

pdtools
SUPERABRASIVES



**PRODUCT
CATALOG**

Dear Clients,
PrJSC «POLTAVA DIAMOND TOOLS» has been manufacturing diamond and CBN tools for different industries since 1966.

Our specialists have researched & developed many solutions in various industries for the processing of hard-to-machine materials: from hard metal and superalloys to glass, stone and concrete.

This catalog includes resin, metal and vitrified grinding wheels and dressing rollers in the most popular shapes and dimensions. This is small part of the company's total assortment of more than 20,000 items.

Products are manufactured in different quality lines, each product of which is specially designed for its application.

PREMIUM is high performance quality line of diamond and CBN grinding wheels specially designed for use on CNC machines and grinders. PREMIUM grinding wheels have long life time, high surface quality and high performance.

EXPERT - resin bonded diamond and CBN grinding wheels for various applications in manufacturing processes for CNC and semi-automatic machines. Wheels of EXPERT line have increased performance, tool life and surface quality comparing with STANDARD resin bonds.

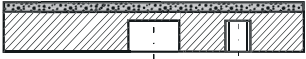
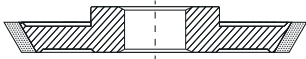
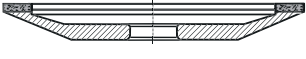
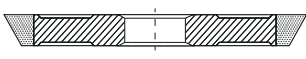
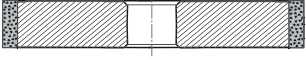
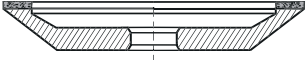
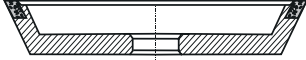
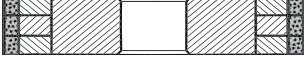
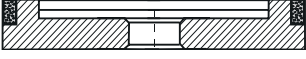
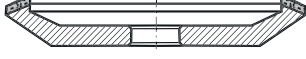
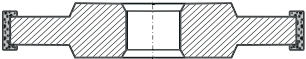
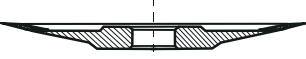
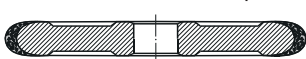
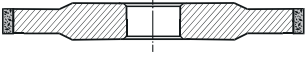
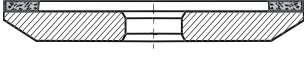
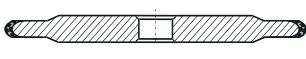
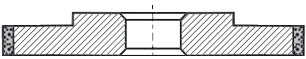
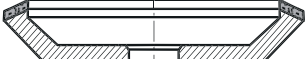
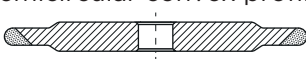
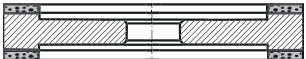
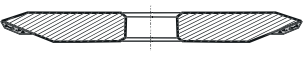

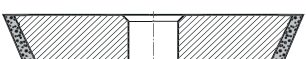

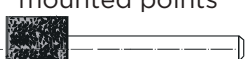
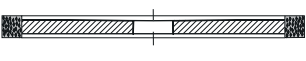
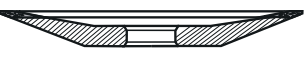

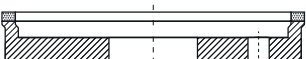
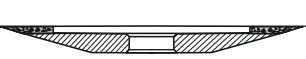

STANDARD resin, vitrified and metal bonded diamond and CBN grinding wheels are suitable for wide range of applications on various types of equipment. STANDARD wheels have high surface quality good tool life and good performance.

Thanks to innovative production technologies, we provide our customers with professional tools that provide clients maximum benefits. We guarantee the high quality of our products.

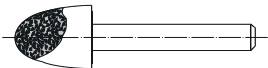
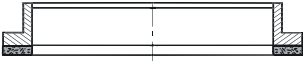

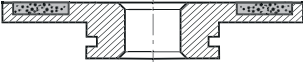
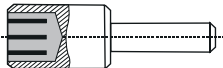
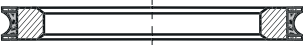
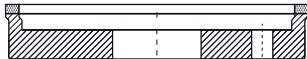

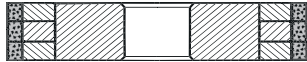
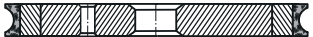


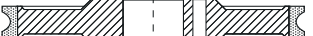


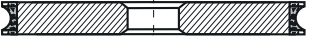
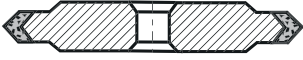
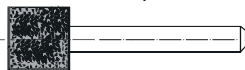
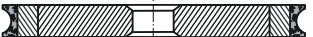
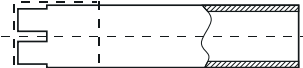
We look forward to cooperate with you!

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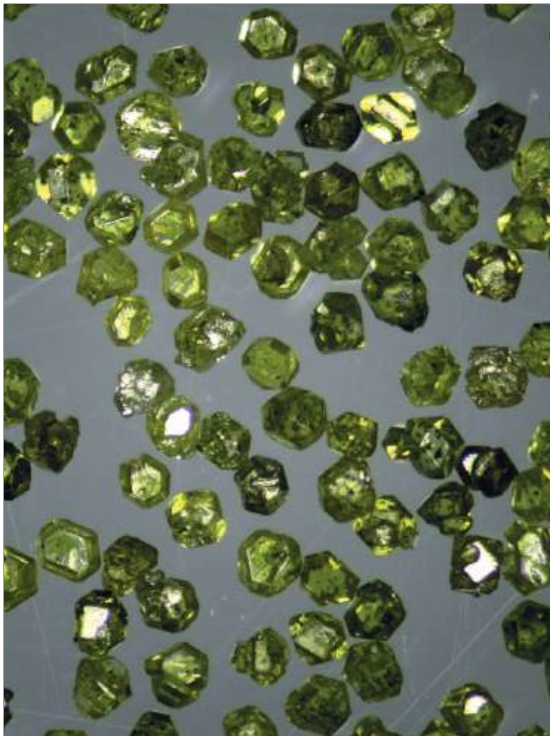
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APPLICATION OF DIAMOND TOOLS AND THEIR ADVANTAGES OVER ABRASIVE TOOLS



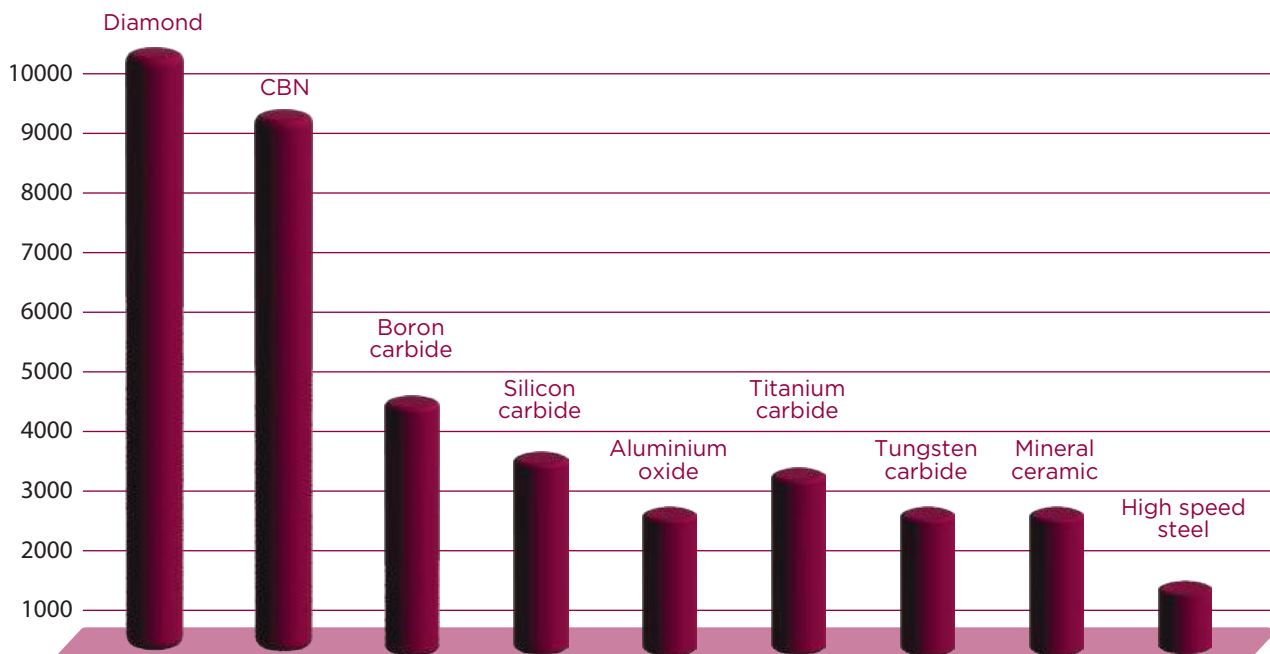
Applications of diamond tools

- Processing, sharpening and finishing of tools made of all alloy types. Sharpening and finishing of carbide tools. Processing and cutting of silicon, germanium and other semiconducting materials.
- Processing, cutting and finishing of tools made of ferrite, ceramic and glass materials.
- Processing of graphite and carbon rein-forced plastics. Processing and cutting of reinforced fiber glass plastics, fiberplastics.
- Finishing and polishing of precious stones.
- Cutting, finishing and polishing of artificial and natural stones.
- Processing of all types of decorative and technical glasses and porcelain. Cutting and processing of all types of refractory materials.

Advantages of diamond grinding tools over abrasive tools

- High wear resistance.
- Workpiece life longer after diamond tool profiling.
- Less thermal workpiece damage due to lower temperature in grinding zone. Longer lasting, hence reduced changeover times.
- Higher volumes at the same level of quality.

Physicomechanical characteristics of abrasive tool materials



GRAIN OF DIAMOND AND CBN POWDER ACCORDING TO INTERNATIONAL STANDARDS

FEPA Diamond CBN	ANSI B74-16 USA	GRIT	Ukrainian Standard DSTU 3292-95	GRIT SIZE CLASS
µm	mesh	GRIT	µm	
D851/B851	20/25	25	800/630	SPECIAL USE
D711/B711	25/30	30		
D601/B601	30/35	35	630/500	
D501/B501	35/40	40	500/400	
D426/B426	40/45	45	400/315	
D356/B356	45/50	50		
D301/B301	50/60	55	315/250	EXTRA COARSE
D251/B251	60/70	60	250/200	
D213/B213	70/80	70		
D181/B181	80/100	80		
D151/B151	100/120	100	160/125	COARSE
D126/B126	120/140	140	125/100	
D107/B107	140/170	170	100/80	
D91/B91	170/200	200	80/63	
D76/B76	200/230	230		
D64/B64	230/270	270	63/50	MEDIUM
D54/B54	270/325	325	50/40	
D46/B46	325/400	400		
M63/B63	500	500	60/40	FINE
M40/B40	550	550	40/28	
M30/B30	500/600	600		
M25/B25	650	650	28/20	
M20/B20	1 100	1 000	20/14	VERY FINE
M16/B16	1 500	1 500	14/10	
M10/B10	2 000	1 700	10/7	EXTRA FINE
M6.3/B6.3	3 000	3 000	7/5	
M4.0/B4.0	5 000	4 000	5/3	
M2.5/B2.5	8 000	5 000	3/2	ULTRA FINE
M1.6/B1.6	12 000	10 000	2/1	
M1/B1	60 000	15 000	1/0	

FEPA - ISO 6106-2005 standard, issued according to FEPA (Federation of European Producers of Abrasives) recommendations.

MESH - ANSI b74.16 American standard.

GRIT SIZE CLASS - it is an indicative description that refers to precision grinding.

CONCENTRATION OF DIAMOND GRAIN IN THE DIAMOND LAYER

The concentration of diamond grain is the content by weight of diamond in the diamond layer. The unit of weight for diamond grain is a carat (ct), 1ct=0.2 g. The diamond concentration is one of the most important characteristics of a diamond tool, determining its cutting ability, productivity, length of usage and cost. The choice of concentration depends on the type of tool, the form and size of the working surface, the diamond grit size, the wear-resistance of the bond, and the conditions in which the tool will be used.

Diamond concentration by weight in the diamond layer					
Diamond concentration	25%	50%	75%	100%	150%
Diamond weight in carats per 1 cm ³ of the diamond layer, (ct/cm ³)	1,1	2,2	3,3	4,4	6,6

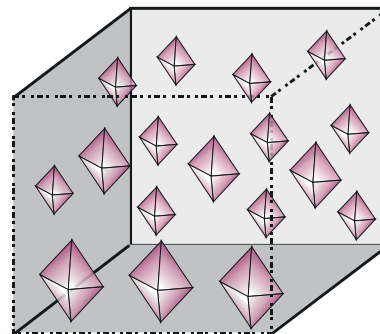
Diamond content by volume in the diamond layer (%)					
Diamond concentration weight	25%	50%	75%	100%	150%
Diamond volume in the diamond layer (%)	6,25	12,5	18,75	25,0	37,5

The following are guidelines for the choice of diamond concentration in the diamond layer:

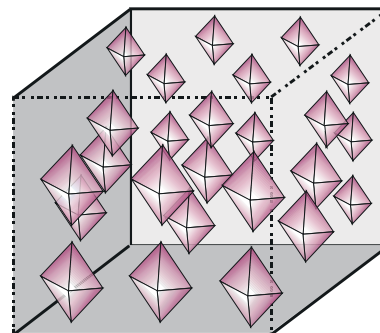
- for a small contact surface between the grinding wheel and the workpiece, for example as in circular grinding, a high diamond concentration should be chosen. This provides higher wear resistance for the wheel, even at high loads.
- a large contact surface necessitates lowering the grinding temperature and the grinding intensity. In this case a lower diamond concentration should be used.

Wheels are produced with diamond concentrations of 25%, 50%, 75%, 100% and 150% (It is possible to produce wheels with other concentrations if needed by the customer.)

Low concentration of diamond grain



High concentration of diamond grain

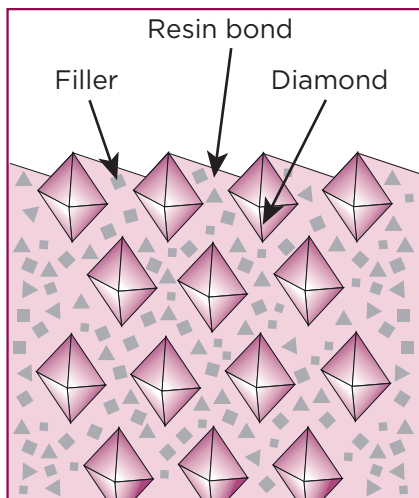


Grinding with and without coolant

Grinding with coolant is to be preferred, since the grinding wheel is subject to less wear and can be used under more demanding conditions, thus increasing grinding productivity. In addition, the probability of thermal damage to the workpiece (the appearance of burn marks) is reduced. Liquid coolants are recommended as coolants for diamond grinding wheels.

BOND TYPES FOR DIAMOND TOOLS

Resin Bond, Metal Bond, and Electroplated Diamond Tools



Resin bond

Structure of the diamond layer:

- Diamond.
- Resin bond.
- Filler.

Characteristics:

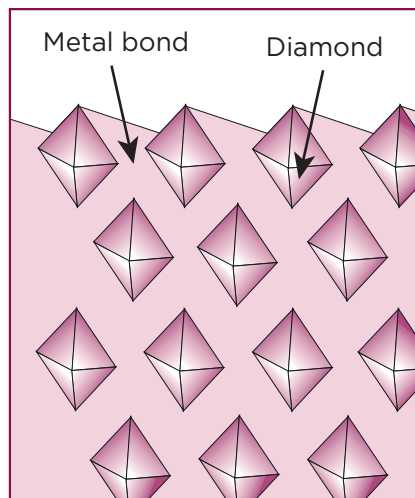
- Relatively low bond hardness.
- High removal productivity. Reduced work time.
- Low thermal conductivity and thermal stability.

Application:

Resin-bond wheels are used for fine and finishing operations, the fine sharpening and finishing of tungsten carbide cutting tools and superabrasive materials, and fine grinding and finishing of measuring and medical tools and workpieces of hard materials.

Grit size range:

D213 to D46 M63 to M6.3



Metal bond

Structure of the diamond layer:

- Diamond.
- Metal bond.

Characteristics:

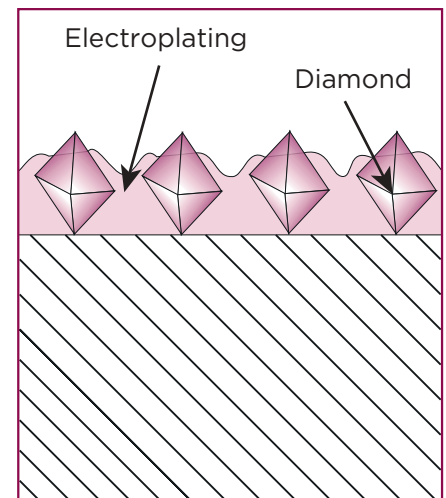
- High removal productivity.
- Significant bond hardness.
- Reduced work time.
- High thermal conductivity and thermal stability.

Application:

Metal bond wheels are used in preliminary operations that require the removal of material with relatively large tolerances, the sharpening of tungsten carbide tools, the grinding of tungsten carbide workpieces, profile grinding, cutting and grinding workpieces of specialty ceramics and hard to machine materials.

Grit size range:

D251 to D46 M63 to M6.3



Electroplated

Structure of the diamond layer:

- Diamond.
- Electroplating.

Electroplated diamond wheels are characterized by a single or multiple-layer diamond and nickel coating on a supporting metal body. The separate diamond crystals are connected by a layer of nickel, the thickness of which is about 2/3 that of the grain. Thus the diamond is reliably fixed but protrudes well beyond the surface of the electroplating, thus allowing for the removal of shavings.

Characteristics:

- High cutting ability.
- Can be made in any shape..
- Relatively low cost.
- High thermal conductivity.

Application:

Electroplated wheels and tools are used for cutting and grinding silicon, germanium and other semiconductor materials, glass-ceramics, various types of technical glass, texturing of stone. Electroplated tools are widely used in the production of mounted diamond wheels and points, various forms of lapping tools, the production of hand tools for finishing tungsten carbide dies, die and alloy steels.

Grit size range:

D251 to D46 M63 to M30

CHOICE OF GRIT SIZES FOR WHEELS USED TO GRIND AND SHARPEN TUNGSTEN CARBIDE

Type of Bond	Recommended range of Grit sizes	Roughness of workpiece surface, Ra, µm		
		For face grinding and sharpening	For flat grinding	For circular grinding
Resin bond				
Resin	D213-D107	0,63-0,16	1,0-0,32	1,0-0,32
	D91-D46	0,32-0,16	0,63-0,20	0,63-0,20
Resin (coated diamond)	D126-D46	0,32-0,10	0,63-0,16	0,80-0,20
Resin (non-coated diamond)	D126-M16	0,32-0,05	0,50-0,10	0,63-0,125
Metal bond				
Metal (high productivity)	D213-D126	1,0-0,32	1,25-0,63	1,25-0,63
	D107-D91	0,50-0,16	1,0-0,32	1,25-0,40
	D64-D46	0,32-0,16	0,63-0,16	0,63-0,32

BOND TYPES AVAILABLE FOR SUPERABRASIVE WHEELS AND TOOLS

Bond name	Product line	Recommendation for usage	Recommended grinding depth per 1 pass, mm
PREMIUM is high performance quality line of diamond and CBN grinding wheels specially designed for use on CNC machines and grinders. PREMIUM grinding wheels have long life time, high surface quality and high performance			
Resin bonds of Premium line for sharpening of tungsten carbide and steels on CNC grinders			
B9-00	PREMIUM	High-performance tool sharpening on all wheel shapes, mainly on CNC machines with coolant, mainly oil, but also works well with emulsion. The bond has sufficient edge resistance and performance / durability ratio.	0,06-0,15
B7-00	PREMIUM	High-performance tool sharpening on all wheel shapes, mainly on CNC machines with coolant, mainly oil, but also works well with emulsion. The bond has good edge resistance and higher lifetime than 89-00 bond.	0,06-0,15
Resin bonds of Premium line for tungsten carbide and HSS tools production on CNC grinders			
B6-02	PREMIUM	High-performance, wear and edge resistant bond for diamond with high demand of processed surface. Designed for wheels with angular and radial working layers. Has high cutting ability.	0,05-0,3
B6-04	PREMIUM	High-performance, wear and edge resistant bond for CBN with high demand of processed surface. Designed for wheels with angular and radial working layers. Has high cutting ability.	0,05-0,3
HSS01	PREMIUM	Used for sharpening and production of HSS saw blades for 14F1 CBN wheels. For CNC machines with coolant	
Resin bonds of Premium line for flat and cylindrical grinding of tungsten carbide and HSS on CNC grinders			
B1002	PREMIUM	For cylindrical and flat grinding of tungsten carbide and HSS with coolant for 1A1 and 14A1 wheels.	0,005-0,05
B1003	PREMIUM	For cylindrical and flat grinding of tungsten carbide and HSS with coolant for 1A1 and 14A1 wheels. Has better surface roughness and lifetime than B1002.	0,005-0,05

BOND TYPES AVAILABLE FOR SUPERABRASIVE WHEELS AND TOOLS

Bond name	Product line	Recommendation for usage	Recommended grinding depth per 1 pass, mm
Premium metal bonds for glass beveling and edge processing			
GI101	PREMIUM	GI101 bond is the solution for glass beveling and used on 6A2 shape. This bond has increased wheel life and grinding performance comparing with M2-01, M-300, M3-04 and other STANDARD metal bonds.	0,3-1,5
GI201	PREMIUM	GI201 bond is the solution for glass edging (flat, pencil, radius and other types) and used on 1F6V, 1DD6V shapes. This bond has increased wheel life and grinding performance comparing with M2-01, M-300, M3-04 and other STANDARD metal bonds.	0,3-1,5
EXPERT resin bonded diamond and CBN grinding wheels for various applications in manufacturing processes for CNC and semi-automatic machines. Wheels of EXPERT line have increased performance, tool life and surface quality comparing with STANDARD resin bonds.			
Diamond resin bonds of Expert product lines for processing tungsten carbide			
EXD1	EXPERT	Fine and finish grinding of tungsten carbide. Similar in operation with B1-13 and STD1 bonds, but has higher performance (30% higher than B1-13 bond and can work at higher grinding parameters). EXD1 has good edge retention and used with and without coolant. Lifetime is 1.5-2.5 times higher than B1-13 (the percentage of lifetime increase depends on specific grinding parameters).	0,02-0,1
EXD2	EXPERT	Soft fine and finish grinding of tungsten carbide. Similar in operation with B2-01 and STD2, but has higher performance (40% higher than B2-01 and can work at higher grinding parameters). EXD2 has the same softness, used with and without coolant. Lifetime is 2-3 times higher than B2-01 (the percentage of lifetime increase depends on specific grinding parameters).	0,02-0,08
CBN resin bonds of Expert product lines for processing hardened and alloyed steels			
EXB1	EXPERT	Fine and finish grinding of steels. Modernized and better modification of BN310 bond. It runs smoother and show 30% higher performance, can work at higher grinding parameter. Has lower temperature in grinding area and as consequence less burns. Can be used with and without coolant. Lifetime is higher by 40-60% than BN310 (the percentage of lifetime increase depends on specific grinding parameters).	0,02-0,06
EXB2	EXPERT	Fine and finish grinding of steels. Modernized and better modification of BN130 bond. Show 30% higher performance, can work at higher grinding parameters with sufficient edge resistance. Has lower temperature in grinding area and as consequence less burns. Can be used with and without coolant. Lifetime is 2-2,5 times higher than BN310 bond. Better applied for the wheels for face grinding.	0,02-0,06
EXB3	EXPERT	Fine and finish grinding of steels. Modernized and better modification of BN130 bond. Show 30% higher performance, can work at higher grinding parameters with sufficient edge resistance. Has lower temperature in grinding area and as consequence less burns. Can be used with and without coolant. Lifetime is 2-2,5 times higher than BN310 bond. Better applied for the wheels for radial grinding.	0,02-0,06

Bond name	Product line	Recommendation for usage	Recommended grinding depth per 1 pass, mm
STANDARD resin, vitrified and metal bonded diamond and CBN grinding wheels are suitable for wide range of applications on various types of equipment. STANDARD wheels have high surface quality good tool life and good performance.			
Diamond resin bonds of Standard product lines for processing tungsten carbide			
B2-01	STANDARD	Soft fine and finish grinding of tungsten carbide with and without coolant.	0,005-0,06
B1-13	STANDARD	Fine and finish grinding of tungsten carbide. In its composition there are special metal components which ensure better edge resistance than B2-01 bond. Used mainly with coolant, dry application is acceptable.	0,005-0,06
STD1	STANDARD	Fine and finish grinding of tungsten carbide. Modernized and better modification of B1-13 bond. Increased performance by 10%, can work at higher grinding parameters. Has the same hardness and edge resistance, used with and without coolant. Lifetime is higher by 20-30% than B1-13 bond (the percentage of lifetime increase depends on specific grinding parameters).	0,02-0,08
STD2	STANDARD	Soft fine and finish grinding of tungsten carbide. Modernized and better modification of B2-01 bond. Increased performance by 20%, can work at higher grinding parameters. Has the same softness, used with and without coolant. Lifetime is higher by 10-25% than B2-01 bond (the percentage of lifetime increase depends on specific grinding parameters).	0,02-0,07
CBN resin bonds of Standard product lines for processing hardened and alloyed steels			
BN130	STANDARD	Fine and finish grinding of steels mainly with coolant. Has higher edge retention and lifetime than BN310.	0,02-0,04
BN 310	STANDARD	Fine and finish grinding of steels with and without coolant.	0,02-0,04
CBN vitrified bonds for processing hardened and alloyed steels			
XBCK4 XBCK5 XBCL4 XBCL5	STANDARD	Universal vitrified bonds are developed for fine grinding and finishing of stainless and hardened steels in flat and round grinding operations. Bonds have the property of preventing burns and sufficient wear resistance. Bonds are well-renewal, have a dense structure. Recommended for steels with hardness higher than 55 HRC. To obtain the best surface finish, a grain concentration of 100% is recommended for flat grinding and a concentration of 125% - for round grinding.	0,02-0,1
VBCN5 VBCM5 VBCO5 VBCE5	STANDARD	Bonds are developed for fine grinding and finishing grinding of steels. The temperature in the grinding zone is low. Bonds have the property of preventing burns and high edge resistance. Recommended for steels up to 55 HRC. It is recommended to use a grain concentration of 125% to obtain the best surface finish. Tool life of wheels with these vitrified bonds can be 5 times longer than for resin bonded wheels.	0,02-0,1
VBBM5 VBBN5 VBBO5	STANDARD	Universal vitrified bonds are developed for fine grinding and finishing of stainless and hardened steels. The temperature in the grinding zone is low. Bonds have the property of preventing burns, enlarged pores and work softly. They are well-renewal during the application. It is recommended to use a grain concentration of 125% to obtain the best surface finish. Recommended for steels up to 60 HRC. Tool life of wheels with these bonds can be up to 5 times longer than for resin bonded wheels.	0,02-0,1

Bond name	Product line	Recommendation for usage	Recommended grinding depth per 1 pass, mm
Diamond metal bonds of Standard line for processing tungsten carbide and iron-containing alloys			
M1-01	STANDARD	Machining of tungsten carbide, tungsten carbide together with steel, heat-resistant steels, and titanium alloys under heavy grinding conditions.	1/5 of grain size
M2-01	STANDARD	Fiat, circular, internal, and longitudinal grinding of workpieces of hard non-metal materials-glass, ceramics, marble, granite, semiconducting materials-under normal grinding conditions.	
M2-02	STANDARD	Cutting of ceramics, glass, quartz, semiprecious stones and other non-metal materials. Harder and more wear-resistant than wheels using the M2-01 bond.	
M2-09	STANDARD	Grinding of titanium alloys, HSS, high-strength chilled, tempered cast irons.	
M-300	STANDARD	Machining of optical and technical glass. Higher removal rates than the M2-01 bond.	
M9-00	STANDARD	Processing of technical glass on mechanical feed lines.	
M3-00	STANDARD	Cutting of leuco-sapphire.	
M3-04	STANDARD	Machining of technical glass, crystal, semiconductors, ceramics, gemstones.	
M-310	STANDARD	Processing of technical glass and porcelain tile (ceramic granite tile).	
M3-08	STANDARD	Grinding and gem-cutting of natural diamonds.	
M3-10	STANDARD	Processing of brilliant girdle.	
M5-01	STANDARD	Honing of tempered and alloy steel.	
M5-04	STANDARD	Honing of steels and cast irons, finish honing of untempered steel, gray and alloyed cast irons.	
M5-05	STANDARD	Honing of alloyed steels, finish honing of tempered alloyed steels with a hardness of up to HRC 64.	
M5-06	STANDARD	Honing of gray and alloyed cast irons. Rough, fine, and finish honing of gray and alloyed cast irons with a hardness of HRC 40...50.	
M5-09	STANDARD	Machining of technical glass with mechanized feed. Higher removal rates than the M-300 bond.	

TOLERANCES FOR DIAMOND TOOLS

- for the hole diameter of A8 wheels..... H12
- for the hole diameter of other wheels..... H7
- for the outer diameter of 14EE1, 1EE1, 1FF1 wheels..... js14
- for the outer diameter of 14EE1, 1EE1, 1FF1 wheels..... js16
- linear measures up to 10 mm (3/8 in.)..... $\pm \frac{IT15}{2}$
- linear measurement higher than 10 mm (3/8 in.)..... $\pm \frac{IT14}{2}$

Tolerances for radial and axial run out of the working surfaces and the run out of the support surfaces of the wheels (except for A8 wheels) relative to the surface of the hole of the diamond wheel should be:

- For diameters up to 30 mm (13/16 in.)..... 8th degree of accuracy- GOST 24643
- For diameters greater than 30 mm (13/16 in.)..... 7th degree of accuracy- GOST 24643

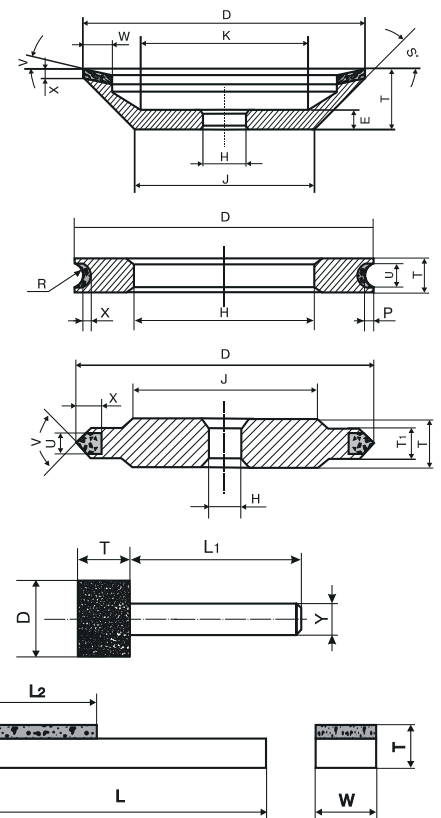
Tolerances for the roundness of the outer surface of A8 wheels should correspond to the 9 degree of accuracy according to GOST 24643:

Nº	Outer diameter of A8 diamond wheels, mm	Outer diameter of A8 diamond wheels, inch	Roundness tolerances for the outer surface of A8 wheels
1	6...10	1/4...3/8	0,010
2	12...16	1/2...5/8	0,012
3	18...30	45/64...13/16	0,016
4	more than	more than	0,020

WHEEL PARAMETERS

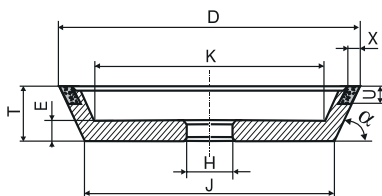
Parameters used in the catalogue are based on the FEPA standard for diamond tools:

- D** - top diameter
- E** - back thickness
- H** - hole diameter
- J** - hub diameter
- K** - inside diameter of flat
- L** - total stick length
- L1** - spindle length
- L2** - length of diamond layer
- R** - radius
- S** - face angle
- T** - wheel thickness
- T1** - reduced hub thickness
- U** - insert length
- V** - face angle
- W** - rim width
- X** - depth of diamond layer
- Y** - spindle diameter
- P** - depth of concavity of diamond layer



Shapes of diamond grinding wheels

Diamond grinding wheels described in the catalogue are based on the FEPA standard for diamond tools.



- designation of the shape of the wheel core
- designation of the shape of the diamond layer
- designation of the diamond layer location
- additional information/modification

11 V 9-70

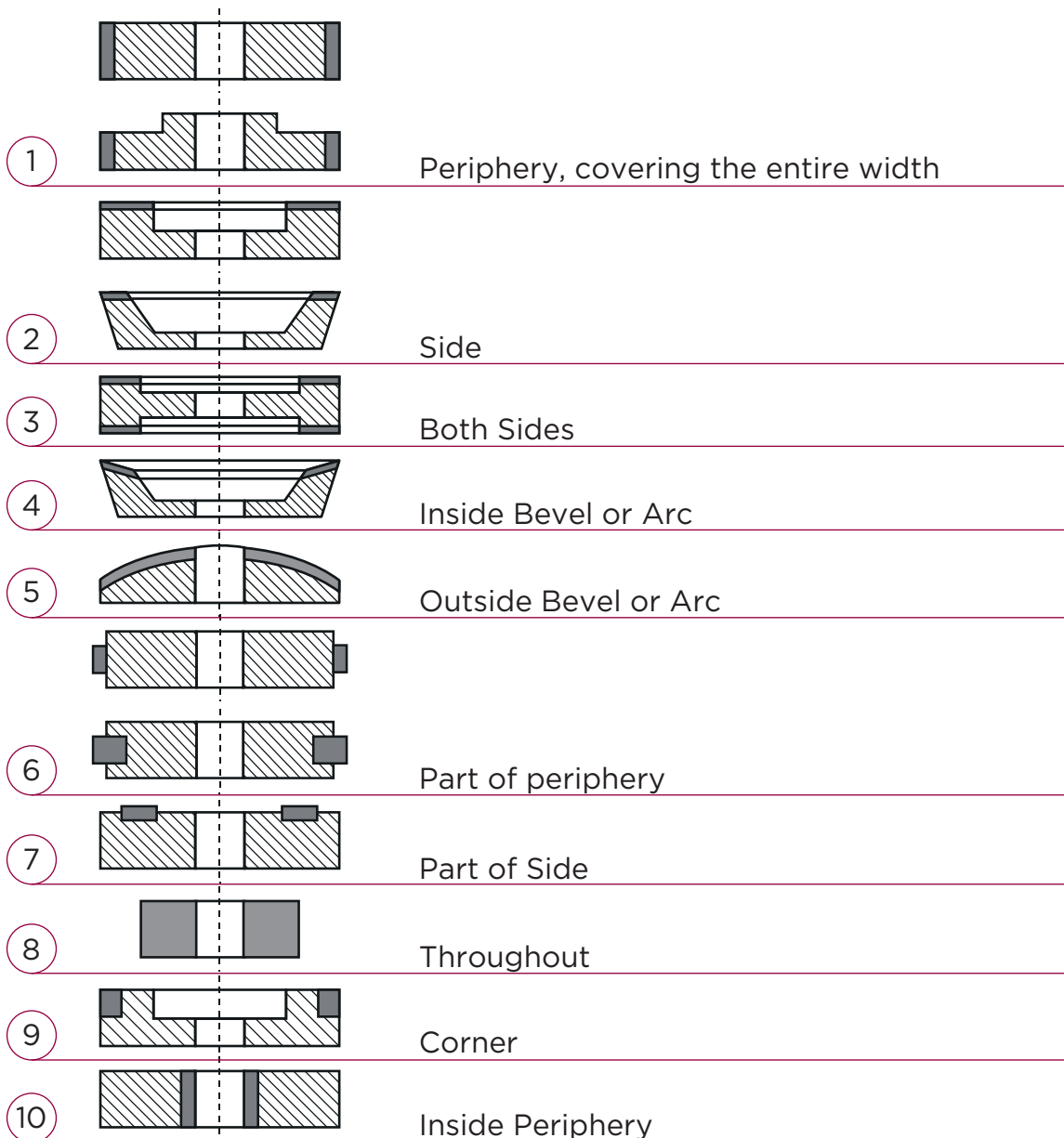
Identification number for shapes of grinding wheel cores

- | | | |
|---|--|---------------------------------------------|
| ① | | Flat wheel without recesses, $D/H \geq 1,8$ |
| ② | | Rim wheel, face wheel, $D/H < 1,8$ |
| ③ | | Flat wheel with one-sided relief |
| ④ | | Flat wheel with one-sided cone |
| ⑥ | | Flat wheel with one-sided recess |
| ⑨ | | Flat wheel with double-sided recess |
| ⑪ | | Cup wheel $45^\circ < \alpha < 90^\circ$ |
| ⑫ | | Dish wheel $\alpha \leq 45^\circ$ |
| ⑭ | | Flat wheel with double-sided relief |

**LETTERS DESIGNATING
THE SHAPE OF THE DIAMOND LAYER**

A		CH		G		M	
AH		D		H		Q	
B		E		K		U	
C		F		L		V	

Location of the diamond layer on the wheel core



RECOMMENDATIONS FOR THE USE, TRUING AND DRESSING OF DIAMOND WHEELS

When using diamond grinding wheels, the following instructions should be observed:

- Grinding wheels are to be mounted on holders or flanges and should not be removed until final usage has occurred. The tools are to be mounted securely on the machine spindle in accordance with the technical specifications of the equipment used for diamond tool machining.
- Metal bonded and vitrified bonded grinding wheels must be used with coolant, coolant is also advisable for resin bonded diamond wheels.
- The cleaning of resin bonded diamond wheels is to be performed with a pumice stone, of metal bonded wheels with a green silicon carbide bar made with grit sizes 1 or 2 sizes larger than that of the diamond wheel.

Dressing (truing) of the diamond layer is necessary to restore its shape, eliminate defects from its working surface, and to restore the required profile. As a rule this is performed without coolant. The most productive way of dressing a diamond layer is to grind it with abrasive wheels. The dressing is performed by wheels of white alumina and green silicon carbide with vitrified bonds with grit sizes 1 or 2 sizes larger than those of the diamond wheels. Wheels with a hardness of K-H are necessary for dressing of resin bond wheels and wheels of a hardness of M-K are necessary for dressing of metal bond wheels. The smaller the grit size of the superabrasive material, the softer the dressing tool must be.

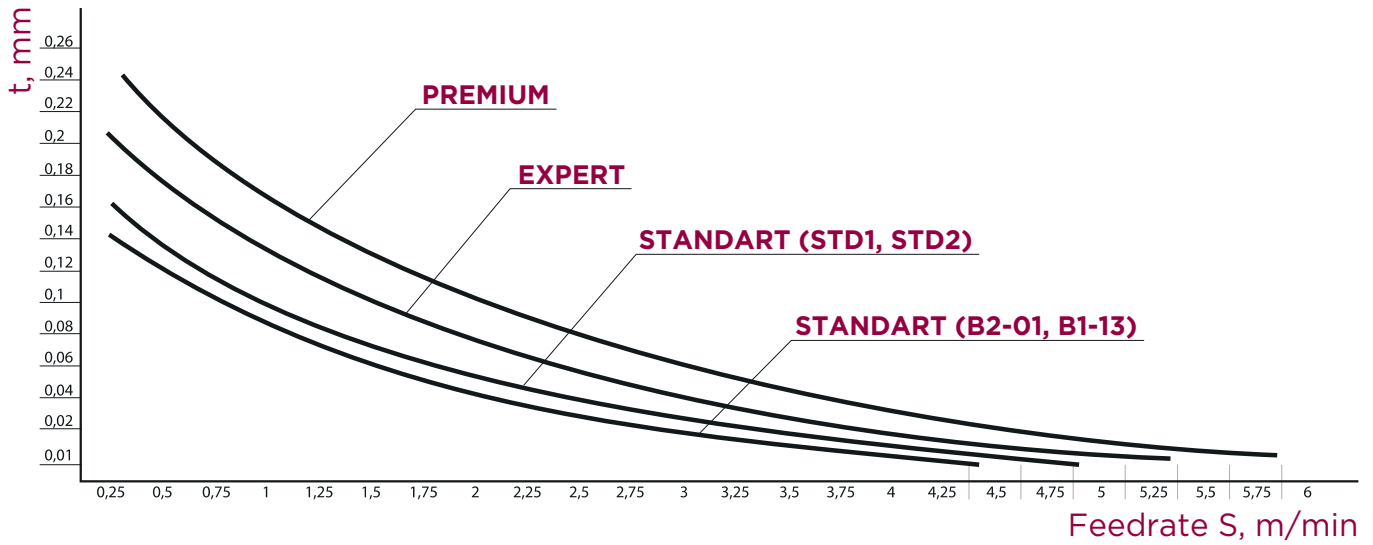
Conditions of diamond layer dressing

Diamond grinding wheel position	Dressing conditions			
	Peripheral speed, m/s		Line feed m/ min	Cross feed, mm/double stroke
	Abrasive wheel	Diamond wheel		
Diamond grinding wheel set on a machine fixture or in the center of a circular grinding or sharpening machine	25-35	1,0-2,0	1,0-2,0	0,02-0,04

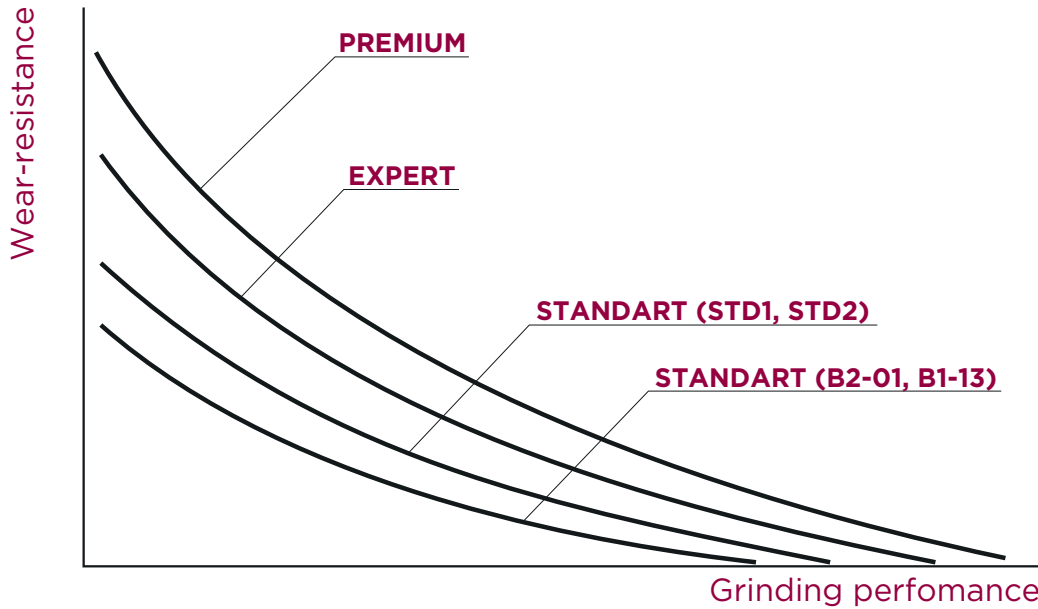
Characteristics of vitrified bonded abrasive wheels for dressing of diamond layer

Diamond layer characteristics		Characteristics of dressing wheel		
Type of bonds	Diamond grade, FEPA Standard	Abrasive type	Abrasive grades, FEPA Standard	Hardness
Resin bonds	D181-D126	Aluminum oxide	70-100	M-L
	D107-D76		100-150	L-K
	D64-D46		150-220	K-J
	M40-M16		360-400	J
Vitrified bonds, Metal bonds	D251-D213	Silicon carbide	46-54	O-N
	D181-D126		60-70	N-M
	D107-D76		80-100	M-L
	D64 and lower		120-180	L-K

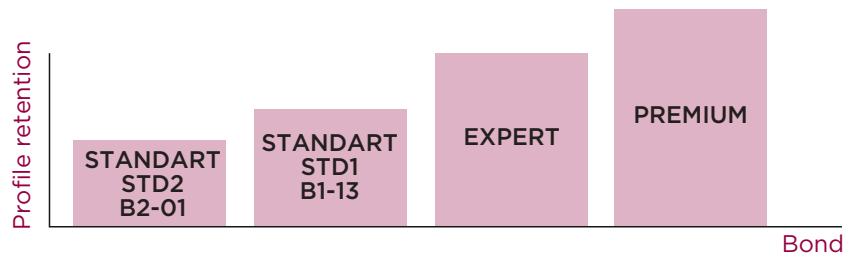
Comparison of diamond tools quality lines



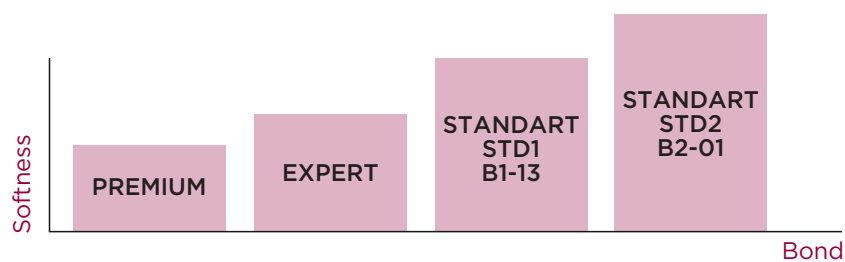
Wear-resistance - grinding performance chart (diamond)



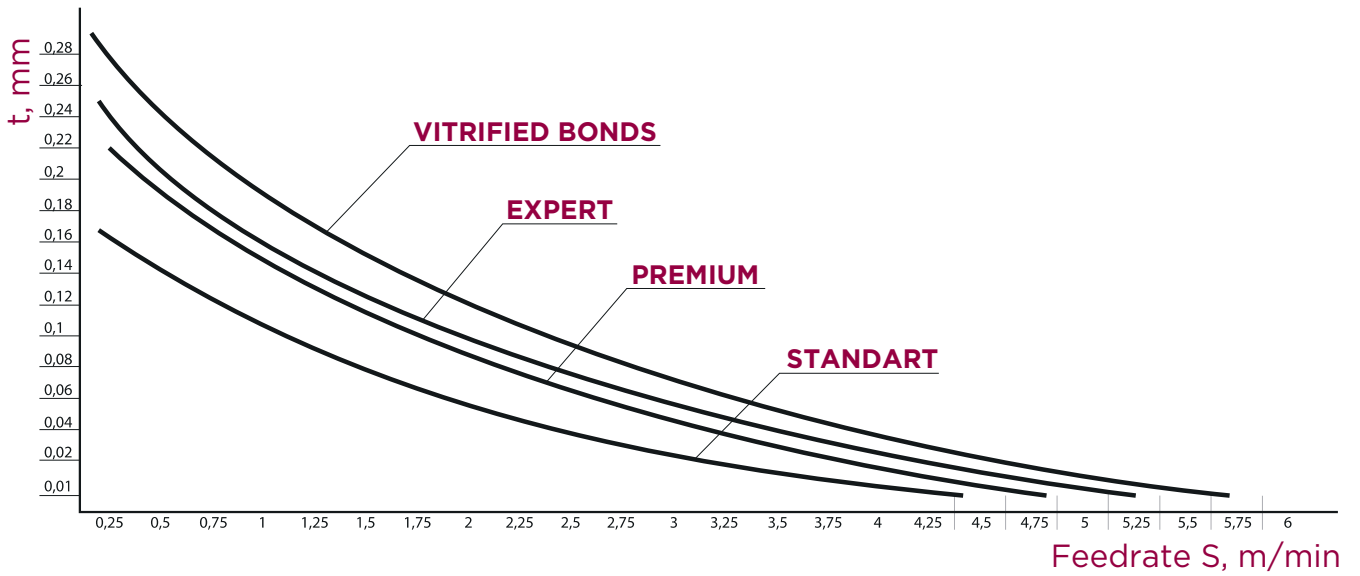
Profile retention of diamond tools quality lines



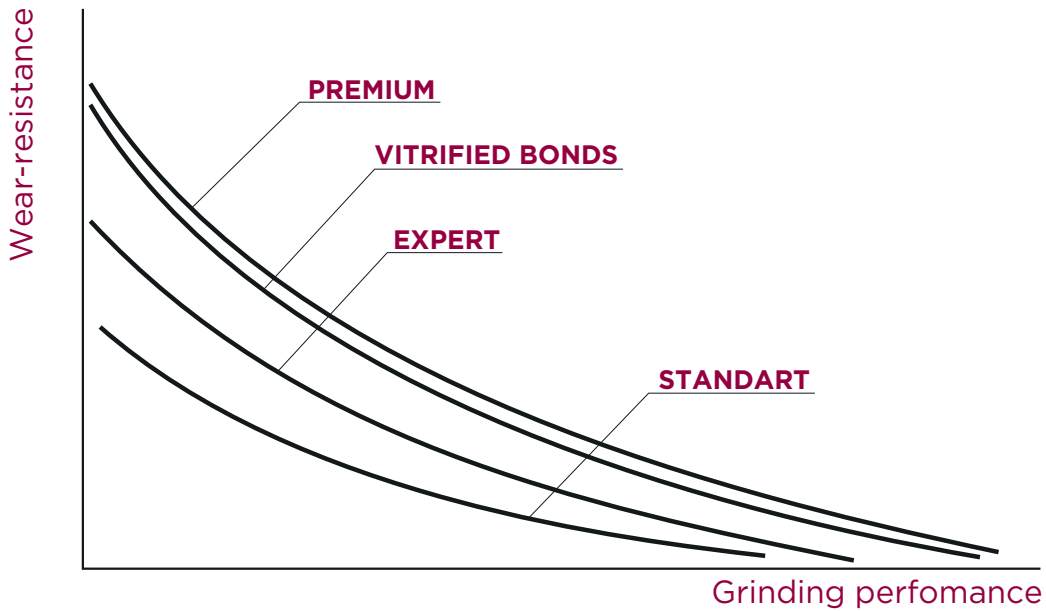
Bond softness chart (diamond)



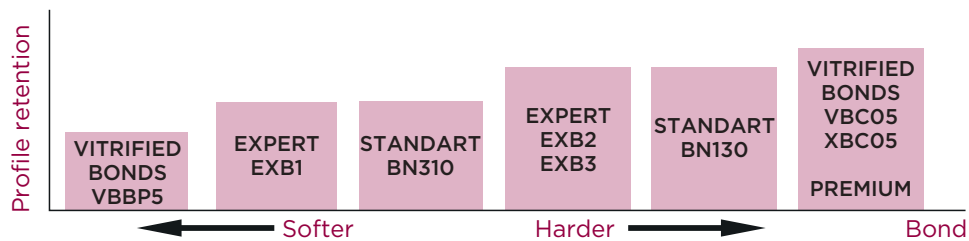
Grinding ability of the bonds (CBN)



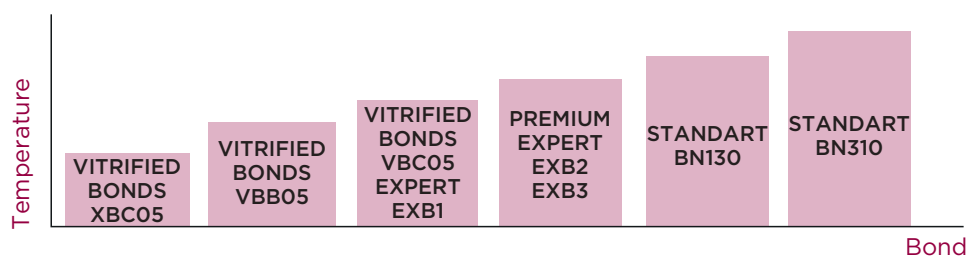
Wear-resistance - grinding performance chart (CBN)



Profile retention of bonds (CBN)



Grinding temperature (CBN)



**CALCULATION OF SPINDLE TURNS FOR GRINDING WHEELS
OF DIFFERENT DIAMETERS AT A GIVEN PERIFERAL SPEED, rpm.**

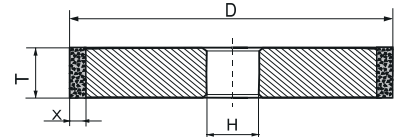
Wheel Ø, mm	Wheel Ø, inch	Peripheral speed, m/s									
		10	15	20	25	30	35	40	45	50	60
3	1/8	63 700	95 540								
4	1/6	47 770	71 660	95 540							
5	13/64	38 220	57 320	76 440	95 540						
6	1/4	31 850	47 770	63 700	79 620	95 540					
8	5/16	23 890	35 830	47 770	59 720	71 660	83 600	95 540			
10	3/8	19 110	28 660	38 220	47 770	57 320	66 880	76 440	83 980	95 540	
12	1/2	15 920	23 880	31 850	39 810	47 770	55 750	63 700	71 650	79 600	95 540
16	5/8	11 940	17 910	23 880	29 860	35 830	41 800	47 770	53 250	59 700	71 650
20	51/64	9 550	14 330	19 110	23 880	28 660	33 440	38 220	42 990	47 770	57 320
25	1	7 640	11 450	15 290	19 110	22 930	26 750	30 570	34 390	38 210	45 860
30	11/6	6 370	9 550	12 740	15 920	19 110	22 290	25 480	28 660	31 850	38 210
35	13/8	5 640	8 190	10 950	13 650	16 380	19 110	21 840	24 560	27 290	32 750
40	14/7	4 780	7 170	9550	11 940	14 330	16 720	19 110	21 500	23 880	28 660
45	2	4 250	6 370	8 490	10 610	12 740	14 860	16 980	19 110	21 230	25 480
50	2	3 820	5 730	7 640	9 550	11 460	13 370	15 290	17 200	19 110	22 930
60	2 1/3	3 180	4 780	6 370	7 960	9 550	11 150	12 740	14 330	15 920	19 110
70	3	2 730	4 090	5 466	6 820	8 190	9 550	10 920	12 280	13 650	16 380
75	3	2 550	3 820	5 090	6 370	7 640	8 910	10 190	11 460	12 740	15 280
80	3	2 340	3 580	4 780	5 970	7 170	8 360	9 550	10 750	11 940	14 330
90	3 1/2	2 120	3 180	4 250	5 310	6 370	7 430	8 490	9 550	10 610	12 740
100	4	1 910	2 870	3 820	4 780	5 730	6 690	7 640	8 600	9 550	11 460
110	4	1740	2 600	3 470	4 340	5 210	6 080	6 950	7 820	8 680	10 420
125	5	1 530	2 290	3 060	3 820	4 580	5 350	6 110	6 880	7 640	9 170
150	6	1 270	1 910	2 550	3 180	3 820	4 460	5 090	5 730	6 370	7 640
175	7	1 090	1 640	2 180	2 730	3 270	3 818	4 360	4 910	5 450	6 540
200	8	960	1 430	1 910	2 390	2 870	3 340	3 820	4 300	4 720	5 730
220	9	870	1 300	1 740	2 170	2 600	3 040	3 470	3 910	4 340	5 210
225	9	850	1 270	1 700	2 120	2 550	2 970	3 400	3 820	4 250	5 090
250	10	760	1 150	1 530	1 910	2 300	2 670	3 060	3 440	3 820	4 580
270	11	710	1 060	1 410	1770	2 120	2 470	2 830	3 180	3 530	4 240
275	11	690	1 040	1 390	1 730	2 080	2 430	2 770	3 120	3 460	4 160
300	12	640	950	1 270	1 590	1 910	2 230	2 550	2 870	3 180	3 820
340	13	560	840	1 120	1 400	1 690	1 970	2 250	2 530	2 810	3 370
350	14	540	820	1 090	1 360	1 640	1910	2 190	2 450	2 730	3 270
400	16	480	720	960	1 190	1 430	1 670	1 910	2 150	2 380	2 810
450	18	420	640	850	1 060	1 270	1 480	1 700	1 910	2 120	2 550
475	19	400	600	800	1 000	1 210	1 410	1 610	1 810	2 010	2 410
500	20	380	570	760	950	1 150	1 340	1 530	1720	1 910	2 290
585	23	330	490	660	820	980	1 150	1 310	1 480	1 640	1970
600	24	320	480	640	800	950	1 110	1 280	1 430	1 600	1 910

pdtools
SUPERABRASIVES



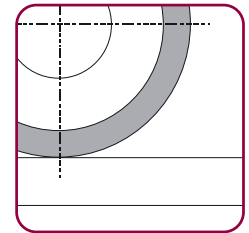
**METAL AND RESIN BONDED DIAMOND
AND CBN GRINDING WHEELS FOR MACHINE
BUILDING, ELECTRONICS, TOOL AND
WOODWORKING INDUSTRIES**

1A1 STRAIGHT GRINDING WHEELS



1A1 D*T*X*H

- Used for machining of conical, cylindrical and flat surfaces, cylindrical and conical apertures.
- Machining of cylindrical surface parts and surface ends at one set-up.
- Machining of recesses and slots of carbide stamps.
- Sharpening and finishing of carbide tools.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools, coolant is required.



Flat surface grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
0-0004	16	1	8	5/16	2	5/64	6	0,236
0-0005	16	1	13	4/8	2	5/64	6	0,236
0-0010	20	1	10	3/8	2	5/64	6	0,236
0-0011	20	1	16	5/8	2	5/64	6	0,236
0-0016	25	1	10	3/8	3	1/8	6	0,236
0-0018	25	1	16	5/8	3	1/8	6	0,236
0-0022	32	1	10	3/8	3	1/8	10	0,375
0-0024	32	1	16	5/8	3	1/8	10	0,375
0-0031	40	2	16	5/8	3	1/8	16	0,625
0-0037	50	2	16	5/8	3	1/8	16	0,625
0-0044	63	2	16	5/8	3	1/8	20	0,703
0-0045	80	3	3	1/8	3	1/8	20	0,797
0-0048	80	3	6	1/4	3	1/8	20	0,797
0-0054	80	3	6	1/4	5	1/5	20	0,797
0-0050	80	3	10	3/8	3	1/8	20	0,797
0-0056	80	3	10	3/8	5	1/5	20	0,797
0-0053	80	3	20	51/64	3	1/8	20	0,797
0-0059	80	3	20	51/64	5	1/5	20	0,797
0-0060	100	4	3	1/8	3	1/8	20	0,797
0-0063	100	4	6	1/4	3	1/8	20	0,797
0-0065	100	4	10	3/8	3	1/8	20	0,797
0-0071	100	4	10	3/8	5	1/5	20	0,797
0-0068	100	4	20	51/64	3	1/8	20	0,797
0-0076	125	5	3	1/8	3	1/8	32	1,260
0-0078	125	5	5	2/8	3	1/8	32	1,260
0-0079	125	5	6	1/4	3	1/8	32	1,260
0-0080	125	5	10	3/8	3	1/8	32	1,260
0-0085	125	5	10	3/8	5	1/5	32	1,260
0-0083	125	5	20	51/64	3	1/8	32	1,260
0-0088	125	5	20	51/64	5	1/5	32	1,260
0-0089	125	5	32	1 2/8	5	1/5	32	1,260
0-0091	150	6	3	1/8	3	1/8	32	1,260
0-0093	150	6	5	2/8	3	1/8	32	1,260
0-0094	150	6	6	1/4	3	1/8	32	1,260
0-0100	150	6	6	1/4	5	1/5	32	1,260
0-0096	150	6	10	3/8	3	1/8	32	1,260
0-0102	150	6	10	3/8	5	1/5	32	1,260
0-0099	150	6	20	45/64	3	1/8	32	1,260
0-0105	150	6	20	45/64	5	1/5	32	1,260
0-0109	200	8	6	2/8	3	1/8	76	3
0-0111	200	8	10	3/8	3	1/8	76	3

Customer-specific and other grinding tools can be produced on request.

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
0-0116	200	8	10	3/8	5	1/5	76	3
0-0114	200	8	20	51/64	3	1/8	76	3
0-0119	200	8	20	51/64	5	1/5	76	3
0-0120	200	8	40	1 4/7	5	1/5	76	3
0-0126	250	10	10	2/5	5	1/5	76	3
0-0128	250	10	15	3/5	5	1/5	76	3
0-0129	250	10	20	51/64	5	1/5	76	3
0-0130	250	10	40	1 4/7	5	1/5	76	3
0-0131	250	10	50	2	5	1/5	76	3
0-0137	300	12	15	3/5	5	1/5	76	3
0-0145	300	12	15	3/5	5	1/5	127	5
0-0138	300	12	20	51/64	5	1/5	76	3
0-0146	300	12	20	51/64	5	1/5	127	5
0-0139	300	12	40	1 4/7	5	1/5	76	3
0-0149	350	14	20	51/64	5	1/5	127	5
0-0158	400	16	25	1	4	1/6	203	8
0-0154	400	16	25	1	6	1/4	127	5
0-0155	400	16	40	1 4/7	6	1/4	127	5
0-0159	400	16	40	1 4/7	6	1/4	203	8
0-0162	500	20	20	51/64	6	1/4	203	8
0-0164	500	20	40	1 4/7	6	1/4	203	8
0-0169	500	20	50	2	6	1/4	305	12
600-25	600	24	25	1	6	1/4	127	5
600-40	600	24	40	1 4/7	6	1/4	305	12

Customer-specific and other grinding tools can be produced on request.

Straight grinding wheel 1A1 (special)

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
9-6643	40	2	10	2/5	3	1/8	20	0,787
9-9603	63	2	3	1/8	2,5	2/16	20	0,787
9-9604	63	2	3	1/8	3	1/8	20	0,787
9-6944	100	4	16	5/8	2	5/64	17	0,669
9-8130	142	6	16	5/8	2	5/64	24	0,945
9-8144	152	6	19	3/4	3	1/8	25,4	1
9-8139	155	6	15	3/5	3	1/8	20	0,787
9-6950	200	8	20	51/64	3	1/8	32	1,260
9-3230	200	8	88	3 1/2	5	1/5	127	5

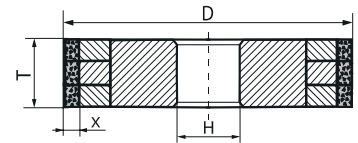
Customer-specific and other grinding tools can be produced on request.

1A1

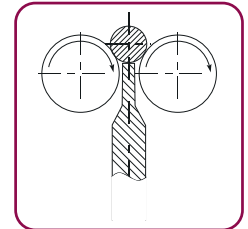
STRAIGHT GRINDING WHEELS

compound

- Used for machining cylindrical surfaces, centerless grinding.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



1A1 D*T*X*H



Centerless grinding

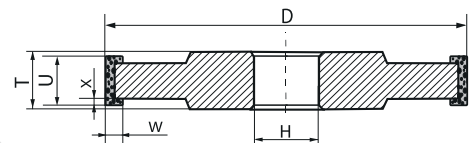
Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
9-6993	300	12	100	4	5	1/5	127	5
0-2821	350	14	100	4	5	1/5	200	7,874
9-6997	350	14	100	4	5	1/5	127	5
9-6998	350	14	100	4	5	1/5	203	8
9-9606	400	16	150	6	5	1/5	203	8
9-6999	400	16	150	6	5	1/5	305	12
9-2034	500	20	200	7,874	3	1/8	304,8	12
9-2033	500	20	200	7,874	6	1/4	304,8	12

Customer-specific and other grinding tools can be produced on request.

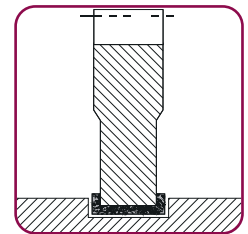
14U1

THREE-SIDED GRINDING WHEELS

- Used for grinding carbide workpieces (flute grinding).
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



14U1 D*T*U*W*X*H



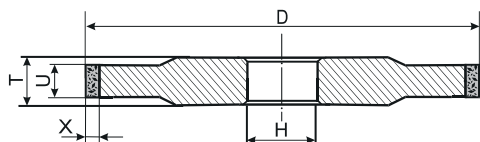
Flute grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	W, mm	W, inch	X, mm	X, inch	H, mm	H, inch
0-0201	125	5	10	3/8	6	1/4	4	1/6	2	5/64	32	1,260
0-0202	125	5	10	3/8	8	1/3	4	1/6	2	5/64	32	1,260
0-0203	150	6	12	1/2	8	1/3	4	1/6	2	5/64	32	1,260
0-0204	150	6	12	1/2	10	3/8	4	1/6	2	5/64	32	1,260
0-0205	150	6	12	1/2	8	1/3	6	1/4	2	5/64	32	1,260
0-0206	150	6	12	1/2	10	3/8	6	1/4	2	5/64	32	1,260
0-0208	150	6	12	1/2	10	3/8	4	1/6	2	5/64	51	2
0-0210	150	6	12	1/2	10	3/8	6	1/4	2	5/64	51	2
0-0211	200	8	16	5/8	12	1/2	6	1/4	3	1/8	32	1,260
0-0212	200	8	16	5/8	14	9/16	6	1/4	3	1/8	32	1,260
0-0213	200	8	16	5/8	12	1/2	10	3/8	3	1/8	32	1,260
0-0214	200	8	16	5/8	14	9/16	10	3/8	3	1/8	32	1,260
0-0218	200	8	16	5/8	14	9/16	10	3/8	3	1/8	51	2
0-0219	250	10	20	51/64	16	5/8	8	5/16	3	1/8	76	3
0-0220	250	10	20	51/64	20	51/64	8	5/16	3	1/8	76	3
0-0221	250	10	20	51/64	16	5/8	12	1/2	3	1/8	76	3
0-0222	250	10	20	51/64	20	51/64	12	1/2	3	1/8	76	3

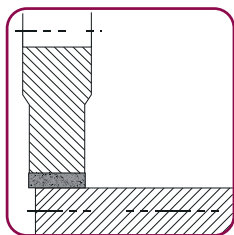
Customer-specific and other grinding tools can be produced on request.

STRAIGHT FLAT GRINDING WHEELS

14A1



14A1 D*T*U*X*H



Cylindrical surface grinding

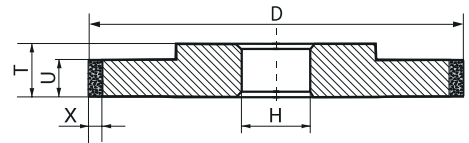


- Used for machining of conical, cylindrical and flat surfaces, cylindrical and conical apertures, sharpening and finishing of carbide tools.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	H, mm	H, inch
0-0301	100	4	6	1/4	3	1/8	3	1/8	20	0,787
0-0302	100	4	6	1/4	5	1/5	3	1/8	20	0,787
0-0303	100	4	6	1/4	3	1/8	5	13/64	20	0,787
0-0304	100	4	6	1/4	5	1/5	5	13/64	20	0,787
0-0305	125	5	6	1/4	3	1/8	3	1/8	32	1,260
0-0306	125	5	6	1/4	5	1/5	3	1/8	32	1,260
0-0307	125	5	6	1/4	3	1/8	5	13/64	32	1,260
0-0308	125	5	6	1/4	5	1/5	5	13/64	32	1,260
0-0309	150	6	8	1/3	3	1/8	3	1/8	32	1,260
0-0310	150	6	8	1/3	5	1/5	3	1/8	32	1,260
0-0311	150	6	8	1/3	3	1/8	5	13/64	32	1,260
0-0312	150	6	8	1/3	5	1/5	5	13/64	32	1,260
0-0315	150	6	10	2/5	7	2/7	7	9/32	32	1,260
0-0316	150	6	10	2/5	9	1/3	7	9/32	32	1,260
0-0317	175	7	8	1/3	3	1/8	3	1/8	51	2
0-0318	175	7	8	1/3	5	1/5	3	1/8	51	2
0-0319	175	7	8	1/3	3	1/8	5	13/64	51	2
0-0320	175	7	8	1/3	5	1/5	5	13/64	51	2
0-0321	200	8	10	3/8	3	1/8	3	1/8	51	2
0-0322	200	8	10	3/8	5	1/5	3	1/8	51	2
0-0323	200	8	10	3/8	3	1/8	5	13/64	51	2
0-0324	200	8	10	3/8	5	1/5	5	13/64	51	2
0-0327	200	8	10	3/8	7	2/7	7	9/32	51	2
0-0328	200	8	10	3/8	9	1/3	7	9/32	51	2
0-0329	250	10	10	3/8	3	1/8	5	13/64	51	2
0-0330	250	10	10	3/8	5	1/5	5	13/64	51	2
0-0333	250	10	10	3/8	7	2/7	7	9/32	51	2
0-0334	250	10	10	3/8	3	1/8	5	13/64	76	3
0-0335	250	10	10	3/8	5	1/5	6	1/4	76	3
0-0338	250	10	10	3/8	7	2/7	7	9/32	76	3

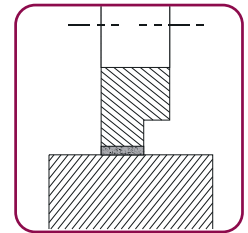
Customer-specific and other grinding tools can be produced on request.

3A1 STRAIGHT GRINDING WHEELS



3A1 D*T*U*X*H

- Used for processing of cylindrical and flat surfaces on cylindrical and surface grinding machines.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

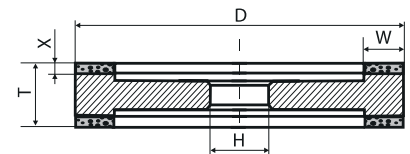


Flat surface grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	H, mm	H, inch
9-5030	150	6	10	3/8	2	5/64	3	1/8	31,75	11/4
9-5031	150	6	10	3/8	3	1/8	3	1/8	31,75	11/4
9-5032	200	8	10	3/8	3	1/8	3	1/8	31,75	11/4
9-5021	300	12	14	9/16	5,5	2/9	3	1/8	127	5
9-5022	300	12	19	3/4	8	5/16	3	1/8	127	5
9-5023	300	12	14	9/16	10	3/8	3	1/8	127	5
9-5024	300	12	14	9/16	12	1/2	3	1/8	127	5
9-5020	350	14	22	7/8	10	3/8	5	13/64	127	5

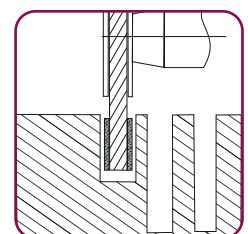
Customer-specific and other grinding tools can be produced on request.

9A3 FLAT GRINDING WHEELS WITH DOUBLE-SIDED RECESS



9A3 D*W*X*T*H

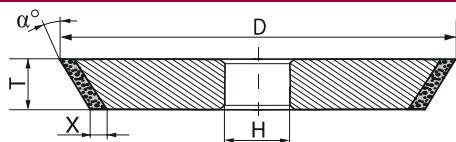
- Used for sharpening and finishing of carbide tools, machining of glass, ceramics, quartz, semiconducting materials.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



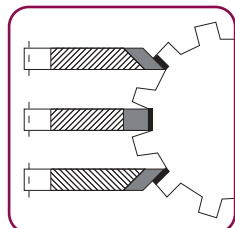
One-pass groove grinding

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
3-0132	100	4	6	1/4	1,5	1/16	10	3/8	20	0,787
3-0135	125	5	10	3/8	2	5/64	20	51/64	32	1,260
3-0136	125	5	15	3/5	2	5/64	20	51/64	32	1,260
3-0137	150	6	6	1/4	3	1/8	16	5/8	32	1,260
3-0138	150	6	10	3/8	3	1/8	16	5/8	32	1,260
3-0139	150	6	20	51/64	3	1/8	16	5/8	32	1,260
3-0149	200	8	20	51/64	3	1/8	16	5/8	32	1,260
3-0160	250	10	10	3/8	3	1/8	21	5/6	76	3
3-0161	250	10	20	51/64	3	1/8	21	5/6	76	3

Customer-specific and other grinding tools can be produced on request.



1V1 D*T*X* α *H



Machining of teeth

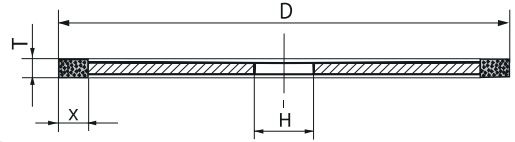


- Used for grinding of cylindrical and tapered surfaces.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	α°	H, mm	H, inch
0-7346	75	3	8	5/16	5	1/5	30	20,00	0,787
9-3206	100	4	12	1/2	6	1/4	15	31,75	1 1/4
9-3207	100	4	12	1/2	6	1/4	30	31,75	1 1/4
9-3208	100	4	12	1/2	6	1/4	45	31,75	1 1/4
9-3209	125	5	12	1/2	6	1/4	15	31,75	1 1/4
9-3211	125	5	12	1/2	6	1/4	20	31,75	1 1/4
9-3212	125	5	12	1/2	6	1/4	25	31,75	1 1/4
9-3213	125	5	12	1/2	6	1/4	30	31,75	1 1/4
9-3214	125	5	12	1/2	3	1/8	10	31,75	1 1/4
9-3215	125	5	12	1/2	3	1/8	15	31,75	1 1/4
9-3216	125	5	12	1/2	3	1/8	20	31,75	1 1/4
9-3217	125	5	12	1/2	3	1/8	25	31,75	1 1/4
9-3218	125	5	12	1/2	3	1/8	30	31,75	1 1/4
9-3219	125	5	12	1/2	3	1/8	45	31,75	1 1/4
9-3220	125	5	6	1/4	6	1/4	30	50,80	2
9-3222	100	4	10	2/5	3	1/8	20	20,00	0,787
9-3223	125	5	12	1/2	3	1/8	20	20,00	0,787
9-3241	125	5	10	2/5	6	1/4	45	31,75	1 1/4
9-3248	100	4	6	1/4	5	1/5	30	31,75	1 1/4
9-3249	100	4	6	1/4	5	1/5	45	31,75	1 1/4

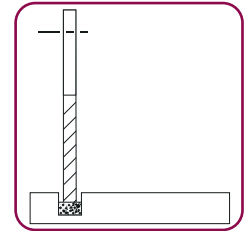
Customer-specific and other grinding tools can be produced on request.

1A1R CUT-OFF WHEELS



1A1R D*T*X*H

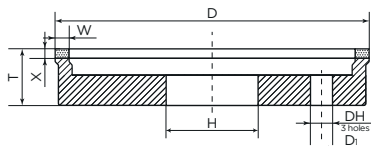
- Used for cutting carbide, glass, marble, quartz, semiconducting materials, ceramics, decorative stones.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



Material cutting

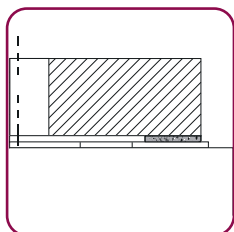
Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
6-0127	50	2	1,0	3/76	5	13/64	12	0,472
6-0167	100	4	1,0	3/76	5	13/64	20	0,787
6-0187	125	5	1,0	3/76	5	13/64	32	1,260
6-0189	125	5	1,2	1/21	5	13/64	32	1,260
6-0212	150	6	1,0	3/76	5	13/64	32	1,260
6-0219	150	6	1,2	1/21	5	13/64	20	0,787
6-0214	150	6	1,2	1/21	5	13/64	32	1,260
6-0216	150	6	1,5	1/17	5	13/64	32	1,260
6-0223	175	7	1,0	3/76	5	13/64	32	1,260
6-0225	175	7	1,5	1/17	5	13/64	32	1,260
6-0229	200	8	1,0	3/76	5	13/64	32	1,260
6-0682	200	8	1,2	1/21	10	3/8	32	1,260
6-0232	200	8	1,2	1/21	5	13/64	32	1,260
6-0234	200	8	1,5	1/16	5	13/64	32	1,260
6-0236	200	8	2,0	5/64	5	13/64	32	1,260
6-0238	200	8	2,2	2/23	5	13/64	32	1,260
6-0241	250	10	1,5	1/17	5	13/64	32	1,260
6-0243	250	10	2,0	5/64	5	13/64	32	1,260
6-0245	250	10	2,2	2/23	5	13/64	32	1,260
6-0691	300	12	2,2	2/23	5	13/64	32	1,260
6-0703	350	14	2,2	2/23	5	13/64	32	1,260
6-0707	350	14	2,2	2/23	5	13/64	76	3
6-0705	350	14	2,2	2/23	10	3/8	32	1,260
6-0712	400	16	2,2	2/23	5	13/64	32	1,260
6-0267	400	16	2,2	2/23	5	13/64	76	3

Customer-specific and other grinding tools can be produced on request.



RECESSED FLAT GRINDING WHEELS 6A2

6A2 D*W*X*T*H



Surface grinding



- Used for sharpening and finishing of carbide tools (cutters, drills and others).
- Machining of glass, ceramics, quartz, semiconductors and other non-metal materials.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
3-0001	50	2	3	1/8	2	5/64	22	6/7	16	0,630
3-0002	50	2	5	13/64	2	5/64	22	6/7	16	0,630
3-0004	75	3	5	13/64	2	5/64	22	6/7	20	0,787
3-0005	75	3	10	3/8	2	5/64	22	6/7	20	0,787
3-0007	100	4	5	13/64	2	5/64	22	6/7	20	0,787
3-0008	100	4	10	3/8	2	5/64	22	6/7	20	0,787
3-0009	100	4	15	3/5	2	5/64	22	6/7	20	0,787
3-0011	100	4	5	13/64	4	5/32	24	1	20	0,787
3-0012	100	4	10	3/8	4	5/32	24	1	20	0,787
3-0013	100	4	15	3/5	4	5/32	24	1	20	0,787
3-0019	125	5	6	1/4	2	5/64	22	6/7	32	1,260
3-0020	125	5	10	3/8	2	5/64	22	6/7	32	1,260
3-0021	125	5	15	3/5	2	5/64	22	6/7	32	1,260
3-0023	125	5	6	1/4	4	5/32	24	1	32	1,260
3-0024	125	5	10	3/8	4	5/32	24	1	32	1,260
3-0025	125	5	15	3/5	4	5/32	24	1	32	1,260
3-0026	150	6	6	1/4	4	5/32	24	1	32	1,260
3-0027	150	6	10	3/8	4	5/32	24	1	32	1,260
3-0028	150	6	20	51/64	4	5/32	24	1	32	1,260
3-0035	150	6	6	1/4	6	1/4	26	1	51	2
3-0036	150	6	10	3/8	6	1/4	26	1	51	2
3-0037	150	6	20	51/64	6	1/4	26	1	51	2
3-0038	200	8	10	3/8	4	5/32	29	11/7	51	2
3-0039	200	8	20	51/64	4	5/32	29	11/7	51	2
3-0057	250	10	20	51/64	4	5/32	29	11/7	76	3
3-0058	250	10	40	1 4/7	4	5/32	29	11/7	76	3

Flat grinding wheels 6A2 special

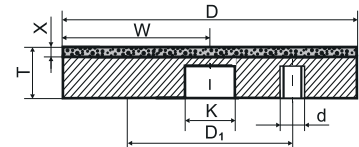
Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
3-2111	50	2	4	5/32	2	5/64	10	3/8	16	0,630
3-0170	100	4	35	1 3/8	5	13/64	20	51/64	20	0,787
3-0171	150	6	30	1 1/6	5	13/64	20	51/64	20	0,787
3-1306	250	10	60	2 1/3	3	1/8	23	1	51	2
3-1401	500	20	50	2	8	5/16	34	1 1/3	325	12,795

Flat grinding wheels 6A2 special, electroplated

Catalog number	D, mm	D, inch	W, mm	W, inch	T, mm	T, inch	H, mm	H, inch
6-1217	360	14	165	6 1/2	18	5/7	160	6,299
6-1218	400	16	185	7 2/7	18	5/7	160	6,299
6-1221	500	20	235	9 1/4	18	5/7	160	6,299
6-1219	600	24	285	11 2/9	18	5/7	160	6,299
6-1220	700	28	305	12	18	5/7	200	7,874

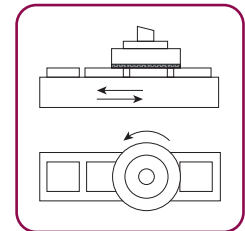
Customer-specific and other grinding tools can be produced on request.

6A2T FLAT GRINDING WHEELS



6A2T D*W*X*T*D1*d*H

- Used for machining of flat and shaped surfaces of glass, ceramics, quartz, semiconductors, and decorative stones.
- The diamond layer is made of diamond grinding powder with metal bonds.
- Coolant is required.

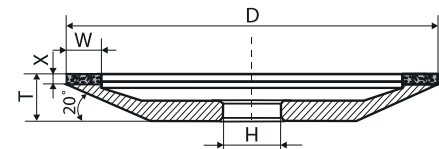


Surface grinding

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	D1, mm	D1, inch	d, mm	H, mm	H, inch
3-0201	100	4	50	2	3	1/8	18	3/4	70	2 3/4	M8	40	1,575
3-0202	150	6	75	3	3	1/8	18	3/4	70	2 3/4	M8	40	1,575
3-0203	200	8	100	4	3	1/8	18	3/4	150	6	M8	80	3,150
3-0204	250	10	125	5	3	1/8	18	3/4	150	6	M8	80	3,150
3-0205	300	12	150	6	3	1/8	20	51/64	260	10 1/4	M10	80	3,150
3-2807	400	16	200	7 7/8	2,4	2/16	20	51/64	260	10 1/4	M10	80	3,150

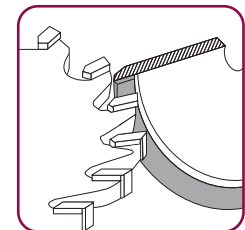
Customer-specific and other grinding tools can be produced on request.

12A2-20 DISH GRINDING WHEELS



12A2-20 D*T*X*W*H

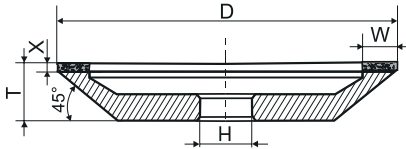
- Used for sharpening and finishing of front surfaces of ream teeth, cutters, circular saws, drawing dies and tools made of tungsten carbide.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



Tool face sharpening

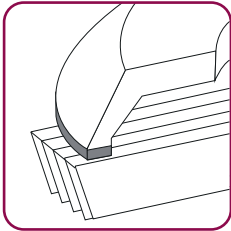
Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	W, mm	W, inch	H, mm	H, inch
5-0005	75	3	10	3/8	2	5/64	3	1/8	16	0,630
5-0006	75	3	10	3/8	2	5/64	6	1/4	16	0,630
5-0007	100	4	12	1/2	2	5/64	3	1/8	20	0,787
5-0008	100	4	12	1/2	2	5/64	6	1/4	20	0,787
5-0009	125	5	16	5/8	2	5/64	3	1/8	32	1,260
5-0010	125	5	16	5/8	2	5/64	6	1/4	32	1,260
5-0011	125	5	16	5/8	2	5/64	10	2/5	32	1,260
5-0012	150	6	18	5/7	2	5/64	3	1/8	32	1,260
5-0013	150	6	18	5/7	2	5/64	6	1/4	32	1,260
5-0014	150	6	18	5/7	2	5/64	10	2/5	32	1,260
5-0018	200	8	22	6/7	2	5/64	10	2/5	51	2
9-5045	50	2	10	3/8	2,2	1/16	2,3	1/11	16	0,630
5-1011	75	3	10	3/8	2	5/64	6	1/4	20	0,787
9-3151	125	5	12	1/2	1,5	1/17	6 (3+3)	1/4	32	1,260
9-5006	150	6	19	3/4	3	1/8	10	2/5	32	1,260
9-5042	175	7	21	5/6	3	1/8	10	2/5	32	1,260

Customer-specific and other grinding tools can be produced on request.



CUP GRINDING WHEELS 12A2-45

12A2-45 D*W*X*T*H



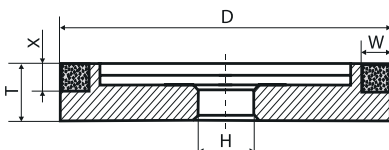
Face grinding



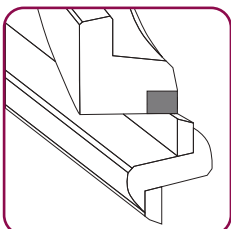
- Used for sharpening and finishing of front and back surface of multiple-blade carbide tools (with straight and spiral teeth), cutters, drills and other tools.
- Used for processing of flat machine part surfaces, semiconductors, ceramic materials, precious stones, quartz and other materials.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
4-0004	50	2	3	1/8	3	1/8	21	5/6	16	0,630
4-0117	75	3	3	1/8	3	1/8	21	5/6	20	0,787
4-0118	75	3	6	1/4	3	1/8	21	5/6	20	0,787
4-0015	100	4	3	1/8	3	1/8	32	1 1/4	20	0,787
4-0016	100	4	5	1/5	3	1/8	32	1 1/4	20	0,787
4-0017	100	4	10	3/8	3	1/8	32	1 1/4	20	0,787
4-0027	125	5	3	1/8	3	1/8	40	1 4/7	32	1,260
4-0028	125	5	5	1/5	3	1/8	40	1 4/7	32	1,260
4-0029	125	5	10	3/8	3	1/8	40	1 4/7	32	1,260
4-0031	125	5	5	1/5	5	13/64	42	1 2/3	32	1,260
4-0040	150	6	10	3/8	3	1/8	40	1 4/7	32	1,260
4-0043	150	6	10	3/8	5	13/64	42	1 2/3	32	1,260
4-0041	150	6	20	51/64	3	1/8	40	1 4/7	32	1,260
4-0044	150	6	20	51/64	5	13/64	42	1 2/3	32	1,260
4-0073	200	8	10	3/8	3	1/8	50	2	51	2
4-0074	200	8	20	51/64	3	1/8	50	2	51	2
4-0076	200	8	20	51/64	5	1/5	52	2	51	2
4-0092	250	10	20	51/64	3	1/8	50	2	76	3

Customer-specific and other grinding tools can be produced on request.



6A9 D*W*X*T*H



Saw end surface sharpening



RECESSED FLAT GRINDING WHEELS 6A9

- Used for sharpening and finishing of special tools.
- The diamond layer is made of diamond grinding powder with resin bonds.
- For metal bonded tools coolant is required.

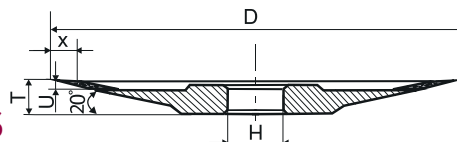
Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
9-8150	100	4	3	1/8	6	1/4	30	1 1/6	20	0,787

Customer-specific and other grinding tools can be produced on request.

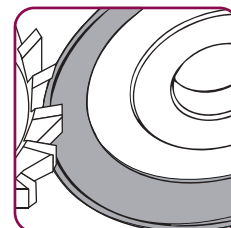
12V9-20 DISH GRINDING WHEELS

(PREMIUM LINE)

- Used for sharpening and finishing (face grinding) of circular saw teeth and other tungsten carbide tools.



12V9-20 D*T*X*U*H



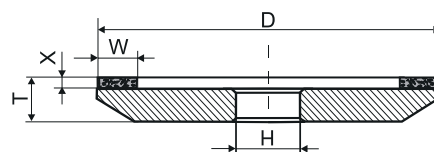
Face grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	U, mm	U, inch	H, mm	H, inch
3-3042	100	4	10	2/5	2,3	1/11	4	5/32	25	0,984
4-4026	120	5	13	1/2	2,5	2/16	4	5/32	32	1,260
3-3048	125	5	13	1/2	2,5	2/16	4	5/32	32	1,260
3D3048	125	5	13	1/2	2,5	2/16	4	5/32	20	0,787
3-3045	150	6	13	1/2	2,3	1/11	4	5/32	32	1,260
4-4026	160	6	13	1/2	2,3	1/11	4	5/32	32	1,260
3-3043	175	7	13	1/2	2,5	2/16	4	5/32	32	1,260
3-3049	200	8	13	1/2	2,3	1/11	4	5/32	32	1,260

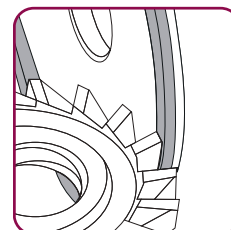
Customer-specific and other grinding tools can be produced on request.

4A2 DISH GRINDING WHEELS

- Used for sharpening and finishing (face and top grinding) of multiple-blade tools.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.



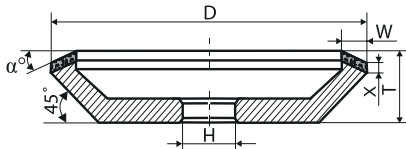
4A2 D*T*X*W*H



Top grinding

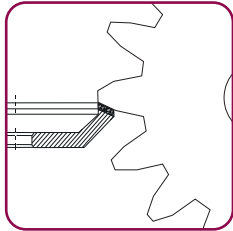
Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	W, mm	W, inch	H, mm	H, inch
9-8151	100	4	10	2/5	2	5/64	3	1/8	20	0,787
4-1140	100	4	10	2/5	1	1/16	6	1/4	22,20	0,874
4-1116	100	4	10	2/5	1,5	1/17	6	1/4	31,75	1 1/4
9-9161	125	5	10	2/5	3	1/8	6	1/4	31,75	1 1/4
9-9166	125	5	10	2/5	3	1/8	6	1/4	32	1,260
9-9165	125	5	10	2/5	2	1/16	8	1/3	20	0,787
9-3153	125	5	18	5/7	5	1/5	6	1/4	32	1,260
9-8158	150	6	12	1/2	3	1/8	5	1/5	20	0,787
9-9162	150	6	12	1/2	3	1/8	6	1/4	31,75	1 1/4
9-9167	150	6	12	1/2	3	1/8	6	1/4	32	1,260
4-1141	300	12	50	2	2	5/64	8	5/16	76	3

Customer-specific and other grinding tools can be produced on request.



CUP GRINDING WHEELS 12V5-45

12V5-45 D*T*W*X*α*H



Ram sharpening

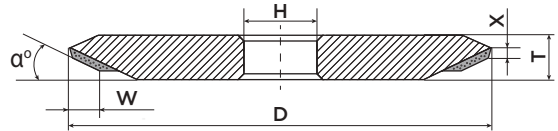


- Used for sharpening and finishing (top grinding) of multiple-blade carbide tools (with straight and spiral teeth), cutters, drills and other tools.
- Used for processing of semiconductors, ceramic material, quartz and other materials.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	T, mm	T, inch	W, mm	W, inch	X, mm	X, inch	α°	H, mm	H, inch
4-0121	50	2	20	51/64	3	1/8	3	1/8	15	16	0,630
4-0122	50	2	20	51/64	3	1/8	3	1/8	25	16	0,630
4-0123	75	3	25	1	3	1/8	3	1/8	15	20	0,787
4-0124	75	3	25	1	3	1/8	3	1/8	25	20	0,787
4-0125	75	3	25	1	6	1/4	3	1/8	15	20	0,787
4-0126	75	3	25	1	6	1/4	3	1/8	25	20	0,787
4-0127	100	4	32	1 1/4	3	1/8	4	5/32	15	20	0,787
4-0128	100	4	32	1 1/4	3	1/8	4	5/32	25	20	0,787
4-0129	100	4	32	1 1/4	6	1/4	4	5/32	15	20	0,787
4-0130	100	4	32	1 1/4	6	1/4	4	5/32	25	20	0,787
4-0131	125	5	40	1 4/7	3	1/8	4	5/32	15	32	1,260
4-0132	125	5	40	1 4/7	3	1/8	4	5/32	25	32	1,260
4-0133	125	5	40	1 4/7	6	1/4	4	5/32	15	32	1,260
4-0134	125	5	40	1 4/7	6	1/4	4	5/32	25	32	1,260
4-0135	150	6	40	1 4/7	6	1/4	5	13/64	15	32	1,260
4-0136	150	6	40	1 4/7	6	1/4	5	13/64	25	32	1,260
4-0137	150	6	40	1 4/7	6	1/4	5	13/64	15	51	2
4-0138	150	6	40	1 4/7	6	1/4	5	13/64	25	51	2

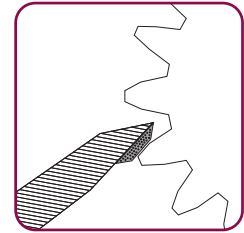
Customer-specific and other grinding tools can be produced on request.

12D9 DISH GRINDING WHEELS



12D9 D*W*X*T*α*H

- Used for sharpening and finishing of front and back surfaces of carbide tools.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

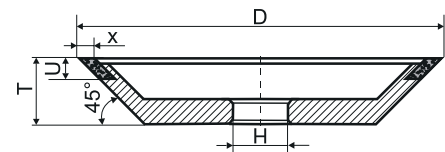


Face grinding

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	α°	H, mm	H, inch
5-0102	125	5	4	1/6	2	5/64	11	3/7	20	32	1,260
5-0104	125	5	8	1/3	2	5/64	11	3/7	20	32	1,260
5-0106	150	6	8	1/3	3	1/8	13	1/2	20	32	1,260
5-0108	150	6	16	5/8	3	1/8	13	1/2	20	32	1,260
5-0113	200	8	25	1	3	1/8	16	5/8	15	32	1,260
5-0114	200	8	25	1	3	1/8	16	5/8	20	32	1,260
5-0126	250	10	16	5/8	3	1/8	20	51/64	20	76	3
5-0125	250	10	16	5/8	3	1/8	20	51/64	15	76	3

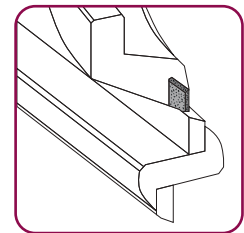
Customer-specific and other grinding tools can be produced on request.

12V9-45 DISH GRINDING WHEELS



12V9-45 D*U*X*T*H

- Used for sharpening and finishing of cutting tool back surfaces.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

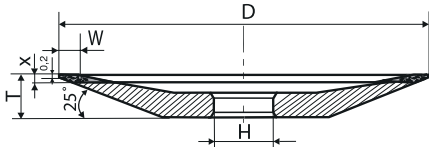


Top grinding

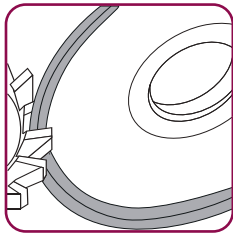
Catalog number	D, mm	D, inch	U, mm	U, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
4-2513	75	3	10	2/5	4	1/6	12	1/2	31,75	1 1/4
4-2503	75	3	6	1/4	1,5	1/17	18	5/7	31,75	1 1/4
4-1503	75	3	6	1/4	2	5/64	20	51/64	20	0,787
9-3154	75	3	6	1/4	3,5	1/7	20	51/64	10	0,394
4-2510	100	4	6	1/4	1,5	1/17	18	5/7	31,75	1 1/4
4-1510	100	4	10	3/8	2	5/64	20	51/64	20	0,787
4-2512	100	4	10	3/8	3	1/8	20	51/64	31,75	1 1/4
9-3108	125	5	10	3/8	3	1/8	25	1	20	0,787

Customer-specific and other grinding tools can be produced on request.

DISH GRINDING WHEELS 12R4



12R4 D*W*X*T*H



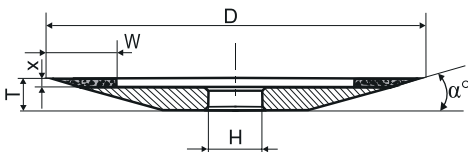
Face grinding



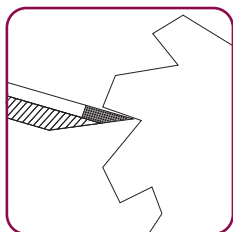
- Used for sharpening and finishing of front surfaces of reamer teeth, cutters, circular saws, drawing dies and tools made of tungsten carbide.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
5-0041	50	2	2	5/64	1,5	1/17	6	1/4	16	0,630
5-0042	75	3	3	1/8	2	5/64	10	3/8	20	0,787
5-0043	100	4	3	1/8	2	5/64	10	3/8	32	1,260
5-0045	150	6	5	1/5	3	1/8	16	5/8	32	1,260
5-1031	100	4	3	1/8	2	5/64	10	3/8	32	1,260
5-1041	125	5	3	1/8	2	5/64	13	1/2	32	1,260
5-1051	150	6	5	1/5	3	1/8	16	5/8	32	1,260
5-1052	150	6	5	1/5	3	1/8	16	5/8	51	2
3-3047	200	8	4	1/6	2	5/64	13	1/2	32	1,260

Customer-specific and other grinding tools can be produced on request.



4B2 D*T*X*W*α*H



Face grinding



DISH GRINDING WHEELS 4B2

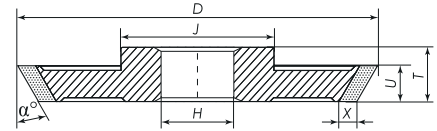
- Used for sharpening and finishing of tool front surfaces.
- The diamond layer is made of diamond grinding powder with resin bonds.

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	W, mm	W, inch	α°	H, mm	H, inch
8-7002	100	4	10	3/8	1,5	1/17	6	1/4	20	31,75	1 1/4
8-7004	150	6	12	1/2	1,5	1/17	6	1/4	20	31,75	1 1/4
8-7008	125	5	10	3/8	2	5/64	6	1/4	20	32	1,260
8-7009	150	6	12	1/2	1,5	1/17	6	1/4	20	32	1,260
8-7010	100	4	10	3/8	1,5	1/17	6	1/4	20	32	1,260

Customer-specific and other grinding tools can be produced on request.

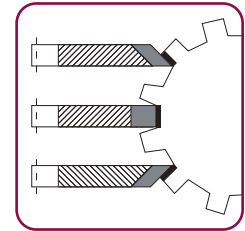
3V1

GRINDING WHEELS



3V1 D*T*U*X*α*H

- Grinding wheels are used for chip-breaker grinding, slotting and cutting surface profiling of shaft tools etc.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



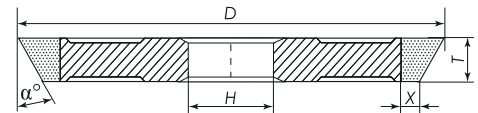
Machining of teeth

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	α°	H, mm	H, inch
9-5064	125	5	8	5/16	6	1/4	5	13/64	15	31,75	1 1/4
9-5065	100	4	8	5/16	5	13/64	10	3/8	45	31,75	1 1/4
9-5066	125	5	6	1/4	3	1/8	5	13/64	10	31,75	1 1/4
9U5063	100	4	6	1/4	3	1/8	10	3/8	15	31,75	1 1/4

Customer-specific and other grinding tools can be produced on request.

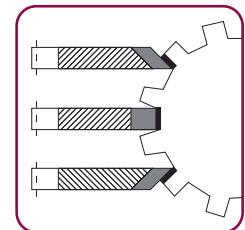
1B1

GRINDING WHEELS



1B1 D*T*X*α*H

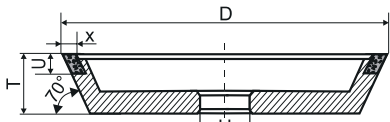
- Grinding wheels are used for chip-breaker grinding, slotting and cutting surface profiling of shaft tools etc.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



Machining of teeth

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	α°	H, mm	H, inch
OE 0327	200	8	7	9/32	7	9/32	30	76	3
FM1B53	75	3	10	3/8	10	3/8	20	20	0,787

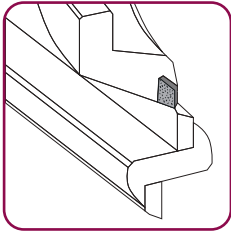
Customer-specific and other grinding tools can be produced on request.



TAPERED CUP GRINDING WHEELS

11V9-70

11V9-70 D*U*X*T*H



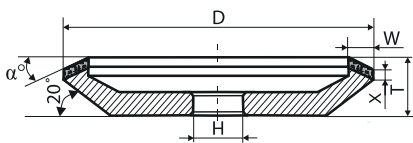
Sharpening of back and side surfaces



- Used for sharpening and finishing of back and side surfaces of carbide tools.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	U, mm	U, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
4-0101	50	2	3	1/8	1,5	1/17	20	51/64	16	0,630
4-0102	75	3	6	1/4	2	5/64	32	1 1/4	20	0,787
4-0103	100	4	6	1/4	2	5/64	40	1 4/7	20	0,787
4-0104	100	4	10	3/8	2	5/64	40	1 4/7	20	0,787
4-0105	125	5	6	1/4	3	1/8	40	1 4/7	32	1,260
4-0106	125	5	8	1/3	3	1/8	40	1 4/7	32	1,260
4-0107	125	5	10	3/8	3	1/8	40	1 4/7	32	1,260
4-0108	150	6	6	1/4	3	1/8	40	1 4/7	32	1,260
4-0109	150	6	10	3/8	3	1/8	40	1 4/7	51	2

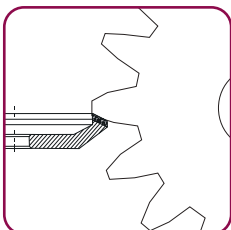
Customer-specific and other grinding tools can be produced on request.



DISH GRINDING WHEELS

12V5-20

12V5-20 D*T*W*X*α*H



Ram sharpening



- Used for sharpening and finishing of multiple-blade tools, cutter back surfaces (with straight and spiral teeth), drills and other tools made of tungsten carbide.
- Used for processing of semiconducting materials, ceramic materials, quartz and other materials.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

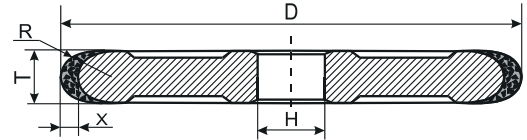
Catalog number	D, mm	D, inch	T, mm	T, inch	W, mm	W, inch	X, mm	X, inch	α°	H, mm	H, inch
5-0078	75	3	10	3/8	5	13/64	2	5/64	25	20	0,787
5-0080	100	4	10	3/8	3	1/8	2	5/64	25	20	0,787
5-0086	125	5	13	1/2	5	13/64	2	5/64	25	32	1,260
5-0090	150	6	16	5/8	10	3/8	3	1/8	25	32	1,260

Customer-specific and other grinding tools can be produced on request.

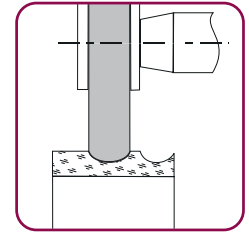
1FF1 FLAT GRINDING WHEELS

WITH SEMICIRCULAR-CONVEX PROFILE

- Used for machining chip-breaking flutes in tools.
- Profile grinding.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.



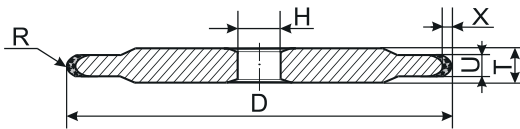
1FF1 D*T*X*R*H



Profile grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	R, mm	R, inch	H, mm	H, inch
9-0001	50	2	2	5/64	2	5/64	1,0	0,039	16	0,630
9-0002	50	2	3	1/8	4	5/32	1,5	0,059	16	0,630
9-0003	50	2	4	5/32	4	5/32	2,0	0,079	16	0,630
9-0004	75	3	4	5/32	4	5/32	2,0	0,079	20	0,787
9-0005	75	3	5	13/64	4	5/32	2,5	0,098	20	0,787
9-0006	75	3	6	1/4	4	5/32	3,0	0,118	20	0,787
9-0007	75	3	8	1/3	4	5/32	4,0	0,157	20	0,787
9-0008	75	3	10	3/8	4	5/32	5,0	0,197	20	0,787
9-0009	100	4	4	5/32	4	5/32	2,0	0,079	20	0,787
9-0010	100	4	5	13/64	4	5/32	2,5	0,098	20	0,787
9-0011	100	4	6	1/4	4	5/32	3,0	0,118	20	0,787
9-0012	100	4	8	1/3	4	5/32	4,0	0,157	20	0,787
9-0013	100	4	10	3/8	4	5/32	5,0	0,197	20	0,787
9-0014	100	4	12	1/2	6	1/4	6,0	0,236	20	0,787
9-0015	100	4	16	5/8	6	1/4	8,0	0,315	20	0,787
9-0016	100	4	20	51/64	6	1/4	10,0	0,394	20	0,787
9-0017	125	5	4	5/32	4	5/32	2,0	0,079	32	1,260
9-0018	125	5	5	1/5	4	5/32	2,5	0,098	32	1,260
9-0019	125	5	6	1/4	4	5/32	3,0	0,118	32	1,260
9-0020	125	5	8	1/3	4	5/32	4,0	0,157	32	1,260
9-0021	125	5	10	3/8	4	5/32	5,0	0,197	32	1,260
9-0022	125	5	12	1/2	6	1/4	6,0	0,236	32	1,260
9-0023	125	5	16	5/8	6	1/4	8,0	0,315	32	1,260
9-0024	125	5	20	51/64	6	1/4	10	0,394	32	1,260
9-0025	150	6	10	3/8	4	5/32	5	0,197	32	1,260
9-0027	150	6	16	5/8	4	5/32	8	0,315	32	1,260
9-0028	150	6	20	51/64	6	1/4	10	0,394	32	1,260
9-0029	200	8	20	51/64	6	1/4	10	0,394	51	2
9-0030	200	8	30	11/6	6	1/4	15	0,591	51	2
9-0031	250	10	20	51/64	6	1/4	10	0,394	51	2
5-9156	80	3	40	14/7	5	1/5	26	1,024	32	1,260
5-9122	100	4	4	1/6	4	5/32	2	0,079	31,75	1 1/4
5-9123	100	4	6	1/4	4	5/32	3	0,118	31,75	1 1/4
5-9124	100	4	8	1/3	4	5/32	4	0,157	31,75	1 1/4
5-9125	100	4	10	3/8	4	5/32	5	0,197	31,75	1 1/4
5-9185	150	6	24	1	7	9/32	12	0,472	32	1,260
5-9188	150	6	32	11/4	7	9/32	16	0,630	32	1,260
9-2802	300	12	30	11/6	5	13/64	15	0,591	42	1,654

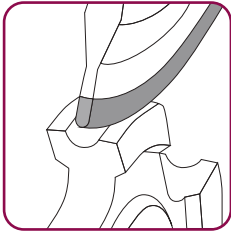
Customer-specific and other grinding tools can be produced on request.



DIAMOND GRINDING WHEELS 14FF1

14FF1 D*T*U*X*R*H

WITH SEMICIRCULAR-CONVEX PROFILE



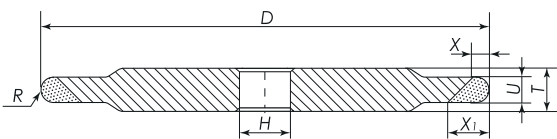
Profile grinding



- Used for machining chip-breaking flutes in tools.
- Profile grinding.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.
- For metal bonded tools coolant is required.

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	R, mm	R, inch	H, mm	H, inch
9-2515	150	6	8,5	1/3	4	1/6	4	5/32	2	0,079	32	1,260
9-2639	200	8	10	3/8	3	3/8	4	5/32	1,5	0,059	51	2
9-2653	200	8	10	3/8	3	3/8	4	5/32	1,5	0,059	60	2,362
9-2640	200	8	10	3/8	4	5/32	4	5/32	2	0,079	60	2,362
9-2641	200	8	10	3/8	5	13/64	4	5/32	2,5	0,098	60	2,362
9-2655	200	8	10	3/8	6	1/4	4	5/32	3	0,118	60	2,362
9-0304	200	8	12	1/2	10	2/5	5	13/64	5	0,197	127	5

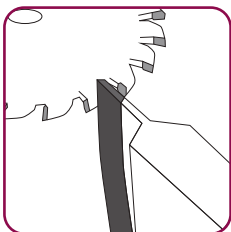
Customer-specific and other grinding tools can be produced on request.



CBN GRINDING WHEELS 14F1

14F1 D*T*U*X*X1*R*H

WITH SEMICIRCULAR-CONVEX PROFILE



Profile grinding

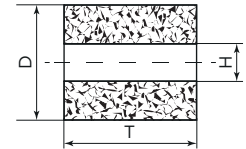


- Grinding wheels for production, re-sharpening and re-profiling of HSS circular blades.

Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	X1, mm	X1,inch	R, mm	R, inch	H, mm	H, inch
W-0100	150	6	8	5/16	1,2	1/21	4	5/32	7	9/32	0,60	0,024	32	1,260
W-0101	150	6	8	5/16	1,3	3/64	4	5/32	7	9/32	0,65	0,026	32	1,260
W-0102	150	6	8	5/16	1,5	1/17	4	5/32	7	9/32	0,75	0,030	32	1,260
W-0103	150	6	8	5/16	1,6	1/16	5	13/64	8	5/16	0,80	0,031	32	1,260
W-0104	150	6	8	5/16	1,8	1/16	5	13/64	8	5/16	0,90	0,035	32	1,260
W-0105	150	6	8	5/16	2,0	5/64	5	13/64	8	5/16	1,00	0,039	32	1,260
W-0106	150	6	8	5/16	2,5	7/64	8	5/16	12	1/2	1,25	0,049	32	1,260
W-0107	150	6	8	5/16	3,0	1/8	8	5/16	12	1/2	1,50	0,059	32	1,260
W-0108	150	6	8	5/16	3,5	9/64	8	5/16	12	1/2	1,75	0,069	32	1,260
W-0109	150	6	8	5/16	4,0	5/32	10	3/8	15	3/5	2,00	0,079	32	1,260
W-0110	150	6	8	5/16	5,0	13/64	10	3/8	15	3/5	2,50	0,098	32	1,260
W-0111	150	6	8	5/16	5,5	7/32	10	3/8	15	3/5	2,75	0,108	32	1,260
W-0112	150	6	8	5/16	6,0	1/4	10	3/8	15	3/5	3,00	0,118	32	1,260

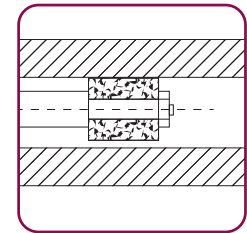
Customer-specific and other grinding tools can be produced on request.

A8 STRAIGHT FLAT GRINDING DIAMOND WHEELS



A8 D*T*H

- Circular internal grinding of cylindrical surfaces of carbide, ceramic, glass and other hard-to-machine materials.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.

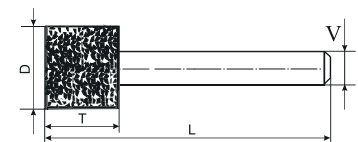


Internal grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	H, mm	H, inch
0-0181	6	1/4	6	1/4	2	0,079
0-0182	8	5/16	6	1/4	3	0,118
0-0183	8	5/16	10	3/8	3	0,118
0-0184	10	3/8	6	1/4	4	0,157
0-0185	10	3/8	10	3/8	4	0,157
0-0187	13	1/2	10	3/8	4	0,157
0-0196	25	1	20	51/64	6	0,236
0-0195	20	51/64	20	51/64	8	0,315
6-3024	30,5	1 1/5	11	7/16	8	0,315
OB0192	12	1/2	8	5/16	6	0,236
0-0192	12	1/2	10	3/8	4	0,157
0-0193	14	5/9	10	3/8	4	0,157

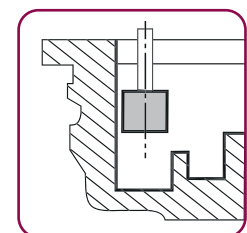
Customer-specific and other grinding tools can be produced on request.

AW CYLINDRICAL DIAMOND POINTS



AW D*T*V*L

- Grinding of cylindrical surfaces.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.
- Hollow teeth grinding.
- Inner diameter grinding of hard metal, HSS and nonmetal workpieces.

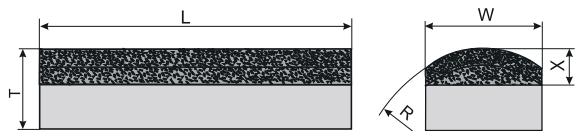


Internal grinding

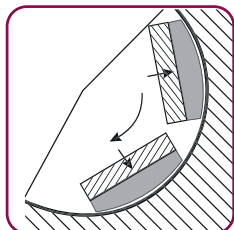
Catalog number	D, mm	D, inch	T, mm	T, inch	V, mm	V, inch	L, mm	L, inch
8-1011	6	1/4	3	1/8	6	1/4	60	2 1/3
8-1024	8	5/16	3	1/8	8	1/3	60	2 1/3
8-1033	10	3/8	6	1/4	10	2/5	80	3 1/7
8-1042	12	1/2	6	1/4	12	1/2	80	3 1/7
8-1049	16	5/8	8	5/16	16	5/8	80	3 1/7
8-1058	20	51/64	8	5/16	20	51/64	80	3 1/7
8H1023	7	9/32	6	1/4	6	1/4	45	1 7/9
6D3051	6,5	17/64	6	1/4	6	1/4	40	1 4/7
6-3051	7	9/32	6	1/4	6	1/4	56,4	2 2/9

Customer-specific and other grinding tools can be produced on request.

DIAMOND HONING STICKS WITH THE CORPS



L*T*X*W*R



Honing

RECOMMENDATIONS FOR DIAMOND HONES

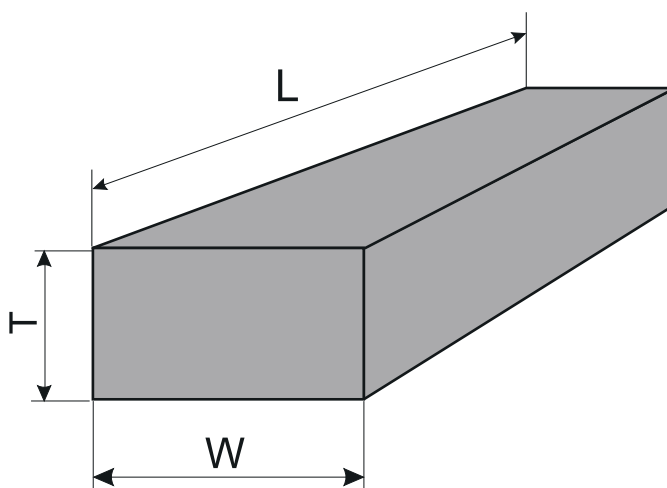
- Diamond hones are used for high-precision apertures, processing cast iron, steel and other machine parts such as cylinder blocks, cylinder liners, hubs for car and tractor engines, hydro-and pneumatic units, compressor cylinders, hubs for ship diesel engines, brake units, gears, connecting-rods, fuel pump hubs.
- The diamond layer is made of diamond grinding powder with metal or resin bonds.

Catalog number	L, mm	L, inch	T, mm	T, inch	X, mm	X, inch	W, mm	W, inch	R, mm	R, inch
2-0007	50	2	2	5/64	1	3/76	1	3/76	2	0,079
2-0004	80	3	5,2	1/5	2	5/64	5	13/64	37,5	1,476
2-0005	80	3	5	13/64	2	5/64	3	1/8	3	0,118
8-0023	100	4	6	1/4	3	1/8	5	13/64	30	1,181
8-0036	100	4	5	13/64	3	1/8	8	5/16	40	1,575
8-0063	150	6	6	1/4	3	1/8	16	5/8	100	4
8-0054	150	6	6	1/4	4	5/32	12	1/2	50	2

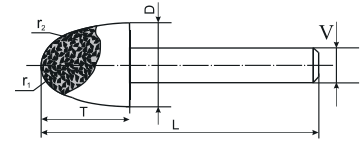
Customer-specific and other grinding tools can be produced on request.

Diamond Honing Sticks (monolayer)

Code	L, mm	L, inch	W, mm	W, inch	T, mm	T, inch
125-84	125	5	8	1/3	4	5/32
100-84	100	4	8	1/3	4	5/32
100-85	100	4	8	1/3	5	13/64
80-3-5	80	3	3	1/8	5	13/64
80-5-5	80	3	5	13/64	5	13/64
75-6-4	75	3	6	1/4	4	5/32
75-6-5	75	3	6	1/4	5	13/64
60-3-3	60	2	3	1/8	3	1/8
50-4-3	50	2	4	5/32	3	1/8
50-4-4	50	2	4	5/32	4	5/32
50-6-4	50	2	6	1/4	4	5/32
50-2-2	50	2	2	5/64	2	5/64

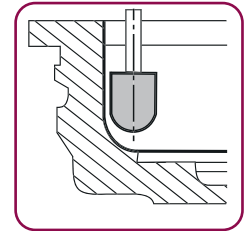


F1W SEMICIRCULAR DIAMOND MOUNTED POINTS



F1W D*T*L*V*r1*r2

- Internal grinding of complex surfaces.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.

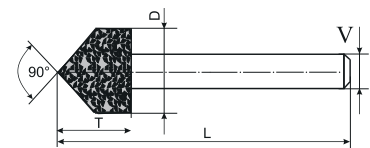


Internal profile grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	L, mm	L, inch	V, mm	V, inch	r1, mm	r1, inch	r2, mm	r2, inch
9-3130	6	1/4	9	1/3	60	2 1/3	3	1/8	1,5	0,059	12	0,472
9-3132	8	5/16	12	1/2	60	2 1/3	3	1/8	1,5	0,059	15	0,591
9-3137	10	3/8	14	9/16	60	2 1/3	6	1/4	2	0,079	15	0,591
9-3144	12	1/2	16	5/8	80	3 1/7	6	1/4	2	0,079	22	0,866
9-3146	16	5/8	20	51/64	80	3 1/7	8	5/16	3	0,118	25	0,984
9-3148	20	51/64	24	1	80	3 1/7	8	5/16	3,5	0,138	29	1,142

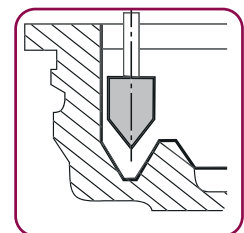
Customer-specific and other grinding tools can be produced on request.

EW TAPERED DIAMOND MOUNTED POINTS



EW D*T*V*L

- Internal grinding of complex surfaces.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.



Internal grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	V, mm	V, inch	L, mm	L, inch
9-3111	6	1/4	6	1/4	3	1/8	40	1 4/7
9-3112	6	1/4	6	1/4	4	1/6	40	1 4/7
9-3113	8	5/16	8	5/16	3	1/8	40	1 4/7
9-3114	8	5/16	8	5/16	6	1/4	40	1 4/7
9-3115	10	3/8	9	23/64	6	1/4	60	2 1/3
9-3117	12	1/2	10	3/8	6	1/4	60	2 1/3
9-3121	20	51/64	18	45/64	8	5/16	80	3 1/7

Customer-specific and other grinding tools can be produced on request.

SPECIAL DIAMOND STICKS (VERSIONS A, C)

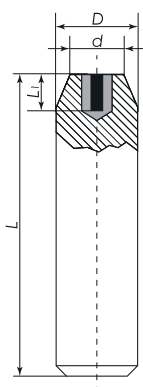
- For dressing straight wheels and profile dressing.
- For wheels with hardness from M to Ct2.

Product advantages:

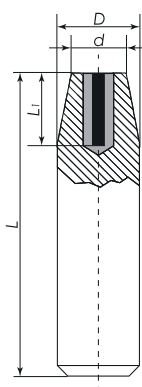
Narrow but long. The special shape of the dressing crystal permits effective profile grinding. Homogeneity of crystal structure provides stability during dressing.

Diamond disposition: type 01-chain, type 02- layered

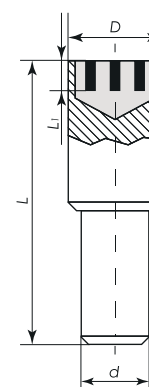
TYPE 01, VERSION A.
CODE 800053



TYPE 01, VERSION A.
CODE 800054



TYPE 02, VERSION C.
CODE 800083

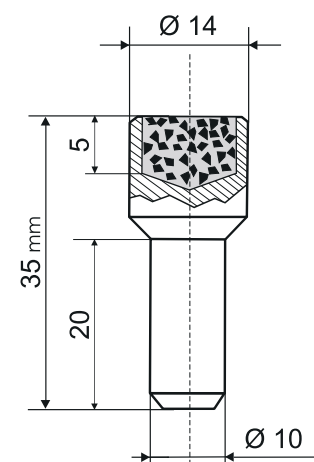


Catalog number	Type	Version	D, mm	D, inch	d, mm	d, inch	L, mm	L, inch	L1, mm	L1, inch	Quantity of dressing crystals
800053	01	A	10	3/8	5	1/5	45	17/9	4	1/6	1
800054	01	A	10	3/8	5	1/5	45	17/9	8	5/16	1
800083	02	C	10	3/8	5	1/5	45	17/9	4	1/6	3

Customer-specific and other grinding tools can be produced on request.

Diamond dressing sticks 080094 Version C Type 04

For dressing straight abrasive wheels (hardness from M to C1) and profile dressing.



Customer-specific and other grinding tools can be produced on request.

pdtools
SUPERABRASIVES



**DIAMOND GRINDING WHEELS
FOR MACHINING OF GLASS,
CRYSTAL, DIAMONDS, CERAMICS**

MACHINING OF NONFERROUS MATERIALS WITH DIAMOND TOOLS

GLASS GRINDING

Diamond tools are used for glass grinding in a wide range of industries, including technical sheet glass processing, auto- mobile glass, optical glass, crystal and glassware.

Diamond wheels with semicircular and trapezoidal profiles, as well as with other profiles, are used for grinding glass surfaces. As a rule, diamond wheels that are electroplated and with metal bonds are used for glass surface grinding. The wheels are made with diamond powder types AC6-AC32 (synthetic diamonds) grit size D213 D64 with electroplating (nickel) or with metal bonds types M2-01, M3-04, M-300, M3-08.

For minimum wear of the diamond layer, diamond wheels should be balanced after being mounted on the spindle. It is not recommended to take the diamond wheels off the flange until they are fully used. Truing and dressing are necessary to restore the profile and the cutting properties of the wheels. Dressing is performed with a silicon carbide grinding wheel or electrolytes.

For automobile glass surfaces, the following parameters for diamond grinding are recommended:

Grinding speed, m/sec.....25-30;
 Glass feeding speed, m/min.....3,5-5,5;
 Wheel pressing strength, H.....0,35-0,50;
 Coolant usage (water based) is 10-15 l/min;
 Tolerances.....0,2-0,3mm;

During the use of the wheel, its cutting properties become weaker, so it is necessary to increase the wheel pressure on the glass. If chips appear on the edge of the glass, the wheel must be dressed.

CRYSTAL GLASS PROCESSING

Diamond tools are widely used in the manufacture of crystal and glassware: edge grinding, grinding of flat surfaces and bases (wine glasses, etc.), sharp edge blunting (facet grinding), engraving, grinding of conical surfaces. For such purposes diamond grinding wheels 14EE1, 1EE1 with metal bonds are used.

The wheel size and type are chosen depending on the operation and the shape and size of the item to be machined. As a rule, medium sized and large items are processed on machines individually, small parts are processed on automatic machines with programmed designs.

Characteristics of diamond layers for decorative glass processing

Processing type	Workpiece	Diamond powder characteristics	
		Grade	Diamond concentration, %
Edge grinding with width up to 5 mm	Small and medium	D54	50
Edge grinding with width more than 5 mm	Medium	D64	
Edge pregrinding with width more than 8 mm	Medium and Large	D213 D181 D107	100
Edge finishing with width more than 8 mm	Medium	D54	50
	Large	D64 M40	50; 100
Engraving, cone engraving, fine faceting, drawing	Small	D54	50
	Medium	M63	
	Large	M40	

CRYSTAL GLASS PROCESSING (continuation)

To prepare the grinding wheel for usage is of great importance. It is to be checked thoroughly after storage: cracks, diamond layer peeling, and nicks are not acceptable. The wheel must be balanced after mounting on the flange, and after its placement on the spindle the wheel must be adjusted to avoid wear of the diamond layer.

The wheel profile angle as a rule is 90°, 110°, 130° or 140°. The characteristics of diamond wheels recommended for decorative and household glass are found in the table.

The articles have been divided into the following sizes:

Large vases with height more than 250 mm (10 in.), diameter 150 mm (6 in.), decanters with capacity more than 500 ml, Medium vases with height up to 250 mm (10 in.), diameter 150 mm (6 in.), decanters with capacity up to 500 ml, Small wineglasses, glasses, salt shakers, etc..

During hand drawing operations, water based coolant is always used in order to visually monitor the process. Mineral oil coolant as well as water coolant are used in machine drawing operations.

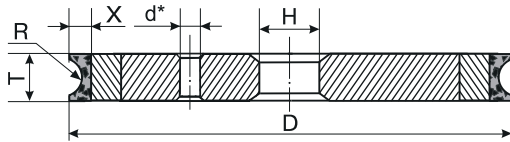
DIAMOND DRILLS

Diamond drilling is the most productive method of making a hole in friable, hard, nonmetallic materials. The most commonly used in industry are tubular drills consisting of a diamond rim crown, fixed in a cylindrical core (drill end). These tools remove material only on the rim surface. Usage of drills of this type helps to reduce axial load and to ease coolant supply to the cutting area. It provides high productivity and quality of processing and decreases diamond use.

Recommended rotational speed of drills for glass drilling

Drill diameter, mm	Drill diameter, inch	Rotational speed, RPM	Mechanical feeding, mm/min
1 - 3	0,039 - 1/8	6 000 - 24 000	20 - 50
3 - 6	1/8 - 1/4	3 000 - 12 000	30 - 60
6 - 15	1/4 - 19/32	2 600 - 6 000	30 - 50
15 - 25	19/32 - 1	2 000 - 4 500	25 - 40
25 - 50	1 - 2	1 200 - 2 500	20 - 30
50 - 100	2 - 4	500 - 1 200	10 - 20

In other types of drilling, the coolant is supplied to the work area though a tube inside the tool. As a rule, for the hand drilling of furniture, mirror and automobile glass, industrial water is used.

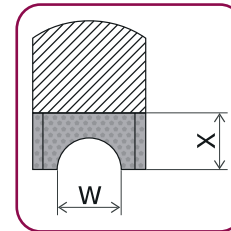


**DIAMOND WHEELS
FOR GLASS PROCESSING**

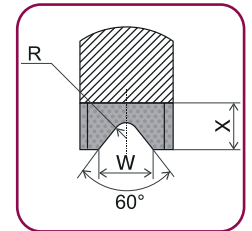
1F6V

1F6V D*T*X*W*R*H

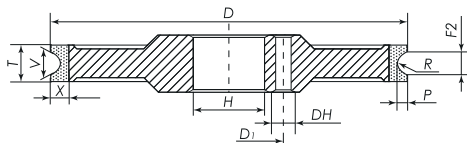
(A-LINE EDGE) (STANDARD LINE)



Picture 1



Picture 2

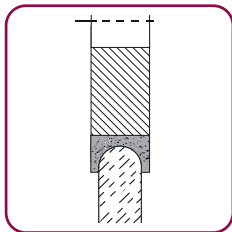


14F6V D*T*U*X*R*W*H

**DIAMOND
WHEELS**

14F6V

(STANDARD LINE)



Machining of technical glass edge



d* - at D=150 (6 in.),
2 apertures $\varnothing 7,0 \times 180^\circ$ by $\varnothing 70$

d* - at D=175 (7 in.),
3 apertures $\varnothing 8,5 \times 120^\circ$ by $\varnothing 76$

- Processing of technical glass and mirrors.
- Diamond layer is made of diamond grinding powders and micro grinding powders with metal bonds.
- Coolant is required.

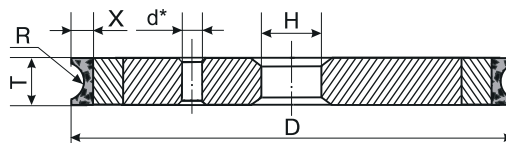
Glass thickness		Wheel form	Pic.	Code	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	R, mm	R, inch	W, mm	W, inch	H, mm	H, inch
mm	inch				D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	R, mm	R, inch	W, mm	W, inch	H, mm	H, inch
2	0,079	1F6V	1	150-02	150	6	10	3/8	-	-	5	1/5	1,4	0,055	2,7	0,106	22	0,866
3	0,118	1F6V	2	150-03	150	6	12	1/2	-	-	8	5/16	1,6	0,063	4,2	0,165	22	0,866
4	0,157	1F6V	2	150-04	150	6	12	1/2	-	-	8	5/16	2	0,079	4,6	0,181	22	0,866
5	0,197	1F6V	2	150-05	150	6	12	1/2	-	-	8	5/16	2,5	0,098	5,8	0,228	22	0,866
6	0,236	1F6V	2	150-06	150	6	12	1/2	-	-	8	5/16	4	0,157	8,1	0,319	22	0,866
8	0,315	1F6V	1	150-08	150	6	18	45/64	-	-	9	3/8	5,5	0,217	11,0	0,433	22	0,866
10	0,394	1F6V	1	150-10	150	6	18	45/64	-	-	8	5/16	8,6	0,339	12,1	0,476	22	0,866
2	0,079	14F6V	1	175-02	175	7	12	1/2	11	7/16	7	9/32	1,4	0,055	2,7	0,106	63,4	2,496
3	0,118	1F6V	2	175-03	175	7	12	1/2	-	-	7	9/32	1,6	0,063	4,2	0,165	63,4	2,496
4	0,157	1F6V	1	175-04	175	7	12	1/2	-	-	8	5/16	2,5	0,098	5,0	0,197	63,4	2,496
5	0,197	1F6V	2	175-05	175	7	12	1/2	-	-	8	5/16	2,5	0,098	5,8	0,228	63,4	2,496
6	0,236	14F6V	2	175-06	175	7	14	9/16	12	1/2	8	5/16	4	0,157	7,5	0,295	63,4	2,496
8	0,315	14F6V	1	175-08	175	7	17	43/64	12	1/2	8	5/16	5,5	0,217	10,0	0,394	63,4	2,496

Customer-specific and other grinding tools can be produced on request.

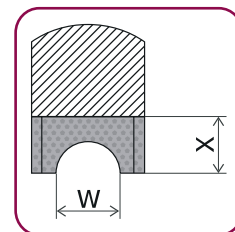
DIAMOND FLAT GRINDING WHEELS WITH SEMICIRCULAR-CONCAVE PROFILE FOR MACHINES BY: SULAK, INTERMAC, Z.BAVELLONI, SZILANK, ETC.

1F6V DIAMOND WHEELS FOR GLASS PROCESSING

(A-LINE EDGE) (PREMIUM LINE)



1F6V D*T*X*R*W*H

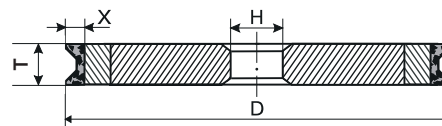


Glass thickness		Code	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	R, mm	R, inch	W, mm	W, inch	H, mm	H, inch
mm	inch													
2	0,079	FL-310	150	6	7	9/32	6	1/4	1,8	0,071	3,2	0,126	22	0,866
3	0,118	FL-311	150	6	8	5/16	6	1/4	2,25	0,089	4,2	0,165	22	0,866
4	0,157	FL-312	150	6	9	3/8	6	1/4	2,7	0,106	5,2	0,205	22	0,866
2	0,079	FS-310	150	6	7	9/32	6	1/4	1,8	0,071	3,2	0,126	22	0,866
3	0,118	FS-311	150	6	8	5/16	6	1/4	2,25	0,089	4,2	0,165	22	0,866
4	0,157	FS-312	150	6	9	3/8	6	1/4	5,2	0,205	5,2	0,205	22	0,866

Customer-specific and other grinding tools can be produced on request.

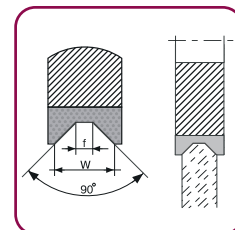
1DD6V DIAMOND WHEELS FOR GLASS PROCESSING

(A-LINE EDGE) (PREMIUM LINE)



1DD6V D*T*X*f*W*H

- Processing of technical glass edges and mirrors on machines by Sulak, Intermac, Z.Baveloni, Szilank, etc.
- Diamond layer is made of diamond grinding powders with metal bonds.
- Coolant is required.

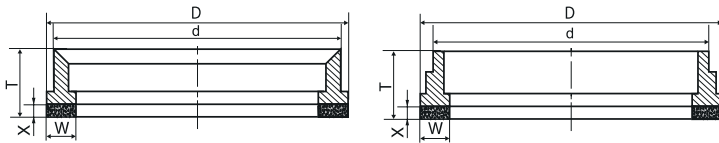


Machining of technical glass edges

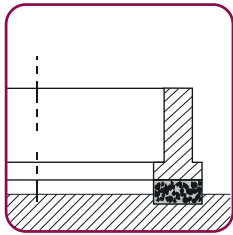
Glass thickness		Code	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	f, mm	f, inch	W, mm	W, inch	H, mm	H, inch
mm	inch													
4	0,157	DL-311	150	6	8	5/16	7	9/32	2,5	0,098	5	1/5	22	0,866
5	0,197	DL-312	150	6	9	3/8	7	9/32	3,3	0,130	6	1/4	22	0,866
6	0,236	DL-313	150	6	10	3/8	7	9/32	4	0,157	7	9/32	22	0,866
8	0,315	DL-314	150	6	12	1/2	7	9/32	5,3	0,209	9	3/8	22	0,866
10	0,394	DL-315	150	6	14	9/16	7	9/32	7,5	0,295	11	7/16	22	0,866
12	0,472	DL-316	150	6	16	5/8	7	9/32	9,5	0,374	13	1/2	22	0,866
4	0,157	DS-311	150	6	8	5/16	7	9/32	2,5	0,098	5	1/5	22	0,866
5	0,197	DS-312	150	6	9	3/8	7	9/32	3,3	0,130	6	1/4	22	0,866

Customer-specific and other grinding tools can be produced on request.

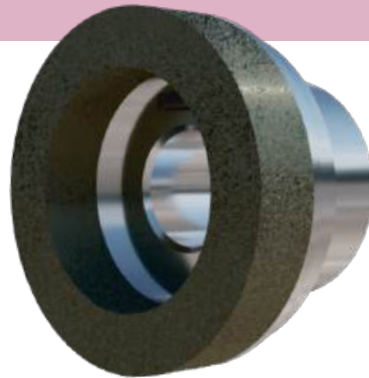
DIAMOND RING WHEELS 2A2



2A2 D*T*W*X*d



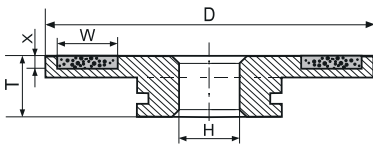
Hole drilling



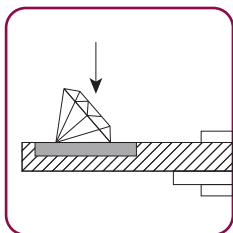
- Grinding of spherical and flat surfaces made of non-metal hard materials (glass, silicon).
- Production of tube drills with diameters more than 20 mm (1 in.).
- The diamond layer is made of diamond grinding powder and micropowders with metal bonds.
- Usage of coolant is obligatory.

Catalog number	Picture	D, mm	D, inch	T, mm	T, inch	W, mm	W, inch	X, mm	X, inch	d, mm	d, inch
6-0100	1	30	1	32	1 1/4	5	13/64	10	3/8	30	1 1/6
6-0101	1	35	1	32	1 1/4	5	13/64	10	3/8	25	1
6-0102	1	40	2	32	1 1/4	5	13/64	10	3/8	30	1 1/6
6-0103	1	60	2	32	1 1/4	5	13/64	10	3/8	50	2
6-0104	1	50	2	32	1 1/4	5	13/64	10	3/8	40	1 4/7
6-0105	1	70	3	32	1 1/4	5	13/64	10	3/8	60	2 1/3
6-0106	1	80	3	32	1 1/4	5	13/64	10	3/8	70	2 3/4
6-0107	2	50	2	31	1 2/9	2,5	7/64	8	5/16	47	1 6/7
6-0108	2	60	2	31	1 2/9	2,5	7/64	8	5/16	57	2 1/4
6-0109	2	70	3	31	1 2/9	2,5	7/64	8	5/16	67	2 2/3
6-0110	2	80	3	31	1 2/9	2,5	7/64	8	5/16	77	3

Customer-specific and other grinding tools can be produced on request.



1A2 D*T*W*X*H



Diamond faceting



FLAT DIAMOND GRINDING WHEELS 1A2

- Processing of diamonds, precious and semiprecious stones, decorative stones.
- Made with axis and without.
- The diamond layer is made of diamond grinding powder and micropowders with metal bonds.

Catalog number	D, mm	D, inch	T, mm	T, inch	W, mm	W, inch	X, mm	X, inch	H, mm	H, inch
9-3050	270	11	22	7/8	30	1 1/6	2	5/64	50	1,969
9-3033	320	13	16	5/8	30	1 1/6	1,5	1/16	114	4,488
9-3034	315	12	22	7/8	30	1 1/6	1,5	1/16	114	4,488
9-3038	315	12	16	5/8	30	1 1/6	2	5/64	114	4,488
9-3035	315	12	22	7/8	40	1 4/7	1,5	1/16	114	4,488
9-3036	315	12	10,5	27/64	60	2 1/3	1,5	1/16	114	4,488
9-3037	315	12	22	7/8	40	1 4/7	1,5	1/16	50,8	2
9-3045	315	12	22	7/8	60	2 1/3	1,5	1/16	50,8	2
9-3042	315	12	44	1 3/4	60	2 1/3	2	5/64	30	1,181

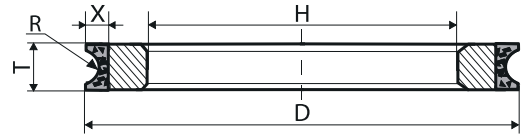
Customer-specific and other grinding tools can be produced on request.

2F6V FLAT DIAMOND GRINDING WHEELS

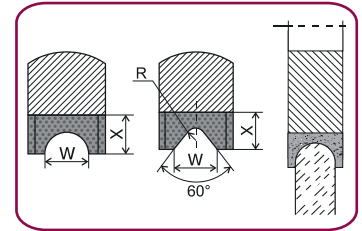
WITH SEMICIRCULAR-CONCAVE PROFILE

STANDARD LINE

- Machining of edges of industrial glass.
- The diamond layer is made of diamond grinding powder and micropowders with metal bonds.
- Usage of coolant is obligatory.



2F6V D*T*X*R*W*H



Machining of edges of industrial glass

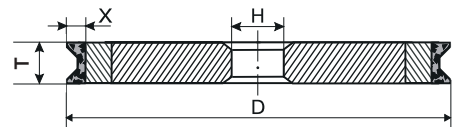
Glass thickness		Code	Pic.	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	R, mm	R, inch	W, mm	W, inch	H, mm	H, inch
mm	inch														
3	0,118	9-0121	2	200	8	20	45/64	8	5/16	2	0,079	4,2	0,165	130	5,118
2	0,079	9-0112	1	250	10	9	3/8	7	9/32	1,6	0,063	3,2	0,126	200	7,874
3	0,118	9-0113	1	250	10	9	3/8	7	9/32	1,8	0,071	3,6	0,142	200	7,874
3	0,118	9-0114	1	250	10	9	3/8	7	9/32	2	0,079	4	0,157	200	7,874
3	0,118	9-0117	2	250	10	10	3/8	6	1/4	1,6	0,063	4	0,157	200	7,874
4	0,157	9-0115	1	250	10	12	1/2	7	9/32	2,5	0,098	5	0,197	200	7,874
5	0,197	9-0101	1	250	10	12	1/2	7	9/32	3	0,118	6	0,236	200	7,874
6	0,236	9-0116	1	250	10	17	43/64	7	9/32	4	0,157	8	0,315	200	7,874
8	0,315	9-0103	1	250	10	17	43/64	9	3/8	5	0,197	10	0,394	200	7,874

Customer-specific and other grinding tools can be produced on request.

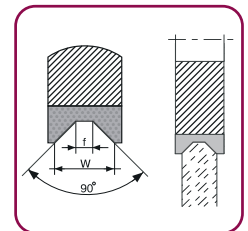
1DD6V DIAMOND WHEELS FOR GLASS PROCESSING

(STANDARD LINE)

- Processing of technical glass edges and mirrors on machines by Sulak, Intermac, Z.Baveloni, Szilank, etc.
- Diamond layer is made of diamond grinding powders with metal bonds.
- Coolant is required.



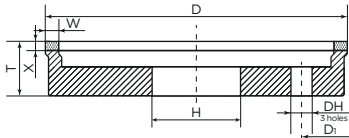
1DD6V D*T*X*f*W*H



Machining of technical glass edges

Glass thickness		Code	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	f, mm	f, inch	W, mm	W, inch	H, mm	H, inch
mm	inch													
4	0,157	150T04	150	6	14	9/16	4,5	3/16	2,5	0,098	6,5	0,256	22	0,866
5	0,197	150T05	150	6	14	9/16	4,5	3/16	3	0,118	7	0,276	22	0,866
6	0,236	150T06	150	6	14	9/16	4,5	3/16	3,5	0,138	7,5	0,295	22	0,866
8	0,315	150T08	150	6	16	5/8	4,5	3/16	5	0,197	9	0,354	22	0,866
10	0,394	150T10	150	6	16	5/8	4,5	3/16	7	0,276	11	0,433	22	0,866

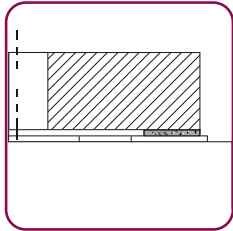
Customer-specific and other grinding tools can be produced on request.



FLAT RECESSED DIAMOND GRINDING WHEELS **6A2**

6A2 D*T*W*X*H

(PREMIUM LINE AND STANDARD)



Surface grinding



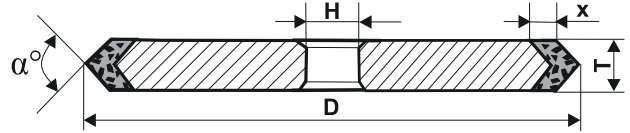
- Processing of technical glass edges and.
- Diamond layer is made of diamond grinding powders with metal bonds.
- Coolant is required.

Code	D, mm	D, inch	T, mm	T, inch	W, mm	W, inch	X, mm	X, inch	H, mm	H, inch
3-2912	160	6	51	2	12	1/2	8	5/16	130	5,118
3-2870	150	6	40	1 23/40	8	5/16	8	5/16	30	1,181
3-2871	160	6	51	2	8	5/16	8	5/16	130	5,118
3-2868	150	6	42	1 17/26	5	1/5	8	5/16	40	1,575
3-2914	150	6	26	1 2/85	6	1/4	6	1/4	50	2
3-2932	100	4	23	48/53	15	19/32	6	1/4	40	1,575
3-3046	150	6	30	1 2/11	8	5/16	8	5/16	50	2

Customer-specific and other grinding tools can be produced on request.

1EE1 FLAT DIAMOND GRINDING WHEELS

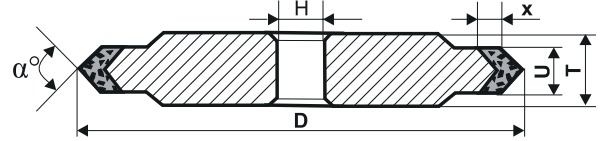
WITH DOUBLE-SIDED CONICAL PROFILE



1EE1 D*T*X* α *H

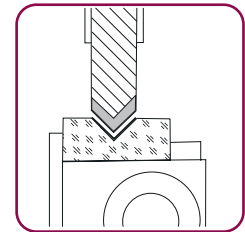
14EE1 FLAT DIAMOND GRINDING WHEELS

WITH DOUBLE-SIDED CONICAL PROFILE



14EE1 D*T*U*X* α *H

- Processing of industrial and decorative glass, crystal, external threading and grinding.
- Grinding of profiled workpieces made of carbide and other hard to process materials.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.



Glass cutting

Type 1EE1

Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	α°	H, mm	H, inch
9-0616	30	1	4	5/32	2,5	7/64	30	6	0,236
7-1175	50	2	10	3/8	5	13/64	90	16	0,630
9-0035	50	2	10	3/8	5	13/64	120	16	0,630
7-0186	75	3	16	5/8	5	13/64	110	32	1,260
9-0618	80	3	10	3/8	10	3/8	120	32	1,260
7-1240	100	4	10	3/8	10	3/8	90	42	1,654
7-1246	100	4	10	3/8	10	3/8	120	42	1,654
7-0190	150	6	8	1/3	5	13/64	90	32	1,260
7-0191	150	6	8	1/3	5	13/64	110	32	1,260
7-0274	150	6	10	3/8	5	13/64	120	42	1,654
9-0539	150	6	10	3/8	10	3/8	90	32	1,260
9-0531	150	6	10	3/8	10	3/8	120	42	1,654
7-0193	150	6	12	1/2	5	13/64	90	32	1,260
7-0197	150	6	12	1/2	10	3/8	110	32	1,260
7-0303	150	6	12	1/2	10	3/8	110	42	1,654
7-0196	150	6	12	1/2	10	3/8	90	32	1,260
7-0200	150	6	16	5/8	5	13/64	110	32	1,260
7-0203	150	6	16	5/8	10	3/8	110	32	1,260
9-0034	200	8	10	3/8	10	3/8	90	42	1,654
9-0540	200	8	10	3/8	10	3/8	120	42	1,654
7-0210	250	10	10	3/8	10	3/8	110	32	1,260
7-0215	250	10	12	1/2	10	3/8	110	32	1,260
7-0216	250	10	16	5/8	5	13/64	90	32	1,260
7-0217	250	10	16	5/8	5	13/64	110	32	1,260

Customer-specific and other grinding tools can be produced on request.

Type 14EE1

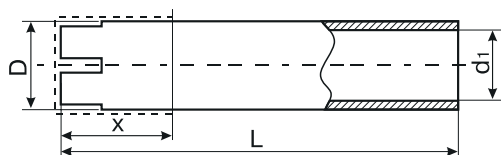
Catalog number	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	α°	H, mm	H, inch
9-3229	125	5	6	1/4	3	1/8	3	1/8	90	32	1,260
9-3133	125	5	6	1/4	3	1/8	4	5/32	60	32	1,260
9-3204	125	5	6	1/4	3	1/8	5	13/64	45	32	1,260
9-3203	125	5	6	1/4	3	1/8	6	1/4	35	32	1,260
7-0154	250	10	10	3/8	6	1/4	5	13/64	110	32	1,260
7-0158	250	10	10	3/8	8	5/16	5	13/64	110	32	1,260

Customer-specific and other grinding tools can be produced on request.

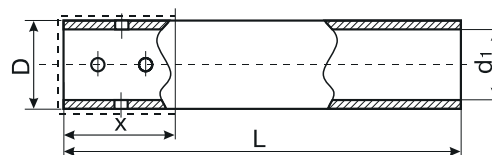
DIAMOND DRILLS

Application:

- Drilling of holes in optical and industrial glass and other non-metal materials
- Diamond layer is made of diamond powders and micropowders with electroplated bonds
- Usage of coolant is obligatory.

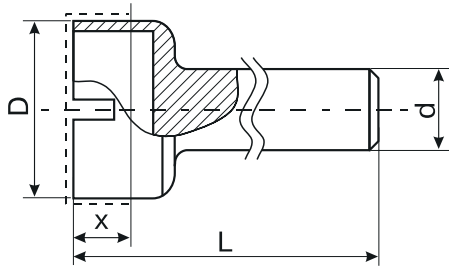


Picture 1

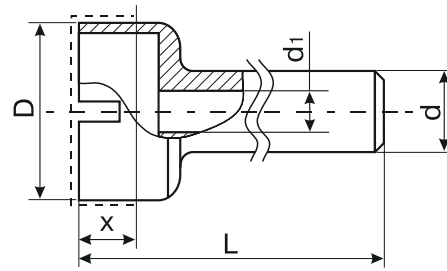


Picture 2

Designation of drill size and type	Core	Picture	D, mm	D, inch	d1, mm	d1, inch	L, mm	L, inch	X, mm	X, inch
04.01.159.00	Brass	1	3	1/8	2,5	7/64	57	2 1/4	6	1/4
04.01.159.00-01		1	4	5/32	3,5	9/64	57	2 1/4	6	1/4
04.01.159.00-02		1	5	1/5	4,5	3/16	57	2 1/4	6	1/4
04.01.159.00-03		1	6	1/4	5	1/5	57	2 1/4	6	1/4
04.01.159.00-04		1	7	9/32	6	1/4	57	2 1/4	6	1/4
04.01.159.00-05		1	8	5/16	7	9/32	57	2 1/4	6	1/4
04.01.159.00-06		1	9	3/8	8	5/16	57	2 1/4	6	1/4
04.01.159.00-07		1	10	3/8	9	3/8	57	2 1/4	6	1/4
04.01.159.00-08		1	12	1/2	10	3/8	57	2 1/4	6	1/4
04.01.159.00-09		1	14	9/16	12,8	1/2	57	2 1/4	6	1/4
04.01.159.00-10		1	16	5/8	14,8	4/7	57	2 1/4	6	1/4
04.01.242.00	Steel	1	3	1/8	1,4	1/18	50	2	6	1/4
04.01.242.00-01		1	4	5/32	2,4	5/53	50	2	6	1/4
04.01.242.00-02		1	5	1/5	3,4	2/15	50	2	6	1/4
04.01.242.00-03		1	6	1/4	4,4	3/16	50	2	6	1/4
04.01.242.00-04		1	7	9/32	5	1/5	50	2	6	1/4
04.01.242.00-05		1	8	5/16	6	1/4	50	2	6	1/4
04.01.242.00-06		1	9	3/8	7	9/32	50	2	6	1/4
04.01.242.00-07		1	10	3/8	8	5/16	50	2	6	1/4
04.01.242.00-08		1	12	1/2	10	3/8	50	2	6	1/4
04.01.242.00-09		1	14	9/16	12	1/2	50	2	6	1/4
04.01.242.00-10		1	16	5/8	14	9/16	50	2	6	1/4
04.01.242.00-11		1	14,6	4/7	13	1/2	60	2 1/3	6	1/4
04.01.242.00-12		1	19,6	7/9	17,6	2/3	60	2 1/3	8	5/16
04.01.242.00-13	1	18	45/64	15,6	3/5	60	2 1/3	8	5/16	
06.02.002.00	Steel	2	3	1/8	2,5	7/64	57	2 1/4	8	5/16
06.02.002.00-01		2	4	5/32	3,5	9/64	57	2 1/4	8	5/16
06.02.002.00-02		2	5	1/5	4,5	3/16	57	2 1/4	8	5/16



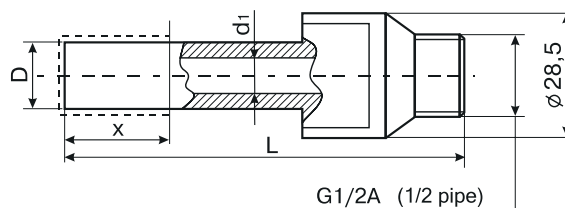
Picture 3



Picture 4

Designation of drill size and type	Picture	D, mm	D, inch	d, mm	d, inch	d1, mm	d1, inch	L, mm	L, inch	X, mm	X, inch
06.02.001.00	3	65	2 5/9	9,5	3/8	-	-	60	2 1/3	10	3/8
06.03.001.00	4	19	3/4	9,5	3/8	4	5/32	70	2 3/4	7	9/32
06.03.001.00-30	4	10	3/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-31	4	12	1/2	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-32	4	14	9/16	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-33	4	16	5/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-34	4	20	4/5	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-36	4	17	2/3	9,5	3/8	4	5/32	70	2 3/4	14	5/16
06.03.001.00-04	4	26	1	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-08	4	22	7/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-09	4	24	1	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-13	4	25	1	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-14	4	27	1	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-05	4	30	1 1/6	6	1/4	4	5/32	50	2	8	5/16
06.03.001.00-46	4	32	1 1/4	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-24	4	35	1 3/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-35	4	36	1 3/7	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.001.00-40	4	40	1 4/7	9,5	3/8	4	5/32	70	2 3/4	14	9/16
06.03.001.00-16	4	50	2	9,5	3/8	4	5/32	60	2 1/3	10	3/8
06.03.001.00-49	4	60	2 1/3	9,5	3/8	4	5/32	50	2	10	3/8
06.03.001.00-17	4	70	2 3/4	9,5	3/8	4	5/32	50	2	10	3/8
06.03.001.00-12	4	80	3 1/7	9,5	3/8	4	5/32	60	2 1/3	10	3/8
06.03.001.00-01	4	81	3 1/5	9,5	3/8	4	5/32	60	2 1/3	10	3/8
06.03.001.00-02	4	86	3 2/5	9,5	3/8	4	5/32	50	2	10	3/8
06.03.001.00-48	4	120	4 5/7	9,5	3/8	4	5/32	60	2 1/3	10	3/8
06.03.005.00	4	12	1/2	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-01	4	14	9/16	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-02	4	16	5/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-03	4	26	1	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-04	4	30	1 1/6	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-05	4	35	1 3/8	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-06	4	55	2 1/6	9,5	3/8	4	5/32	70	2 3/4	8	5/16
06.03.005.00-07	4	75	3	9,5	3/8	4	5/32	70	2 3/4	10	3/8
06.03.005.00-08	4	90	3 1/2	9,5	3/8	4	5/32	70	2 3/4	10	3/8
06.03.005.00-09	4	40	1 4/7	9,5	3/8	4	5/32	65	2 5/9	10	3/8
06.03.006.00	4	78	3	28	1 1/8	M14	M14	81	3 1/5	10	3/8

Customer-specific and other grinding tools can be produced on request.



Picture 5

Designation of drill size and type	Picture	D, mm	D, inch	d1, mm	d1, inch	L, mm	L, inch	X, mm	X, inch
06.04.001.00	5	12	1/2	8	5/16	75	3	10	3/8
06.04.001.00-01	5	12,5	1/2	8	5/16	75	3	10	3/8
06.04.001.00-02	5	13	1/2	8	5/16	75	3	10	3/8
06.04.001.00-03	5	13,5	17/32	8	5/16	75	3	10	3/8
06.04.001.00-04	5	14	9/16	8	5/16	75	3	10	3/8
06.04.001.00-05	5	14,5	4/7	8	5/16	75	3	10	3/8
06.04.001.00-06	5	15	19/32	8	5/16	75	3	10	3/8
06.04.001.00-07	5	15,5	19/32	8	5/16	75	3	10	3/8
06.04.001.00-09	5	16	5/8	8	5/16	75	3	10	3/8
06.04.001.00-11	5	16,5	5/8	8	5/16	75	3	10	3/8
06.04.001.00-12	5	17	43/64	8	5/16	75	3	10	3/8
06.04.001.00-13	5	17,5	43/64	8	5/16	75	3	10	3/8
06.04.001.00-14	5	18	45/64	8	5/16	75	3	10	3/8
06.04.001.00-15	5	18,5	45/64	8	5/16	75	3	10	3/8
06.04.001.00-16	5	19	3/4	8	5/16	75	3	10	3/8
06.04.001.00-17	5	19,5	76/99	8	5/16	75	3	10	3/8
06.04.001.00-18	5	20	45/64	8	5/16	75	3	10	3/8
06.04.001.00-19	5	21	43/52	8	5/16	75	3	10	3/8
06.04.001.00-22	5	22	7/8	8	5/16	75	3	10	3/8
06.04.001.00-24	5	23	7/8	8	5/16	75	3	10	3/8
06.04.001.00-26	5	24	17/18	8	5/16	75	3	10	3/8
06.04.001.00-27	5	40	1 5/8	8	5/16	75	3	10	3/8
06.04.001.00-28	5	50	2	8	5/16	75	3	10	3/8
06.04.001.00-30	5	51	2	8	5/16	75	3	10	3/8
06.04.001.00-31	5	52	2 1/21	8	5/16	75	3	10	3/8
06.04.001.00-32	5	54	2 1/8	8	5/16	75	3	10	3/8
06.04.001.00-33	5	55	2 1/6	8	5/16	75	3	10	3/8
06.04.001.00-34	5	3	1/8	8	5/16	75	3	10	3/8
06.04.001.00-35	5	6	1/4	8	5/16	75	3	10	3/8
06.04.001.00-36	5	10	3/8	8	5/16	75	3	10	3/8
06.04.001.00-37	5	30	1 2/11	8	5/16	75	3	10	3/8
06.04.001.00-38	5	70	2 6/8	8	5/16	75	3	10	3/8
06.04.001.00-39	5	100	3 7/8	8	5/16	75	3	10	3/8
06.04.001.00-40	5	5	1/5	3,5	9/64	75	3	5	1/5

Customer-specific and other grinding tools can be produced on request.

pdtools
SUPERABRASIVES



DIAMOND DRESSING ROLLERS

DIAMOND PROFILE DRESSING ROLLERS

Diamond profile dressing rollers are an integral part of modern grinding technology and are mainly used in serial and mass production. Diamond rollers are used for dressing of abrasive wheels.

With the help of diamond rollers, a copy of the profile of the required part is created on the surface of the working abrasive wheel. Then the abrasive wheel transfers this profile to the workpiece.

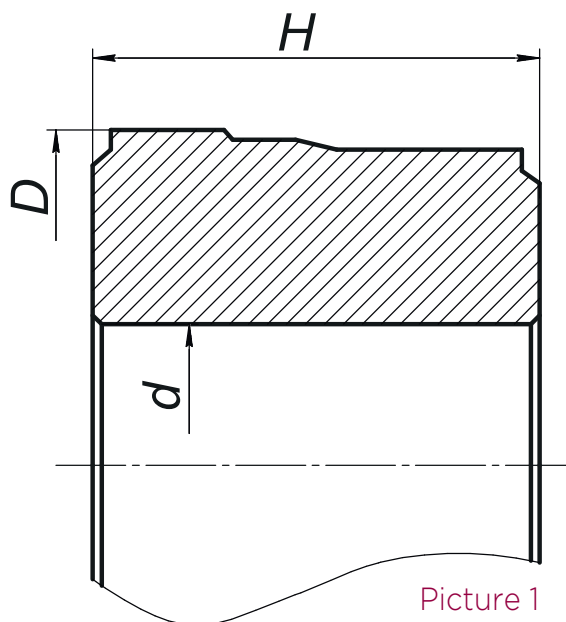
At the same time, diamond rollers allow to combine several processing transitions at once, including turning, milling and preliminary grinding.

The production program of **PDTools Superabrasives** includes the production of diamond rollers which are used for:

- crankshaft processing;
- processing of ball pins;
- grinding of piston rings;
- valve handling: -manufacturing of turbine blades;
- manufacturing of cogwheels; - manufacturing of threaded connections;
- manufacturing of details of the bearing industry.

Advantages in application of diamond profile dressing rollers:

- creation of the abrasive wheel's surface within minimum possible time;
- profiling the surface of the abrasive wheel in one operation;
- high accuracy even during the creation of very complex profiles.



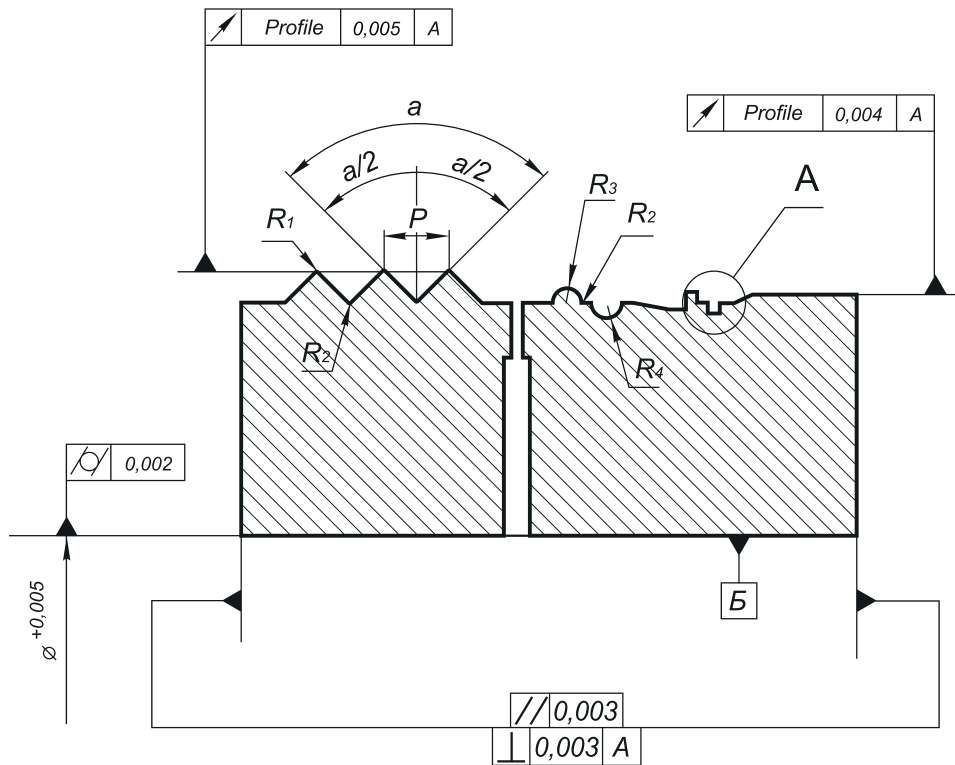
Picture 1

Table 1

Dimensions	Diamond roller Dimensions, mm O2H*	Diamond roller Dimensions, inch O2H*
D max	160	6 2/7
D min	65	2 5/9
H max	140	5 1/2
H min	10	3/8
d min	20	4/5

***O2H** - the method of electroforming with a non-orientable arrangement of diamonds bonded with a metal bond. The ratio of the diameter of the diamond roller to its height should be no more than 0.9.

Minimum tolerances for the shape and arrangement of diamond roller surfaces



Picture 2

A

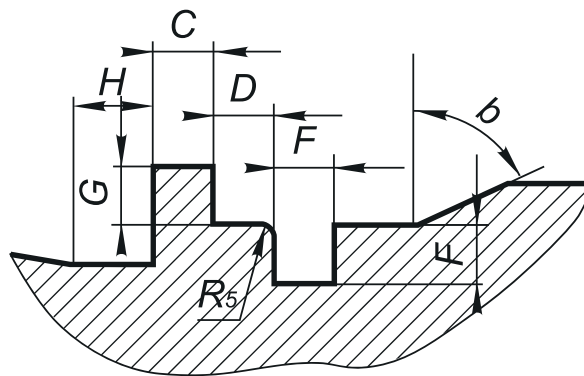


Table 2

$C = \pm 0,002$	$H = \pm 0,002$	$R_4 = 0,01$
$D = \pm 0,002$	$P = \pm 0,002$	$R_5 = 0,012$
$E = \pm 0,002$	$R_1 = 0,15$	$a = \pm 3'$
$F = \pm 0,002$	$R_2 = \pm 0,12$	$a/2 = \pm 3'$
$G = \pm 0,002$	$R_3 = \pm 0,01$	$b = \pm 3'$

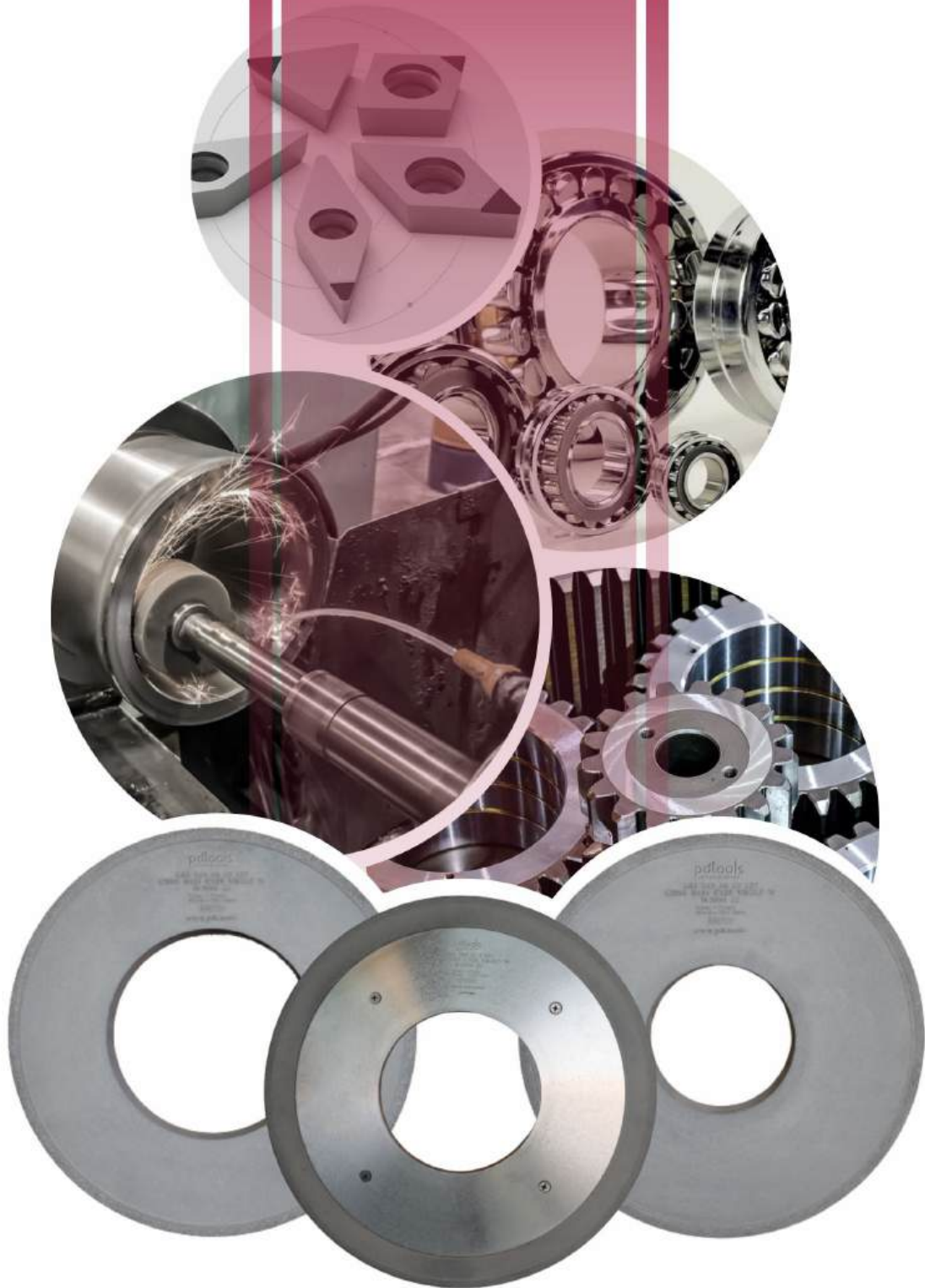
Each roller is accompanied by a measurement protocol that meets the customer's requirements, as well as a control sample of the roll profile.

Allowable diamond grain sizes **Min 250/200 Max 1000/800**.

Attention:

PDTools Superabrasives also produces other shapes and types of diamond rollers.

pdtools
SUPERABRASIVES



**VITRIFIED BONDED
CBN GRINDING WHEELS**

VITRIFIED BONDED CBN GRINDING WHEELS

The Application Area

- cylindrical grinding, flat grinding, internal grinding operations
- producing of details for bearing industry etc.
- sharpening of metal cutting tools
- gear grinding operations
- thread-grinding operations
- producing parts for turbine etc.

Main Processed Materials

- instrument steel (P18, P6M5 etc.)
- bearing steel
- titanium alloy
- heat-resistant steel
- alloy-therated steel



Recommendations for Wheel's Hardness Selection

Table 1. Types of hardness

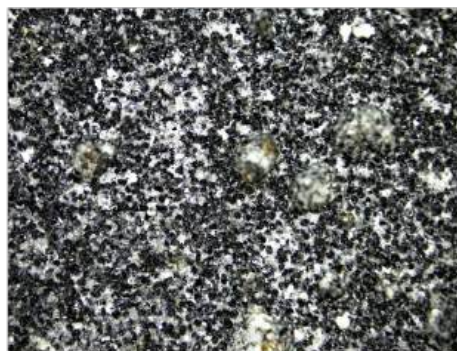
Group of Hardness	Designation in accordance with ISO Standards
Soft	J
	K
	L
Medium-soft	M
	N
	O
Hard	P
	Q
	R
	S

Main Rules for Vitrified Bonded Grinding Wheels Hardness Selection

1. Grinding of hard materials - soft bond. The soft bond also could be used for grinding of soft and yielding materials, such as heatproof and nonferrous alloys.
2. For rough grinding should be used wheels with harder bond.
3. In case of speed rising client should decrease the hardness of the bond.
4. In case of large contact of grinding wheel with processed surface should be used softer bond.



VBA05 - normal porosity



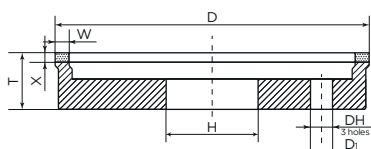
VBB05 - extended porosity

GRIT AND BOND HARDNESS RECOMMENDATIONS FOR VITRIFIED BONDED WHEELS

Grinding method	GRIT size	Hardness
Surface grinding: Peripheral grinding, Ra 0,32 - 1,25 Face grinding, Ra 0,16 - 0,63	B91 ... B126 B54 ... B76	L - M K - L
Internal grinding:	B64 ... B126	O - R
Cylindrical grinding: In-feed grinding, Ra 0,32 - 1,25 Traverse grinding Ra 0,16 - 0,63	B126 ... B151 B54 ... B107	N - O M - N
Gear grinding: Module < 3 mm Module > 3 mm	B76 ... B91 B107 ... B151	L - N K - M
Thread grinding: Pitch of thread 0,5 - 0,8 mm Pitch of thread 0,8 - 1 mm Pitch of thread 1 - 1,5 mm Pitch of thread > 1,5 mm	B16 ... 825 B25 ... B40 B40 ... B54 B54 ... B76	P - S O - P M - N L - N

Characteristic of vitrified bonds PDTools Superabrasives

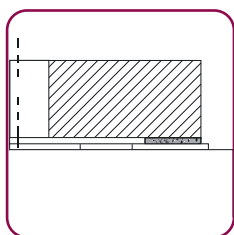
Vitrified bonds	Hardness	Edge-resistance	Porosity	Recommendation for material hardness <small>(recommendations are conditional and depend on the kind of the processed material)</small>
XBCK4	K	high	low	more than 55HRC
XBCL4	L			
VBCN5	N	high	low	less than 55HRC
VBCM5	M			
VBCO5	O	high	low	less than 55HRC
VBCP5	P			
VBBO5	O	low	high	less than 60HRC
VBBP5	P			



FLAT RECESSED DIAMOND GRINDING WHEELS **6A2**

(PREMIUM LINE AND STANDART)

6A2 D*W*X*T*H



Surface grinding

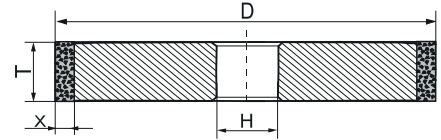


- Grinding wheels are used for surface, cylindrical, face grinding of forged, cemented, bearing, heat-resistant, tool, alloyed, high-speed steels etc.

Code	D, mm	D, inch	W, mm	W, inch	X, mm	X, inch	T, mm	T, inch	H, mm	H, inch
K-0062	100	4	15	19/32	10	3/8	40	1 4/7	20	0,787
K-0064	100	4	15	19/32	10	3/8	40	1 4/7	40	1,575
K-0067	125	5	5	13/64	10	3/8	40	1 4/7	40	1,575
K-0001	150	6	20	51/64	10	3/8	40	1 4/7	40	1,575
K-0033	150	6	20	51/64	10	3/8	40	1 4/7	40	1,575
K-0051	150	6	15	19/32	10	3/8	40	1 4/7	40	1,575

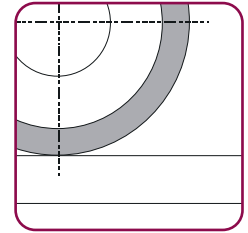
Customer-specific and other grinding tools can be produced on request.

1A1 STRAIGHT GRINDING WHEELS



1A1 D*T*X*H

- Grinding wheels are used for surface, cylindrical, ID and centerless grinding of forged, cemented, bearing, heat-resistant, tool, alloyed, high-speed steels etc.

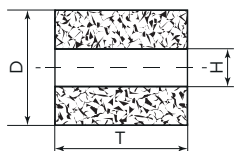


Flat surface grinding

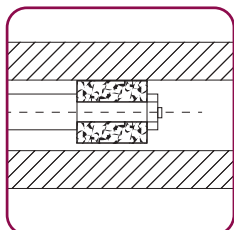
Catalog number	D, mm	D, inch	T, mm	T, inch	X, mm	X, inch	H, mm	H, inch
K-0085	125	5	10	3/8	5	13/64	32	1,260
K-0124	20	51/64	30	11/6	5	13/64	10	0,394
K-0125	30	1	30	11/6	5	13/64	10	0,394
K-0126	32	1	20	51/64	5	13/64	10	0,394
K-0123	20	51/64	30	11/6	3	1/8	10	0,394
K-0127	35	1	32	11/4	5	13/64	10	0,394
K-0129	40	2	20	51/64	5	13/64	10	0,394
K-0130	40	2	32	11/4	5	13/64	20	0,787
K-0115	50	2	40	1 4/7	5	13/64	20	0,787
KD0119	60	2	50	2	5	13/64	32	1,260
K-0118	60	2	40	1 4/7	5	13/64	20	0,787
K-0117	60	2	32	11/4	5	13/64	20	0,787
K-0116	60	2	20	51/64	5	13/64	32	1,260
KB0085	125	5	4	5/64	5	13/64	32	1,260
KB0148	100	4	20	51/64	5	13/64	32	1,260
K-0120	70	3	20	51/64	5	13/64	20	0,787
K-0068	125	5	20	51/64	5	13/64	32	1,260
KG0055	150	6	20	51/64	5	13/64	32	1,260
K-0055	150	6	10	2/5	5	13/64	32	1,260
KD0004	200	8	8	1/3	5	13/64	32	1,260
K-0004	200	8	10	3/8	5	13/64	32	1,260
KB0036	200	8	10	3/8	10	2/5	32	1,260
K-0002	200	8	20	51/64	5	13/64	32	1,260
KL0036	200	8	20	51/64	10	3/8	32	1,260
KJ0011	250	10	20	51/64	10	3/8	76	3
KL0011	250	10	25	1	10	3/8	76	3
KD0011	250	10	16	5/8	10	3/8	76	3
K-0011	250	10	20	51/64	5	13/64	76	3
KB0003	300	12	13	1/2	5	13/64	127	5
K-0318	300	12	20	51/64	10	3/8	127	5
K-0320	300	12	40	1 4/7	10	2/5	127	5
K-0013	350	14	20	51/64	5	13/64	127	5
K-0319	350	14	20	51/64	10	3/8	127	5
K-0321	350	14	40	1 4/7	10	3/8	127	5
K-0199	400	16	20	51/64	10	3/8	203	8
K-0198	400	16	20	51/64	10	3/8	127	5
K-0202	400	16	40	1 4/7	10	3/8	203	8
K-0200	400	16	40	1 4/7	10	3/8	127	5
K-0203	450	18	40	1 4/7	5	13/64	203	8
K-0205	500	20	50	2	6	1/4	203	8

Customer-specific and other grinding tools can be produced on request.

STRAIGHT FLAT GRINDING DIAMOND WHEELS



A8 D*T*H



Internal grinding



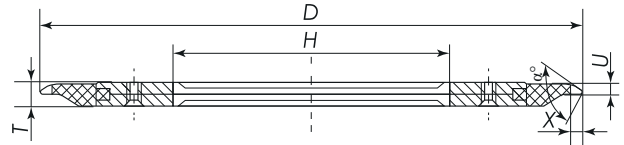
- Grinding wheels are used for internal (ID) grinding of forged, cemented, bearing, heat-resistant, tool, alloyed, high-speed steels etc.

Catalog number	D, mm	D, inch	T, mm	T, inch	H, mm	H, inch
K-0185	10	3/8	10	3/8	4	0,157
KD0185	10	3/8	14	9/16	4	0,157
KB0192	12	1/2	18	3/4	4	0,157
KG1791	15	19/32	20	51/64	5	0,197
KB1791	15	19/32	25	1	5	0,197
KD0223	18	5/7	20	51/64	6	0,236
KB0113	25	1	30	11/6	6	0,236
K-0121	12	1/2	20	51/64	5	0,197
KG0192	12	1/2	16	5/8	4	0,157
KB0038	10	3/8	18	5/7	3	0,118
KB0023	6	1/4	10	3/8	3	0,118
K-0255	4	1/6	10	3/8	1,6	0,063
K-0256	5	13/64	10	3/8	2,6	0,102
K-0257	6	5/8	10	3/8	2,6	0,102
KB0022	8	1/3	14	5/9	3	0,118
K-0038	10	3/8	10	3/8	3	0,118
K-0039	15	19/32	10	3/8	4	0,157
K-0122	15	19/32	18	3/4	4	0,157
K-0223	20	51/64	20	51/64	6	0,236
K-0195	20	51/64	20	51/64	8	0,315
K-0007	25	1	20	51/64	10	0,394
K-0132	30	11/6	30	11/6	10	0,394
K-0128	35	1 3/8	35	1 3/8	10	0,394
KB0025	40	1 4/7	40	1 4/7	10	0,394
K-0131	60	2 1/3	32	1 1/4	20	0,787

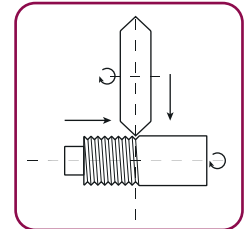
Customer-specific and other grinding tools can be produced on request.

1E6Q GRINDING WHEELS

- Grinding wheels are used for grinding of metric, pipe, trapezoidal (tapered), buttress threads of different hard steels etc.



1E6Q D*T*U*X*α*H



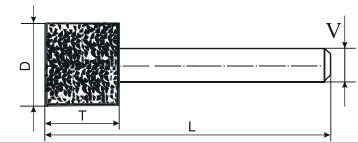
Surface grinding

Code	D, mm	D, inch	T, mm	T, inch	U, mm	U, inch	X, mm	X, inch	α°	H, mm	H, inch
K-0014	400	16	14	9/16	10	3/8	4	5/32	40	203	8
K-0015	400	16	14	9/16	10	3/8	4	5/32	60	203	8
K-0016	400	16	14	9/16	10	3/8	4	5/32	90	203	8
K-0017	400	16	14	9/16	10	3/8	6	1/4	40	203	8
K-0018	400	16	14	9/16	10	3/8	6	1/4	60	203	8
K-0019	400	16	14	9/16	10	3/8	6	1/4	90	203	8

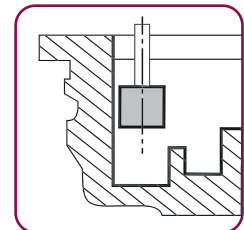
Customer-specific and other grinding tools can be produced on request.

AW CYLINDRICAL DIAMOND POINTS

- Grinding of cylindrical surfaces.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.
- Hollow teeth grinding.
- Inner diameter grinding of hard metal, HSS and nonmetal workpieces.



AW D*T*V*L



Internal grinding

Catalog number	D, mm	D, inch	T, mm	T, inch	V, mm	V, inch	L, mm	L, inch
K-0322	4	5/32	10	3/8	1,6	1/16	50	2
K-0323	5	1/5	10	3/8	2,6	7/64	50	2
K-0324	6	1/4	10	3/8	2,6	7/64	50	2

Customer-specific and other grinding tools can be produced on request.

pdtools
SUPERABRASIVES



DIAMOND PASTES

DIAMOND PASTES

Diamond pastes are used for the finishing and polishing of ferrous and nonferrous metals, steels and semiconductors, alloyed steels, cast irons, ceramics, metal ceramics, carbide, sapphire, glass, semiconductors, and drawing dies.

Paste made of synthetic diamond ACH micropowders, grit size M40, with normal diamond volume content and washable by water would be marked as follows:

ACH M40 N W L.

Diamond pastes act on the workpiece surface chemically and mechanically. They form fine-dispersion emulsions that allow for a smoother distribution of diamonds over the workpiece surface. The paste also contains active surface agents, which make washing easier and help to remove slightly flammable liquids, chips and slag generated by the lapping process.

Pastes are produced with normal (N), higher (H) and extra-high concentration (E), depending on the volume content of diamonds and their grit size.

Volume content of diamond powder in diamond pastes

Diamond powder Grit size	Volume content of diamond in pastes, ct*			Color of paste and label
	N	H	E	
D126-D76	40	60	-	Lilac
D64-054	20	40	-	
M63-M40	8	20	40	Red
M25-M16	6	15	30	Blue
M10-M4	4	10	20	Green
M2,5-M1	2	5	10	Yellow
1/0,5-0,1/0 µm	2	5	10	Not colored

* The weight of carats is indicated for a 20 gram package.

We can also produce pastes with other diamond volumes, without color and with non-standard diamond grit sizes. Pastes are delivered to consumers in syringes of 5, 10, and 20 grams, in containers of 50 and 100 grams, or in cans of 500 or 1000 grams. On request other packing is possible.

Depending on their ingredients, pastes are classified as follows:

(O) can be washed by organic solvents such as kerosene, petrol, alcohol, etc.

(W) can be dissolved and washed off by water.

(WO) can be washed off by water and by organic solvents, such as alcohol, industrial oils, petrol, kerosene.

Depending on grit size, pastes can be used for different finishes

Diamond powder Grit sizes	Surface roughness, Ra, µm		Operation
	Before	After	
D126-D54	-	-	Rough finishing
M63-M40	0,4 - 0,2	0,195 - 0,155	
M25-M16	0,16 - 0,1	0,12 - 0,075	Semi- finishing
M10-M4	0,08 - 0,05	0,06 - 0,038	Fine finishing
M2,5-M1	0,04 - 0,025	0,03 - 0,02	Preliminary polishing
1/0,5-0,1/0 µm	-	-	Polishing

Abrasive capabilities of pastes

Diamond Grit size	Abrasive paste quality, mg, not less than		
	N	High	Extra-high
M63	67	127	175
M40	62	123	163
M25	57	112	157
M20	52	102	153
M16	47	97	148
M10	42	93	143
M6.3	37	82	137
M4.0	32	65	108

Applications of diamond pastes

Type of paste	Rinseability	Application
Г (G)	О	Machining of ferrous and non-ferrous metals, alloys, non-metal materials, steels and semiconducting materials.
Л (L)	BO	Machining of alloyed steels, cast iron, ceramics, cermet, tungsten carbide, ferrite, sapphire.
X (H)	B, BO	Machining of glass, semiconducting materials, carbide tools, dyes.
Э (E)	BO	Machining of glass, semiconducting materials, carbide tools.

Attention! PDTools Superabrasives produces titanium carbide (TiC) pastes.

TiC abrasive pastes are used for the finishing and polishing of machine parts in the aviation industry, precision ball bearings, shut-off brake equipment, pneumatic equipment (plugs, valves, hydrocyclones), fuel equipment (seat plugs, valves), and tooling.

CUBIC BORON NITRIDE PASTES

Cubic Boron Nitride Pastes is produced for semi-finishing and finishing operations. It is used for finishing and polishing operations of carbon and alloy steel, chilled iron.

Paste composition is next: cubic boron nitride powder, filler with organic oils, fatty acids, carbons of paraffin series and its derivate, polymer material, Cubic Boron Nitride Paste affects on processed surface with chemical and mechanical influence. The past composition consists of surface active materials, they help with washing workpieces, and output the slags from the processing surface. It increases productivity and the roughness of the surface.

The paste divides:

"N"-normal consistency

"H"- higher consistency

"E"-extra-high consistency

We use the organic solvent: kerosene, engine oil, alcohol. The data for grit correspondence and abrasive facilities and roughness are in the table.

Grit size of CBN powder	The color of the paste and label	Abrasive capacity of steel processing HRC			Surface roughness (Ra), μm, not more	
		N	H	E	Before processing	After processing
B213; B151		-	-	-	-	-
B126-B91		-	-	-	-	-
60/40 μm	Red	67	127	175	0,4	0,195
40/28 μm		62	123	163	0,2	0,155
28/20 μm	Blue	57	112	157	0,16	0,12
20/14 μm		52	102	153	0,125	0,095
14/10 μm		47	97	148	0,1	0,075
10/7 μm	Green	42	93	143	0,08	0,06
7/5 μm		37	82	137	0,063	0,045
5/3 μm		32	65	108	0,05	0,038
3/2 μm	Yellow	-	-	-	0,04	0,03
2/1 μm		-	-	-	0,32	0,23
1/0 μm		-	-	-	0,25	0,02

The paste is delivered to the customers in container of 40, 50 and 100 grams.

The other package for pastes is possible according to client's request.

Storage temperature 25±5°C.

CARBIDE TITANIUM PASTES

Abrasive Carbide Titanium Paste - consists of composition of classified according to carbide titanium powders grit sizes and surface-active materials.

The pastes are used for finishing and polishing of details for aerotechnics, high-precision bearing, blocking devices and pneumatic motor (cranes, faucets, hydraulic cyclones), fuel injection equipment (plunger pairs, valves), tool outfits and rough grinding of details and knots.

Abrasive pastes have grit sizes: micro grits D126-D54; micro powders M63-M4.0.

The paste concentration in accordance with part of carbide titanium powder are:

"N" - normal consistency

"H" - higher consistency

"E" - extra-high consistency

In accordance with consistence carbide titanium paste divide into:

"M" - salvelike

"T" - hard

The selection of grit size depends on type of processing

Type of processing	Grit size of paste, μm	Expenditure of paste, gr/sm ²	Roughness of surface (Ra), μm	
			Before processing	After processing
Rough processing	125/100-50/40	0,8-1,5	-	0,32
Semi-finishing processing	60/40-14/10	0,4-0,9	-	0,10
Finishing processing	14/10-3/2	0,2-0,6	-	0,032
Polishing	3/2-1/0	0,1-0,4	-	0,020

For diluting of pastes with oil base is recommended to use engine and aero oil, kerosene, gasoline; paste with water-washable base - alcohol, water.

The lap should be made of cast iron, latten, glass, wood (birch, oak, beech), felt etc.

The Abrasive capacity of pastes and the roughness of processed surface are in the table.

Grit size of carbide titanium paste	Abrasive capacity of paste, mg, not less		Roughness of surface (Ra), μm	
	N	H	Before processing	After processing
160/125	50	55	-	-
125/100	45	50	-	-
100/80	40	45	-	-
80/63	37	43	-	-
63/50	34	40	-	-
50/40	30	38	-	-
60/40	28	36	0,32	0,25
40/28	26	34	0,25	0,20
28/20	24	32	0,20	0,16
20/14	21	30	0,16	0,125
14/10	18	27	0,125	0,10
10/7	15	27	0,10	0,08
7/5	12	18	0,08	0,063
5/3	10	14	0,063	0,05
3/2	-	-	0,05	0,04
2/1	-	-	0,04	0,032

CHOICE OF MATERIAL FOR LAPS

Cast iron, steel, brass, bronze, wood, leather, and felt can be used as laps. The choice of a material for a lap depends on the material of the workpiece, its hardness and the required surface quality.

Cast iron has very high removal rates and can achieve the necessary surface geometry, but it gives a rougher finish than softer laps. Cast iron is used for lapping the very hardest materials with pastes of coarse grit sizes. The laps are produced with fine cast iron grit with low porosity.

Steel is used instead of cast iron when the hardness of cast iron is inadequate for a lap with a small cross section. Steel is used only for the removal of large volumes.

Brass and copper are best used with diamond paste made with medium grit sizes. To increase the hardness of the lap, steel cores are used. Bronze laps tend to load up at high temperatures and need to be moistened.

Wood of various types-from hard (hornbeam, beech, oak) to soft (birch, linden) hold diamond grains well and reduce the amount of paste used. Laps are made from cross sections of wood.

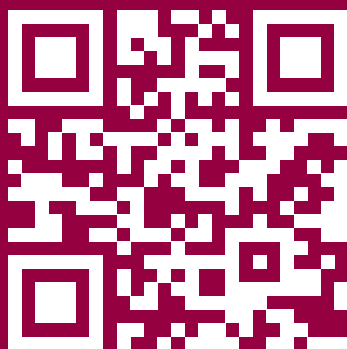
Glass is recommended for the polishing of semi-precious stones, corundum, granite, etc.

Fiber is used for laps that need to hold their shape when used with pastes of medium and fine grit sizes. The roughness of the surface finish with fiber laps is very low.

Leather and felt should be used only with pastes made of fine grit sizes for final surface finishing and for polishing to a mirror finish. These can be used in the form of revolving discs, mandrels or inserts with a back and forth motion.

In order to perform the finishing operations it is necessary for the lap to be charged so that the abrasive grain presses into its surface.

In one carat of diamond powder there are anywhere from several ten thousands to hundreds of billions of grains, therefore it is necessary to apply the optimal amount of paste to the lap, thus also keeping costs down. For each paste of a specific grit size it is necessary to use a separate lap. When going from a paste with coarse grits to one with fine grits, the workpiece must be thoroughly rinsed.



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