



## Saw Grits diamond powder

HARIS DIVISION company represents Saw Grits series of diamond powder.

The consumer has a possibility to select of variant of powder, eligible to him, being based on own requests to the instrument and physical properties of offered series.

### MBH K

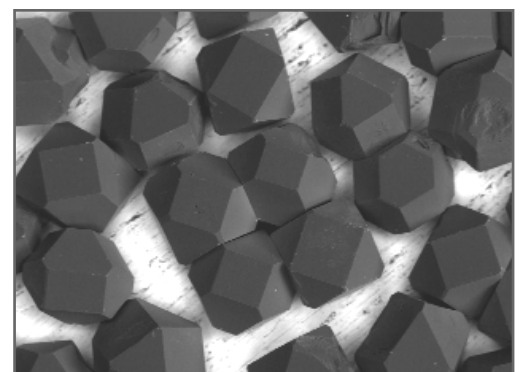
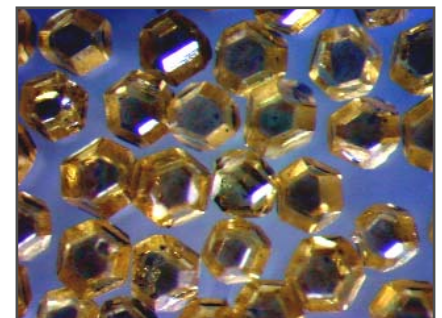
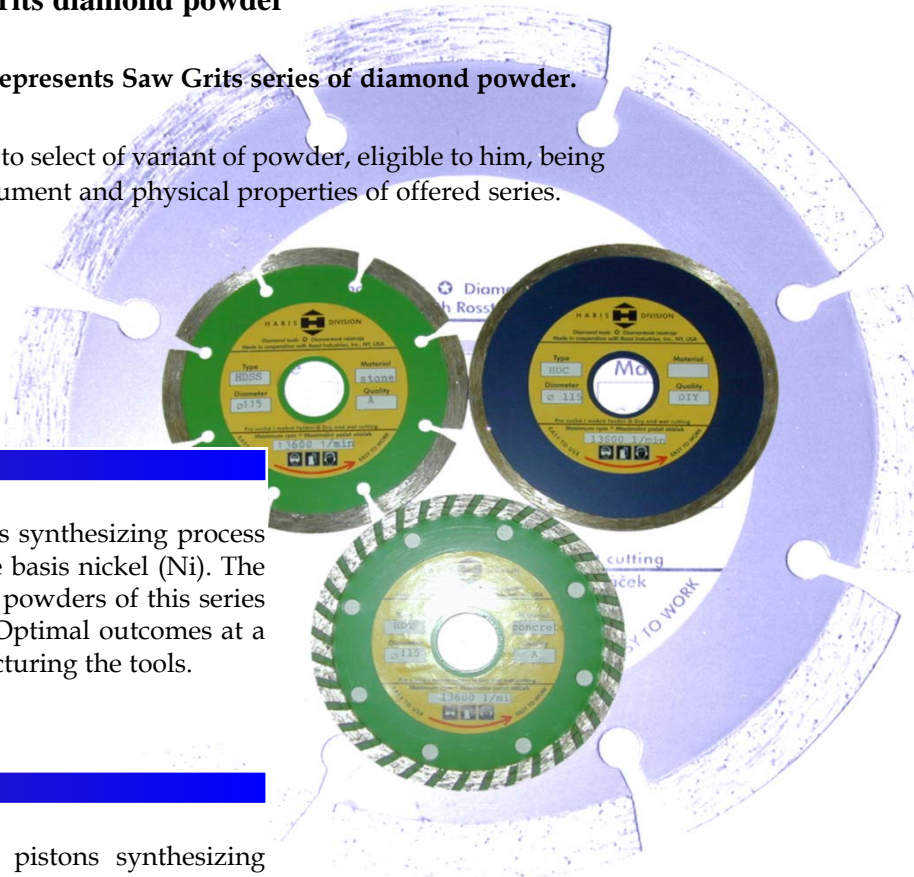
MBH K series - product 6x-pistons synthesizing process with applying of catalyzers on the basis nickel (Ni). The toughness and thermo-stability of powders of this series is higher, than for a series MBH. Optimal outcomes at a choice "price / quality" at manufacturing the tools.

### MBH S

MBH S series - product of 2x- pistons synthesizing process with applying of catalyzers on the basis nickel (Ni). This powder has high hardness and thermal stability. It is recommended for applying in the instrument intended for sawing and drilling of concrete, asphalt and granite with high resource of stability of the tools.

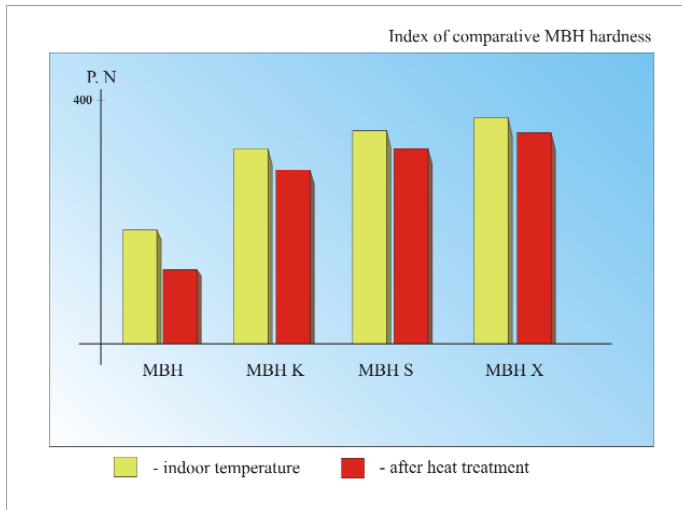
### MBH X

MBH X series - product of 2x-pistons synthesizing process with applying of catalyzers on the basis of cobalt (Co). The features of synthesizing of this series predetermine the majority of crystals with the cubo-octahedral shapes and practical absence of internal inclusions. The very high toughness, which one in combination to a excellent thermal stability allows to use the instrument for high-performance the sawing and drilling at heightened powers of such materials as reinforced concrete, land asphalt and hard granite.



## Thermal stability of diamond

Main operational characteristics of abrasive instrumental materials is heat resistance - ability of materials to retain mechanical characteristics and structure upon multiple thermal disturbances. High heat resistance is ensured with, from one hand substance properties - low rate of coefficient of thermal expansion and modulus of elasticity, high rate of thermal conductivity, and, from the other hand, for its value affects the degree of perfection of crystal structure, number of impurities and defectiveness of material.



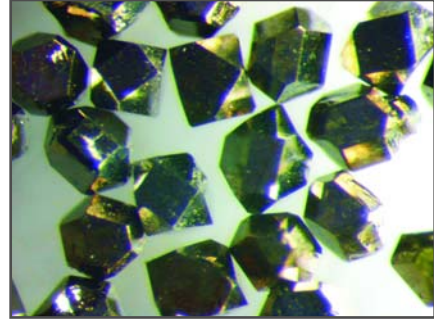
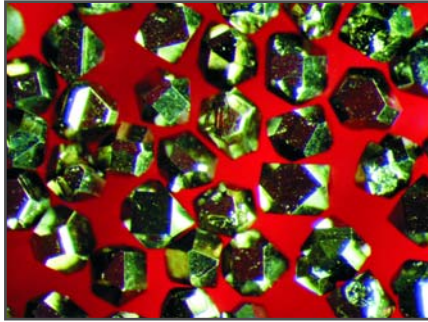
The degree of thermal stability is being evaluated as a result of comparison of basic mechanical hardness of crystals and corresponding hardness after thermal treatment, including heating, isothermal exposure and cooling.



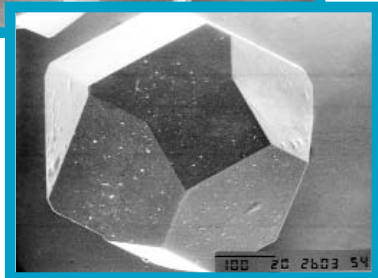
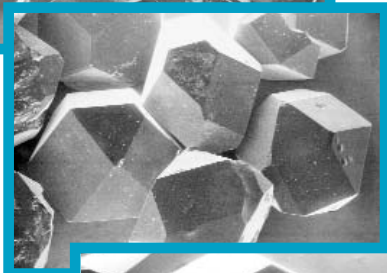
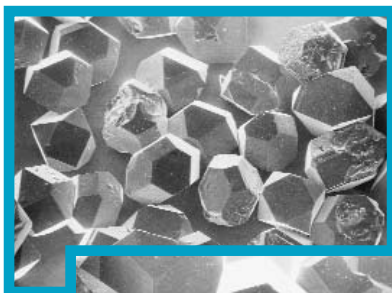
Table of size availability

FEPA	ANSI	MBH K 880 ~ 830	MBH S 870 ~ 820	MBH X 870 ~ 830
D601	30/35		✓	✓
D602	30/40		✓	✓
D501	35/40	✓	✓	✓
D426	40/45	✓	✓	✓
D427	40/50	✓	✓	✓
D356	45/50	✓	✓	✓
D301	50/60	✓	✓	✓
D251	60/70	✓	✓	
D252	60/80	✓	✓	
D213	70/80	✓	✓	

## Ti Coated SAW Grits Diamond



Using many years' experience of coating abrasive powders HARIS DIVISION offers powders of "SAW Grits" series with titanium (Ti) coating. This coating improves cutting characteristics of tools.



x50 ▲

x100 ▲

x200 ►

**MBH 810 Ti 40/45**

### Production Benefits

Film layer of Ti on the surface of synthetic diamond prevents graphitization process at high temperatures of tool sintering, protects diamond from chemical interaction with the components of base matrix during sintering. This also gives a manufacturer more options while choosing the types of bonds and temperature condition of tool production.

### Exploitation Benefits

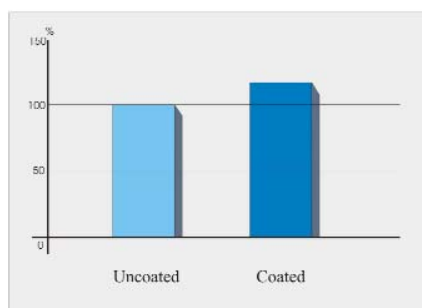
Improved productivity of the cutting process, due to a bigger (up to 30%) exposure of diamond cutting edges over the bond surface. Titanium cover brakes fast destruction of diamond. Even fragmented with micro-cracks diamond continues to work until the complete falling out from the base matrix.

### Economic Factors

Improving of tool cost; Manufacturer can choose cheaper powder, using which with titanium coating will save efficiency of the tool at the same level. Or manufacturer can lower concentration of powder with Ti coating in the tool.

All this factors better productivity of cutting process and increase the efficiency of tools.

### Comparison of performances characteristics



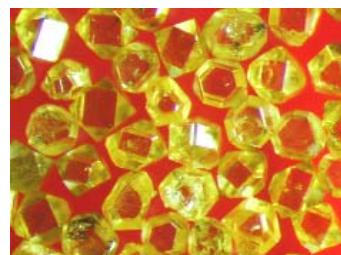
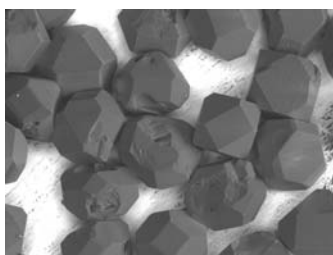
**Diameter of Saw:** 400mm  
**Cutting depth:** 20mm  
**Peripheral velocity:** 30 m/sec  
**Cutting speed:** 600 cm/min  
**Work material:** medium hard granite

## MBH K series of Saw Grits diamond powder

"MBH K " series - product 6x-pistons synthesizing process with applying of catalyzers on the basis nickel (Ni). The toughness and thermostability of powders of this series is higher, than for a series MBH. Optimal outcomes at a choice "price / quality" at manufacturing the tools.

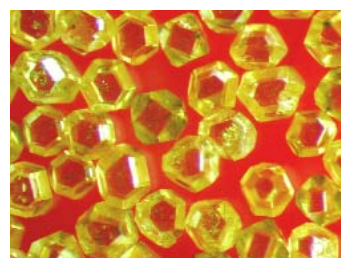
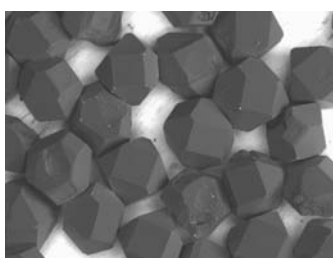
### MBH K 830 / K 840

MBH K 830 / K 840 - is presented with crystals of the block form, with small deviations from the regular cubo-octahedral shapes. This economy type of powder ensures high strength and thermal stability peculiar to MBH K series. It is recommended for saw, drilling and grinding of different synthetic and natural building materials.



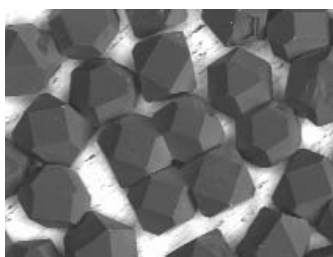
### MBH K 850 / K 860

MBH K 850 / K 860 - are powders with the relatively high content of crystals of the cubo-octahedral shapes, high toughness and thermal stability. They are recommended for applying in the instruments assigned for sawing and drilling of concrete, asphalt and granite with high resource of stability of the tools.



### MBH K 870 / K 880

MBH K 870 / K 880 - are presented with monocrystals practically without visible internal inclusions, have regular cubo-octahedral crystal shapes and very high toughness, which, in combination with an excellent thermal stability allows to use the instrument for effective sawing and drilling at higher powers of such materials as reinforced concrete, land asphalt and hard granite.



Measurement results of strength and thermal stability of diamond powder of MBH K series, size 40/45 US mesh.

Type of powder	Static strength index, N		GOST 9206-80	Coefficient of thermal stability	Indicator of thermal stability	Index of thermal stability
	P, basic value-room temperature	P, after thermo-treatment				
MBH K 880	335,9	338,7	AC 200	1,00	10	HT
MBH K 870	309,4	302,3	AC 200	0,97	10	HT
MBH K 860	293,1	282,7	AC 160	0,96	10	HT
MBH K 850	270,1	249,2	AC 160	0,92	9	HT
MBH K 840	239,6	218,3	AC 125	0,91	9	HT
MBH K 830	265,4	167,1	AC 125	0,63	6	T

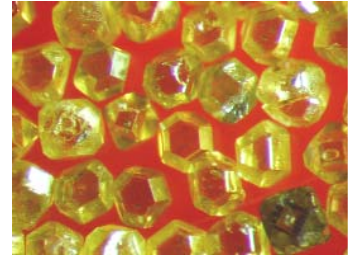
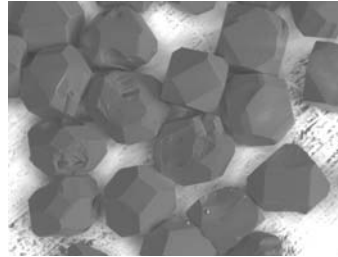
\* the heat treatment was conducted in air environment at 850 °C during 20 min.

## MBH S series of Saw Grits diamond powder

" MBH S " series - product of 2x- pistons synthesizing process with applying of catalyzers on the basis nickel (Ni). This powder has high hardness and thermal stability. It is recommended for applying in the instrument intended for sawing and drilling of concrete, asphalt and granite with high resource of stability of the tools.

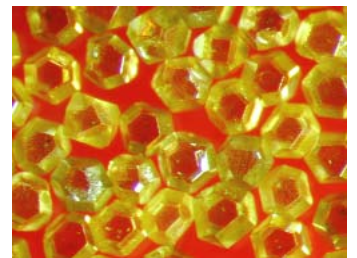
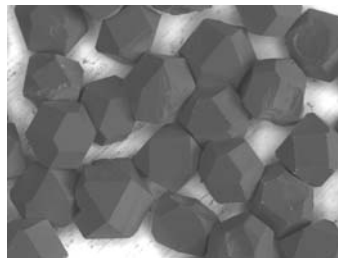
### MBH S 820 / S 830

**MBH S 820 / S 830** - is presented with crystals of the block form, with small deviations from the regular cubo-octahedral shapes. This economy type of powder ensures high strength and thermal stability peculiar to MBH S series. It is recommended for saw, drilling and grinding of different synthetic and natural building materials.



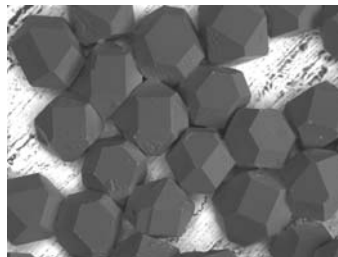
### MBH S 840 / S 850

**MBH S 840 / S 850** - are powders with the relatively high content of crystals of the cubo-octahedral shapes, high toughness and thermal stability. They are recommended for applying in the instruments assigned for sawing and drilling of concrete, asphalt and granite with high resource of stability of the tools.



### MBH S 860 / S 870

**MBH S 860 / S 870** - are presented with monocrystals practically without visible internal inclusions, have regular cubo-octahedral crystal shapes and very high toughness, which, in combination with an excellent thermal stability allows to use the instrument for effective sawing and drilling at higher powers of such materials as reinforced concrete, land asphalt and hard granite.



Measurement results of strength and thermal stability of diamond powder of MBH S series, size 40/45 US mesh.

Type of powder	Static strength index, N		GOST 9206-80	Coefficient of thermal stability	Indicator of thermal stability	Index of thermal stability
	P, basic value-room temperature	P, after thermo-treatment				
MBH S 870	345,8	311,2	AC 200	0,94	9	HT
MBH S 860	351,5	319,8	AC 200	0,90	9	HT
MBH S 850						
MBH S 840						
MBH S 830	259,4	186,2	AC 120	0,71	7	T
MBH S 820	245,5	205,6	AC 125	0,83	8	HT

\* the heat treatment was conducted in air environment at 850 °C during 20 min.

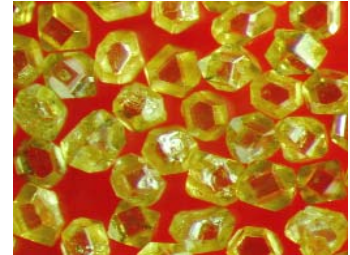
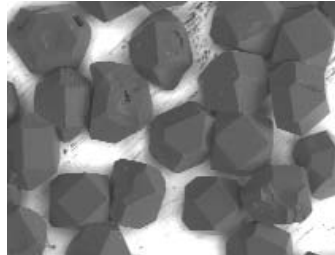


## MBH X series of Saw Grits diamond powder

" MBH X " series - are powders of 2 piston synthesis with applying of catalyzers on the basis of cobalt. The small amount of defects and internal impurities defines high toughness and thermal stability of this series of powders.

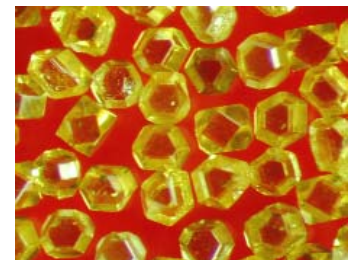
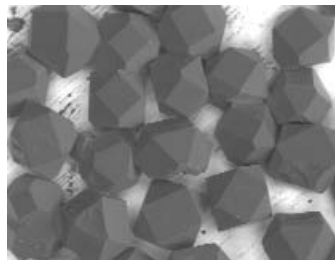
### MBH X 830

**MBH X 830** - is presented with crystals of the block form, with small deviations from the regular cubo-octahedral shapes. This economy type of powder ensures high strength and thermal stability peculiar to MBH X series. It is recommended for saw, drilling and grinding of different synthetic and natural building materials.



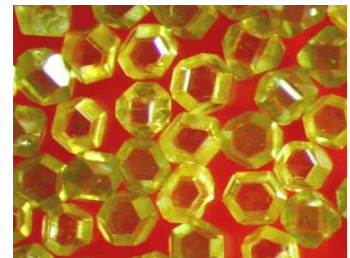
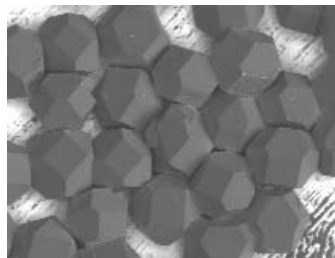
### MBH X 840 / X 850

**MBH X 840 / X 850** - are powders with the relatively high content of crystals of the cubo-octahedral shapes, high toughness and thermal stability. They are recommended for applying in the instruments assigned for sawing and drilling of concrete, asphalt and granite with high resource of stability of the tools.



### MBH X 860 / X 870

**MBH X 860 / X 870** - are presented with monocrystals practically without visible internal inclusions, have regular cubo-octahedral crystal shapes and very high toughness, which, in combination with an excellent thermal stability allows to use the instrument for effective sawing and drilling at higher powers of such materials as reinforced concrete, land asphalt and hard granite.



Measurement results of strength and thermal stability of diamond powder of MBH X series, size 40/45 US mesh.

Type of powder	Static strength index, N		GOST 9206-80	Coefficient of thermal stability	Indicator of thermal stability	Index of thermal stability
	P, basic value-room temperature	P, after thermo-treatment				
MBH X 870	338,5	292,3	AC 200	0,86	9	HT
MBH X 860	342,5	256,6	AC 200	0,75	8	HT
MBH X 850	315,5	256,5	AC 200	0,81	8	HT
MBH X 840	292,5	235,2	AC 160	0,80	8	HT
MBH X 830	269,4	238,0	AC 160	0,88	9	HT

\* the heat treatment was conducted in air environment at 1100 °C during 10 min.