



BAY UNION

SINCE 1987

GRINDING WHEEL SERIES

BAY UNION

ABRASIVE TECHNOLOGY



We believe that helping partners achieve their goals makes the world a better place.

Bay Union Abrasive Technology Co., Ltd. was founded in 1987. We have focused on producing vitrified bonded grinding wheels for many years. Bay Union has advanced vitrified bonds and special self-developed equipment, so we can supply high quality grinding wheels in a very fast and steady way.

High performance, High-quality stability, and Fast delivery are our strength, and that is why we can expand very fast in the high precision grinding market in Taiwan.

In order to satisfy customer's needs, Bay Union is promoting standard series whether for applying Profile grinding (Gear, Bearing...), Surface grinding, Cylindrical grinding and Internal grinding, we can have a faster way in selecting suitable products for your application accordingly.

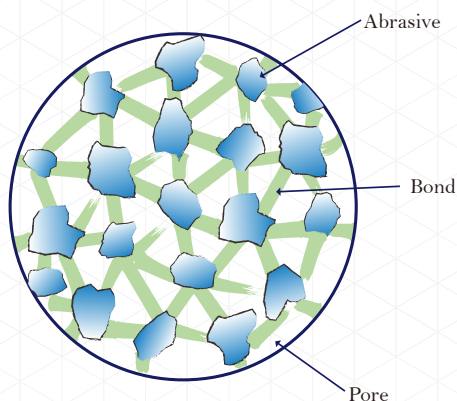


Three Key Elements of Grinding Wheels

Grinding wheels are commonly used tools for metal grinding, and the performance and grinding parameters are often highly related to three important factors: Abrasive, Bond, and Pore.

Abrasive

Abrasives are the cutting edges in a grinding wheel. The choice of abrasive directly impacts the wheel's grinding performance and efficiency. The type of abrasive, its crystal shape, volume percentage, and uniformity all play crucial roles. Uniform distribution of abrasives ensures consistent cutting edge distance, and adjusting this distribution can achieve different grinding effects.



Bond

Bond is another crucial element of a grinding wheel. It affects the wheel's hardness, strength, and grinding behavior. Common bonds include vitrified bond, resin bond, and metal bond (sintered or electroplated). Choosing the right bond for specific application conditions ensures stability and longevity of the grinding wheel.

Pore

In a grinding wheel, besides the space occupied by abrasives and bonds, the remaining space consists of porosity. The pores in a grinding wheel help expel metal debris, allow grinding fluid to reach hot spots, and improve heat dissipation. An appropriate increase in porosity can also enhance the grinding feed rate.

Pore : H2 H4 H6
 (Small) (Medium) (Large)

Generally, only vitrified bonded wheels develop natural porosity due to the high-temperature sintering process that burns off organic materials. Metal bonded wheels can introduce some porosity through the addition of vitrified bond and pore-forming agents, while resin bond and electroplated wheels do not typically have pores.

Vitrified bonded CBN Wheel

CBN grinding wheel is a type of grinding wheel that uses **Cubic Boron Nitride** as abrasive. Its features are as follows

High hardness

CBN grinding wheel has a much higher hardness than conventional grinding wheels, so it can more effectively remove materials with high hardness, such as high-speed steel, alloy steel, and bearing steel.

High thermal stability

CBN grinding wheel has high thermal stability, and can be used for a long time in high-temperature environments without losing its strength, making it an ideal grinding wheel for processing high-hardness materials.

High precision

CBN grinding wheel can achieve high-precision grinding, with good surface roughness and high profile quality of the workpiece.

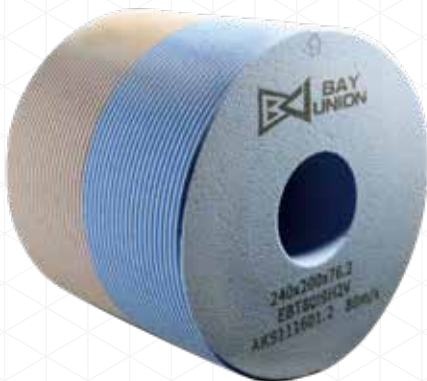
Long life time

Due to the high hardness of CBN grinding wheel, its service life is long and can be several times that of conventional grinding wheels.

BAYUNION can highly customize CBN grinding wheels to meet your grinding needs, greatly improving grinding efficiency and extending the life of the grinding wheel.

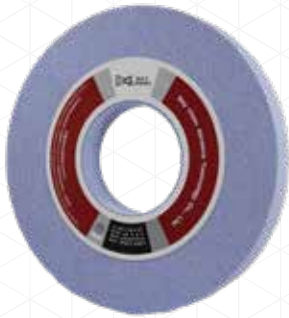


Continuous Generating Grinding



Bay Union utilizes high-quality microcrystalline abrasives to design the EBT/BFW/GFW series of continuous generation grinding wheels. These wheels are capable of overcoming challenges associated with surface hardening treatments on gears. They enhance gear grinding efficiency, reduce wheel wear, and extend tool life. The stability of gear profiles achieved with these wheels results in significant improvements in transmission performance, including reduced friction losses, higher transmission efficiency, and longer service life.

BF Surface Grinding Wheel



- . Ceramic aluminum oxide (SG grain)
- . Maximum grinding performance
- . Excellent form holding & Longer tool life
- . Versatile on a wide variety of steels

PP Internal Grinding Wheel



- . Special ceramic aluminum oxide
- . High grinding material removal rate
- . Good heat discharge
- . Suitable for hardened steels

CKS Cylindrical Grinding Wheel



- . Highly versatile
- . Ruby aluminum oxide
- . Tougher abrasive than WA grain
- . Suitable for high-alloy steels and stainless steel 400 series

GF Cylindrical Grinding Wheel



- . White aluminum oxide with green bond
- . Fast cutting
- . Good form holding
- . Suitable for all kinds of steels

Application Features

Internal Grinding

Series	Features	Branch	Feeding		Dimension ratio	
			Auto	Semi-auto	Wheel OD V.S. Workpiece ID	Wheel thickness V.S. Workpiece Length
PP Series	High stable removing rate SUJ2, Composite material HRc50~63	PPW	○	★	1 : 2	1 : 3~0.8
		PP	★	▲	1 : 1.8	1 : 1.5~0.8
BF Series	SG grain/Longer wheel life time General Steels and Alloy SCM440, S45C, SCr420	BFS	★	○	1 : 1.5	1 : 2.5
		BFU	○	▲	1 : 1.5	1 : 2

Cylindrical Grinding

Series	Features	Branch	Feeding		Lubricant	
			Auto	Semi-auto	100% synthetic	Semi-synthetic
PP Series	High density alloy grinding Cold Forging / Hot Forging / SKH / SKD	PPW	★	○	★	○
CK Series	Blend of special abrasives SKD / SUJ2 /General Steels and Alloy	CKL	○	★	○	○
		CKS	○	▲	▲	○
GF Series	General Steels and Alloy S45C / SCr420 / SNCM	GFV	★	○	○	○
		GF	○	○	○	▲

Surface Grinding

Series	Features	Branch	Feeding		Lubricant	
			Auto	Semi-auto	Dry	All types
BF Series	SG grain/Longer wheel life time General Steels and Alloy HRc40~60	BFM	○	★	★	○
		BFV	○	○	★	○
CK Series	Blend of special abrasives STAVAX, SKH, SKD Over HRc55	CKQ	★	★	★	○
		CK	○	○	○	★

○ : Acceptable ▲ : Good ★ : Excellent

Rotary Diamond Dresser

Diamond dressers have a significant impact on gear grinding, with selection typically based on gear module and pressure angle, and advanced considerations involving wheel compatibility. Bay Union Grinding offers expert knowledge in wheel applications and recommends optimizing diamond dresser specifications according to the specific characteristics of different grinding wheels. This approach helps achieve maximum grinding efficiency, optimal surface finish, and extended tool life.

In addition to selecting the correct combination of diamond dressers and grinding wheels, Bay Union has a professional grinding application team that assists clients in finding the optimal grinding parameters and quickly implementing a comprehensive optimization process.



Dressing Type

Plunge Profiling

CNC Forming

Description	Plunge Profiling	CNC Forming
	Dress the grinding wheel to the specific external shape required by the workpiece design.	The dressing wheel can be shaped into various forms according to the CNC program.
Diamond Dressing Tool	<ul style="list-style-type: none"> Counter-mold tungsten sintering (manual arrangement) <small>edge CVD strengthening</small> Reverse mold nickel plating (manual arrangement/random arrangement) Positive mold nickel plating (random distribution) 	<ul style="list-style-type: none"> Counter-mold tungsten sintering (Grain diamonds arranged by hand) <small>edge CVD strengthening</small> Reverse mold tungsten sintering (CVD drill manual arrangement) <small>electroplating strengthening</small> Reverse mold nickel plating (manual arrangement/random arrangement) Positive mold nickel plating (random distribution)
Application	Fast dressing Mass production Low elasticity	Long dressing time small batch production High elasticity
Parameter	Grinding Speed V_c Dressing wheel speed V_r Speed Ratio Q_d Straight feed speed f_{rd} (feed per revolution) terminal dwell time T_s	Grinding Speed V_c Dressing wheel speed V_r Speed Ratio Q_d Dressing feed a_{ed} Lateral feed speed f_{ad} Overlap rate U_d




Your Best Grinding Choice!



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