ 0.35mm D
- **Dressing amount** : 5 ~ 30 μ m
- **Dressing ratio** : 0.3~0.6
- **Dresser** : Diamond rotary dresser
- **Coolant** : Oil, emulsion

| Mounting type |



Bearing Super finishing stone



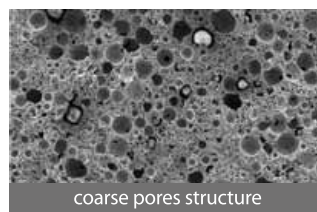
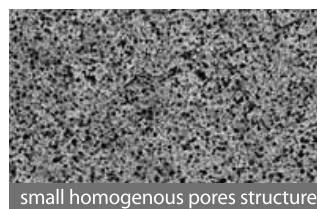
Superfinish CBN honing stone
For bearing



| Advantages |

- **Longer tool life and improved productivity**
 - 5~10 times longer tool life than conventional stone
 - Shorter cycle time for honing
 - higher stock removal rate
- **Excellent performance**
 - improved surface finish
- **ECO-friendly**
 - No sulfur
 - More consistent performance with less scrap

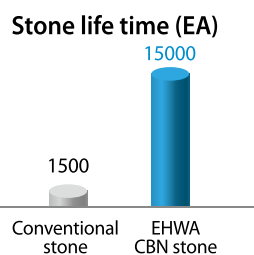
Micro structure of CBN stone



| Taper roller bearing raceway super finishing |

Condition

- Vw : 100~200rpm
- Removal : 5 μ m
- Surface roughness : Ra 0.06 μ m
- Stone specification : B2400K120VHWP



Rotary dresser



Rotary dresser
For water pump & ball bearing



- Diamond rotary dresser for ball / roller / hub bearings & water pump bearing

| Advantages |

- Highly precise and complex grinding
- Less dressing load and excellent dressing performance
- Longer tool life and cycle time reduction
- Available for dressing of vitrified CBN wheel

Water pump bearing



Ball bearing



Taper hub bearing



Bearing

Metal cup dresser



Metal cup dresser
For bearing ID grinding



| Advantages |

- **Longer life**
 - 20,000~30,000 times (depending on the wheel size)
- **Precise dressing**
 - Less grinding deviation after dressing
- **Longer dressing interval and outstanding performance**



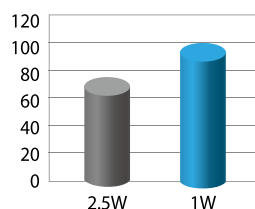
Metal cup dresser



Rotary cup dresser

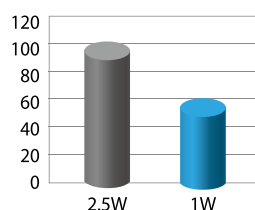
| Reference |

With steel quill
Vitrified wheel



Dressing performance
depending on tip width
on width of diamond layer

With steel head
Vitrified wheel



Workpiece dimensional stability
depending on tip width
on width of diamond layer

Face grinding wheel



Double disc surface grinding wheel
For bearings



| Ring & roller face grinding wheel |

EHWA diamond manufactures wheels for bearing face grinding

It improves the productivity by reducing cycle time

It is suitable for cost saving and quality improvement with longer life and better surface finish

| Advantages |

- Longer life
- Short cycle time
- Excellent surface finish

Face grinding

for IR/OR ring of ball bearing



| For application |

- Roller of needle bearing
- Roller of roller bearing
- IR/OR ring of bearing

Face grinding

for roller of roller bearing



Bearing

Taper roller face grinding wheel



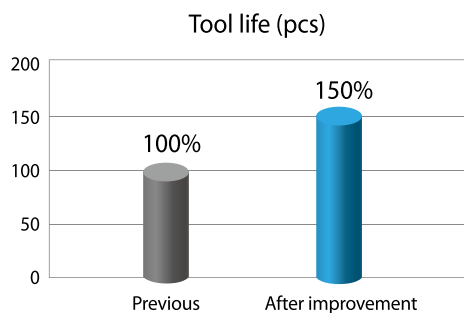
Taper roller face grinding wheel
For bearings



| Advantages |

- Longer tool life & cost saving
- Higher stock removal rate and superior performance
- Excellent surface finish

| Performance |



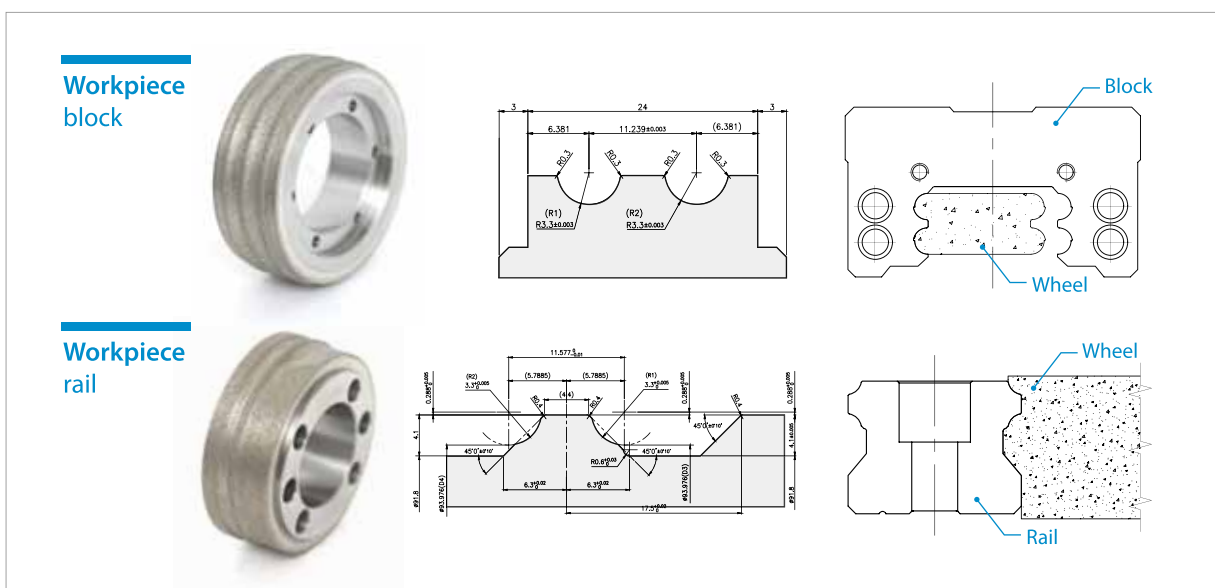
Rotary dresser · for LM guide



Rotary dresser
For LM guide



- LM guide is a linear motion product that is used to manufacture automotive equipment.
- LM guide consists of a block and rail, and balls between them rotating.
- Rotary dresser is used for dressing the CBN wheel that polishes the seat of the ball between a block and rail.



Bearing

Rotary dresser · for ball screw



Rotary dresser
For ball screw



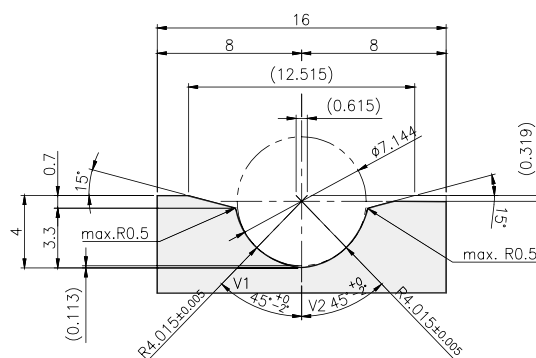
| Ball screw |

- An assembly that converts rotational motion into linear motion.
- Consists of ball screw and nut.

| Advantages |

- Highly precise dressing with longer life
- High diamond concentration

Workpiece
R type





Automotive glass



Home appliance glass

EHWA industrial diamond tools are widely used in the optical industry, owing to characteristics of glass and optic's raw materials. For instance, the diamond tools are effectively used for grinding eye glass lens, automotive safety glass, crystal, and various other lenses.

Diamond wheels for **Glass**



Architectural glass



Optical lens

Automotive / home appliance / optics



Metal edge wheel
For automotive & architectural glass

Automotive glass



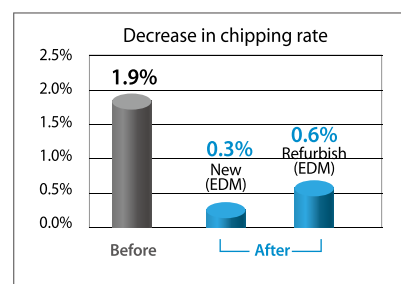
Grit size	Bond	Scanning electron micrograph	Bond features
D107~D30	MB series		Softer
	MC series		Standard
	MG series		Harder

Home appliance glass



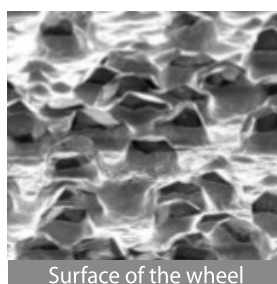
Newly developed wheels to improve edge quality and reduce chips.
The deviation of chipping rate is less than 1% after refurbish.

| Performance |





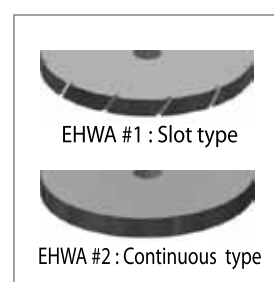
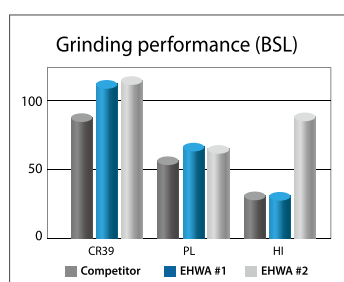
Optical lens

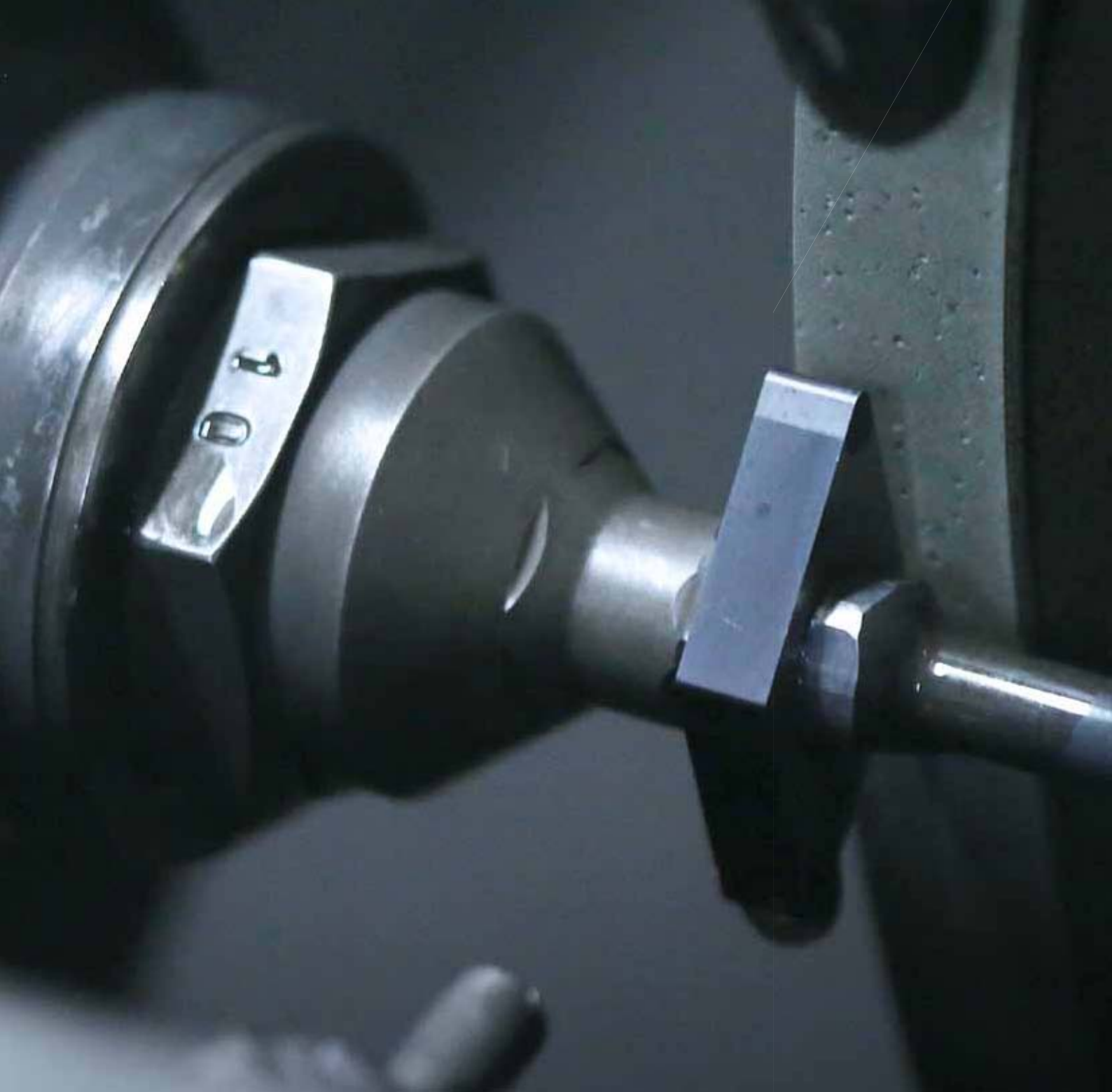


| Specification |

Application	Type	Mesh
Roughing (GL)	MD-1A1	D251~D151
Roughing (PL)	MD-BSL	D301~D151
Finishing	MD-1EE6Y	D46~D30
Polishing	MD-1EE6Y	D2

| Performance |





Periphery wheel
For inserts



Top & bottom wheel
For inserts



Top & bottom wheel
For inserts

EHWA industrial diamond wheels are widely used to grind various cutting tools. The cutting tools are classified by raw material type, such as high speed steel, carbon steel, ceramics, carbide, and PCD/PCBN tools, and EHWA products are often used to grind cemented carbide tools whose main raw material is tungsten.

Diamond grinding wheels for

Cutting tools



Hybrid wheel pack
For rotating tool



Precision wheel pack
For mirco rotating tool



Tool grinding wheel
For tip saw

Cutting tools

Insert · periphery wheel, top & bottom wheel



Periphery wheel
For insert



Top & bottom wheel
For insert

■ Insert grinding wheel

EHWA manufactures a full line of insert grinding wheels for carbide, ceramic, cermet and PCD/PCBN materials. These wheels are designed with the optimal specifications considering the cycle time and dressing intervals for optimum productivity. Their grinding performance is excellent, therefore, they produce uniform inserts with a superior finish and chip-free edge.

| Periphery grinding |

- Shorter cycle time by high feed rate
- Small chip size
- Longer dressing intervals
- Machine : Agathon, Wendt, Waida, Ewamatic and Ewag

| Top & bottom grinding |

- Shorter cycle times
- Longer dressing intervals
- Improved dimensional stability
- Machine : Stahli, Peter Wolters, Wendt WBM, Agathon T&B and Fujisanki

| Bond table by application |

Product		Low content —————→ High content						
Periphery	PCD	Bond hardness weak			VDGF		Bond hardness strong	
	PCBN				VHGN			
		High performance resin					Hybrid	
	Carbide				BXT	SA2	XA20	BMX series
	Cermet				SA4			
	Ceramic	BXB	BXC			RM series		
Top & bottom		Standard resin				High performance resin		
	Carbide				BQ / BG			
	Cermet	B32			BXCM		BXS4	SA5
	Ceramic	B26						

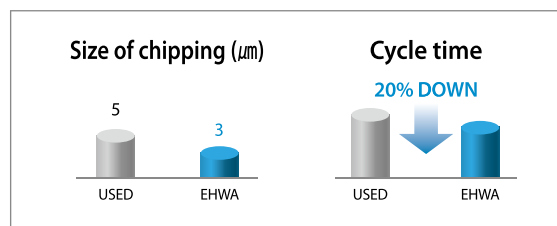
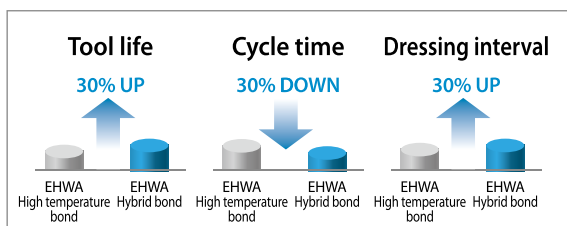


■ Periphery grinding

High temperature polyimide bond is commonly applied for periphery grinding. Recently, hybrid and soft-metal bonds are the new trend for reduced cycle time, smaller chip size, and better dimensional stability and productivity.

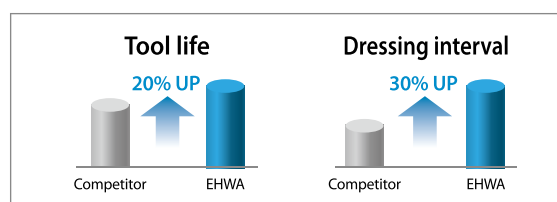
- **Machine :** Wendt 715 WAC Quattro
- **Workpiece :** Carbide insert
- **Wheel speed :** 20 m/s
- **Wheel spec :** RD-11A2, 400D-39T-10W-6X-355.06H
- **Bond :** D46 High temperature resin bond & D40 Hybrid bond

- **Machine :** Agathon
- **Workpiece :** PCBN Insert
- **Wheel speed :** 18 m/s
- **Wheel spec :** VD-11A2, 400D-39T-15W-6X-355.06H
D6M120VHGN



■ Top & bottom grinding

- **Machine :** Wendt WBM221-Duo Lift
- **Wheel :** RD-2A2T, 501D-5X-40W, D126BXS4
- **Workpiece :** Various carbide inserts
- **Oil coolant**



Cutting tools

Rotating tool



Hybrid wheel pack
For rotating tool



Precision wheel pack
For micro rotating tool

■ Polyimide bond

Thermal stability of polyimide bonds is better than phenol or epoxy bonds, therefore, their grinding performance and wheel life are better than phenol and epoxy bonds.

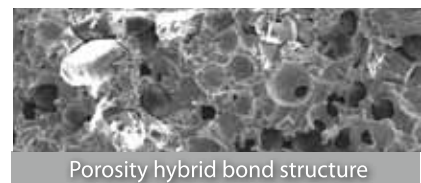
■ Hybrid bond

Hybrid bond, a combination of polyimide and metal bond, are able to meet more challenging requirements as this bond has the best advantages of both polyimide and metal bond :

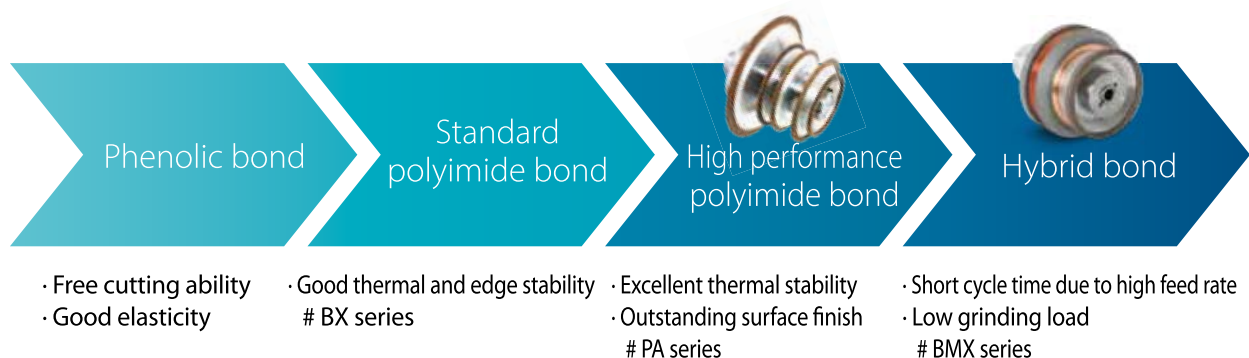
Polyimide's good grinding performance and elasticity and metal bond high wear resistance and high thermal stability.

■ Porosity hybrid bond

This pore structure helps diamond protrusion and makes coolant flow easily. It also lowers the grinding load, and thereby increases the max allowable feed rate, which reduces cycle time.



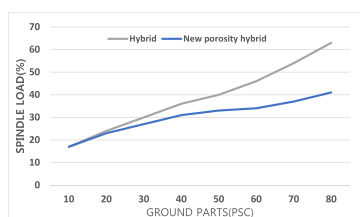
Porosity hybrid bond structure





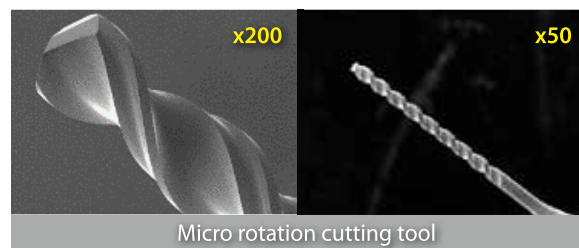
Drill & endmill

- **Machine** : ANCA FX7(19kW)
- **Material** : Carbide Φ 12–50mm(LOF), 2 Flutes (K10)
- **Wheel speed** : 18 m/s
- **Feed rate** : 120 mm/min
- **Depth of cut** : 2.4 mm



Precision cutting tool

- High Productivity at the lowest tool cost
- Greatly improved surface and edge quality
- Accurate edge stability



Tap



Rotary dresser



| Specification |

Type	
VB-1A1 (grinding)	R/D-RR(dressing)

Rotary burr



Workpiece



| Specification |

Type	Specification	Bond
MD-1V1	110D ~ 160D / 30V~60V	ME4 series

Cutting tools

Circular tip saw / hob cutter / broach



Tool grinding wheel
For circular tip saw

■ Circular tip saw

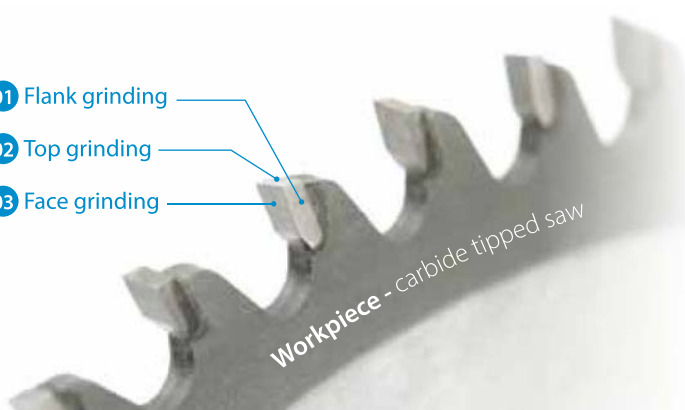
| Advantages |

- Longer life time
- Shorter cycle time
- Fine surface finish
- High dimensional stability

01 Flank grinding

02 Top grinding

03 Face grinding



Workpiece - carbide tipped saw

01 Flank grinding



02 Top grinding



03 Face grinding



Workpiece
high speed steel saw blade

Profile grinding





| Profile grinding of high speed steel saw blade |

• Wheel specification : RB-14F1/S, CBN107

Type	D	x1	x2	U	Bond type
RB-14F1/S	150	6	8	1,1.3, 1.6, 2, 2.5	Hardend resin bond
		6	10	3	
		8	12.5	3.5	
		8	12.5	4	
		10	15	5, 6	
	200	6	8	1, 1.3, 1.6, 2, 2.5	
		6	10	3	
		8	12.5	3.5	
		8	12.5	4	
		10	15	5, 6	

■ Hob cutter



■ Broach





Vitrified wheel
(CFRP body)
For artificial knee joint



Vitrified wheel
(Al alloy body)
For artificial knee joint



Vitrified wheel
(Steel + Al body)
For artificial knee joint



Electroplated wheel
(Steel + Al body)
For artificial knee joint

Superabrasive wheels are new trend
for this rapidly developing industry.

Diamond wheels for **Medical**



Rotary dresser
For artificial knee joint



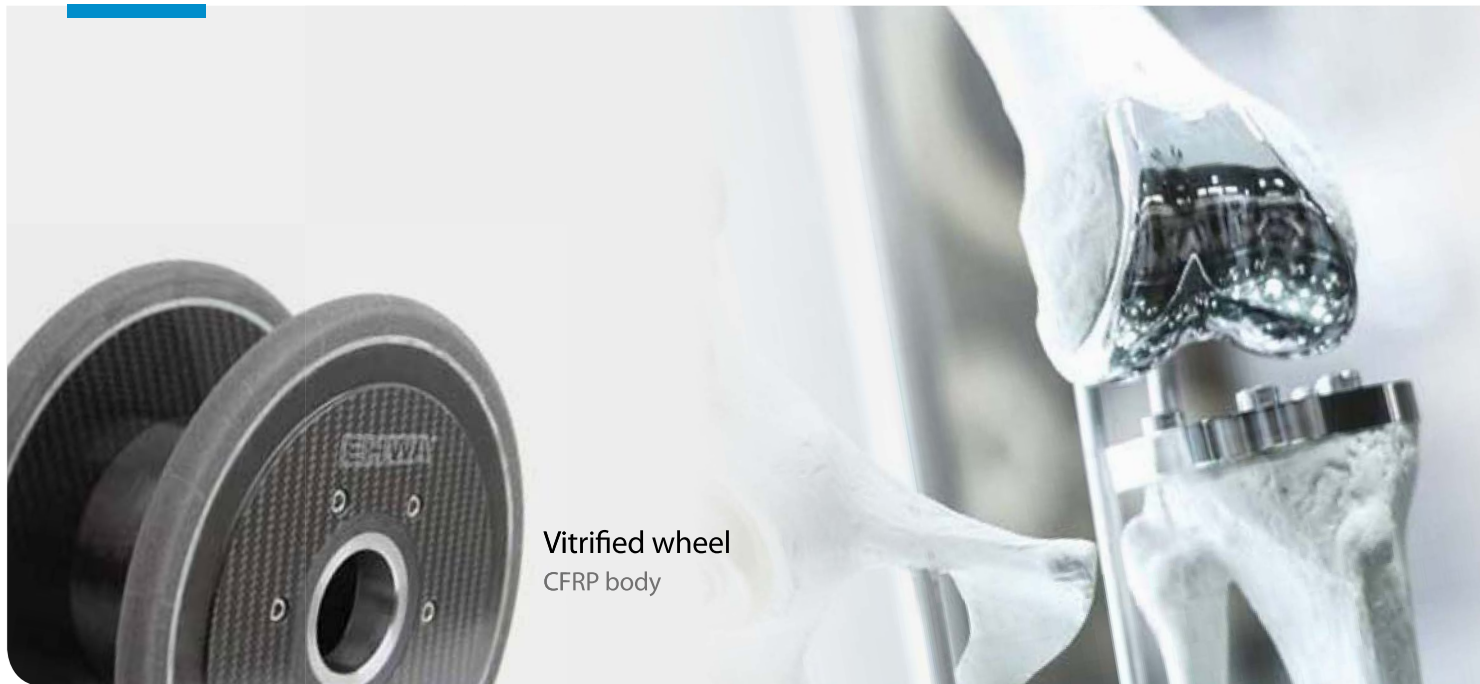
Wire grinding wheel
For medical wire



**Electro chemical
grinding wheel**
For needles(SUS,SUS304)

Medical

Artificial knee joint



Vitrified wheel / CFRP body



Vitrified wheel / Al alloy body



Vitrified wheel / Steel + Al body



Electroplated wheel / Steel + Al body



Rotary dresser
For artificial knee joint



| Features |

- Ideal for artificial knee joint grinding application
- High stock removal
- Well balanced for high speed operation
- Longer dressing interval & wheel life
- Excellent grinding performance and good surface quality



Rotary dresser

Standard dimensions for artificial knee joint grinding

Item	Wheel size	Specification
Vitrified CBN	VB-14F1, 250D-120T-20X-16U-8R-51H,	B252L150VBW
	VB-14F1, 240D-120T-20X-18U-10R-51H	B252L150VBW
Diamond rotary dresser	ROTARY-RP 98D-25T-10R-25H	
	ROTARY-IP1, 175D-2R-22T-52H	
Electroplated CBN	EB-1FF1, 200D-120T-20U-12R-51H	B427
	EB-1FF1, 200D-120T-12U-6R-51H	B252,B301
	EB-1FF1, 160.45D-16T-8R-20H B427	B427

Medical

Medical wire



Wire grinding wheel
For medical



Wire grinding wheel / For medical wire

| Advantages |

- Low pressure & free cutting performance
- Excellent surface quality of wire
- Long wheel life & cost saving
- Well balanced wheel



Workpiece
Medical wire

Wire grinding wheel / For medical wire

| Advantages |

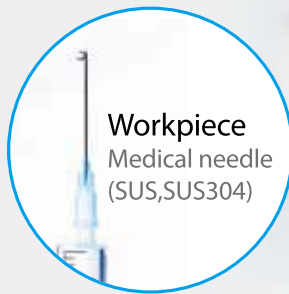
- Very straight face with a sharp edge
- Low cutting force & free cutting wheel
- Excellent surface quality of wire



Workpiece
Medical wire

Medical

Medical needle



Workpiece
Medical needle
(SUS,SUS304)

Electro chemical grinding wheel
For medical needle (SUS,SUS304)



- Electrolytic polishing wheel for hypodermic needle.

| Standard dimensions |

Type	Specification	Bond
MB-1A1	204D-3T ~ 15T	
MB-3A1	204D-1U~2.9U	

| Features |

- Low cost per part
- Increased stock removal
- Superior surface quality (burr free)
- Consistant grinding performance

Comparison of surface quality



Conventional wheel (burr)



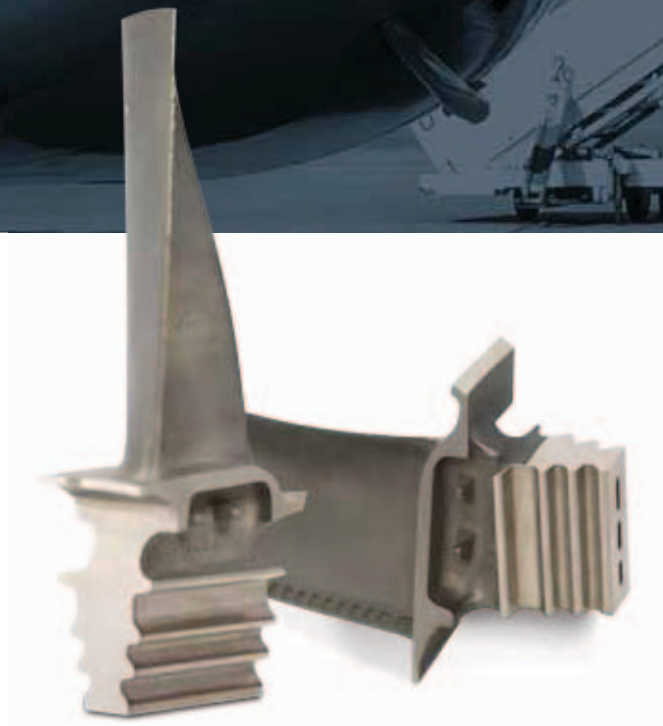
EHWA ECG wheel (burr free)



Rotary dresser for
Turbine



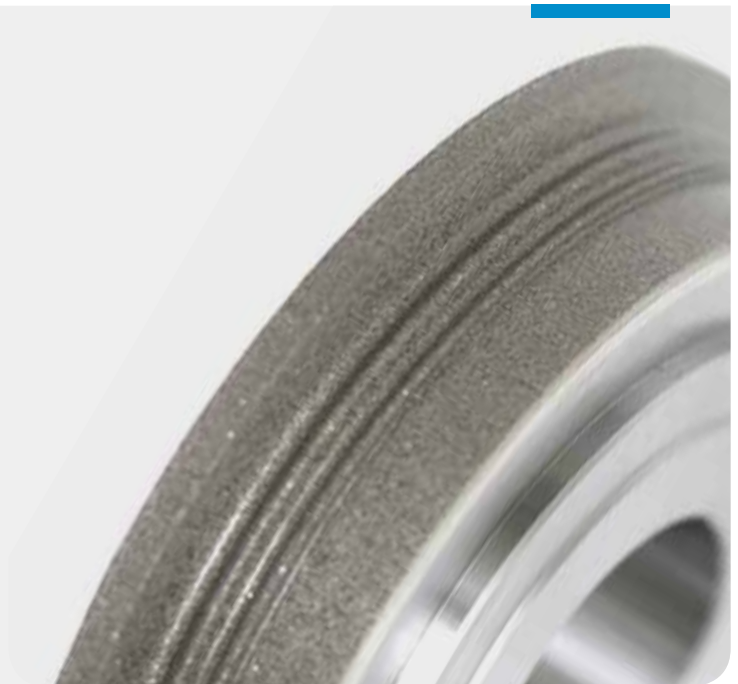
Rotary dresser
For turbine blade



Rotary dresser **Turbine blade**



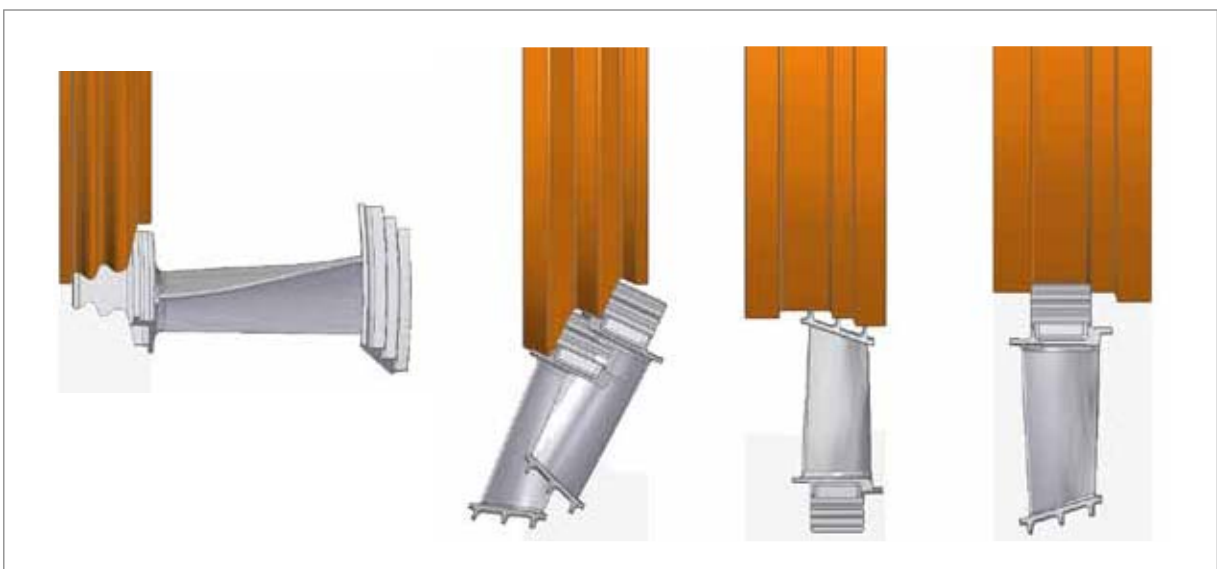
Rotary dresser
For turbine blade

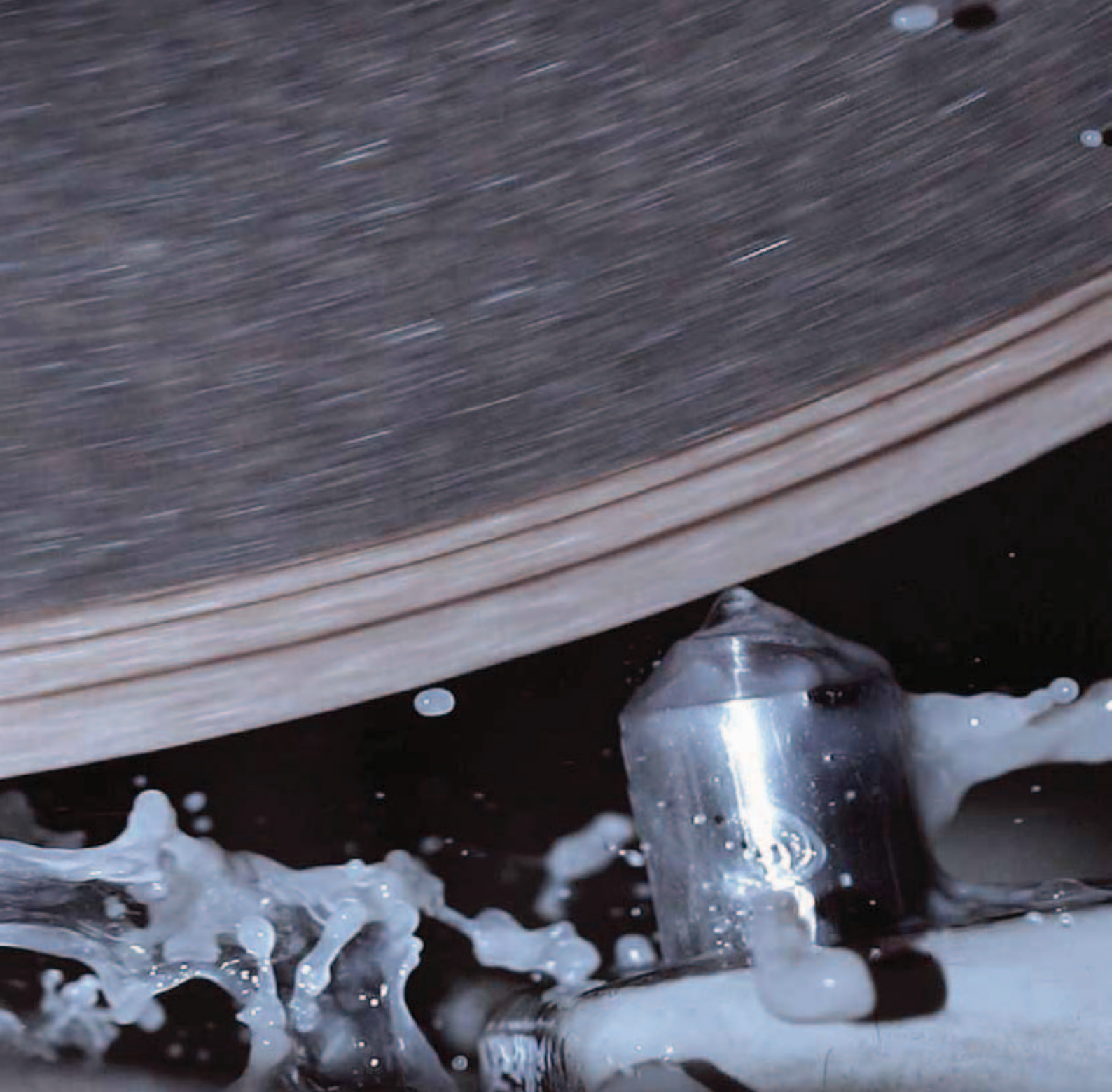


- **Turbine blade** : Aerospace turbine, power generator turbine & shipbuilding turbine

| Advantages |

- Custom roll design based on work piece
- Superior tool life and tool precision
- Stable dressing performance in creep feed grinding





Material for dresser

* SDD(Single-point Diamond Dresser), FDD(Forming Diamond Dresser),
MDD(Multi-point Diamond Dresser), IDD(Impregnated Diamond Dresser)



Natural diamond

· Application : SDD, FDD, MDD, IDD



Mono diamond

· Application : SDD, FDD, MDD
· Almost same properties as natural diamond



CVD (Chemical Vapor Deposition)

· Application : SDD, FDD, MDD
· Almost same properties as natural diamond

Stationary dresser

For conventional abrasive wheel

Type of dresser



SDD

Single-point Diamond Dresser



FDD

Forming Diamond Dresser



MDD

Multi-point Diamond Dresser



IDD

Impregnated Diamond Dresser

Conventional abrasive wheel

Stationary diamond dresser



Diamond Dresser
Natural, synthetic diamond

Dresser recommendations for abrasive wheel type

* SDD(Single-point Diamond Dresser), FDD(Forming Diamond Dresser), MDD(Multi-point Diamond Dresser), IDD(Impregnated Diamond Dresser)

Straight
SDD, MDD, IDD



Tapered
SDD, MDD, IDD



Convex
SDD, FDD, MDD



Concave
SDD, MDD, IDD



Angled
FDD, MDD



Multi-angled
FDD, MDD





Dresser recommendations for abrasive wheel

Type	Applications	Note
SDD	For conventional abrasive wheels with straight shape, simple profile, thread and gear grinding	Classified by carat (Size range : 1/30~1.5CT)
FDD	For conventional abrasive wheels with simple and complex profile, thread and gear grinding	Classified by shape of angle and radius (Roof, Chisel, Cone)
MDD	For conventional abrasive wheels with straight shape and precise, complex profile grinding Ideal for precise angular profile	Classified by the number of diamond rods and types (available rods : 2~10)
IDD	Ideal for dressing large and wide conventional abrasive wheels. For dressing conventional surface and center-less abrasive wheels.	Classified by grit size (available mesh : #18~#140)