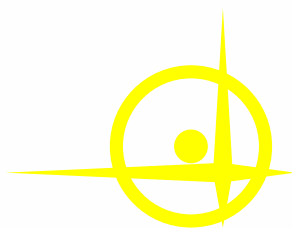




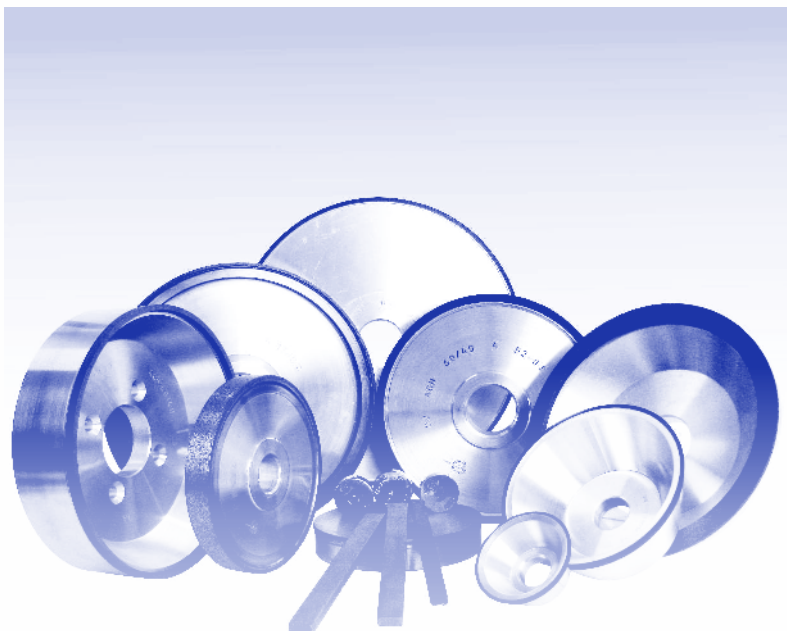
A Tradition of Quality since 1966



PRODUCT CATALOG



**POLTAVA
DIAMOND
TOOLS**



PRODUCT CATALOG



PrJSC "POLTAVA DIAMOND TOOLS"

Dear Clients,

“POLTAVA DIAMOND TOOLS” has been manufacturing top-quality diamond tools for the machine building, glass, electronic and woodworking industries since 1966. It is committed to constantly improving production quality and has been certified in accordance with ISO 9001, EN13236

We offer the following product lines to meet the quality demands and price requirements of our customers:

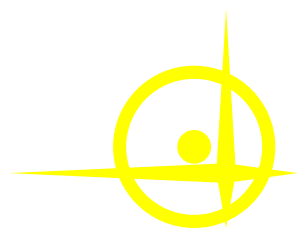
PREMIUM — our newest line of diamond and CBN wheels

- specially designed to compete with top international brands for use on CNC machines but at a substantially lower price
- used in machine building, woodworking and metallurgy for the production and sharpening of circular and band saws, metal cutting and specialty tools, as well as machine building parts

STANDARD — high quality resin and metal bonded diamond and CBN wheels for a wide range of industrial applications

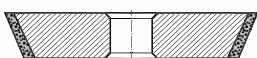
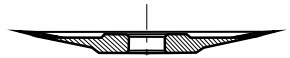
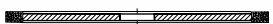
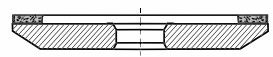
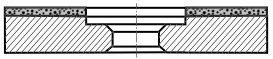
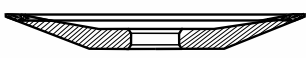
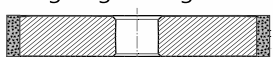
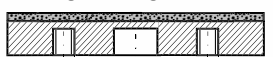
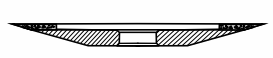
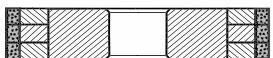
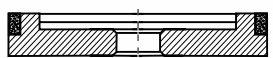
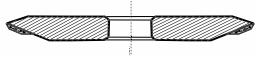
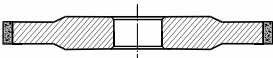

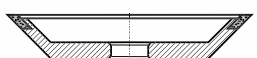
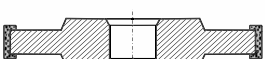
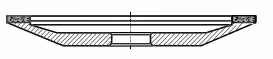
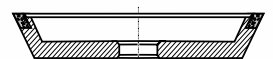
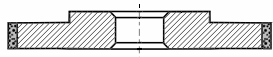
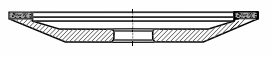
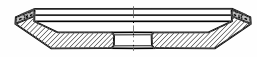
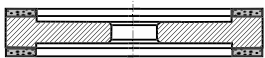
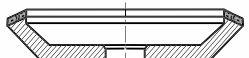
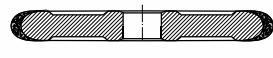
Our specialists have a wealth of experience in the production and use of diamond wheels and tools, and “POLTAVA DIAMOND TOOLS” is always pleased to offer you our technical support and assistance in choosing diamond wheels and tools.

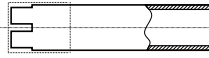
WE LOOK FORWARD TO WORKING WITH YOU!



**POLTAVA
DIAMOND
TOOLS**

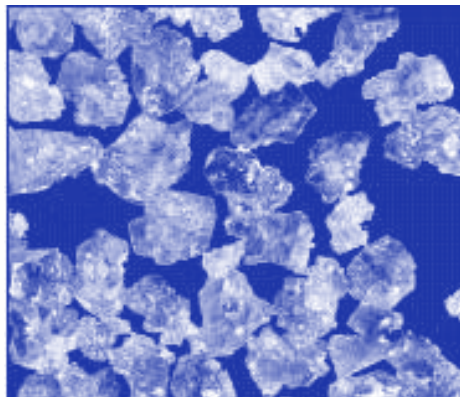
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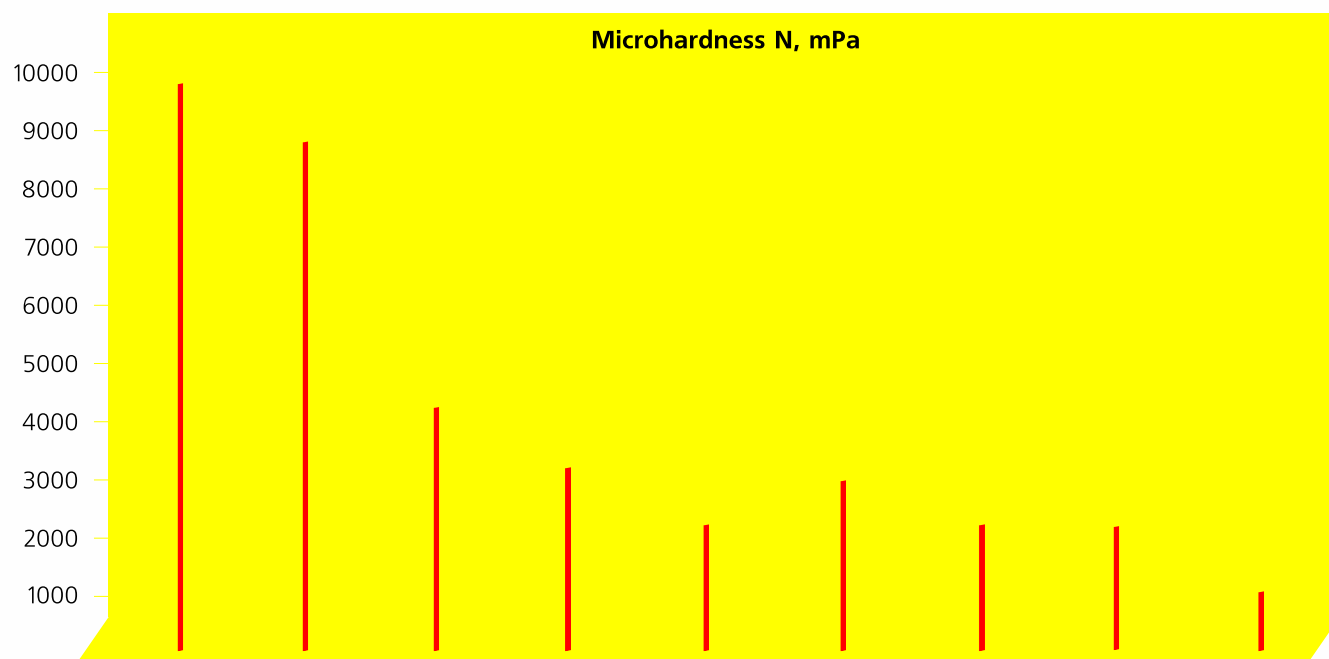
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APPLICATION OF DIAMOND TOOLS AND THEIR ADVANTAGES OVER ABRASIVE TOOLS



- 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 reinforced 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.

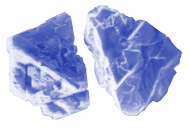


- High wear resistance.
- Workpiece life longer after diamond tool profiling.
- Less thermal workpiece damage due to lower temperature in grinding zone.
- Longer lasting, hence reduced changeover times.
- Higher volumes at the same level of quality.



TYPES OF DIAMOND POWDERS AND THEIR APPLICATION

Type	Characteristic	Recommended application
AC4	Synthetic diamond powders in the form of aggregates	Used for production of resin bonded tools, grinding and sharpening of carbide tools
AC6	Synthetic diamond powders in the form of individual crystals with a more developed surface and aggregates	Used for production of resin and metal bonded tools for grinding and sharpening of carbide tools
AC15	Synthetic diamond powders in the form of aggregates (less than 60%) and elongated crystals with a powder shape coefficient less than 1,6	Used for production of resin and metal bonded tools for sharpening and grinding of carbide tools, ceramics, glass, quartz and other hard-to-machine materials
AC20	Synthetic diamond powders in the form of aggregates (less than 40%) and individual elongated crystals with a powder shape coefficient less than 1,5	Used for production of resin and metal bonded tools for sharpening and grinding of carbide tools, ceramics, glass, quartz and other hard-to-machine materials
AC32	Synthetic diamond powders in the form of well formed whole crystals (more than 12%) and aggregates (less than 15%) with a powder shape coefficient less than 1,2	Used for production of metal bonded tools for stone grinding, light stone cutting, for processing of glass and rubies, honing of machine parts
ACM	Synthetic diamonds of standard abrasive capability	Used for production of pastes, suspensions, for grinding and finishing of machine parts and equipment made of carbide, cast iron, ceramics, glass.
ACH	Synthetic diamonds of high abrasive capability	Used for production of resin and metal bonded tools, pastes, suspensions, for finishing and polishing of hard-to-machine materials, corundum, ceramics, diamonds, precious and semiprecious stones
ACM5	Synthetic diamonds of the following grades: - 1/0,5 mcm - 0,5/0 mcm - 0,3/0 mcm	Used for production of pastes, suspensions, for finishing and polishing of hard-to-machine materials, corundum, ceramic, diamonds, precious stones and semiconducting materials

FORM AND CLASSIFICATION OF DIAMONDS

 AC4  AC6  AC15	Bond type	Diamond Type
	Resin	Diamond grain: AC4; AC5C; AC6 Micropowder: ACH
	Metal	Diamond grain: AC6; AC15; AC20; AC32; AC50; AC65 Micropowder: ACH
	Electroplated	Diamond grain: AC15-H; AC20-H; AC32-H; AC50-H; AC65-H Micropowders: ACH-H
		Grit size range
		D213 to D46 M63 to M4.0
		D251 to D46 D426 to D46 M63 to M4.0
		D426 to D46 M63 to M10

International Size Standards and their applications by operation

Rough Grinding	D426 D301 D251 D213 D151	425/355 300/250 250/212 212/180 150/125	40/45 50/60 60/70 70/80 100/120	400/315 315/250 250/200 200/160 160/125
Finish Grinding	D126 D107	125/106 106/90	120/140 140/170	125/100 100/80
Fine Grinding	D91 D76 D64 D54 D46	90/75 75/63 63/53 53/45 45/38	170/200 200/230 230/270 270/325 325/400	80/63 63/50 50/40
Fine grinding, Polishing	M63 M40 M25 M20 M16 M10 M6.3 M4.0		500 550 650 1100 1500 1700 3000 4000	60/40 40/28 28/20 20/14 14/10 10/7 7/5 5/3

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.

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.)

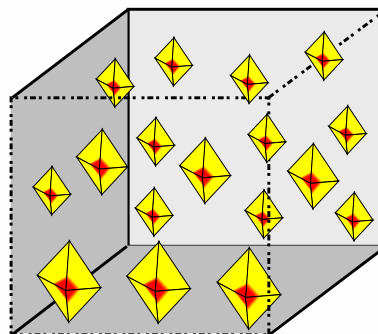
Diamond concentration by weight in the diamond layer

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

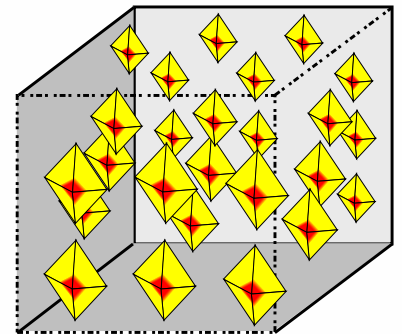
Diamond content by volume in the diamond layer (%)

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

Low concentration of diamond grain

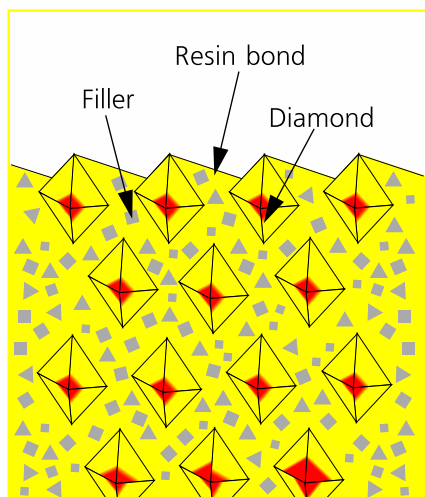


High concentration of diamond grain



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

Structure of the diamond layer:

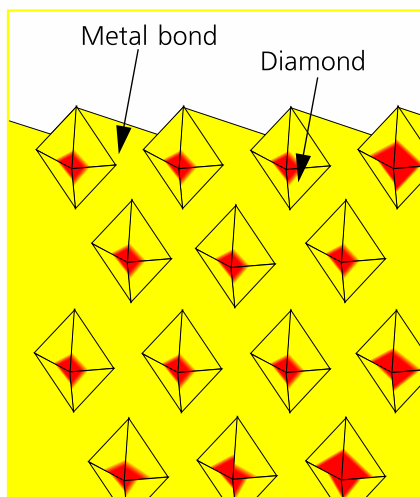
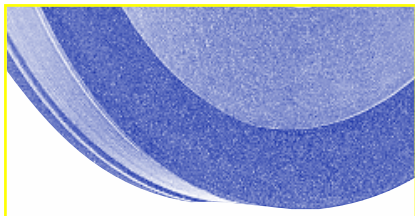
- Diamond.
- Resin bond.
- Filler.

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.



Metal bond

Structure of the diamond layer:

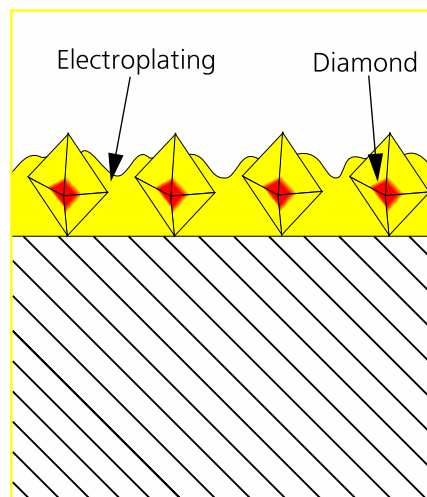
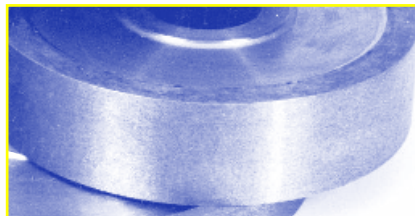
- Diamond.
- Metal bond.

Characteristics:

- Significant bond hardness.
- High removal productivity.
- 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.



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.

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	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 (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
Metal (high stability)	D251-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
Metal (high productivity)	D213-D126	1,25-0,32	2,0-0,63	2,0-0,63
	D107-D91	0,63-0,20	1,25-0,63	1,25-0,63
Metal (high stability)	D213-D126	1,25-0,32	2,0-0,63	2,0-0,63
	D107-D91	0,63-0,20	1,25-0,63	1,25-0,63
Resin	D181-D07	0,50-0,1	0,63-0,16	0,63-0,16
	D91-D46	0,16-0,05	0,32-0,08	0,32-0,08

BOND TYPES AVAILABLE FOR SUPERABRASIVE WHEELS AND TOOLS

RESIN BONDS		
RM501	Finish and fine grinding of tungsten carbide tools in steel holders under heavy grinding conditions	for machine grinding with coolant, for hand grinding without coolant
RM502	Finish and fine grinding of tungsten carbide tools as well as carbide tools in steel holders and nonmetal materials	
RM503	-Profile grinding of tungsten carbide tools with thin edge wheels -High profile retention	with coolant
R1-03	Sharpening of woodworking tungsten carbide tools with diamond grit sizes above D107	with coolant
R1-04	Grinding of leuco-sapphire	with coolant
RM101	-Grinding, sharpening, finishing, and cutting of tungsten carbide workpieces under heavy grinding conditions - High wear resistance and profile retention	with coolant
RM505	The bond is produced for sharpening, finishing and cutting operations of tungsten carbide for high parameters of machining. The bond is characterized by high wear resistance and high profile retention. The hardness is 10-15% higher than the bond RM101 has	with coolant
R5-01	Sharpening, grinding, and finishing of tungsten carbide cutting tools for especially high quality surface finishes	for machine grinding with coolant, for hand grinding without coolant
R1-01	Sharpening, grinding and finishing operations of tools made of tungsten carbide with high demand of processed surface. The hardness is 10-15% higher than the bond R5-01 has	for machine grinding with coolant, for hand grinding without coolant
R5-03	Finish grinding of cast irons, tungsten carbide and semiconducting materials	with coolant
R1-02	Sharpening and finish grinding of PCD and PCBN cutting tools	with coolant

METAL BONDS		
M1-01	Machining of tungsten carbide, tungsten carbide together with steel, heat-resistant steels, and titanium alloys under heavy grinding conditions	usually with electrolytes
M2-01	Flat, circular, internal, and longitudinal grinding of workpieces of hard non-metal materials – glass, ceramics, marble, granite, semiconducting materials – under normal grinding conditions	with coolant
M2-02	-Cutting of ceramics, glass, quartz, semiprecious stones and other non-metal materials -Harder and more wear-resistant than wheels using the M2 - 01 bond	with coolant
M2-09	Grinding of titanium alloys, HSS, high-strength chilled, tempered cast irons	with coolant
M300	-Machining of optical and technical glass -Higher removal rates than the M2-01 bond	with coolant
M9-00	Processing of technical glass on mechanical feed lines.	with coolant
M3-00	Cutting of leuco-sapphire	with coolant
M3-04	Machining of technical glass, crystal, semiconductors, ceramics, gemstones	with coolant
M-310	Processing of technical glass and porcelain tile (ceramic granite tile)	with coolant
M3-08	Grinding and gem-cutting of natural diamonds	with coolant
M3-10	Processing of brilliant girdle	with coolant
M5-01	Honing of tempered and alloy steel	with coolant
M5-04	Honing of steels and cast irons, finish honing of untempered steel, gray and alloyed cast irons	with coolant
M5-05	Honing of alloyed steels, finish honing of tempered alloyed steels with a hardness of up to HRC 64	with coolant
M5-06	-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	with coolant
M5-09	-Machining of technical glass with mechanized feed. -Higher removal rates than the M-300 bond	with coolant

MG-01	ELECTROPLATED BONDS	
	-Machining of glass, ceramics, marble -Internal grinding of various non-metal materials	with coolant

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 diameter of the support face, outer and internal hub diameters of the diamond wheel js16;
- linear measures up to 10 mm $\pm \frac{IT15}{2}$;
- linear measurement higher than 10 mm $\pm \frac{IT14}{2}$.

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 8th degree of accuracy- GOST 24643;
- For diameters greater than 30 mm 7th degree of accuracy- GOST 24643;

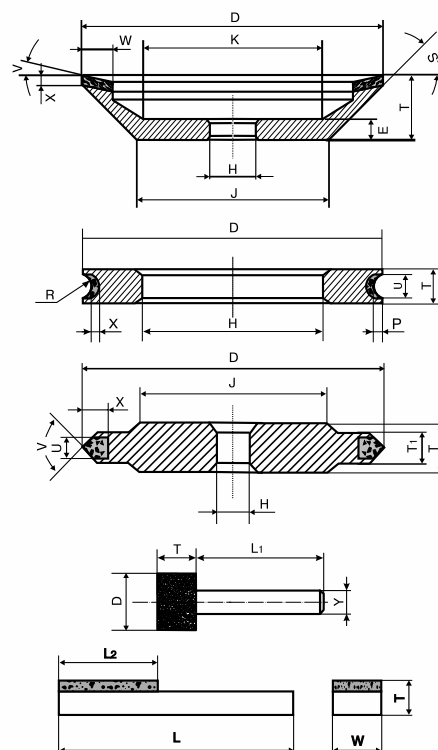
Tolerances for the roundness of the outer surface of A8 wheels should correspond to the 9th degree of accuracy according to GOST 24643:

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

WHEEL PARAMETERS

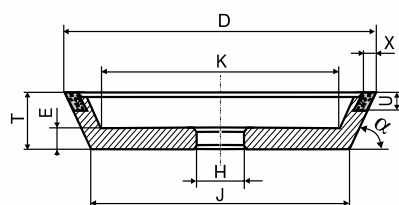
Parameters used in the catalogue are based on the FEPA standard for diamond tools

- 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

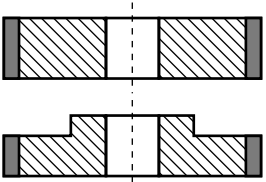
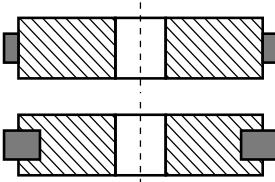
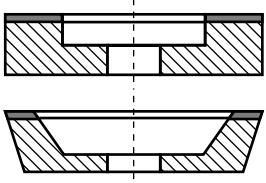
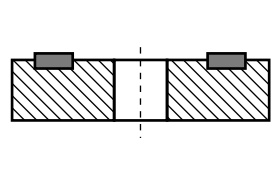
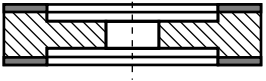
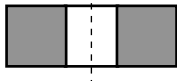
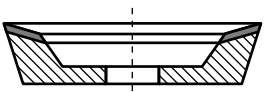
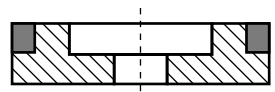
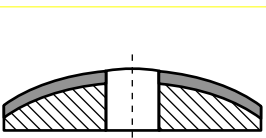
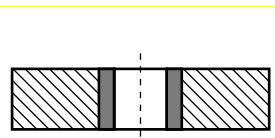
11 V 9-70

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

1		Periphery, covering the entire width	6		Part of periphery
2		Side	7		Part of Side
3		Both Sides	8		Throughout
4		Inside Bevel or Arc	9		Corner
5		Outside Bevel or Arc	10		Inside Periphery

OPERATING PROCEDURES FOR GRINDING TUNGSTEN CARBIDE

1) Peripheral velocity of the wheel during grinding

Peripheral velocity of the wheel during grinding				
Face		20-30 m/sec		20-25 m/sec
Circular internal	8-12m/sec	10-20 m/sec	8-12 m/sec	12-20 m/sec
Circular external		20-30 m/sec		12-20 m/sec
Sharpening	15-22 m/sec	18-28 m/sec	8-12 m/sec	12-20 m/sec

2) Feed velocity depending on grit size and type of grinding

Feed velocity depending on grit size and type of grinding					
Face grinding	D 251 - D 181	0,01 - 0,02 mm	10 - 20 m/min	1/5 - 1/3 of the depth of the abrasive layer	-
	D 126 - D 91	0,007 - 0,01 mm	10 - 20 m/min	1/5 - 1/3 of the depth of the abrasive layer	-
	D 91 - D 54	0,005 - 0,007 mm	10 - 20 m/min	1/5 - 1/3 of the depth of the abrasive layer	-
Circular External	D 251 - D 181	0,015-0,03	0,5 - 2,0 m/min		20 - 40 m/min
	D 126 - D 91	0,009 - 0,010	0,5 - 2,0 m/min		20 - 40 m/min
	D 91 - D 54	0,005 - 0,008	0,5 - 2,0 m/min		20 - 40 m/min
Circular Internal	D 251 - D 107	0,007 - 0,02	0,3 - 3,0 m/min	-	20 - 40 m/min
	D 91 - D 54	0,001 - 0,007	0,3 - 3,0 m/min	-	20 - 40 m/min
Sharpening	D 251 - D 181	0,01 - 0,03	0,5 - 3,0 m/min	-	-
	D 126 - D 91	0,008 - 0,02	0,5 - 3,0 m/min	-	-
	D 91 - D 54	0,005 - 0,009	0,5 - 3,0 m/min	-	-

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.

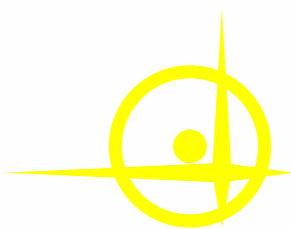
Characteristics of vitrified bonded abrasive wheels for dressing of diamond layer

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
	D251-D213		46-54	O-N
Vitrified bonds, Metal bonds	D181-D126	Silicon carbide	60-70	N-M
	D107-D76		80-100	M-L
	D64 and lower		120-180	L-K



Conditions of diamond layer dressing

Conditions of diamond layer dressing				
Diamond grinding wheel set on a machine fixture or in the center of a circular grinding or sharpening machine	25 - 35	0,5 - 1,0	1,0 - 2,0	0,02 - 0,04
Diamond grinding wheel set on the spindle of a grinding or sharpening machine	30 - 40	25 - 35	0,5 - 1,0	0,02 - 0,04



**POLTAVA
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**CBN RESIN BONDED
GRINDING WHEELS**



USE OF RESIN BONDED CBN GRINDING WHEELS

1. Finish grinding and sharpening of tools made of tungsten (P18, P12, P9), tungsten-molybdenum (P6M5) and other high-speed steels, particularly high-speed steels with high productivity that are alloyed with vanadium and cobalt.
2. Finish and final grinding of high-precision parts made of heat resistant, stainless and high-alloy steel with high hardness (HRC55 and more) when high precision is required.

Standard wheel parameters:

1A1	16-600	3-500
14A1	80-500	5-84
3A1	63-350	7-22
9A3	100-300	10-37
1V1	100-350	3-60
6A2	50-500	8-60
6A9	100-175	18-32
12A2-45	50-250	19,5-53
12V5-45	50-150	20-40
12A2-20	50-250	8-25
12V5-20	32-150	5-22
4A2	100-300	10-50
12R4	25,5-250	2,75-16
4B2	100-180	10-14
12D9	125-300	4-40
12V9-45	75-180	12-26
11V9-70	50-150	20-50
1FF1	50-400	2-46
14FF1	150-300	8,5-29
A8	6-300	4-20
1EE1	30-300	4-45
14EE1	50-400	6-20

CBN 1 is the Cubic Boron Nitride used for tools with resin bonds.

Example of an order:

4-0040 12A2-45 150 10 3 40 32 R1-05 CBN1 B107 100%

Recommendations for choosing CBN wheels

Cylindrical external, internal and flat grinding with the periphery of a wheel	High speed, alloyed, structural and stainless steels	1A1 3A1 14A1 1V1 A8	D91-D213 M16-D64 (finish)
Cylindrical face grinding of cutting tools and workpieces	High speed, alloyed, structural, heat-resistant and stainless steels	6A2 12A2-45	D107-D181 D46-D91 (finish)
Sharpening of single blade tools	High-speed steel	12A2-45 6A2 9A3 1A1	D107-D181
Sharpening of multi-blade tools (saws for woodworking, reamers, milling cutters, etc.)	High-speed steel	12A2-20 12R4 4A2 4B2 11V9-70 6A9 12V9-20	D91-D181
Grinding of guides for metal cutting lathes and other equipment	Cast iron, steel	12A2-45 6A2	D107-D213
Grinding of hard-to-access guides of body parts (dovetail joints)		4B2 12R4 11V9-70	D107-D213
Profile grinding	High speed, alloyed, and structural steels	1FF1 14FF1	D64- D213
Thread grinding		1EE1 14EE1	M16-D91
Profile grinding of gear teeth	Alloyed structural steels	12A2-20 12V5-20 12D9	D126- D213

For the examples shown in the table:

- 1.Type of cubic boron nitride - CBN1,
- 2.CBN concentration 100%.
- 3.In order to increase profile retention (during profile grinding, for example) it is recommended to increase the CBN concentration to 125%.

Bonds are the main characteristic of a diamond wheel. The choice of a bond depends on the workpiece material, the desired surface finish, the removal rates, and other grinding conditions, including the use of coolant.

R5-03	Finish grinding of tempered steels	with coolant
R5-04	Sharpening and grinding of tool steels	with coolant
RM506	Sharpening of HSS saws	with coolant
M5-01	Rough honing of tempered structural steel and nitrided steel with a hardness of up to HRA 80	with coolant
RM102	High profile retention, for sharpening HSS tools under heavy grinding conditions	without coolant
RM103	Universal, for sharpening HSS tools	for machine grinding with coolant, for hand grinding without coolant
R1-01	Universal, for sharpening HSS saws and tools	
R1-05	Soft grinding, for sharpening HSS saws and tools	without coolant

Dressing the wheels. Under optimal conditions, CBN tools are self-sharpening, do not become loaded, and do not need dressing in order to restore their grinding qualities. In practice, however, conditions may not be ideal and it may be necessary to periodically dress the wheel.

There are several methods of dressing a resin-bond wheel:

1. Machining with an abrasive stick.
2. Grinding with an abrasive wheel.
3. Lapping with abrasive powders on a cast-iron plate.
4. Intensive wear of the cutting surface by maximizing the demands on the wheel. (For this method, the surface of the CBN layer is subjected to greater heat and force. Discarded workpieces are used, and grinding parameters are chosen that cause the material to sharply increase its temperature and grains to fall out.)

CALCULATION of SPINDLE TURNS for GRINDING WHEELS of DIFFERENT DIAMETERS at a GIVEN PERIPHERAL SPEED

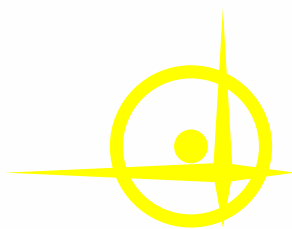
	10	15	20	25	30	35	40	45	50	60
3	63 700	95 540								
4	47 770	71 660	95 540							
5	38 220	57 320	76 440	95 540						
6	31 850	47 770	63 700	79 620	95 540					
8	23 890	35 830	47 770	59 720	71 660	83 600	95 540			
10	19 110	28 660	38 220	47 770	57 320	66 880	76 440	83 980	95 540	
12	15 920	23 880	31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

Recommended grinding parameters for CBN wheels

Circular external grinding					
Preliminary	20-35	10-20	0,5-1,0	-	0,002-0,010
Finish	20-35	8-10	0,5-1,0	-	0,002-0,005
Face grinding					
Preliminary	20-35	-	5,0-7,0	1/5-1/3 of the layer depth	0,03-0,05
Final	20-35	-	3,0-5,0		0,02
Sharpening of cutting tools	20-35	-	0,5-2,0	-	0,010-0,050
Grinding of lathe guides	20-35	-	2,0-6,0	-	0,005-0,010

Note:

The choice of grinding parameters should take into consideration the usage of coolant, the bond type and its properties, the required roughness and the required removal rates, etc.



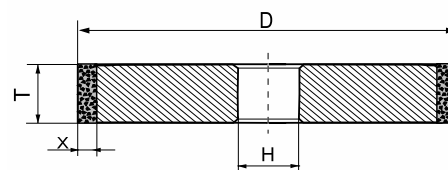
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**DIAMOND GRINDING WHEELS
for MACHINE BUILDING, ELECTRONICS, TOOL
and WOODWORKING INDUSTRIES**



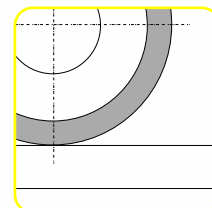
1A1 STRAIGHT GRINDING WHEELS



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	T, mm	X, mm	H, mm
0-0004	16	8	2	6
0-0005	16	13	2	6
0-0010	20	10	2	6
0-0011	20	16	2	6
0-0016	25	10	3	6
0-0018	25	16	3	6
0-0022	32	10	3	10
0-0024	32	16	3	10
0-0031	40	16	3	16
0-0037	50	16	3	16
0-0044	63	16	3	20
0-0045	80	3	3	20
0-0048	80	6	3	20
0-0054	80	6	5	20
0-0050	80	10	3	20
0-0056	80	10	5	20
0-0053	80	20	3	20
0-0059	80	20	5	20
0-0060	100	3	3	20
0-0063	100	6	3	20
0-0065	100	10	3	20
0-0071	100	10	5	20
0-0068	100	20	3	20
0-0076	125	3	3	32
0-0078	125	5	3	32
0-0079	125	6	3	32
0-0080	125	10	3	32
0-0085	125	10	5	32
0-0083	125	20	3	32
0-0088	125	20	5	32
0-0089	125	32	5	32
0-0091	150	3	3	32
0-0093	150	5	3	32
0-0094	150	6	3	32
0-0100	150	6	5	32
0-0096	150	10	3	32
0-0102	150	10	5	32
0-0099	150	20	3	32
0-0105	150	20	5	32
0-0109	200	6	3	76
0-0111	200	10	3	76
0-0116	200	10	5	76
0-0114	200	20	3	76
0-0119	200	20	5	76
0-0120	200	40	5	76
0-0126	250	10	5	76
0-0128	250	15	5	76
0-0129	250	20	5	76
0-0130	250	40	5	76

Catalog number	D, mm	T, mm	X, mm	H, mm
0-0131	250	50	5	76
0-0137	300	15	5	76
0-0145	300	15	5	127
0-0138	300	20	5	76
0-0146	300	20	5	127
0-0139	300	40	5	76
0-0149	350	20	5	127
0-0158	400	25	4	203
0-0154	400	25	6	127
0-0155	400	40	6	127
0-0159	400	40	6	203
0-0162	500	20	6	203
0-0164	500	40	6	203
0-0169	500	50	6	305
600-25	600	25	6	127
600-40	600	40	6	305

STRAIGHT GRINDING WHEEL 1A1 (special)

Catalog number	D, mm	T, mm	X, mm	H, mm
9-6643	40	10	3	20
9-9603	63	3	2,5	20
9-9604	63	3	3	20
9-6944	100	16	2	17
9-8130	142	16	2	24
9-8144	152	19	3	25,4
9-8139	155	15	3	20
9-6950	200	20	3	32
9-3230	200	20	5	127

Example of an order for a straight grinding wheel 1A1 (catalog number 0-0116), parameters 200-10-5-76 with diamonds AC6 grit size D76, concentration 100%, with metal bond M2-01:

0-0116 1A1 200-10-5-76 AC6 D76 100% M2-01

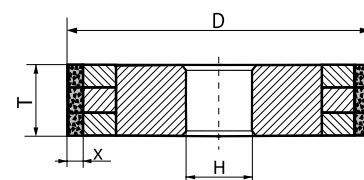
The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a straight CBN wheel 1A1 (catalog number 0-0116) parameters 200-10-5-76, CBN type is CBN1, grit size B76, concentration of CBN is 100%, resin bond R1-05:

0-0116 1A1 200-10-5-76 CBN1 B76 100% R1-05

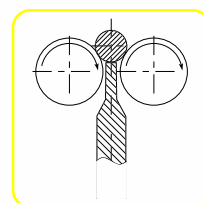
1A1 STRAIGHT compound WHEEL

- 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	T, mm	X, mm	H, mm
9-6993	300	100	5	127
0-2821	350	100	5	200
9-6997	350	100	5	127
9-6998	350	100	5	203
9-9606	400	150	5	203
9-6999	400	150	5	305
9-2034	500	200	3	304,8
9-2033	500	200	6	304,8

Example of an order for a straight grinding wheel 1A1 (catalog number 9-6998), parameters 350-100-5-203 with diamonds AC6 grit size D76, concentration 100%, with metal bond M2-01:

9-6998 1A1 350-100-5-203 AC6 D76 100% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a straight CBN wheel 1A1 (catalog number 9-6998) parameters 350-100-5-203,

CBN type is CBN1, grit size B76, concentration of CBN is 100%, resin bond R1-05

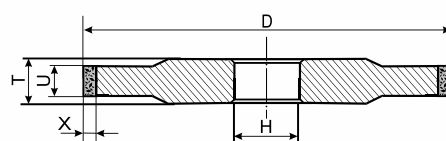
9-6998 1A1 350-100-5-203 CBN1 B76 100% R1-05

Attention: other specifications and sizes are available on request.

14A1

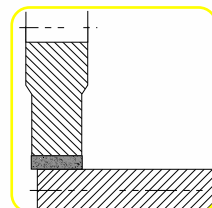
STRAIGHT FLAT GRINDING WHEELS

- 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.



14A1 D*T*U*X*H

Cylindrical
surface
grinding



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

Example of an order for a straight surface grinding wheel 14A1 (catalog number 0-0335), parameters 250-10-5-5-76 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

0-0335 14A1 250-10-5-5-76 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a straight CBN wheel 14A1 (catalog number 0-0335) parameters 250-10-5-5-76, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

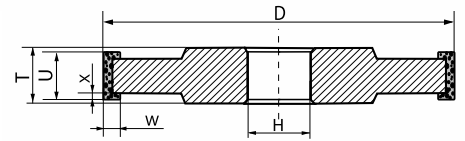
0-0335 14A1 250-10-5-5-76 CBN1 B107 100% R1-05

Attention: other specifications and sizes are available on request.

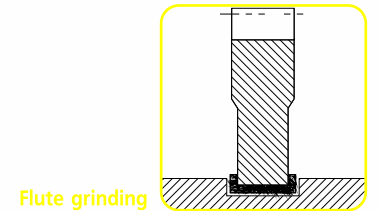
14U1

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



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

Example of an order for a cutting wheel 14U1 (catalog number 0-0206), parameters 150-12-10-6-2-32 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

0-0206 14U1 150-12-10-6-2-32 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

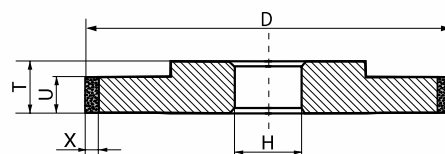
Example of an order for a CBN wheel 14U1 (catalog number 0-0206) parameters 150-12-10-6-2-32, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

0-0206 14U1 150-12-10-6-2-32 CBN B107 100% R1-05

Attention: other specifications and sizes are available on request.

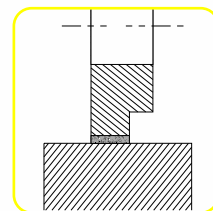
3A1 STRAIGHT GRINDING WHEELS

- 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.



3A1 D*T*U*X*H

Flat surface grinding



Catalog number	D, mm	T, mm	U, mm	X, mm	H, mm
9-5030	150	10	2	3	31,75
9-5031	150	10	3	3	31,75
9-5032	200	10	3	3	31,75
9-5021	300	14	5,5	3	127
9-5022	300	19	8	3	127
9-5023	300	14	10	3	127
9-5024	300	14	12	3	127
9-5020	350	22	10	5	127

Example of an order for a straight grinding wheel 3A1 (catalog number 9-5030), parameters 150-10-2,0-3-31,75 with diamonds AC6 grit size D54, concentration 100 %, with resin bond R5-01:

9-5030 3A1 150-10-2,0-3-31,75 AC6 D54 100% R5-01

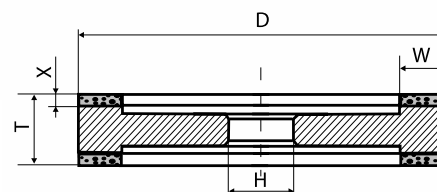
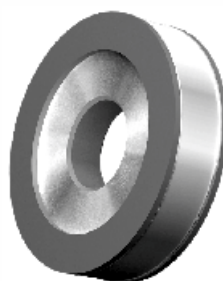
The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a straight CBN wheel 3A1 (catalog number 9-5030) parameters 150-10-2,0-3-31,75, CBN type is CBN1, grit size B54, concentration of CBN is 100%, resin bond R1-05:

9-5030 3A1 150-10-2,0-3-31,75 CBN1 B76 100% R1-05

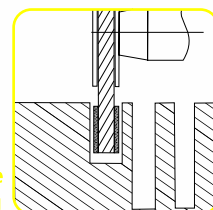
9A3 FLAT GRINDING WHEELS WITH DOUBLE-SIDED RECESS

- 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.



9A3 D*W*X*T*H

One-pass groove grinding



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

Example of an order for a surface grinding wheel 9A3 (catalog number 3-0138), parameters 150-10-3-16-32 with diamonds AC4 grit size D126, concentration 100 %, with resin bond R5-01:

3-0138 9A3 150-10-3-16-32 AC4 D126 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 9A3 (catalog number 3-0138) parameters 150-10-3-16-32,

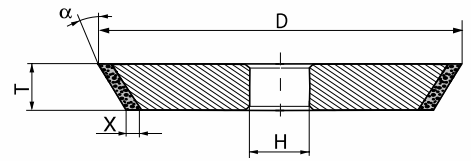
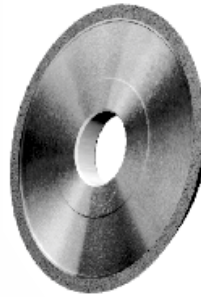
CBN type is CBN1, grit size B126, concentration of CBN is 100%, resin bond R1-05:

3-0138 9A3 150-10-3-16-32 CBN1 B126 100% R1-05

Attention: other specifications and sizes are available on request.

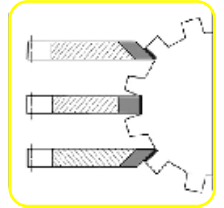
1V1 GRINDING WHEELS

- 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.



1V1 D*T*X*α*H

Machining
of teeth



Catalog number	D, mm	T, mm	X, mm	α, °	H, mm
0-7346	75	8	5	30	20,00
9-3206	100	12	6	15	31,75
9-3207	100	12	6	30	31,75
9-3208	100	12	6	45	31,75
9-3209	125	12	6	15	31,75
9-3211	125	12	6	20	31,75
9-3212	125	12	6	25	31,75
9-3213	125	12	6	30	31,75
9-3214	125	12	3	10	31,75
9-3215	125	12	3	15	31,75
9-3216	125	12	3	20	31,75
9-3217	125	12	3	25	31,75
9-3218	125	12	3	30	31,75
9-3219	125	12	3	45	31,75
9-3220	125	6	6	30	50,80
9-3222	100	10	3	20	20,00
9-3223	125	12	3	20	20,00
9-3241	125	10	6	45	31,75
9-3248	100	6	5	30	31,75
9-3249	100	6	5	45	31,75
9-1043	4"	1/2"	1/4"	10	1 1/4"
9-1044	4"	1/2"	1/4"	15	1 1/4"
9-1045	4"	1/2"	1/4"	20	1 1/4"
9-1046	4"	1/2"	1/4"	25	1 1/4"
9-1047	4"	1/2"	1/4"	30	1 1/4"
9-1000	4"	1/2"	1/4"	45	1 1/4"

Example of an order for a cutting wheel 1V1 (catalog number 9-3248), parameters 100-6-5-30-31,75 with diamonds AC4 grit size D64, concentration 100 %, with resin bond R5-01:

9-3248 1V1 100-6-5-30-31,75 AC4 D64 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 1V1 (catalog number 9-3248) parameters 100-6-5-30-31,75 ,

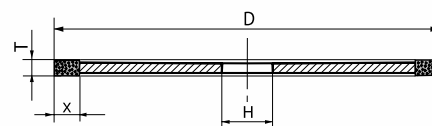
CBN type is CBN1, grit size B64, concentration of CBN is 100%, resin bond R1-05:

9-3248 1V1 100-6-5-30-31,75 CBN1 B64 100% R1-05

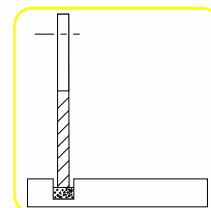
Attention: other specifications and sizes are available on request.

1A1R CUT-OFF WHEELS

- 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.



1A1R D*T*X*H



Material cutting

Catalog number	D, mm	T, mm	X, mm	H, mm
6-0127	50	1,0	5	12
6-0167	100	1,0	5	20
6-0187	125	1,0	5	32
6-0189	125	1,2	5	32
6-0212	150	1,0	5	32
6-0219	150	1,2	5	20
6-0214	150	1,2	5	32
6-0216	150	1,5	5	32
6-0223	175	1,0	5	32
6-0225	175	1,5	5	32
6-0229	200	1,0	5	32
6-0682	200	1,2	10	32
6-0232	200	1,2	5	32
6-0234	200	1,5	5	32
6-0236	200	2,0	5	32
6-0238	200	2,2	5	32
6-0241	250	1,5	5	32
6-0243	250	2,0	5	32
6-0245	250	2,2	5	32
6-0691	300	2,2	5	32
6-0703	350	2,2	5	32
6-0707	350	2,2	5	76
6-0705	350	2,2	10	32
6-0712	400	2,2	5	32
6-0267	400	2,2	5	76

Example of an order for a cutting wheel 1A1R (catalog number 6-0691), parameters 300-2,2-5-32 with diamonds AC20 grit size D251, concentration 100 %, with metal bond M2-01:

6-0691 1A1R 300-2,2-5-32 AC20 D251 50% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

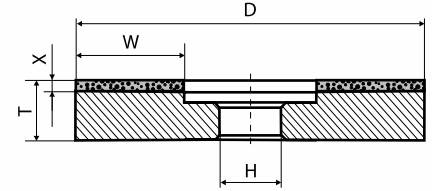
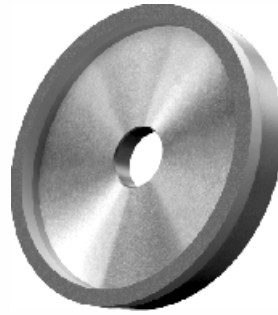
Example of an order for a CBN wheel 1A1R (catalog number 6-0206) parameters 150-1,2-5-32,

CBN type is CBN1, grit size B251, concentration of CBN is 100%, resin bond R1-05:

6-0206 1A1R 150-1,2-5-32 CBN1 B251 50% R1-05

Attention: other specifications and sizes are available on request.

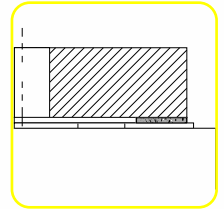
6A2 RECESSED FLAT GRINDING WHEELS



6A2 D*W*X*T*H

- 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.

Face grinding



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

Flat grinding wheels 6A2 special

Catalog number	D, mm	W, mm	X, mm	T, mm	H, mm
3-2111	50	4	2	10	16
3-0170	100	35	5	20	20
3-0171	150	30	5	20	20
3-1306	250	60	3	23	51
3-1401	500	50	8	34	325

Flat grinding wheels 6A2 special, electroplated

Catalog number	D, mm	W, mm	T, mm	H, mm
6-1217	360	165	18	160
6-1218	400	185	18	160
6-1221	500	235	18	160
6-1219	600	285	18	160
6-1220	700	305	18	200

Example of an order for a surface wheel 6A2 (catalog number 3-0057), parameters 250-20-4-29-76 with diamonds AC6 grit size D107, concentration 100 %, with metal bond M1-01:

3-0057 6A2 250-20-4-29-76 AC6 D107 100% M1-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

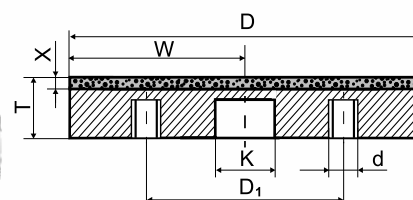
Example of an order for a CBN wheel 6A2 (catalog number 3-0057) parameters 250-20-4-29-76, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

3-0057 6A2 250-20-4-29-76 CBN1 B107 100% R1-05

Attention: other specifications and sizes are available on request.

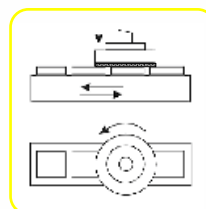
6A2T FLAT GRINDING WHEELS

- 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.



6A2T D*W*X*T*D₁*d*K

Surface grinding



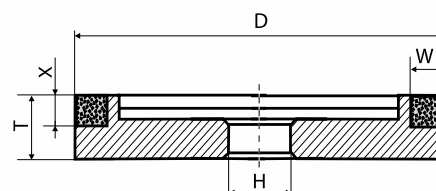
Catalog number	D, mm	W, mm	X, mm	T, mm	D ₁ , mm	d, mm	K, mm
3-0201	100	50	3	18	70	M8	40
3-0202	150	75	3	18	70	M8	40
3-0203	200	100	3	18	100	M8	80
3-0204	250	125	3	18	125	M8	80
3-0205	300	150	3	20	200	M10	80
3-2807	400	200	2,4	20	260	M10	80

Example of an order for a flat wheel 6A2T (catalog number 3-0202), parameters 150-75-3-18-70-M8-40 with diamonds AC6 grit size D64, concentration 50 %, with metal bond M2-01:

3-0202 6A2T 150-75-3-18-70-M8-40 AC6 D64 50% M2-01

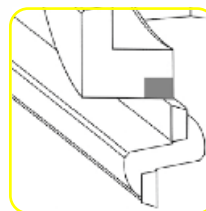
6A9 RECESSED FLAT GRINDING WHEELS

- 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.



6A9 D*W*X*T*H

Saw end surface sharpening



Catalog number	D, mm	W, mm	X, mm	T, mm	H, mm
9-8150	100	3	6	30	20

Example of an order for a flat wheel 6A9 (catalog number 9-8150), parameters 100-3-6-30-20 with diamonds ACH grit size M63, concentration 100 %, with resin bond R5-01:

9-8150 6A9 100-3-6-30-20 ACH M63 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

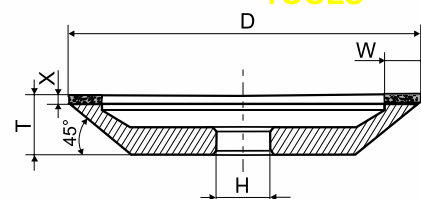
Example of an order for a CBN wheel 6A9 (catalog number 9-8150) parameters 100-3-6-30-20,

CBN type is CBN1, grit size B54, concentration of CBN is 100%, resin bond R1-05:

9-8150 6A9 100-3-6-30-20 CBN1 B54 100% R1-05

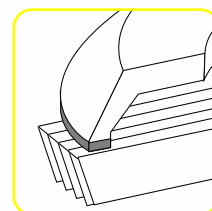
Attention: other specifications and sizes are available on request.

12A2-45 CUP GRINDING WHEELS



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

- Used for sharpening and finishing of front and back surfaces 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.



Face grinding

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

Example of an order for a cup wheel 12A2-45 (catalog number 4-0041), parameters 150-20-3-40-32 with diamonds AC4 grit size D107, concentration 100 %,with resin bond R5-01:

4-0041 12A2-45 150-20-3-40-32 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

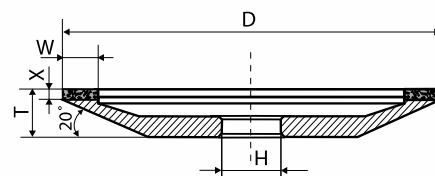
Example of an order for a CBN wheel 12A2-45 (catalog number 4-0041) parameters 150-20-3-40-32, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

4-0041 12A2-45 150-20-3-40-32 CBN1 B107 100% R1-05

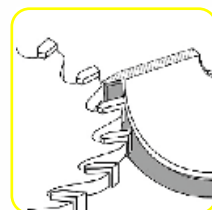
Attention: other specifications and sizes are available on request.

12A2-20 DISH GRINDING WHEELS

- 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.



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



Tool face
sharpening

Catalog number	D, mm	T, mm	X, mm	W, mm	H, mm
5-0005	75	10	2	3	16
5-0006	75	10	2	6	16
5-0007	100	12	2	3	20
5-0008	100	12	2	6	20
5-0009	125	16	2	3	32
5-0010	125	16	2	6	32
5-0011	125	16	2	10	32
5-0012	150	18	2	3	32
5-0013	150	18	2	6	32
5-0014	150	18	2	10	32
5-0018	200	22	2	10	51

Example of an order for a dish wheel 12A2-20 (catalog number 5-0014), parameters 150-18-2-10-32 with diamonds AC4 grit size D126, concentration 100 %, with resin bond R5-01:

5-0014 12A2-20 150-18-2-10-32 AC4 D126 100% R5-01

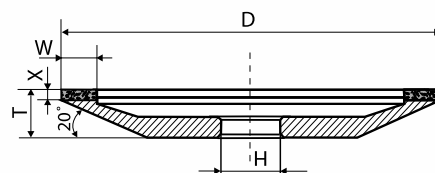
The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 12A2-20 (catalog number 5-0014) parameters 150-18-2-10-32, CBN type is CBN1, grit size B126, concentration of CBN is 100%, resin bond R1-05:

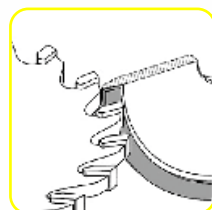
5-0014 12A2-20 150-18-2-10-32 CBN1 B126 100% R1-05

12A2-20 special DISH GRINDING WHEELS

- 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.



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



Tool face
sharpening

Catalog number	D, mm	T, mm	X, mm	W, mm	H, mm
9-5045	50	10	2,2	2,3	16
5-1011	75	10	2	6	20
9-3151	125	12	1,5	6(3+3)	32
9-5006	150	19	3	10	32
9-5042	175	21	3	10	32

Example of an order for a dish wheel 12A2-20 (catalog number 9-5006), parameters 150-19-3-10-32 with diamonds AC4 grit size D46, concentration 100 %, with resin bond R5-01:

9-5006 12A2-20 150-19-3-10-32 AC4 D46 100% R5-01

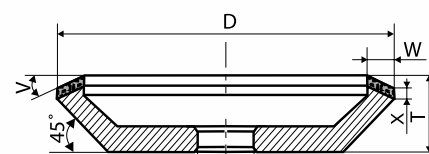
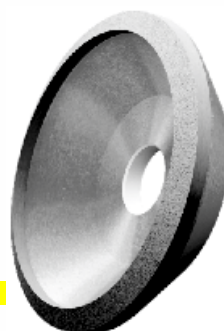
The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 12A2-20 (catalog number 9-5006) parameters 150-19-3-10-32, CBN type is CBN1, grit size B46, concentration of CBN is 100%, resin bond R1-05:

9-5006 12A2-20 150-19-3-10-32 CBN1 B46 100% R1-05

Attention: other specifications and sizes are available on request.

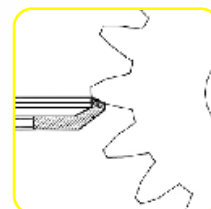
12V5-45 CUP GRINDING WHEELS



12V5-45 D*T*W*X*V*H

- 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.

Ram sharpening



Catalog number	D, mm	T, mm	W, mm	X, mm	V, °	H, mm
4-0121	50	20	3	3	15	16
4-0122	50	20	3	3	25	16
4-0123	75	25	3	3	15	20
4-0124	75	25	3	3	25	20
4-0125	75	25	6	3	15	20
4-0126	75	25	6	3	25	20
4-0127	100	32	3	4	15	20
4-0128	100	32	3	4	25	20
4-0129	100	32	6	4	15	20
4-0130	100	32	6	4	25	20
4-0131	125	40	3	4	15	32
4-0132	125	40	3	4	25	32
4-0133	125	40	6	4	15	32
4-0134	125	40	6	4	25	32
4-0135	150	40	6	5	15	32
4-0136	150	40	6	5	25	32
4-0137	150	40	6	5	15	51
4-0138	150	40	6	5	25	51

Example of an order for a cup wheel 12V5-45 (catalog number 4-0129), parameters 100-32-6-4-15-20 with diamonds AC6 grit size D126, concentration 100 %, with metal bond M2-01:

4-0129 12V5-45 100-32-6-4-15-20 AC6 D126 100% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

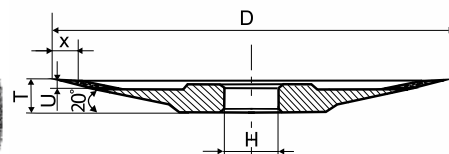
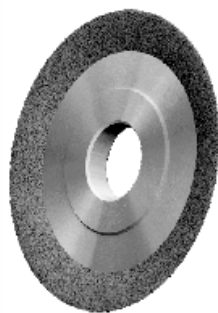
Example of an order for a CBN wheel 12V2-45 (catalog number 4-0129) parameters 100-32-6-4-15-20, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

4-0129 12V5-45 100-32-6-4-15-20 CBN1 B107 100% R1-05

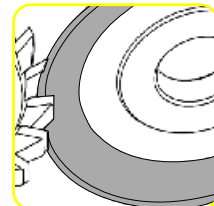
Attention: other specifications and sizes are available on request.

12V9-20 DISH GRINDING WHEELS

- 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	T, mm	X, mm	U, mm	H, mm
3-3048	125	13	2,5	4	32
3D3048	125	13	2,5	4	20
3-3045	150	13	2,3	4	32
3-3043	175	13	2,5	4	32
3-3049	200	13	2,3	4	32

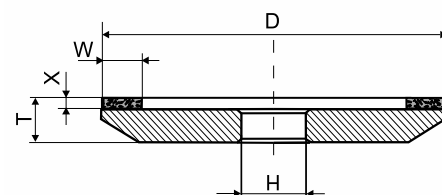
Example of an order for a dish wheel 12V9-20 (catalog number 3-3048), parameters 125-13-2,5-4-32 with diamond grit size D76, with resin bond: **3-3048 12V9-20 125-13-2,5-4-32 D76 B9-00 PREMIUM**

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

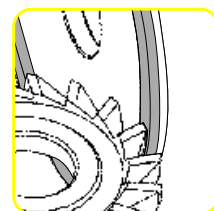
Example of an order for a CBN wheel 12V9-20 (catalog number 3-3048), parameters 125-13-2,5-4-32 with CBN grit size B76, with resin bond: **3-3048 12V9-20 125-13-2,5-4-32 B76 B9-00 PREMIUM**

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	T, mm	X, mm	W, mm	H, mm
9-8151	100	10	2	3	20
4-1140	100	10	1	6	22,20
4-1116	100	10	1,5	6	31,75
9-9161	125	10	3	6	31,75
9-9166	125	10	3	6	32
9-9165	125	10	2	8	20
9-3153	125	18	5	6	32
9-8158	150	12	3	5	20
9-9162	150	12	3	6	31,75
9-9167	150	12	3	6	32
4-1141	300	50	2	8	76

Example of an order for a dish wheel 4A2 (catalog number 9-8151), parameters 100-10-2-3-20 with diamonds ACH grit size M63, concentration 100 %, with resin bond R5-01:

9-8151 4A2 100-10-2-3-20 ACH M63 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

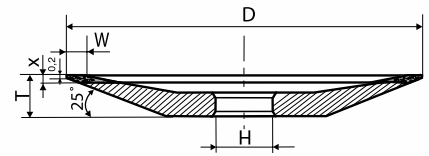
Example of an order for a CBN wheel 4A2 (catalog number 9-8151) parameters 100-10-2-3-20, CBN type is CBN1, grit size B126, concentration of CBN is 100%, resin bond R1-05:

9-8151 4A2 100-10-2-3-20 CBN1 B126 100% R1-05

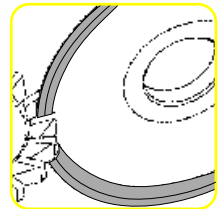
Attention: other specifications and sizes are available on request.

12R4 DISH GRINDING WHEELS

- 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.



12R4 D*W*X*T*H



Face grinding

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

The dish wheels 5-1031; 5-1041; 5-1051; 5-1052 have a pressed core

Example of an order for a dish wheel 12R4 (catalog number 5-1041), parameters 125-3-2-13-32 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

5-1041 12R4 125-3-2-13-32 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

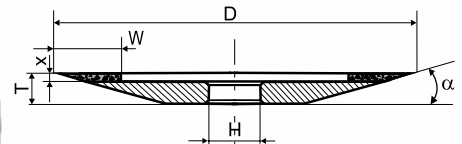
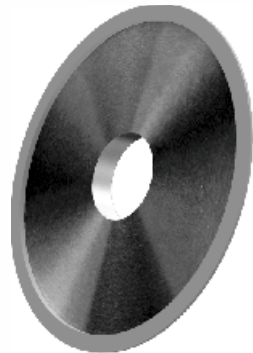
Example of an order for a CBN wheel 12R4 (catalog number 5-1041) parameters 125-3-2-13-32,

CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

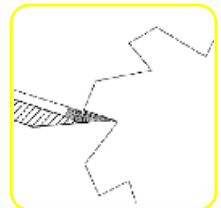
5-1041 12R4 125-3-2-13-32 CBN1 B107 100% R1-05

4B2 DISH GRINDING WHEELS

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



4B2 D*T*X*W*α*H



Face grinding

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

Example of an order for a dish wheel 4B2 (catalog number 8-7009), parameters 150-12-1,5-6-20-32 with diamonds AC4 grit size D126, concentration 100 %, with resin bond R5-01:

8-7009 4B2 150-12-1,5-6-20-32 AC4 D126 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 4B2 (catalog number 8-7009) parameters 150-12-1,5-6-20-32,

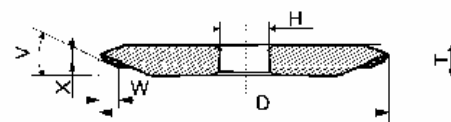
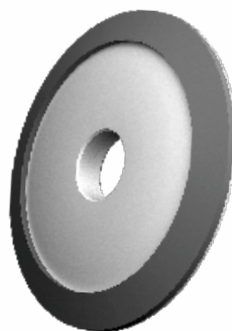
CBN type is CBN1, grit size B126, concentration of CBN is 100%, resin bond R1-05:

8-7009 4B2 150-12-1,5-6-20 - 32 CBN1 B126 100% R1-05

Attention: other specifications and sizes are available on request.

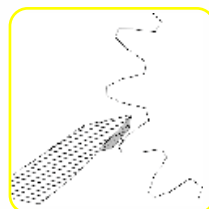
12D9 DISH GRINDING WHEELS

- 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.



12D9 D*W*X*T*V*H

Face grinding



Catalog number	D, mm	W, mm	X, mm	T, mm	V, °	H, mm
5-0102	125	4	2	11	20	32
5-0104	125	8	2	11	20	32
5-0106	150	8	3	13	20	32
5-0108	150	16	3	13	20	32
5-0113	200	25	3	16	15	32
5-0114	200	25	3	16	20	32
5-0126	250	16	3	20	20	76
5-0125	250	16	3	20	15	76

Example of an order for a dish wheel 12D9 (catalog number 5-0113), parameters 200-25-3-16-15-32 with diamonds AC6 grit size D54, concentration 100 %, with metal bond M2-01:

5-0113 12D9 200-25-3-16-15-32 AC6 D54 100% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

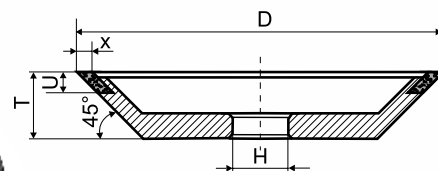
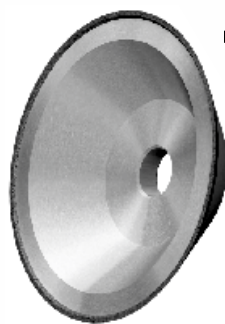
Example of an order for a CBN wheel 12D9 (catalog number 5-0113) parameters 200-25-3-16-15-32,

CBN type is CBN1, grit size B54, concentration of CBN is 100%, resin bond R1-05:

5-0113 12D9 200-25-3-16-15-32 CBN1 B54 100% R1-05

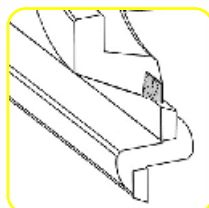
12V9-45 DISH GRINDING WHEELS

- 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.



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

Top grinding



Catalog number	D, mm	U, mm	X, mm	T, mm	H, mm
4-2513	75	10	4	12	31,75
4-2503	75	6	1,5	18	31,75
4-1503	75	6	2	20	20
9-3154	75	6	3,5	20	10
4-2510	100	6	1,5	18	31,75
4-1510	100	10	2	20	20
4-2512	100	10	3	20	31,75
9-3108	125	10	3	25	20

Example of an order for a dish wheel 12V9-45 (catalog number 4-1503), parameters 75-6-2-20-20 with diamonds AC6 grit size D76, concentration 100 %, with metal bond M2-01:

4-1503 12V9-45 75-6-2-20-20 AC6 D76 100% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 12V9-45 (catalog number 4-1503) parameters 75-6-2-20-20,

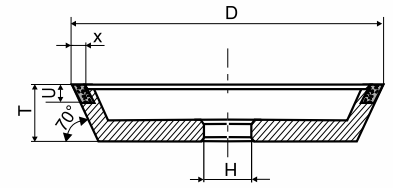
CBN type is CBN1, grit size B76, concentration of CBN is 100%, resin bond R1-05:

4-1503 12V9-45 75-6-2-20-20 CBN1 B76 100% R1-05

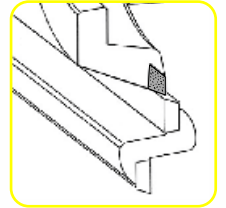
Attention: other specifications and sizes are available on request.

11V9-70 TAPERED CUP GRINDING WHEELS

- 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.



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



Sharpening of back and side surfaces

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

Example of an order for a wheel 11V9-70 (catalog number 4-0109), parameters 150-10-3-40-51 with diamonds AC4 grit size D126, concentration 100 %, with resin bond R5-01:

4-0109 11V9-70 150-10-3-40-51 AC4 D126 100% R5-01

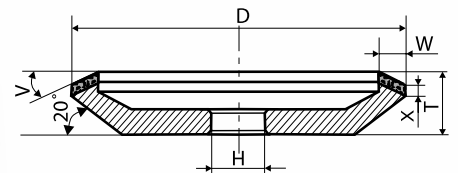
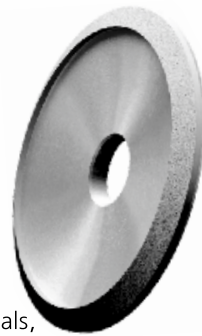
The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 11V9-70 (catalog number 4-0109) parameters 150-10-3-40-51, CBN type is CBN1, grit size B54, concentration of CBN is 100%, resin bond R1-05:

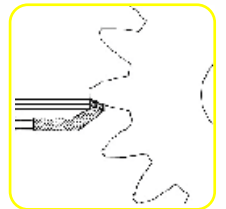
4-0109 11V9-70 150-10-3-40-51 CBN1 B54 100% R1-05

12V5-20 DISH GRINDING WHEELS

- 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.



12V5-20 D*T*W*X*V*H



Ram sharpening

Catalog number	D, mm	T, mm	W, mm	X, mm	V, °	H, mm
5-0078	75	10	5	2	25	20
5-0080	100	10	3	2	25	20
5-0086	125	13	5	2	25	32
5-0090	150	16	10	3	25	32

Example of an order for a dish wheel 12V5-20 (catalog number 5-0090), parameters 150-16-10-3-25-32 with diamonds AC6 grit size D126, concentration 100 %, with metal bond M2-01:

5-0090 12V5-20 150-16-10-3-25-32 AC6 D126 100% M2-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 12V5-20 (catalog number 5-0090) parameters 150-16-10-3-25-32, CBN type is CBN1, grit size B126, concentration of CBN is 100%, resin bond R1-05:

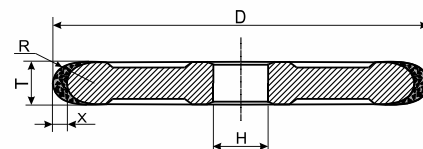
5-0090 12V5-20 150-16-10-3-25-32 CBN1 B126 100% R1-05

Attention: other specifications and sizes are available on request.

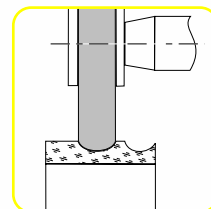
1FF1

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	T, mm	X, mm	R, mm	H, mm
9-0001	50	2	2	1,0	16
9-0002	50	3	4	1,5	16
9-0003	50	4	4	2,0	16
9-0004	75	4	4	2,0	20
9-0005	75	5	4	2,5	20
9-0006	75	6	4	3,0	20
9-0007	75	8	4	4,0	20
9-0008	75	10	4	5,0	20
9-0009	100	4	4	2,0	20
9-0010	100	5	4	2,5	20
9-0011	100	6	4	3,0	20
9-0012	100	8	4	4,0	20
9-0013	100	10	4	5,0	20
9-0014	100	12	6	6,0	20
9-0015	100	16	6	8,0	20
9-0016	100	20	6	10,0	20
9-0017	125	4	4	2,0	32
9-0018	125	5	4	2,5	32
9-0019	125	6	4	3,0	32
9-0020	125	8	4	4,0	32
9-0021	125	10	4	5,0	32
9-0022	125	12	6	6,0	32
9-0023	125	16	6	8,0	32
9-0024	125	20	6	10	32
9-0025	150	10	4	5	32
9-0027	150	16	4	8	32
9-0028	150	20	6	10	32
9-0029	200	20	6	10	51
9-0030	200	30	6	15	51
9-0031	250	20	6	10	51
5-9156	80	40	5	26	32
5-9122	100	4	4	2	31,75
5-9123	100	6	4	3	31,75
5-9124	100	8	4	4	31,75
5-9125	100	10	4	5	31,75
5-9185	150	24	7	12	32
5-9188	150	32	7	16	32
9-2802	300	30	5	15	42

Example of an order for a wheel 1FF1 (catalog number 9-0019), parameters 125-6-4-3-32 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

9-0019 1FF1 125-6-4-3-32 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 1FF1 (catalog number 9-0019) parameters 125-6-4-3-32,

CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

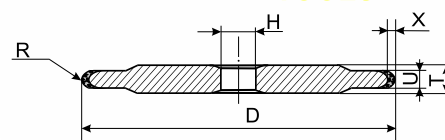
9-0019 1FF1 125-6-4-3-32 CBN1 B107 100% R1-05

Attention: other specifications and sizes are available on request.

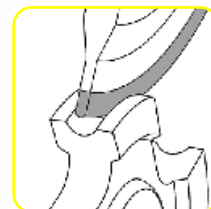


14FF1 DIAMOND GRINDING WHEELS WITH SEMICIRCULAR-CONVEX PROFILE

- 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.



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



Profile grinding

Catalog number	D, mm	T, mm	U, mm	X, mm	R, mm	H, mm
9-2515	150	8,5	4	4	2	32
9-2639	200	10	3	4	1,5	51
9-2653	200	10	3	4	1.5	60
9-2640	200	10	4	4	2	60
9-2641	200	10	5	4	2,5	60
9-2655	200	10	6	4	3	60
9-0304	200	12	10	5	5	127

Example of an order for a grinding wheel 14FF1 (catalog number 9-2640), parameters 200-10-4-4-2-60 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

9-2640 14FF1 200-10-4-4-2-60 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

Example of an order for a CBN wheel 14FF1 (catalog number 9-2640) parameters 200-10-4-4-2-60,

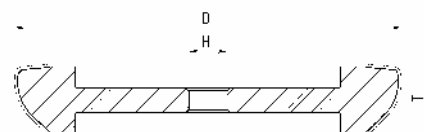
CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

9-2640 14FF1 200-10-4-4-2-60 CBN1 B107 100% R1-05

Attention: other specifications and sizes are available on request.

WHEELS FOR SHARPENING BAND SAWS FOR WOOD

1FF1 14FF1 ELECTROPLATED CBN WHEELS



1FF1 D*T*H

Saw Type	Code	Wheel Shape	D, mm	T, mm	Saw Teeth Profile		H, mm	Grit Size
WM 10/30 Summer	WMS000	1FF1	127	22,2	10	30	12,7	100/80
	WMS010	1FF1	150	22,2	10	30	20	100/80
	WMS020	14FF1	203	25,4	10	30	32	100/80
WM 9/29 Winter	WMW000	1FF1	127	22,2	9	29	12,7	100/80
	WMW010	1FF1	150	22,2	9	29	20	100/80
	WMW020	14FF1	203	25,4	9	29	32	100/80
ROMA 8 Summer	ROM800	1FF1	127	22,2	10	30	12,7	100/80
	ROM810	1FF1	150	22,2	10	30	20	100/80
	ROM820	14FF1	203	25,4	10	30	32	100/80

The example of order electroplated grinding wheel for sharpening band saw for wood

Shape 1FF1 Code WMS000, Dimensions 127-22,2-10-30-12,7,

Powder CBN (CBN1-H), Grit Size 100/80, Electroplated Bond.

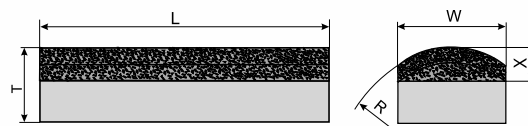
General profile of band saw teeth WM 10/30 is used for cutting soft and hard wood.

The profile of band saw teeth WM 9/29 is used for cutting hard and frozen wood.

The profile of band saw teeth ROMA8 is used for cutting soft and hard wood.

The angle of wheel installation on the machine is 15°.

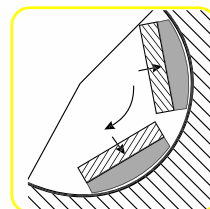
DIAMOND HONING STICKS



L T X W R

- Accurate machining of holes and workpieces of cast iron, steel and other materials.
- The diamond layer is made of diamond grinding powder and micropowders with metal or resin bonds.
- For metal bonded tools coolant is required.

Honing



Catalog number	L, mm	T, mm	X, mm	W, mm	R, mm
8-0001	25	2,0	1,5	2	-
8-0023	100	6,0	3,0	5	30
8-0039	125	8,0	3,0	8	40
8-0045	125	5,0	3,0	10	50
8-0054	150	6,0	4,0	12	50
8-0063	150	6,0	3,0	16	100

Example of an order for a honing stick (catalog number 8-0023) parameters 100-6-3-5-30 with diamonds AC6 grit size D107, concentration 100 %, in metal bond M2-01:

8-0023 DIAMOND HONING STICKS 100-6-3-5-30 AC6 D107 100% M2-01

The plant also produces honing sticks with Cubic Boron Nitride (CBN).

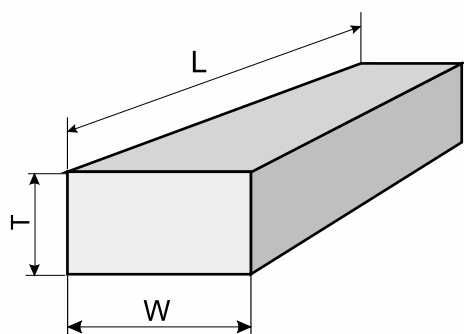
RECOMMENDATIONS FOR DIAMOND HONES

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.

Workpiece material	Rotation speed m/min	Reciprocal speed m/min	Honing stick pressure kg/cm ²	Coolant
Steel	30-60	8-15	3-10	Kerosine -70%
Cast iron	60-80	10-20	5-15	Spindle oil - 30%

Diamond Honing Sticks (monolayer)



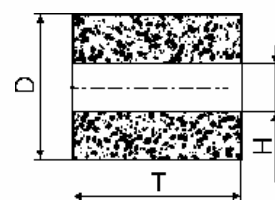
Diamond honing sticks are used in processing high-precision apertures in cast iron and steel workpieces such as cylinder blocks, sleeves, liners of automobile and tractor engines, hydro- and pneumatic equipment, compressor cylinders, components of brake systems, gear wheels, liners of fuel-injection pumps. The diamond layer is made of diamond grinding and microgrinding powders with metal and resin bonds.

Code	L, mm	W, m	T, mm
200405	200	40	5
125125	125	12	5
125-84	125	8	4
100-53	100	5	3
100-84	100	8	4
100-85	100	8	5
80-3-5	80	3	5
80-5-5	80	5	5
75-6-4	75	6	4
75-6-5	75	6	5
75-2-5	75	2,1	5,5
60-3-3	60	3	3
50-4-3	50	4	3
50-4-4	50	4	4
50-6-4	50	6	4
50-2-2	50	2	2
35-4-4	35	4	4
35-3-4	35	3	4
12-3-4	12	3	4

		D426	D251	D181	D107	D64	M40	M20
		D301	D213	D126	D91	D46	M25	M16
Tolerance, mm	steel	0,15	0,10	0,08	0,06	0,01	0,001	0,005
	cast iron	0,20	0,15	0,10	0,08	0,03	0,002	0,01
Roughness of machined surface, Ra, mcm	steel	5	2,5	2,5-1,32	1,32-0,63	0,63-0,32	0,32-0,16	0,16-0,08
	cast iron	5	5-2,5	2,5	2,5-1,75	1,32-0,63	0,63-0,32	0,32-0,16

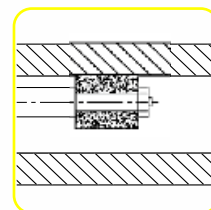
A8 STRAIGHT FLAT GRINDING DIAMOND WHEELS

- 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.



A8 D*T*H

Internal grinding



Catalog number	D, mm	T, mm	H, mm
0-0181	6	6	2
0-0182	8	6	3
0-0183	8	10	3
0-0184	10	6	4
0-0185	10	10	4
0-0187	13	10	4

Example of an order for a grinding wheel (catalog number 0-0187), parameters 13-10-4 with diamonds AC4 grit size D151, concentration 100 %, with resin bond R5-01:

0-0187 A8 13-10-4 AC4 D151 100% R5-01

The plant produces the above-mentioned shapes and dimensions with Cubic Boron Nitride (CBN).

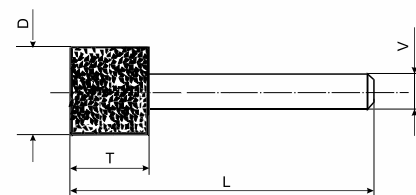
Example of an order for a CBN grinding wheel A8 (catalog number 0-0187) parameters 13-10-4,

CBN type is CBN1, grit size B151, concentration of CBN is 100%, resin bond R1-05:

0-0187 A8 13-10-4 CBN1 B151 100% R1-05

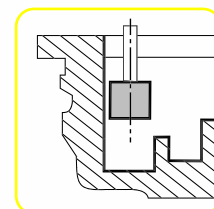
AW CYLINDRICAL DIAMOND POINTS

- 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.



AW D*T*V*L

Internal grinding



Catalog number	D, mm	T, mm	V, mm	L, mm
8-1011	6	6	3	60
8-1024	8	8	3	60
8-1033	10	10	6	80
8-1042	12	12	6	80
8-1049	16	16	8	80
8-1058	20	20	8	80

Example of an order for a diamond mounted point AW (catalog number 8-1042), parameters 12-12-6-80 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

8-1042 AW 12-12-6-80 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions of grinding points made with Cubic Boron Nitride (CBN).

Example of an order for a CBN point shaped AW (catalog number 8-1042) parameters 12-12-6-80,

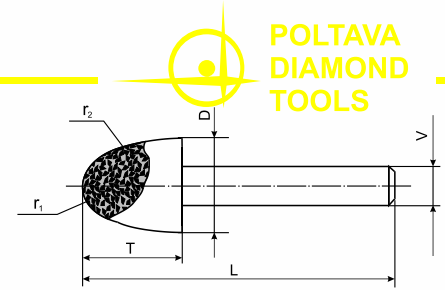
CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

8-1042 AW 12-12-6-80 CBN1 B107 100% R1-05

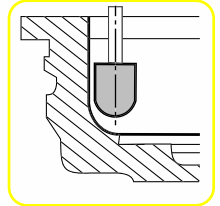
Attention: other specifications and sizes are available on request.

F1W SEMICIRCULAR DIAMOND MOUNTED POINTS

- 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.



F1W D*T*L*V*r₁*r₂



Internal profile grinding

Catalog number	D, mm	T, mm	L, mm	V, mm	r ₁ , MM	r ₂ , MM
9-3130	6	9	60	3	1,5	12
9-3132	8	12	60	3	1,5	15
9-3137	10	14	60	6	2	15
9-3144	12	16	80	6	2	22
9-3146	16	20	80	8	3	25
9-3148	20	24	80	8	3,5	29

Example of an order for a diamond mounted point F1W (catalog number 9-3137), parameters 10-14-6-60-2-15 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

9-3137 F1W 10-14-6-60-2,0 - 15 AC4 D107 100% R5-01

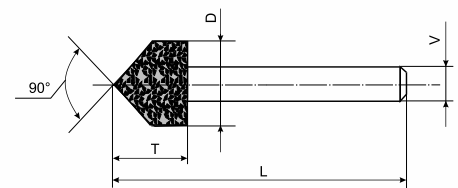
The plant produces the above-mentioned shapes and dimensions of grinding points with Cubic Boron Nitride (CBN).

Example of an order for a CBN point shaped F1W (catalog number 9-3137) parameters 10-14-6-60-2,0-15, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

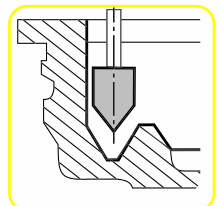
9-3137 F1W 10-14-6-60-2,0 - 15 CBN1 B107 100% R1-05

EW TAPERED DIAMOND MOUNTED POINTS

- 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.



EW D*T*V*L



Internal grinding

Catalog number	D, mm	T, mm	V, mm	L, mm
9-3111	6	6	3	40
9-3113	8	8	3	40
9-3115	10	9	6	60
9-3117	12	10	6	60
9-3121	20	18	8	80

Example of an order for a diamond mounted point EW (catalog number 9-3115), parameters 10-9-6-60 with diamonds AC4 grit size D107, concentration 100 %, with resin bond R5-01:

9-3115 EW 10-9-6-60 AC4 D107 100% R5-01

The plant produces the above-mentioned shapes and dimensions of grinding points with Cubic Boron Nitride (CBN).

Example of an order for a CBN point shaped EW (catalog number 9-3115) parameters 10-9-6-60, CBN type is CBN1, grit size B107, concentration of CBN is 100%, resin bond R1-05:

9-3115 EW 10-9-6-60 CBN1 B107 100% R1-05

Attention: the plant also produces additional dimensions upon request.

SPECIAL DIAMOND STICKS (VERSIONS A, C)

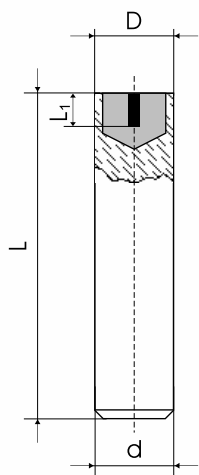
- For dressing straight wheels and profile dressing.
- For wheels with hardness from M to Ct2.

Product advantages:

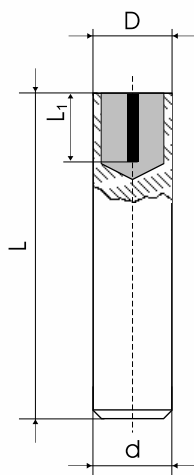
Narrow but long. The special shape of the dressing crystal permits effective profile grinding. Homogeneity of crystal structure provides stability during dressing.

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

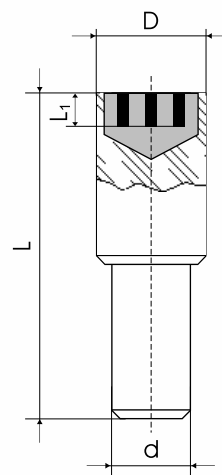
TYPE 01, VERSION A. CODE 800053



TYPE 01, VERSION A. CODE 800054



TYPE 02, VERSION C. CODE 800083



Catalog number	Type	Version	D, mm	d, mm	L, mm	L ₁ , mm	Number of dressing crystals
800053	01	A	10	10	45	4	1
800054	01	A	10	10	45	8	1
800083	02	C	14	10	45	4	3

Example of an order for a diamond stick, version A, Type 01, code 800054

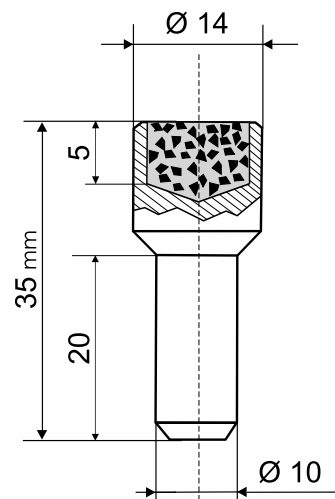
800054 Diamond stick A-01

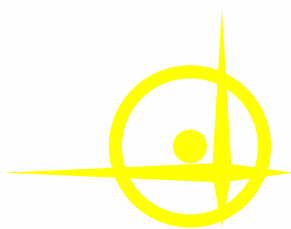
Diamond dressing sticks 080094 Version C Type 04

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

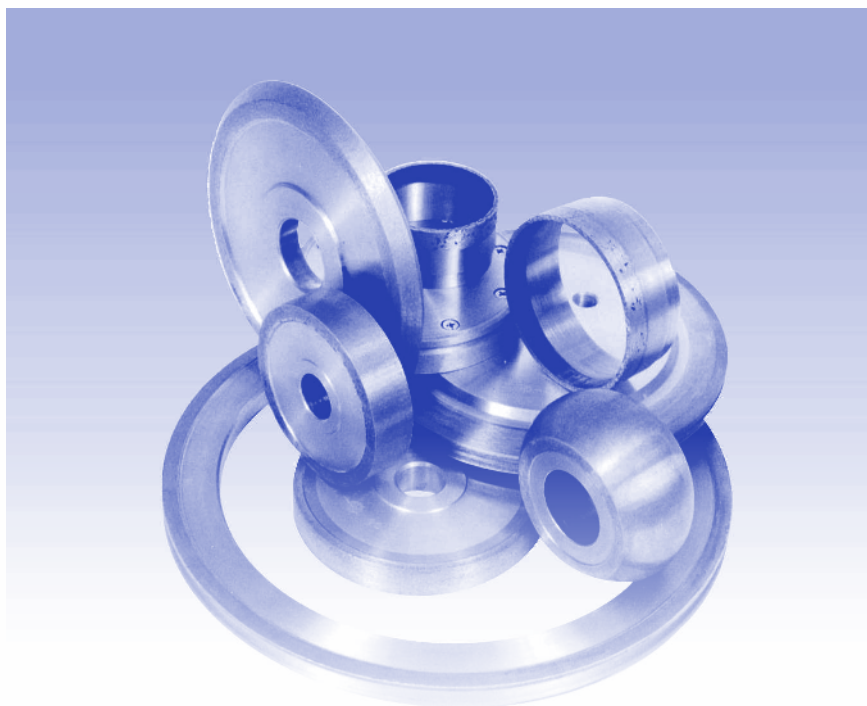
Example of an order for a diamond stick, version C, Type 04, code 080094

080094 Diamond stick C-04





**POLTAVA
DIAMOND
TOOLS**



**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, automobile 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/sec25- 30
 Glass feeding speed, m/min.....3,5-5,0
 Wheel pressing strength, H0,35-0,50
 Coolant usage (water based) is 10-15 l/min;
 Tolerances0,2-0,3 mm

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		
		Type	Grade	Diamond concentration, %
Edge grinding with width up to 5 mm	Small and medium	AC6	D54	50
Edge grinding with width more than 5 mm	Medium		D64	
Edge pregrinding with width more than 8 mm	Medium and Large	AC6, AC15	D213 D181 D107	100
Edge finishing with width more than 8 mm	Medium	AC6	D54	50
	Large	AC4	D64	50; 100
		ACM	M40	
Engraving, cone engraving, fine faceting, drawing	Small	AC4	D54	50
	Medium	ACM	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, diameter 150 mm, decanters with capacity more than 500 ml,
Medium - vases with height up to 250 mm, diameter 150 mm, 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	Recommended rotational speed, rpm	Recommended feed, mm/min
1 - 3	6 000 - 24 000	20 - 50
3 - 6	3 000 - 12 000	30 - 60
6 - 15	2 600 - 6 000	30 - 50
15 - 25	2 000 - 4 500	25 - 40
25 - 50	1 200 - 2 500	20 - 30
50 - 100	500 - 1 200	10 - 20

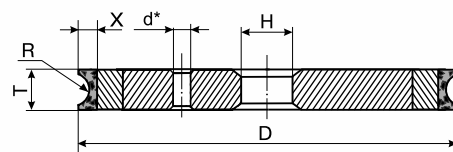
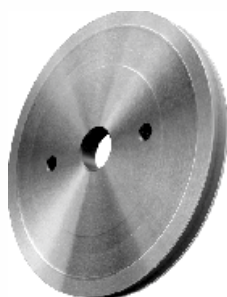
In other types of drilling, the coolant is supplied to the work area through a tube inside the tool. As a rule, for the hand drilling of furniture, mirror and automobile glass, industrial water is used.

The pressure of the coolant is normally determined by the drill diameter:

Drill diameter, mm	1 - 5	6 - 10	11 - 20	21 - 40	41 - 100
Coolant pressure, MPa	0,3 - 0,5	0,2 - 0,4	0,15 - 0,25	0,05 - 0,15	0,2 - 0,1

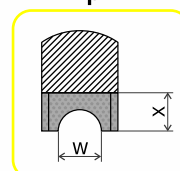
DIAMOND FLAT GRINDING WHEELS WITH SEMICIRCULAR-CONCAVE PROFILE FOR MACHINES BY: SULAK, INTERMAC, Z.BAVELLONI, SZILANK, etc.

1F6V

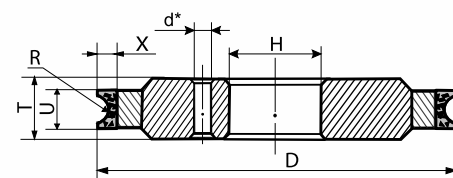
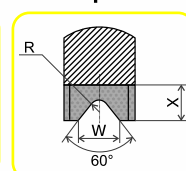


1F6V D*T*X*W*R*H

p.1



p.2



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

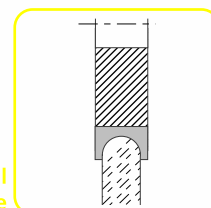
14F6V



d*- at D=150, 2 apertures \varnothing 7,0 x 180° by \varnothing 70
d*- at D=175, 3 apertures \varnothing 8,5 x 120° 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.

Machining of technical
glass edge



Glass thickness, mm	Wheel form	Pic.	Code	D, mm	T, mm	U, mm	X, mm	R, mm	W, mm	H, mm
2	1F6V	1	150-02	150	10	-	5	1,4	2,7	22
3	1F6V	2	150-03	150	12	-	8	1,6	4,2	22
4	1F6V	2	150-04	150	12	-	8	2,0	4,6	22
5	1F6V	2	150-05	150	12	-	8	2,5	5,8	22
6	1F6V	2	150-06	150	12	-	8	4,0	8,1	22
8	1F6V	1	150-08	150	18	-	9	5,5	11,0	22
10	1F6V	1	150-10	150	18	-	8	8,6	12,1	22
2	14F6V	1	175-02	175	12	11	7	1,4	2,7	63,4
3	1F6V	2	175-03	175	12	-	7	1,6	4,2	63,4
4	1F6V	1	175-04	175	12	-	8	2,5	5,0	63,4
5	1F6V	2	175-05	175	12	-	8	2,5	5,8	63,4
6	14F6V	2	175-06	175	14	12	8	4,0	7,5	63,4
8	14F6V	1	175-08	175	17	12	8	5,5	10,0	63,4

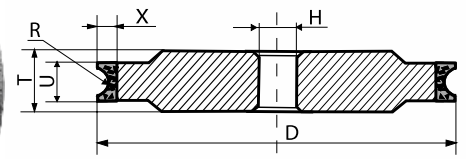
Example of an order for a diamond wheel 1F6V (code 150-04) with parameters 150-12-8-4,6-2,0-22 with diamond type AC32, grit size D107 and relative concentration of diamond powder 50%, metal bond M2-01:

150-04 1F6V 150 - 12 - 8 - 4,6 - 2,0 - 22 AC32 D107 50% M2-01

14F6V

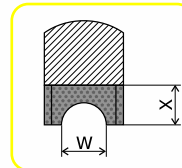
FLAT DIAMOND GRINDING WHEELS WITH SEMICIRCULAR-CONCAVE PROFILE

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

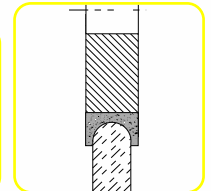
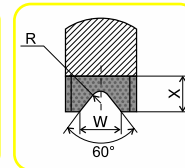


14F6V D*T*U*X*R*W*H

Picture 1



Picture 2



Processing of edges
of industrial glass

Glass thickness, mm	Code	P	D, mm	T, mm	U, mm	X, mm	R, mm	W, mm	H, mm
3	9-8190	2	150	18	12	8	1,6	4,1	25
4-5	9-8180	2	150	18	12	8	2,5	5,8	25
5-6	9-8184	2	150	18	12	8	3	6,9	25
6	9-8185	2	150	18	12	8	4	8,1	25
3	9-8189	2	175	18	12	8	1,6	4,1	25
4-5	9-8188	2	175	18	12	8	2,5	5,8	25
5-6	9-8186	2	175	18	12	8	3	6,9	25
6	9-8187	2	175	18	12	8	4	7,6	25
5	9-0102	1	175	19	11	5	3	6,0	25

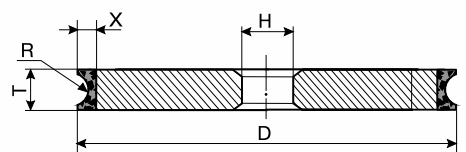
Example of an order for a diamond wheel 14F6V (catalog number 9-0102), parameters 175-19-11-5-3-6-25 with diamonds AC32 grit size D107, concentration 50 %, with metal bond M2-01:

9-0102 14F6V 175-19-11-5-3-6-25 AC32 D107 50% M2-01

1F6V

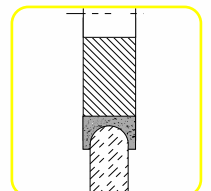
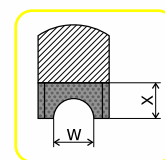
FLAT DIAMOND GRINDING WHEELS WITH SEMICIRCULAR-CONCAVE PROFILE

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



1FF6V D*T*X*W*R*H

Picture 1



Processing of edges

Glass thickness, mm	Code	Pic.	D, mm	T, mm	X, mm	R, mm	W, mm	H, mm
5	9-0053	1	100	10	5,6	6,0	3,75	22
4	9-0052	1	100	9	5,3	5,0	3,0	22
6	9-0051	1	100	11	6,0	7,0	3,6	22
6	9-0056	1	150	15	7	7,0	3	32
2	9-0055	1	200	10	5	3,0	1,6	60

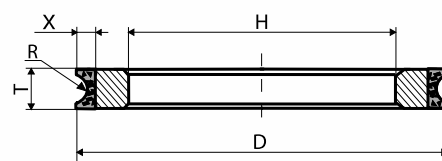
Example of an order for a diamond wheel 1F6V (catalog number 9-0056), parameters 150-15-7-7-3-32 with diamonds AC 15 grit size D107, concentration 75 %, with metal bond M2-01:

9-0056 1F6V 150-15-7-7-3-32 AC15 D107 75% M2-01

2F6V

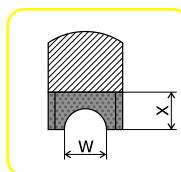
FLAT DIAMOND GRINDING WHEELS WITH SEMICIRCULAR-CONCAVE PROFILE

- 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.

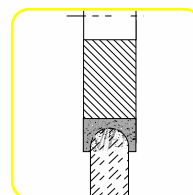
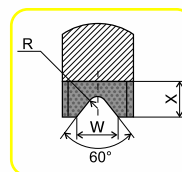


2F6V D*T*X*R*W*H

Picture 1



Picture 2



Machining of edges
of industrial glass

Glass thickness, mm	Code	Pic.	D, mm	T, mm	X, mm	R, mm	W, mm	H, mm
3	9-0121	2	200	20	8,0	2,0	4,2	130
2	9-0112	1	250	9	7,0	1,6	3,2	200
3	9-0113	1	250	9	7,0	1,8	3,6	200
3	9-0114	1	250	9	7,0	2,0	4,0	200
3	9-0117	2	250	10	6,0	1,6	4,0	200
4	9-0115	1	250	12	7,0	2,5	5,0	200
5	9-0101	1	250	12	7,0	3,0	6,0	200
6	9-0116	1	250	17	7,0	4,0	8,0	200
8	9-0103	1	250	17	9,0	5,0	10,0	200

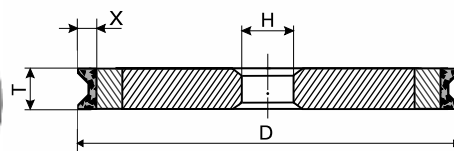
Example of an order for a diamond wheel 2F6V (catalog number 9-0103), parameters 250-17-9-5-10-200 with diamonds AC15 grit size D76, concentration 50 %, with metal bond M2-01:

9-0103 2F6V 250-17-9-5-10-200 AC15 D76 50% M2-01

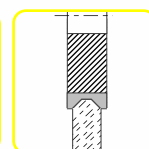
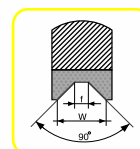
1DD6V

DIAMOND WHEELS FOR GLASS PROCESSING (A-LINE EDGE)

- 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

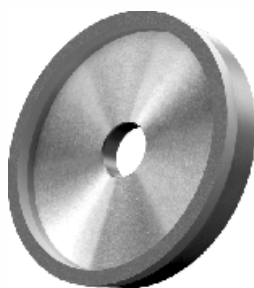
Glass thickness, mm	Code	D, mm	T, mm	X, mm	f, mm	W, m	H, mm
4	150T04	150	14	4,5	2,5	6,5	22
5	150T05	150	14	4,5	3,0	7,0	22
6	150T06	150	14	4,5	3,5	7,5	22
8	150T08	150	16	4,5	5,0	9,0	22
10	150T10	150	16	4,5	7,0	11,0	22

Example of an order for a diamond wheel 1DD6V (code 150T04) with parameters 150-14-4,5-2,5-6,5-22 with diamond type AC32, grit size D107 and concentration of diamond powder 50%, metal bond M2-01:

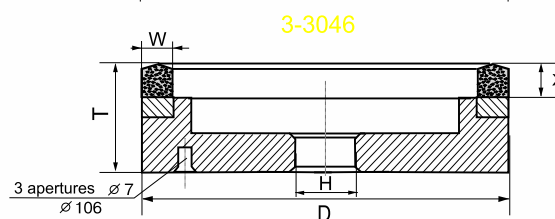
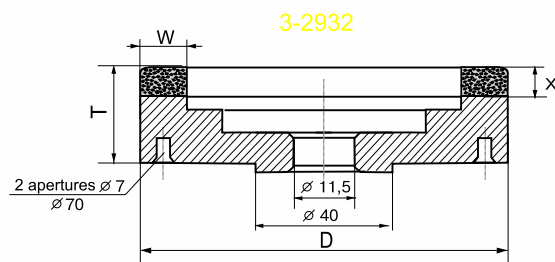
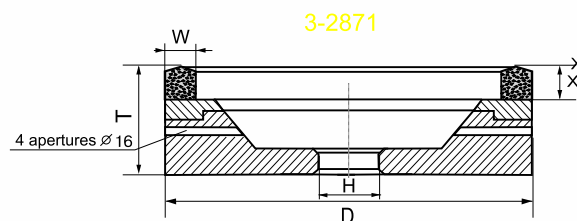
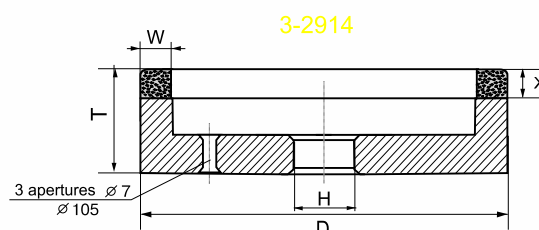
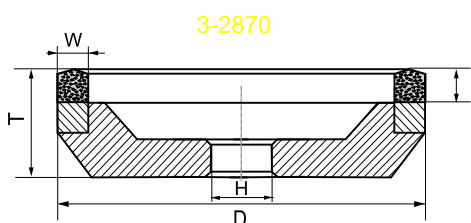
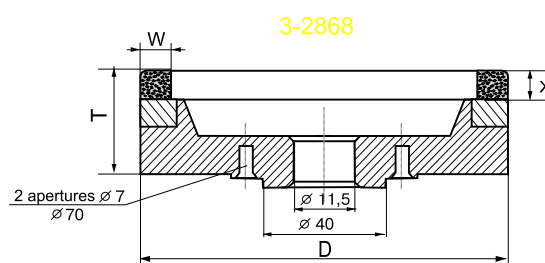
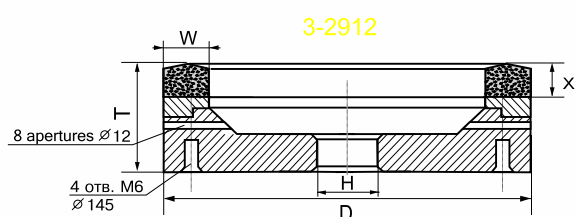
150T04 1DD6V 150-14-4,5-2,5-6,5-22 AC32 D107 50% M2-01

Attention: Other wheel parameters are available on request.

6A2 FLAT RECESSED DIAMOND GRINDING WHEELS


6A2 D*T*W*X*H

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



Code	D, mm	T,mm	W,mm	X,mm	H,mm
3-2912	160	51	12	8	130
3-2870	150	40	8	8	30
3-2871	160	51	8	8	130
3-2868	150	42	5	8	40
3-2914	150	26	6	6	50
3-2932	100	23	15	6	40
3-3046	150	30	8	8	50

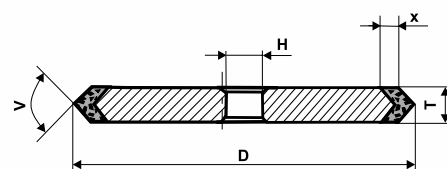
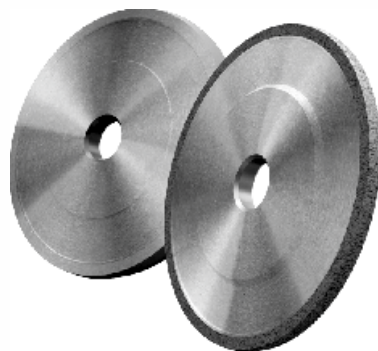
Example of an order for a diamond wheel 6A2 (code 3-2870) with parameters 150-40-8-8-30 with diamond type AC32, grit size D107 and concentration of diamond powder 50%, metal bond M2-01

3-2870 6A2 150-40-8-8-30 AC32 D107 50% M2-01

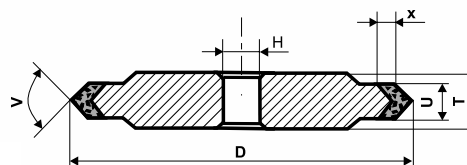
1EE1 14EE1

FLAT GRINDING WHEELS WITH DOUBLE-SIDED CONICAL PROFILE

- Processing of industrial and decorative glass, crystal, external thread-ing 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 micro-powders with metal or resin bonds.
- For metal bonded tools coolant is required.

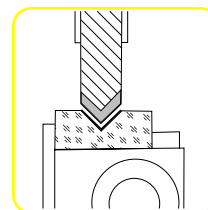


1EE1 D*T*X*V*H



14EE1 D*T*X*V*H

Glass cutting



Type 1EE1

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

Type 14EE1

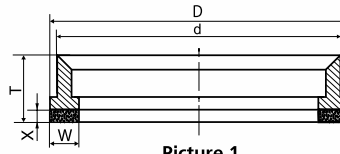
Catalog number	D, mm	T, mm	U, mm	X, mm	V, °	H, mm
9-3229	125	6	3	3	90	32
9-3133	125	6	3	4	60	32
9-3204	125	6	3	5	45	32
9-3203	125	6	3	6	35	32
9-3201	150	6	3	4	50	32
9-3239	150	8	5	3	90	32
9-3171	200	10	6	3	90	60
7-0154	250	10	6	5	110	32
7-0158	250	10	8	5	110	32
9-3226	350	15	6	4	60	127

Example of an order for a diamond wheel 1EE1 (catalog number 7-0215), parameters 250-12-10-110-32 with diamonds AC6 grit size D64, concentration 50 %, with metal bond M2-01:

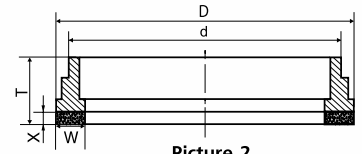
7-0215 1EE1 250-12-10-110-32 AC6 D64 50% M2-01

2A2 DIAMOND RING WHEELS

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



Picture 1

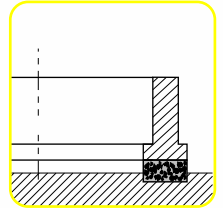


Picture 2



2A2 D*T*W*X*d

Hole drilling



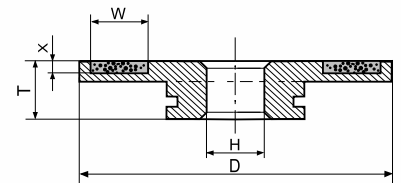
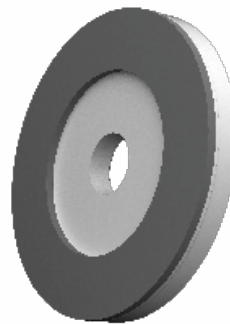
Catalog number	Picture	D, mm	T, mm	W, mm	X, mm	d, mm
6-0100	1	30	32	5	10	30
6-0101	1	35	32	5	10	25
6-0102	1	40	32	5	10	30
6-0103	1	60	32	5	10	50
6-0104	1	50	32	5	10	40
6-0105	1	70	32	5	10	60
6-0106	1	80	32	5	10	70
6-0107	2	50	31	2,5	8	47
6-0108	2	60	31	2,5	8	57
6-0109	2	70	31	2,5	8	67
6-0110	2	80	31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

Example of an order for a diamond wheel 2A2 (catalog number 6-0103), parameters 60-32-5-10-50 with diamonds AC 50 grit size D426, concentration 100 %, with metal bond M2-01:

6-0103 2A2 60-32-5-10-50 AC50 D426 100% M2-01

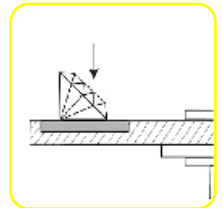
1A2 FLAT DIAMOND GRINDING WHEELS

- 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.



1A2 D*T*W*X*H

Diamond faceting



Catalog number	D, mm	T, mm	W, mm	X, mm	H, mm
9-3050	270	22	30	2	50
9-3033	320	16	30	1,5	114
9-3034	315	22	30	1,5	114
9-3038	315	16	30	2	114
9-3035	315	22	40	1,5	114
9-3036	315	10,5	60	1,5	114
9-3037	315	22	40	1,5	50,8
9-3045	315	22	60	1,5	50,8
9-3042	315	44	60	2	30

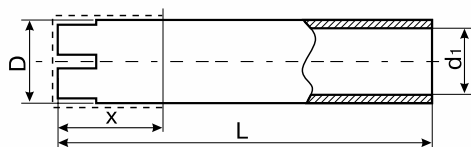
Example of an order for a diamond wheel 1A2 (catalog number 9-3035), parameters 315-22-40-1,5-114 with diamonds ACH, grit size M16 concentration 150 %, with metal bond M3-08:

9-3035 1A2 315-22-40-1,5-114 ACH M16 150% M3-08

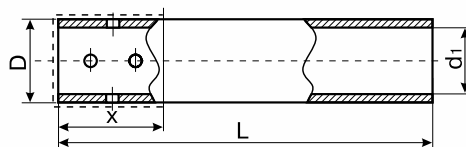
DIAMOND DRILLS

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.

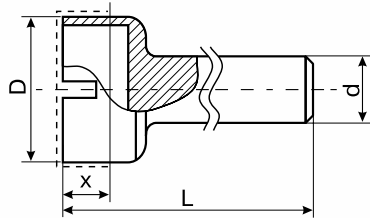
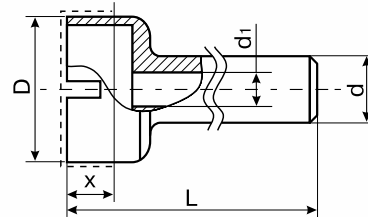


Picture 1

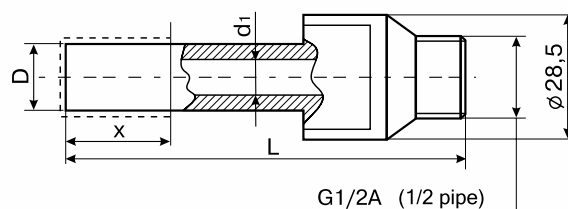


Picture 2

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


Picture 3

Picture 4

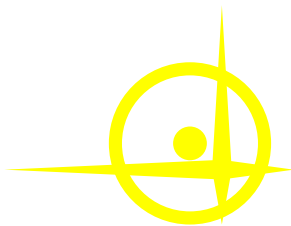
Designation of drill size and type	Picture	D, mm	d, mm	d ₁ , mm	L, mm	x, mm
06.02.001.00	3	65	9,5	-	60	10
06.03.001.00	4	19	9,5	4	70	7
06.03.001.00-30	4	10	9,5	4	70	8
06.03.001.00-31	4	12	9,5	4	70	8
06.03.001.00-32	4	14	9,5	4	70	8
06.03.001.00-33	4	16	9,5	4	70	8
06.03.001.00-34	4	20	9,5	4	70	8
06.03.001.00-36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


Picture 5

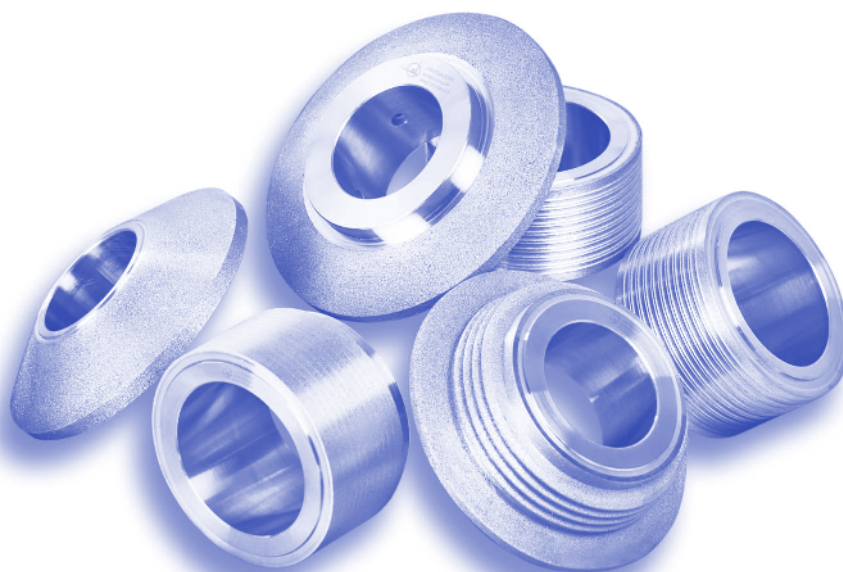
Designation of drill size and type	Picture	D, mm	d ₁ , mm	L, mm	x, mm
06.04.001.00	5	12	8	75	10
06.04.001.00-01	5	12,5	8	75	10
06.04.001.00-02	5	13	8	75	10
06.04.001.00-03	5	13,5	8	75	10
06.04.001.00-04	5	14	8	75	10
06.04.001.00-05	5	14,5	8	75	10
06.04.001.00-06	5	15	8	75	10
06.04.001.00-07	5	15,5	8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

Example of an order for a diamond drill (picture 4), size type 06.03.005.00-08 with outside diameter D=90, made of diamond powder AC 32, grade D91 with electroplated bond:

06.03.005.00-08 90 AC32 D91 electroplated bond



**POLTAVA
DIAMOND
TOOLS**



Diamond Profile 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 **POLTAVA DIAMOND TOOLS** 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

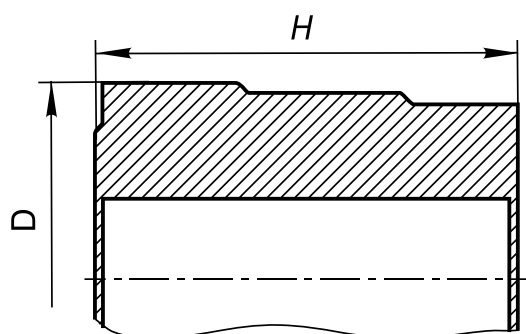


Table 1

Dimensions	Diamond roller Dimensions, mm 02H*
D max	160
D min	26
H max	140
H min	10

* - 02H - 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

Picture 2
Minimum tolerances for the shape and arrangement of diamond roller surfaces

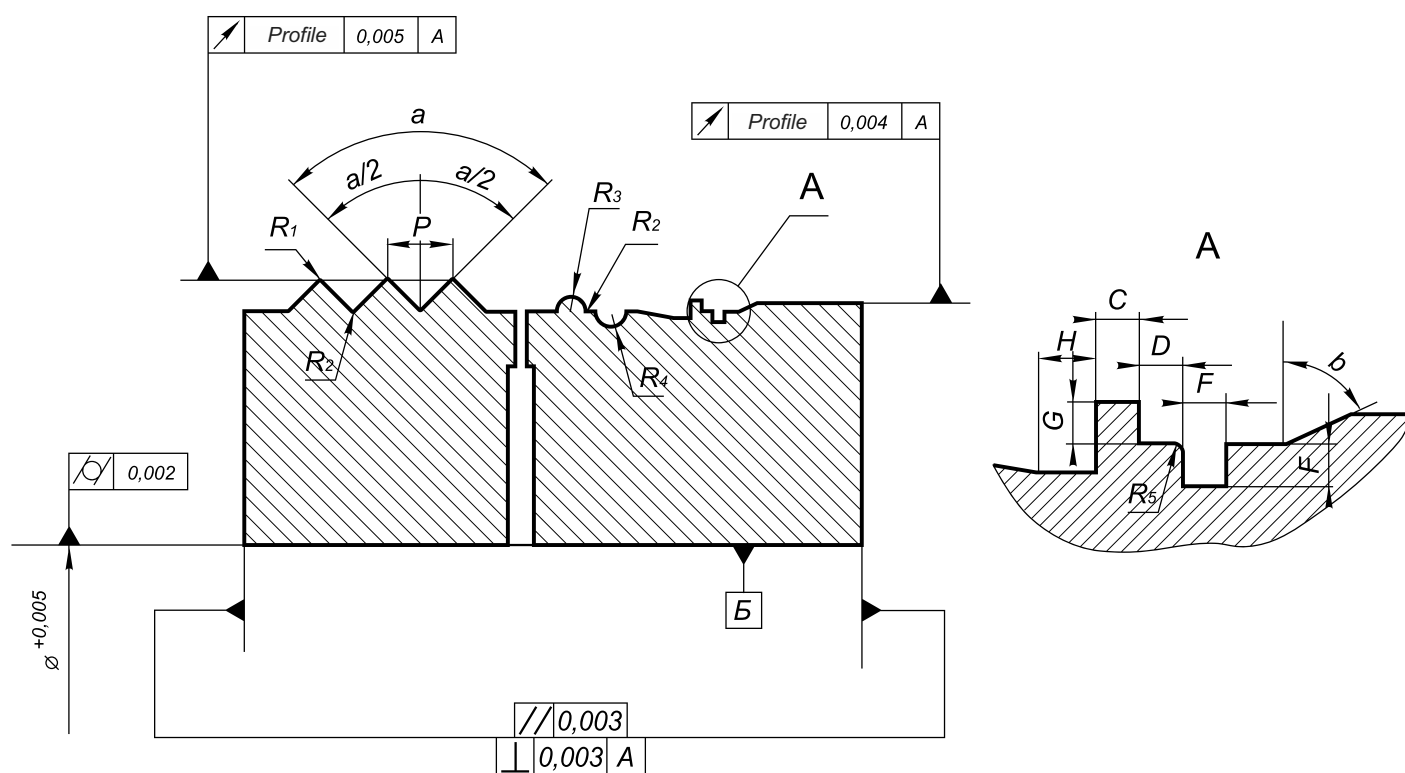


Table 2

$C = \pm 0,02$	$H = \pm 0,02$	$R_4 = 0,01$
$D = \pm 0,02$	$P = \pm 0,003$	$R_5 = 0,012$
$E = \pm 0,02$	$R_1 = 0,15$	$a = \pm 3'$
$F = \pm 0,02$	$R_2 = \pm 0,12$	$a/2 = \pm 3'$
$G = \pm 0,01$	$R_3 = \pm 0,01$	$b = \pm 3'$

Examples of order

Шифр	D, мм	H, мм	d, мм
R-0628	90	30	52
R22612	90	38	52
R24330	90	64	63

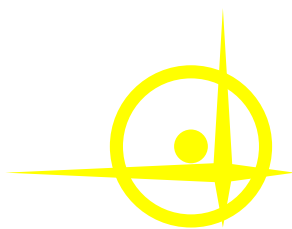
Diamond roller R-0628 (analog IK628) 90-30-52 from diamonds AC160, grit size D301.
(The type and size of the diamond are agreed with the customer)

Diamond roller R-22612 (analog IK2261) 90-38-52 from diamonds AC160, grit size D251.
(The type and size of the diamond are agreed with the customer)

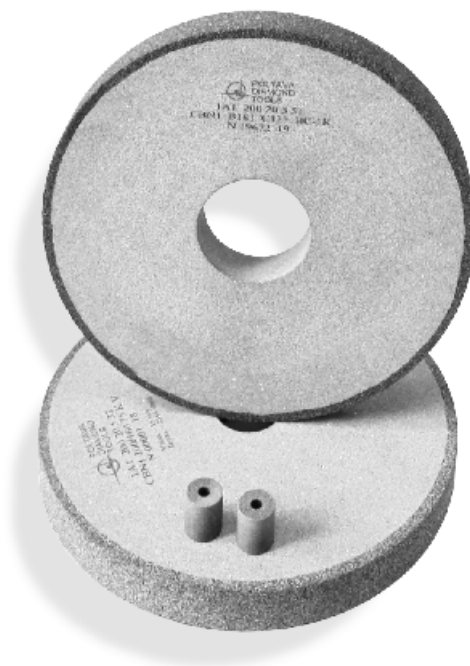
Diamond roller R-24330 (analog IK2433) 90-64-63 from diamonds AC160, grit size D426.
(The type and size of the diamond are agreed with the customer)

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

Attention: POLTAVA DIAMOND TOOLS also produces other shapes and types of diamond rollers.



**POLTAVA
DIAMOND
TOOLS**



CBN Grinding Wheels with Vitrified Bond



CBN Grinding Wheels with Vitrified Bond

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-threaded steel

Recommendations for Wheels Hardness Selection

Table 1. Types of hardness

Group of Hardness	Designation in accordance with ISO Standards	Designation in accordance with GOST R 52587 Standards
Soft	J	J
	L	L
	N	N
Hard	P	P
	R	R

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.

General recommendations how to chose required hardness of the vitrified bonded wheels

Grinding operation	Hardness
External cylindrical grinding: cut-in, Ra 0,32 - 1,25 line feed, Ra 0,16 - 0,63	N...O M...N
Centerless grinding: cut-in operation with line feed	N...P M...O
Internal	O...R
Flat grinding: with wheel periphery with wheel face	L...M
Tooth grinding: module < 3 mm module ≥ 3 mm	L...N K...M
Thread grinding: step 0,5...1,0 mm step 1,0...1,5 mm step 1,5...2,0 mm step more than 3 mm	P...R O...P M...N L...N
Tool sharpening of HSS: rough fine	L...M K...L

Concentration

Selection of concentration depends on a number of factors and can be made as follows.

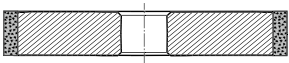
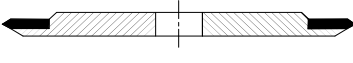
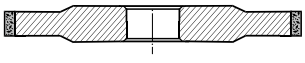
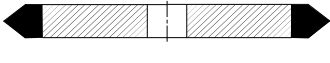
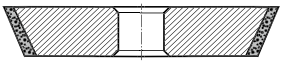
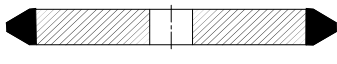
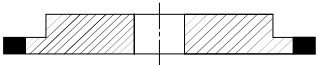
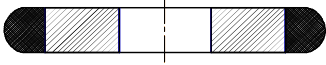
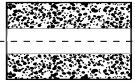

Concentration	Application conditions
High (125...150%)	<ul style="list-style-type: none"> • for wheels with grit B151 and coarser • for wheels with small diameters (< 50 mm) • for profile grinding wheels
Average (100%)	For most types of grinding operations when grit varies from B126B64

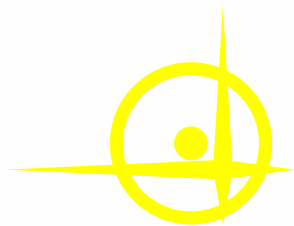
An example of order of 1A1 wheel with dimensions 250 20 5 32, CBN powder, grit B151, concentration 100% and hardness K (CM1), vitrified bond BC-1K:

0-1003 1A1 20-20-5-32 CBN1 B151 BC-1K

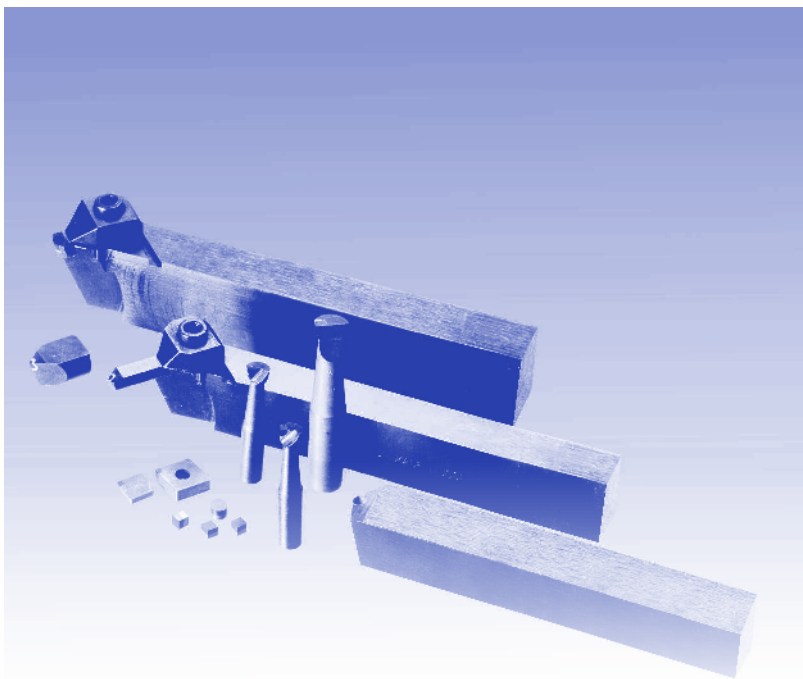


Main shapes of wheels with vitrified bond

1A1 	1E6Q 
14A1 	1E1 
1V1 	1D1 
3A1 	1F1 
A8 	AW 



**POLTAVA
DIAMOND
TOOLS**



**POLYCRYSTALLINE
SUPERABRASIVE
MATERIALS**



Superabrasive cutters, inserts, and replaceable inserts

Our factory has produced cutting tools since 1974. Our catalog shows only a small portion of the tools that we can produce. If you do not find the tools you need in our catalog, please contact our specialists to see if we make the tool you need.

- **PCBN inserts (straight-turning, boring, facing);**
- **One-piece cutting tools with PCBN for use on boring bars;**
- **PCBN jig-boring cutters for boring through and blind holes with a diameter of 4mm and higher;**
- **non-resharpenable, removable cutting inserts.**

Cutting tools, including PCBN inserts, should not be used after the wear of the clearance surface reaches 0,4 mm (for jig boring cutters 0,3 mm). All tools except for PCBN inserts can be resharpened. The resharpening can be done on universal sharpening machines with a 12A2-45 150x10x3x32 AC6 D181 R1-02 150% diamond wheel, with subsequent finishing by a 12A2-45 150x10x3x32 ACH M25 R5-03 100% wheel. Coolant should be used during resharpening and finishing. Up to 10 resharpenings are possible.

These are used for semi-finishing and finishing operations on workpieces of tempered steels (HRC 40 ... 70), cast iron, tungsten carbide and other hard-to-machine materials. PCBN inserts are designed to be resharpened due to their high wear during sharpening operations. The inserts can be used on a variety of two-piece lathe cutters and boring bars.

These are used for semi-finishing and finishing operations on work pieces (including those with non-continuous surfaces) of tempered steels (HRC 40 ... 70), cast iron, tungsten carbide, and other hard to machine materials.

The inserts are attached to the bodies of lathe cutters or milling cutters. When the insert reaches a certain level of wear, it is loosened, turned to a different angle, refastened, and then continues to be used. This permits the elimination of resharpening and guarantees the stability of the geometric parameters of the tool.

When used on rigid and vibration-proof equipment, tools with K10D inserts can achieve a level of surface machining accuracy from 6 - 9 tolerance grades, and a surface roughness of $Ra\ 0,20 - 1,25\ \mu m$

Recommended cutting parameters using PCBN inserts*

Table 1

Recommended cutting parameters using PCBN inserts*				
Tempered steel, hardness HRC 40...57	Semi-finishing Finishing Fine	40 – 60 60 – 75 75 – 110	0,1 – 0,15 0,05 – 0,1 0,03 – 0,05	0,2 – 0,6 0,1 – 0,2 0,05 – 0,1
Tempered steel, hardness HRC 58...70	Finishing Fine	50 – 75 60 – 75	0,03 – 0,07 0,005 – 0,03	0,1 – 0,2 0,05 – 0,1
Gray and ductile cast irons, hardness HB 160...270	Semi-finishing Finishing	200 – 400 300 – 500	0,08 – 0,2 0,02 – 0,08	0,4 – 0,7 0,2 – 0,4
Chilled, tempered cast irons, hardness HB 400...600	Semi-finishing Finishing	60 – 100 100 – 150	0,07 – 0,15 0,02 – 0,07	0,4 – 0,7 0,2 – 0,4
Tungsten carbide	Semi-finishing Finishing	5 – 20 10 – 30	0,04 – 0,1 0,005 – 0,04	0,2 – 0,5 0,05 – 0,2

* In each case the parameters should be adjusted after trial operations.

These are used for semi-finishing and finishing boring, on lathes, of through and blind holes (including on non-continuous surfaces) with diameters greater than 4 mm. Workpieces can be of tempered steels, cast iron and tungsten carbide. When mounting there should be a cutting angle of -10° ... -12° .

The rigidity of the steel bodies of the cutters permits holes to be bored with 7-9 tolerance grades. Technologically, cutters for through and blind holes are different, therefore cutters for through holes cannot be resharpened for use in boring blind holes. The usage parameters are those found in Table 1 (finishing). When boring holes with a small diameter, one must take into account that grinding conditions may worsen (less heat removal, shavings in the grinding area) by adjusting (lowering) the cutting parameters.

Recommended cutting parameters for boring holes in tempered steels with PCBN jig-boring cutters

Table 2

Recommended cutting parameters for boring holes in tempered steels with PCBN jig-boring cutters			
4 - 10	18 - 30	0,02 – 0,05	0,05 – 0,1
10 - 16	30 - 45	0,03 – 0,06	0,05 – 0,1
16 - 25	45 - 60	0,04 – 0,07	0,05 – 0,1

These are used in cutting tools and the construction is analogous to PCBN tools. The dark-colored PCD bit can be in a cylindrical or segmented form and its hardness is close to that of natural diamond.

PCD cutters are used for rough, semifinishing, and finishing operations on various types of fiberglass, plastic (including those with abrasive additives), plastic ceramics, graphite carbon materials, high silicon aluminium alloys and also copper and titanium alloys.

Cutting tools should not be used after the wear of the clearance surface reaches 0,4 mm. The resharpener can be done on universal sharpening machines with a 12A2-45 150x10x3x32 AC6 D181...D107 R1-02 100% diamond wheel with subsequent finishing using a 12A2-45 150x10x3x32 ACH M40 R1-02 150% diamond wheel. Coolant should be used during resharpener and finishing. Up to 10 resharpenings are possible.

Recommended cutting parameters using our PCD inserts*

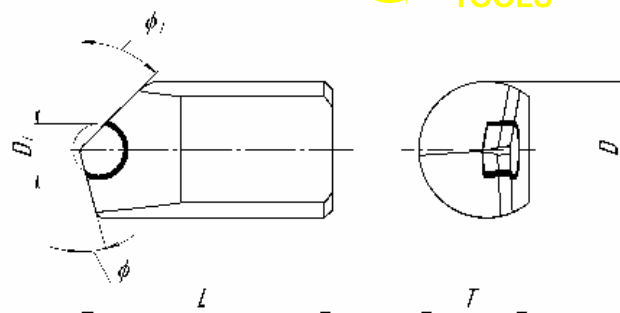
Table 3

Fiberglass and plastic	200-1000	0,03-0,3	0,05-1,0
Plastic ceramics	150-300	0,03-0,10	0,05-1,0
Aluminium and aluminium alloys	600-2000	0,03-0,3	0,05-1,0
High silicon aluminium alloys	300-700	0,03-0,3	0,05-1,0
Copper alloys	300-500	0,03-0,3	0,05-1,0
Titanium alloys	80-100	0,04-0,07	0,05-1,0
Ceramics	120-200	0,02-0,07	0,05-1,0
Tungsten carbide	10-30	0,03-0,10	0,05- 0,5
Particle board	2000-4000	0,03-0,3	-
Stone (sandstone, granite)	50-400	0,03-0,3	0,05-1,0

*In each case the parameters should be adjusted after trial operations.

PCBN INSERTS FOR TWO-PIECE LATHE CUTTERS AND BORING BARS

Recommended applications: Sharpening and boring of workpieces of steel with a hardness of HRC 40...70, cast iron, tungsten carbide.



Catalog code	D	T	L	φ	φ ₁	D ₁
601100	7	5,5	18	45	15	3
601101	7	5,5	18	15	45	3
601400	7	5,5	18	15	30	3
600900	8	6,5	12	30	15	3
601300	8	6,5	12	30	10	3
600901	8	6,5	12	45	15	3
601301	8	6,5	12	45	10	3
601000	8	6,5	12	50	50	5
601103	8	6,5	15	15	45	3
626600	8	6,5	16	40	48	5
601102	8	6,5	16	45	15	3
805700	8	6,5	18	50	50	3
601105	8	6,5	20	15	45	3
601104	8	6,5	20	45	15	3
601107	8	6,5	25	15	45	3
601402	8	6,5	25	15	30	3
601106	8	6,5	25	45	15	3
611515	8	6,5	25	45	45	3
601008	8	6,5	25	50	50	5
601111	8	6,5	30	15	45	3
601108	8	6,5	30	45	15	3
601404	8	6,5	35	15	30	3
601405	8	6,5	35	15	45	3
611511	8	6,5	35	30	15	3
609900	8	6,5	35	45	55	5
601000	8	6,5	45	5	45	3
600902	9	7	15	30	15	5
601302	9	7	15	30	10	3
600903	9	7	15	45	15	5
601303	9	7	15	45	10	3
600904	10	8	15	30	15	5
601304	10	8	15	30	10	5
600905	10	8	15	45	15	5
601305	10	8	15	45	10	5
601003	10	8	15	50	50	5
611503	10	8	16	15	45	5
601110	10	8	16	45	15	5
212192	10	8	21	15	45	5
628002	10	8	21	30	45	5

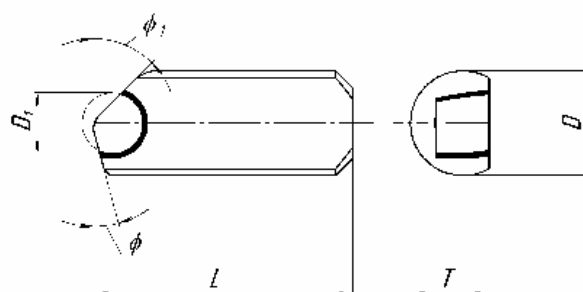
Catalog code	D	T	L	ϕ	ϕ_1	D ₁
628000	10	8	21	45	30	5
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212190	10	8	25	15	45	5
628003	10	8	25	30	45	5
628001	10	8	25	45	30	5
212191	10	8	25	45	15	5
601109	10	8	30	15	45	5
611514	10	8	30	45	15	5
600910	10	8	35	30	15	5
600911	10	8	35	45	15	5
611512	10	8	35	50	50	5
601406	10	8	40	15	30	5
601407	10	8	40	15	45	5
611519	10	8	40	45	15	5
609901	10	8	40	45	55	5
628600	10	8	40	45	45	5
611504	10	8	40	50	50	5
630304	10	8	70	45	15	5
600906	12	10	20	30	15	5
600907	12	10	20	45	15	5
601005	12	10	20	50	50	5
611500	12	10	25	15	30	5
630302	12	10	35	15	30	5
630300	12	10	35	30	30	5
630301	12	10	35	30	15	5
609800	12	10	35	45	45	5
620900	12	10	35	96	6	5
611509	12	10	45	15	45	5
611508	12	10	45	45	15	5
611510	12	10	45	50	50	5
611501	12	10	50	15	30	5
611502	12	10	50	30	15	5
611516	12	10	50	45	45	5
611517	12	10	50	45	60	5
601408	12	10	60	15	30	5
601409	12	10	60	15	45	5
611507	12	10	60	45	15	5
609902	12	10	60	45	55	5
611505	12	10	60	50	50	5
630305	12	10	70	45	15	5
600908	16	12	20	30	15	5
600909	16	12	20	45	15	5
601007	16	12	20	50	50	5
601410	16	12	80	15	30	5
601411	16	12	80	15	45	5
611520	16	12	80	45	15	5
611506	16	12	80	50	50	5
601412	20	16	100	15	30	5
601413	20	16	100	15	45	5

Example of an order for an insert for a two-piece straight lathe cutter (code 600904) with measurements 10-8-15-30-15: **600904 Insert 10-8-15-30-15**

Attention: we can also make to order inserts with other parameters.

PCD INSERTS FOR TWO-PIECE LATHE CUTTERS AND BORING BARS

Recommended applications: Sharpening and boring of workpieces of fiberglass, CFRP, plastic, aluminium, copper and titanium alloys, ceramics.



Catalog code	D	T	L	ϕ	ϕ_1	D ₁	γ
37001	6	4,4	15 ,5	45	45	3,5	0
37000	6	4,5	15	15	45	3,5	0
50000	7, 8	6,5	25	45	15	3,5	-5
34000	8	5,5	20	45	15	3,5	0
42000	8	5,5	20	45	15	5	0
42001	8	5,5	20	15	45	5	0
44000	8	5,5	23	45	15	3,5	0
101000	8	6,5	12	30	15	3,5	-5
101001	8	6,5	12	45	15	3,5	-5
101002	8	6,5	12	60	15	3,5	-5
103000	8	6,5	12	50	50	3,5	-5
102000	8	6,5	15	15	45	3,5	-5
102001	8	6,5	15	15	60	3,5	-5
101003	8	6,5	25	30	15	3,5	-5
101004	8	6,5	25	45	15	3,5	-5
101005	8	6,5	25	60	15	3,5	-5
102002	8	6,5	25	15	45	3,5	-5
102003	8	6,5	25	15	60	3,5	-5
103001	8	6,5	25	50	50	3,5	-5
101006	10	8	15	30	15	5	-5
101007	10	8	15	45	15	5	-5
101008	10	8	15	60	15	5	-5
103002	10	8	15	50	50	5	-5
102004	10	8	16	15	45	5	-5
102005	10	8	16	15	60	5	-5

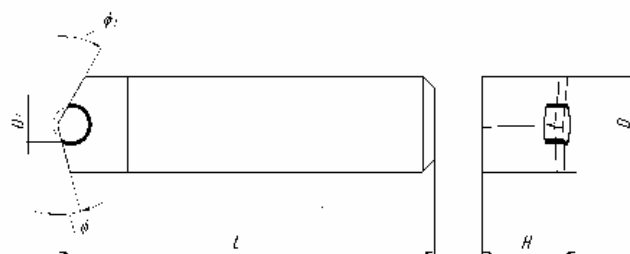
Catalog code	D	T	L	ϕ	ϕ_1	D ₁	γ
101009	10	8	40	30	15	5	-5
101010	10	8	40	45	15	5	-5
101011	10	8	40	60	15	5	-5
102006	10	8	40	15	45	5	-5
102007	10	8	40	15	60	5	-5
103003	10	8	40	50	50	5	-5
102022	10	8	60	15	45	5	-5
101018	12	10	20	30	15	5	-5
101019	12	10	20	45	15	5	-5
101020	12	10	20	60	15	5	-5
103006	12	10	20	50	50	5	-5
101021	12	10	60	30	15	5	-5
101022	12	10	60	45	15	5	-5
101023	12	10	60	60	15	5	-5
102012	12	10	60	15	45	5	-5
102013	12	10	60	15	60	5	-5
103007	12	10	60	50	50	5	-5
101037	16	12	20	45	15	5	-5
101038	16	12	20	60	15	5	-5
103012	16	12	20	50	50	5	-5
101039	16	12	80	45	15	5	-5
101040	16	12	80	60	15	5	-5
102018	16	12	80	15	45	5	-5
102019	16	12	80	15	60	5	-5
103013	16	12	80	50	50	5	-5

γ - rake angle

Example of an order for an insert for a two-piece lathe insert (code 101004) with measurements 8-6,5-25-45-15:

101004 Insert 8-6,5-25-45-15

Attention: we can also make to order inserts with other parameters.



ONE-PIECE RECTANGULAR PCBN CUTTERS FOR ATTACHMENT TO BORING BARS

Recommended applications: Sharpening and boring of workpieces of steel (hardness HRC 40...70), cast irons, tungsten carbide.

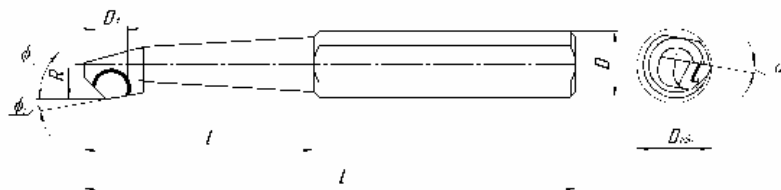
Catalog code	D	H	L	φ	φ ₁	D ₁
621200	7	7	25	15	45	3
60000	8	8	25	32	63	5
601500	8	8	32	15	30	3
601501	8	8	32	15	45	3
601502	10	10	40	15	30	5
601503	10	10	40	15	45	5
60001	10	10	40	32	63	5
630400	10	10	45	6	90	5
601504	10	10	50	15	30	5
601505	10	10	50	15	45	5
601506	12	12	65	15	30	5
601507	12	12	65	15	45	5
600002	12	12	65	32	63	5
605500	14	14	100	50	50	5
601508	16	16	80	15	30	5
601509	16	16	80	15	45	5
601510	20	20	80	15	30	5
601511	20	20	80	15	45	5

Example of an order for a one-piece rectangular cutter for attachment to boring bars or mandrels (code 601501) with measurements 8-8-32-15-45:

601501 Cutter 8-8-32-45

Attention: we can also make to order inserts with other parameters.

PCBN BORING CUTTERS FOR JIG-BORING LATHES (THROUGH HOLES)



Recommended applications: Boring of workpieces of steel (hardness HRC 40...70), cast iron, tungsten carbide.

Catalog code	D	R	L	φ	φ ₁	D ₁	l	Dmin (Minimum diameter of bore hole)	Length of bore hole
601600	6	2	40	45	10	3	20	4	15*
601601	6	2	40	60	10	3	20	4	15*
601602	6	3	45	45	10	3	20	6	18*
601603	6	3	45	60	10	3	20	6	18*
601604	8	4	50	45	10	3	25	8	24
601605	8	4	50	60	10	3	25	8	24
601606	8	4	50	45	10	5	25	8	24
601607	8	4	50	60	10	5	25	8	24
601608	8	5	55	45	10	3	25	10	25
601609	8	5	55	60	10	3	25	10	25
601610	8	5	55	45	10	5	25	10	25
601611	8	5	55	60	10	5	25	10	25
803900	12	6	70	45	10	3	35	11	34
803901	12	6	70	60	10	3	35	11	34
803902	12	6	70	45	10	5	35	11	34
803903	12	6	70	60	10	5	35	11	34
803904	12	8	80	45	10	5	40	14	40
803905	12	8	80	60	10	5	40	14	40
803906	12	10	100	45	10	5	50	16	50
803907	12	10	100	60	10	5	50	16	50

Note: * when the diameter is increased, the length approaches l.

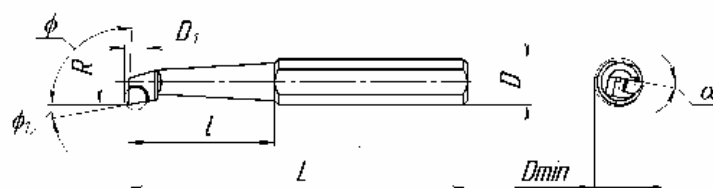
A clearance angle on the lathe of $\alpha = 10^\circ \dots 12^\circ$ is recommended.

Example of an order of a boring cutter (code 601600) with measurements 6-2-40-45-10:

601600 Boring cutter 6-2-40-45-10

Attention: we can also make to order inserts with other parameters.

PCBN BORING CUTTERS FOR JIG-BORING LATHES (BLIND HOLES)



Recommended applications: Boring of workpieces of steel (hardness HRC 40...70), cast iron, tungsten carbide.

Catalog code	D	R	L	φ	φ_1	D ₁	I	Dmin (Minimum diameter of bore hole)	Length of bore hole
601700	6	2	40	93	10	3	20	4	15
601701	6	3	45	93	10	3	20	6	18*
601702	8	4	50	93	10	3	25	8	24
601703	8	4	50	93	10	5	25	8	24
601704	8	5	55	93	10	3	25	10	25
601705	8	5	55	93	10	5	25	10	25
604600	12	6	70	93	10	3	35	11	34
604601	12	6	70	93	10	5	35	11	34
604602	16	8	80	93	10	5	40	14	40
604603	20	10	100	93	10	5	50	16	50
604604	12	8	80	93	10	5	40	14	40
604605	12	10	100	93	10	5	50	16	50

Note: * when the diameter is increased, the length approaches L.

A clearance angle on the lathe of $\alpha = 10^\circ \dots 12^\circ$ is recommended.

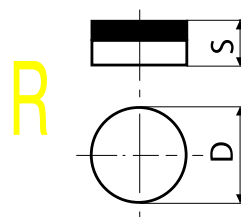
Example of an order of a boring cutter (code 601700) with measurements 6-2-40-93-10:

601700 Boring cutter 6-2-40-93-10

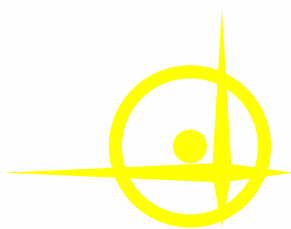
Attention: we can also make to order inserts with other parameters.



CHANGEABLE CUTTING MULTIFACETED
TWO-LAYER INSERTS PCBN, PCD



PCBN	RNMNГ	5,56	3,97	-
	RNMNГТ	5,56	3,97	0,2-0,3
	008600	13,5	3,5	-
PCD	009200	13,5	3,5	-
	009000	7,5	3,5	-



**POLTAVA
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DIAMOND AND CUBIC BORON NITRIDE 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.

D126-D76	40	60	-	Lilac
D64-D54	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 mcm	2	5	10	Not colored

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:

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	-	-	Polishing

Abrasive capabilities of pastes

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

Г (G)	O	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 (X)	B, BO	Machining of glass, semiconducting materials, carbide tools, dyes
Э (E)	BO	Machining of glass, semiconducting materials, carbide tools.

Attention! POLTAVA DIAMOND TOOLS produces paste with titanium carbide (TC).

TC 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.

Past 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.

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 50, 100, 500 and 1000 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 D426 – 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

Rough processing	630/500-50/40	0,8-1,5	1,60	0,32
Semi-finishing processing	60/40-14/10	0,4-0,9	0,20	0,10
Finishing processing	14/10-3/2	0,2-0,6	0,063	0,032
Polishing	3/2-1/0	0,1-0,4	0,025	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.

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.

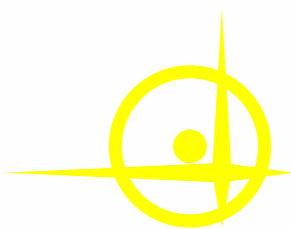
Glass is recommended for the polishing of semi-precious stones, corundum, granite, etc.

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.



**POLTAVA
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DIAMOND TOOLS FOR CONSTRUCTION AND STONE WORKING

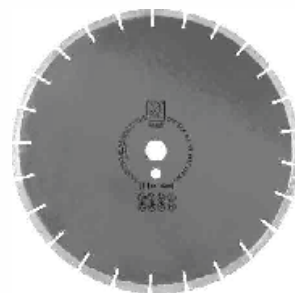


1A1RSS DIAMOND SEGMENTED CUT OFF WHEELS

1A1RSS REINFORCED CONCRETE +

The Application Area

- Cutting of high reinforced concrete



1A1RSS REINFORCED CONCRETE

The Application Area

- Cutting of reinforced concrete

1A1RSS FIREBRICK

The Application Area

- Cutting of firebrick materials, bricks, tiles (Dutch tiles)

1A1RSS SANDSTONE

The Application Area

- Cutting of all kinds of sandstone

Cut off wheels could be used on power cutters, slot cutters and stationary equipment with coolant only.

Code	Diameter, mm	Hole, mm	Rim Width, mm	Rim Thickness mm	Number of Segments pc.
61107A	300	25,4	2,8	10	20
61108A	350	25,4	3,2	10	24
61109A	400	25,4	3,5	10	28
61110A	450	25,4	3,8	10	31
61111A	500	25,4	3,8	10	35
61113A	600	25,4	4,5	10	42
61208A	810	60,0	6,0	10	57
61209A	904	60,0	7,0	12	64

1A1RSS CONCRETE

The Application Area

- Cutting of concrete and reinforced concrete.

Cut off wheels could be used on power cutters and slot cutters with coolant only.



Code	Diameter, mm	Hole, mm	Rim Width, mm	Rim Thickness mm	Number of Segments pc.
61406A	300	25,4	2,8	10	18
61407A	350	25,4	3,2	10	21
61408A	400	25,4	3,5	10	24
61409A	450	25,4	3,8	10	28
61410A	500	25,4	3,8	10	30
61411A	600	25,4	4,5	10	36

Attention: we also produce other dimensions of this shape

DIAMOND SEGMENTED DRILLS



DIMENSIONS OF SEGMENTED DRILLS

Code	Diameter, mm	Number of Segments, pc.	Drill Length, mm	Segment L x B x H, mm	Mounting
63005A	62	6	450	24 x 3,5 x 11	1 1/4"
63006A	68	6	450	24 x 3,5 x 11	1 1/4"
63007A	72	6	450	24 x 3,5 x 11	1 1/4"
63008A	77	7	450	24 x 3,5 x 11	1 1/4"
63009A	82	7	450	24 x 3,5 x 11	1 1/4"
63010A	92	8	450	24 x 3,5 x 11	1 1/4"
63011A	102	9	450	24 x 3,5 x 11	1 1/4"
63012A	112	9	450	24 x 3,5 x 11	1 1/4"
63013A	122	10	450	24 x 3,5 x 11	1 1/4"
63014A	132	10	450	24 x 4 x 11	1 1/4"
63015A	142	12	450	24 x 4 x 11	1 1/4"
63016A	152	12	450	24 x 4 x 11	1 1/4"
63017A	162	12	450	24 x 4 x 11	1 1/4"
63018A	172	13	450	24 x 4 x 11	1 1/4"
63019A	182	13	450	24 x 4 x 11	1 1/4"
63020A	200	14	450	24 x 4,5 x 11	1 1/4"
63021A	225	15	450	24 x 4,5 x 11	1 1/4"

APPLICATION OF SEGMENTED DRILLS

Segment type	Application
BS	Soft segment with high speed of drilling of high reinforced concrete.
BH	Soft segment with high speed of drilling of hard high reinforced concrete. Possesses good work resource.
BSH	Segment with high speed of drilling of hard high reinforced concrete. Possesses the maximum work resource

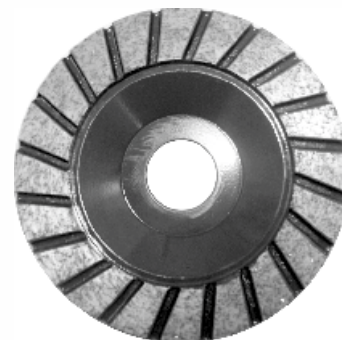
DIAMOND SEGMENTS FOR DRILLS

DIMENSIONS OF SEGMENTS

Code	Diameter, mm	Segment L x B x H, mm
64003	62-72	24x3,5x11
64004	77-102	24x3,5x11
64005	112-132	24x3,5x11
64006	142-162	24x4x11
64007	172-225	24x4x11
64008	200-275	24x4,5x11



TURBO SEGMENTED GRINDING CUP WHEELS



For grinding concrete, brick and ceramics without coolant

3-2869	100*21*4*16*22,2	Blue	CONCRETE № 00	NO
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For finish grinding of granite and marble

3-2869	100*21*4*16*22,2	Green	GRANITE № 0	NO
3-2869	100*21*4*16*22,2		GRANITE № 1	NO
3-2869	100*21*4*16*22,2		GRANITE № 2	YES
3-2869	100*21*4*16*22,2		GRANITE № 3	YES

Example of an order for a turbo segmented grinding cup wheel (catalog number 3-2869), parameters 100-21-4-16-22,2:

3-2869 100-21-4-16-22,2 GRANITE №1

Recommendations

1. Properly selected tools significantly reduce the cost of work. The main thing is not the price of a tool, but the final cost of work done with this tool.
2. It is important to select the tool in accordance with processed material. For example, to cut the granite, you should use the cut off wheel for "GRANITE".
3. In case of production loss, you should dress the diamond layer (sharp the wheel). Short-time work with any abrasive material: abrasive wheel, silix brick, asphalt.
4. On-time cooling of the wheels is important to protect them from core deformation resulted by thermal influence.



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EN 13236