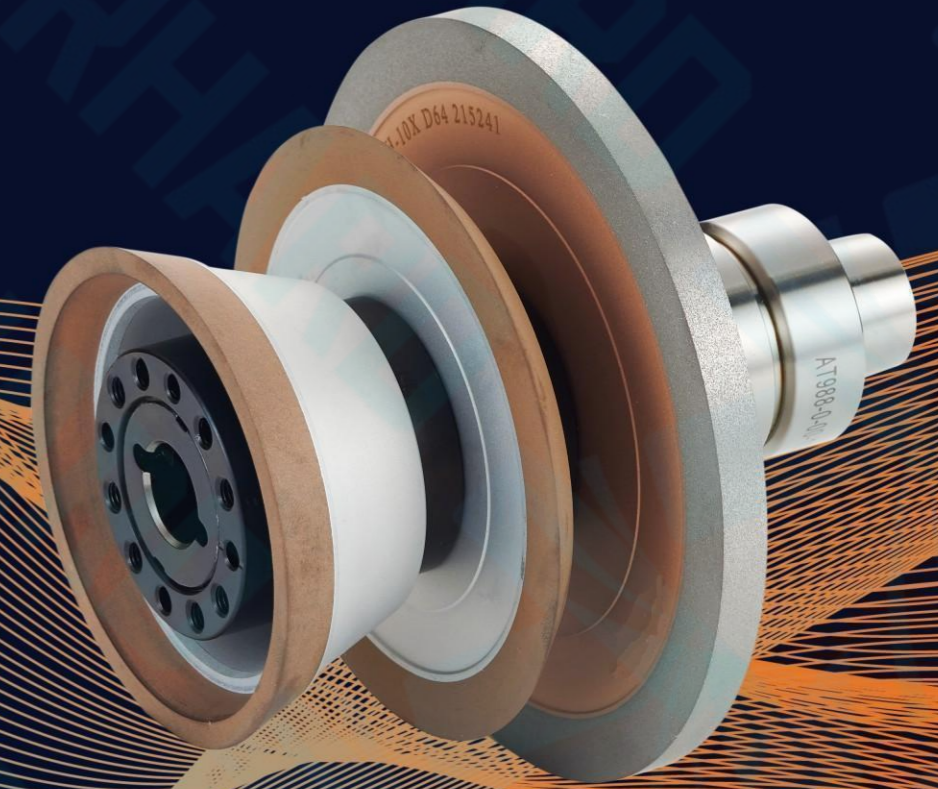
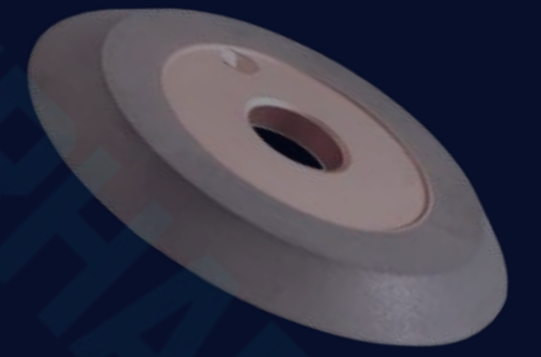
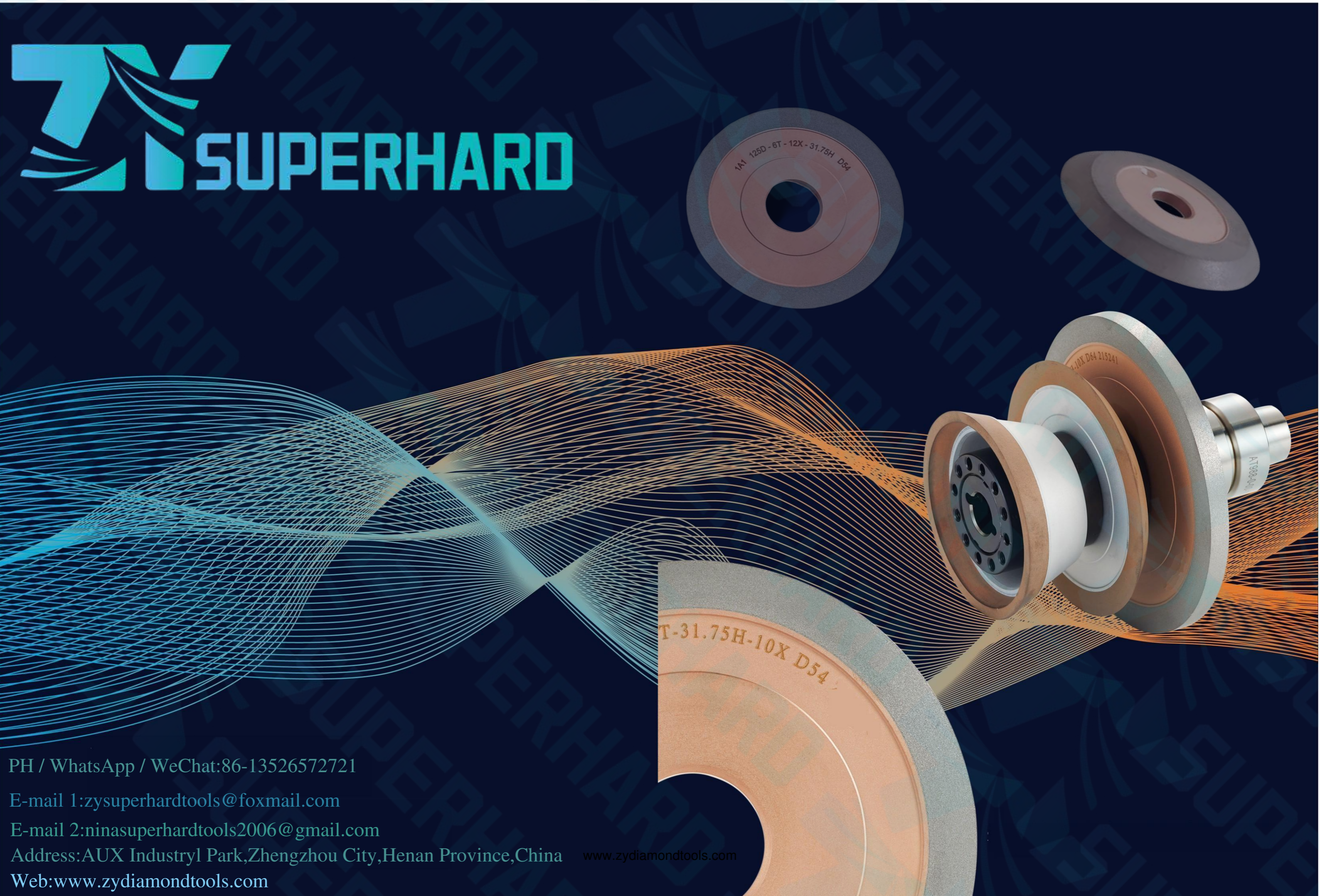


SUPERHARD



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E-mail 1:zysuperhardtools@foxmail.com

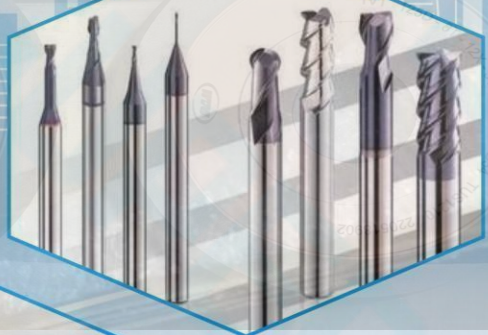
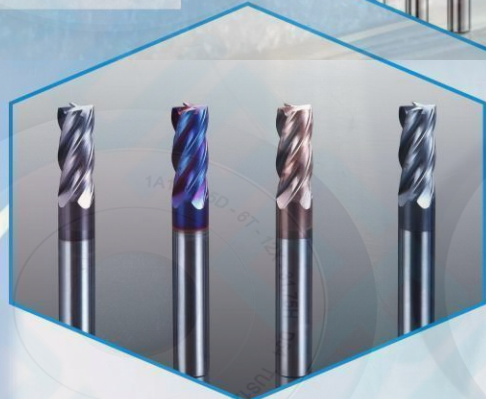
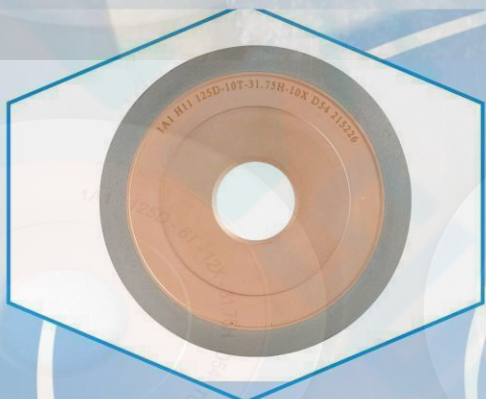
E-mail 2:ninasuperhardtools2006@gmail.com

Address:AUX Industryl Park,Zhengzhou City,Henan Province,China www.zydiamondtools.com

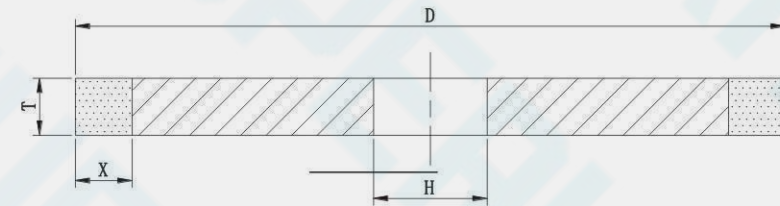
Web:www.zydiamondtools.com

CNC TOOLS GRINDING

Zhengzhou Zhong Yuan (ZY) Super Hard Tools is a service-oriented enterprise specializing in research, development, production, and sales of abrasive tools for super-hard materials. Our products mainly include resin bonds, metal bonds, ceramic/vitrified bonds, metal hybrid bonds, and other diamond, cubic boron nitride (CBN) precision grinding tools used in tool grinding, metal parts precision honing and grinding, hard and brittle materials (optical glass, ceramic, hard alloy, quartz, monocrystal silicon) precision processing, mainly involved in the cutting tool industry grinding, automobile engine manufacturing, air conditioning, and refrigerator compressor manufacturing, bearing grinding, hydraulic parts processing, motorcycle manufacturing, aerospace precision parts manufacturing and other industries.



1. 1A1- Grooving

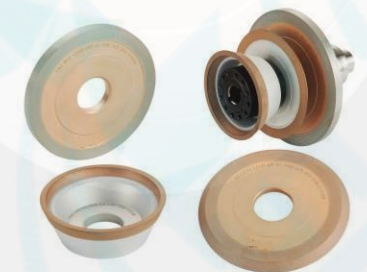


	D		T		X		Grit Size	
	mm	Inch	mm	Inch	mm	Inch	diamond	cbn
1A1	75	3	1-12	1/25-1/2	10	2/5	D64	B126
	100	4	1-16	1/25-2/3	10	2/5	D54	B91
	125	5	1-16	1/25-2/3	10	2/5	D46	B76
	150	6	2-16	1/12-2/3	10	2/5	D35	B54

Bond Model	Thickness (mm)	Wear resistance	Features
M	1-3	High	high retention, low feed, suit for small diameter cutting tools
N	4-12		high retention, better processing efficiency, suit for high-power spindle
H11	4-10		standard strength slotting, better retention and processing efficiency
H15	4-20		focus on processing efficiency and large diameter cutting tools processing
C	1-12, suggest 1-4		focusing on retention and surface quality
B	1-12, suggest 1-4	Low	focusing on sharpness and surface quality

Case 1; Grinding wheel specification: 1A1H11, Φ125
 Coolant: oil
 Grinding machine model: Schutte WU305
 Work-piece: Φ16 carbide drill bit
 Grinding parameters: Feed rate: 40 mm/min
 Cutting depth: 3 mm
 Line speed of grinding wheel: 19 m/s

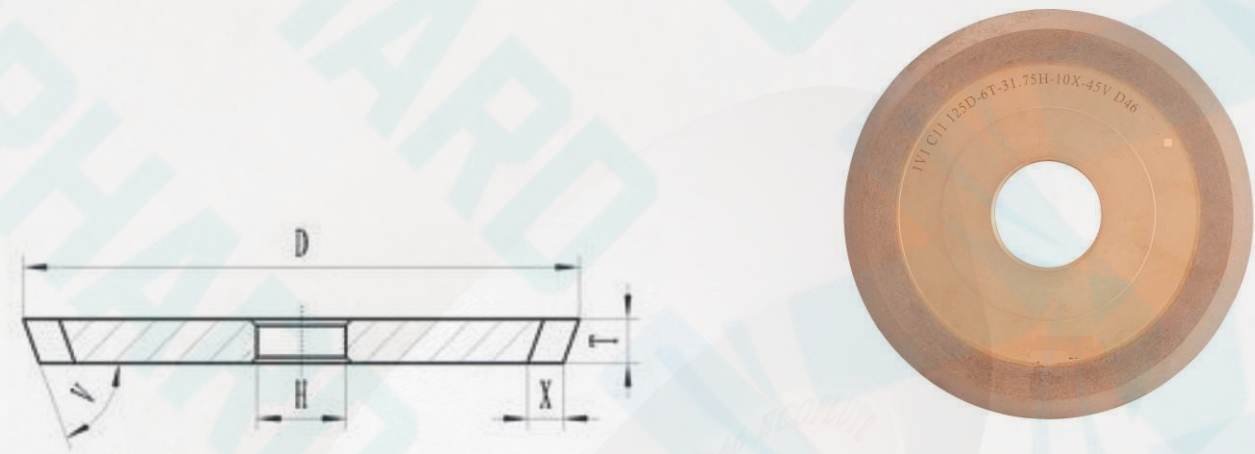
Case 2: Grinding wheel specification: 1A1H15, Φ125
 Coolant: oil
 Grinding machine model: Schutte WU305
 Work-piece: Φ16 carbide drill bit
 Grinding parameters: Feed rate: 50 mm/min
 Cutting depth: 4.6 mm
 Line speed of grinding wheel: 19 m/s



Our direction is to pursue excellence and quality first, reducing customer production costs, and providing subtle and thoughtful service

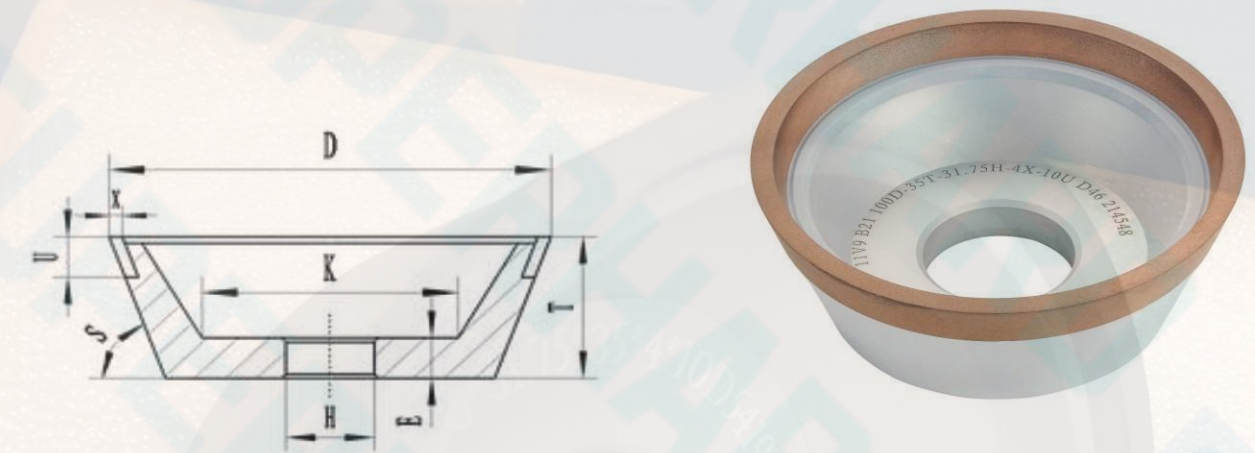
CNC TOOLS GRINDING

2. 1V1 / 3V1 - Relief Grinding ,Gear Backlash Grinding ,End Face Grinding



	D		T/U		X		V	Grit size	
	mm	Inch	mm	Inch	mm	Inch		diamond	CBN
1V1	75	3	1-12	1/25-1/2	3-12	1/8-2/5	30° -85°	D64	B126
3V1	100	4	1-16	1/25-2/3	3-10	1/8-2/5		D54	B91
	125	5	1-16	1/25-2/3	6-10	1/4-2/5		polishing	
	150	6	2-16	1/12-2/3	6-15	1/4-3/5		D35, D25	B54
							D20, D15	B16	

3. 11V9 - End Face Grinding,Peripheral Grinding

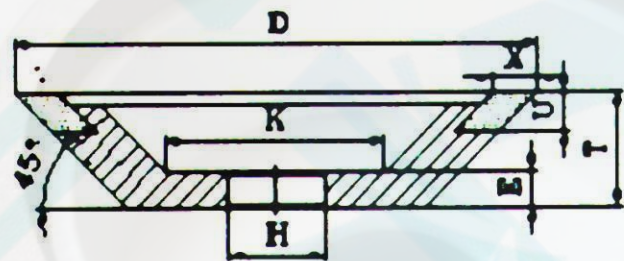


	D		T/U		X		V	Grit size	
	mm	Inch	mm	Inch	mm	Inch		diamond	CBN
11V9	75	3	25-40	1-8/5	3-10	1/8-2/5	70°	D64	B126
	100	4	25-40	1-8/5	3-10	1/8-2/5		D46	B91
	125	5	25-40	1-8/5	3-10	1/4-2/5	45°	D35	B76

Bond Model	Thickness (mm)	Wear Resistance	Features
N	4-12/V≥70°	↑ High ↓ Low	suitable for high-power spindle, high retention and focus on processing efficiency
H11	4-12/V≥70°		standard strength grooving, both retention and processing efficiency
H15	4-20/V≥70°		focusing on machining efficiency and large diameter tool machining
C Model	4-20/V≥70°		high energy resin binder, with emphasis on retention and surface quality
B Model	4-20/V<70°		standard binder, with emphasis on sharpness and surface quality

Bond Model	Angle	Wear Resistance	Features
H11	S=70°	↑ High ↓ Low	suitable for paying attention to high Angle retention
H12	S=70°		suitable for high Angle retention, slightly sharp
C Model	S=70°		emphasis on retention and surface quality
B Model	S=45° 或70°		standard binder, focusing on sharpness and surface quality

4. 12V9 - Relief Grinding ,Gear Backlash Grinding ,End Face Grinding



12V9	D		T/U		X		S	Grit size	
	mm	Inch	mm	Inch	mm	Inch		diamond	CBN
	75	3	20-30	4/5-6/5	3-5	1/8-1/5	45°	D76	B126
	100	4	20-30	4/5-6/5	3-5	1/8-1/5		D64	B91
	125	5	20-30	4/5-6/5	3-5	1/8-1/5		D46	B76
	150	6	20-30	4/5-6/5	3-5	1/8-1/5		D35	B46

Bond Model	Wear Resistance	Features
H11	↑ High Low	suitable for high retention
H12		suitable for emphasis on high retention, slightly sharp
C Model		emphasis on retention and surface quality
B Model		standard binder, focusing on sharpness and surface quality

5. 6V5 / 12V5 - Ball End Milling Cutter Forming



6V5 12V5	D		T/U		X		V	Grit size	
	mm	Inch	mm	Inch	mm	Inch		diamond	CBN
6V5	75	3	6-10	1/4-3/8	3-10	1/8-3/8	30° 45°	D76	B91
	100	4	6-12	1/4-3/8	3-10	1/8-3/8		D64	
12V5	125	5	6-12	1/4-3/8	6-10	1/4-3/8		D46	B46
	150	6	8-12	1/3-1/2	6-15	1/4-3/5		D35	B30
	200	8	10-20	3/8-3/4	6-15	1/4-3/5		D25	

Bond Model	Wear Resistance	Features
H11	↑ High Low	suitable for high retention
H12		suitable for emphasis on high retention, slightly sharp
C Model		emphasis on retention and surface quality
B Model		standard binder, focusing on sharpness and surface quality

FEPA type

Standard Shape		Common derived shape					
6A2		6C2		6V5		6Y2	
9A3		9A9					
4A2		4V2		1A2		1V2	
13A2		13V2		13BH2		4V5	
11A2		11C2		11V2		11V5	
11V9		15V9		11V9P			
4BT9		4B9		4B2		4ET2	
12V4		11V4					
14A1		14D1V		14A1Q		3A1	
1A1		1D1V		1Q1		1M1	
≥75mm							
14F1Q		1F1R		14F1		1P1	
14FF1		1FF1		1GG1		1DD1	
1A1W		1U1W		1DD1W			
1A1		1A8		6A9P			
<75mm							

FEPA type

Standard Shape		Common derived shape					
6A9		6V9		11A9		6A2P	
11VV2		3AA1		14AA1		6AA2	
10A2				10BH2		10V2	
12A2						12V2	
12V9				12V9P		10V9	
13V9				SHARK		4V9	
1A1R		1A1X		3A1R		14A1R	
14EE1		14EF1		1E1		14E1	
1V1		1VL1		1V1P		3V1	
1VF1		1S1		1VF1P		3VF1	
L						LG10	
PL				PMR		1PL	
1U1W				1EE1W		1R1W	

ISO 6106-2005 FEPA 2005

Below is the comparison table of diamond and CBN particle size distribution measurement. Each column shows the definition of superhard abrasive particle size according to the international standards of various countries

FEPA	America	Mesh	DIN
7	2500	-	7
10	2000	-	15
12	1500	-	
15	1200	-	
20	1000	-	
25	800	-	30
30	600	500/600	
35	500	400/500	35
46	400	325/400	
54	325	270/325	45 } 50
64	280	230/270	
76	220	200/230	60 } 70
91	180	170/200	
107	150	140/170	90 } 100
126	120	120/140	
151	100	100/120	120 } 150
181	80	80/100	
252	60	60/80	200/250
301	50	50/60	280
427	40	40/50	350
602	30	30/40	
852	20	20/30	
1182	16	16/20	

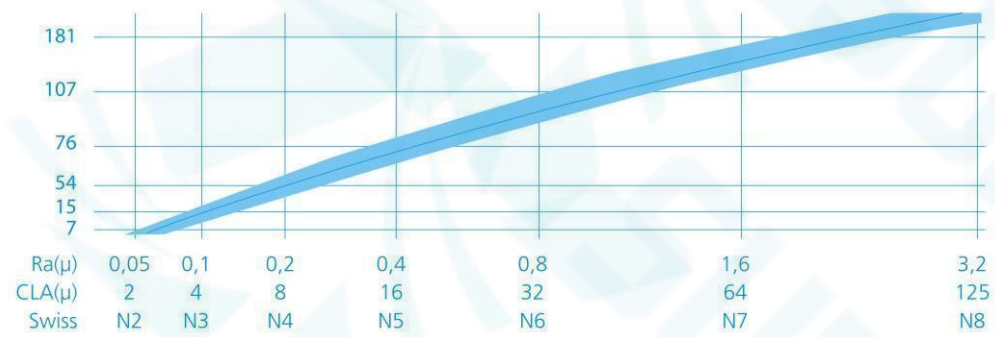
FEPA ISO6106-2005 standard, as recommended by the European Abrasive Manufacturers Association

MESH ANSI B74.16-2002 American Standard

DIN DIN 848-65 German standard

SIZE CLASS Symbolic description , means precision grinding

Grain Size- Roughness Comparison Table



Concentration of abrasive

Abrasive concentration is expressed as ct/cc and represents the ratio of abrasive weight to volume:

Concentration	35	45	50	68	75	90	100	125	150
Ct/cm ³	1,5	2,0	2,2	3,0	3,3	4,0	4,4	5,5	6,6

Schematic diagram

		Bond Model	D	T	H	X		Grit
1A1								
1V1			D	T	H	X	V	Grit
3A1			D	T	U	H	X	Grit
14A1			D	T	U	H	X	Grit
11V9			D	T	X	U	H	Grit
12V9			D	T	X	U	H	Grit