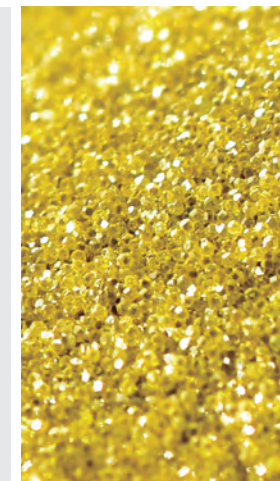




G M D
G R D
G M T
G M D P



Details Make Perfect

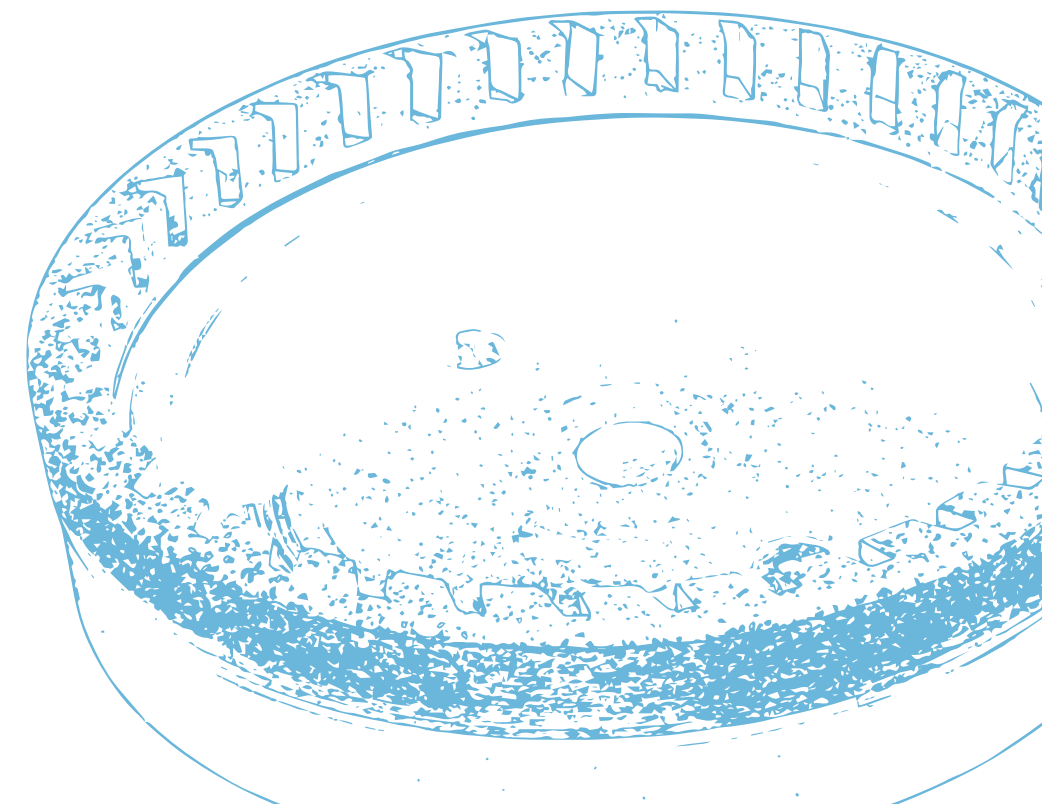
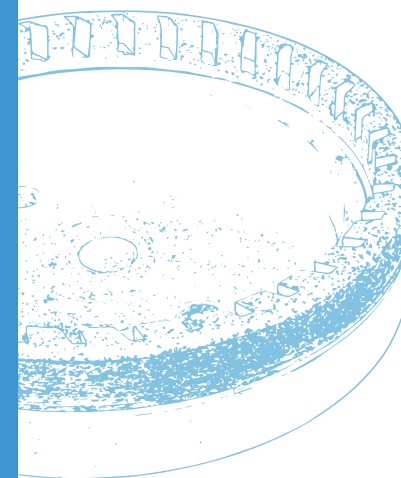
■ WHEEL GRIT

CR GEMS SUPERABRASIVES CO., LTD.

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CR GEMS

CR GEMS specializes in the development and manufacturing of quality superabrasives and PCD. Our main products, such as diamond grit, micro diamond powder, cubic boron nitride, PDC cutters/PCD blanks, large single crystal diamond, are widely used in the industries of construction, machinery, photovoltaic, semiconductor, optics, jewelry, aerospace, and oil & gas, etc. Customer oriented product and solution can be available.



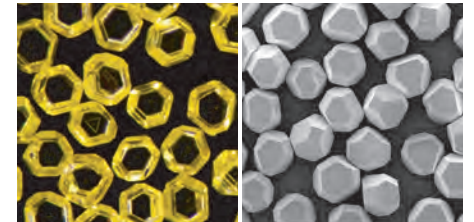
GMD Series

GMD wheel grit is produced from selected raw material, and self-developed synthesis technology. Nine grades are available for metal bond tool processing glass, semiconductor, etc.



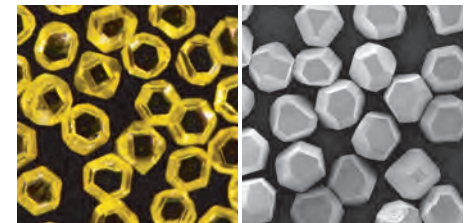
GMD 650

GMD 650 has hexa-octahedral shape. Excellent transparency, purity, impact resistance and thermal stability. It is applicable for grinding of strong impact and precision surface requirement, for example, the grinding of precision Zirconia, Sic, etc.



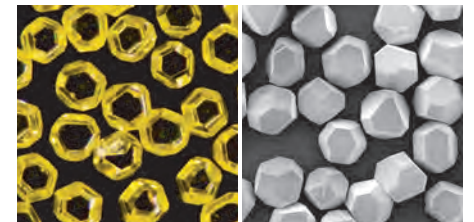
GMD 630

GMD 630 is of regular shape, relatively high transparency and purity, great impact resistance and thermal stability. It is applicable for high impact and material removal rate, such as car glass drilling.



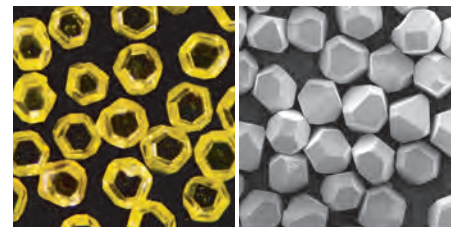
GMD 610

GMD 610 has relatively regular shape, high purity, thermal stability and sharpness. It is applicable for relatively high material removal rate, such as car glass edge grinding.



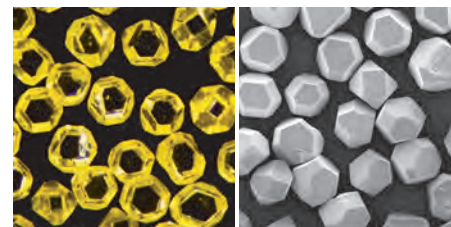
GMD 450

GMD450 is crystal of medium high toughness, and relatively regular shape. The crystal crushing strength is moderate, which ensures good life span and high sharpness. It could be widely used for glass processing.



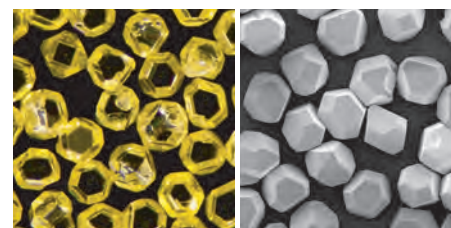
GMD 430

GMD430 is of medium toughness, its impact resistance is relatively lower than GMD450, but sharper than GMD450. With excellent life span and sharpness, it is applicable for glass and crystal grinding.



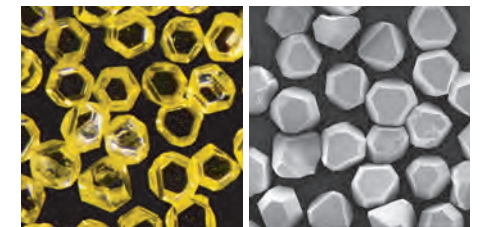
GMD 410

GMD 410 consists of large portion of blocky diamond, and some rate of angular crystals. It is applicable for relatively low impact resistance, such as the grinding of glass, crystal, and magnetic material.



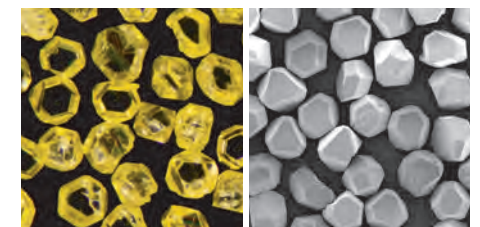
GMD 250

GMD250 is a combination of blocky and angular crystals with relatively low impact resistance and good sharpness. It's applicable for conditions of minor intensity.



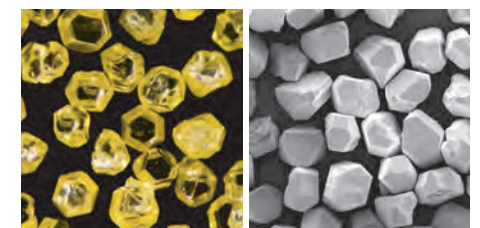
GMD 230

GMD230 contains more angular crystal than that of GMD250. Its impact resistance is also lower than GMD250, but with higher sharpness. It is applied in the condition of stricter request on sharpness, such as vitrified and electroplated grinding wheel.

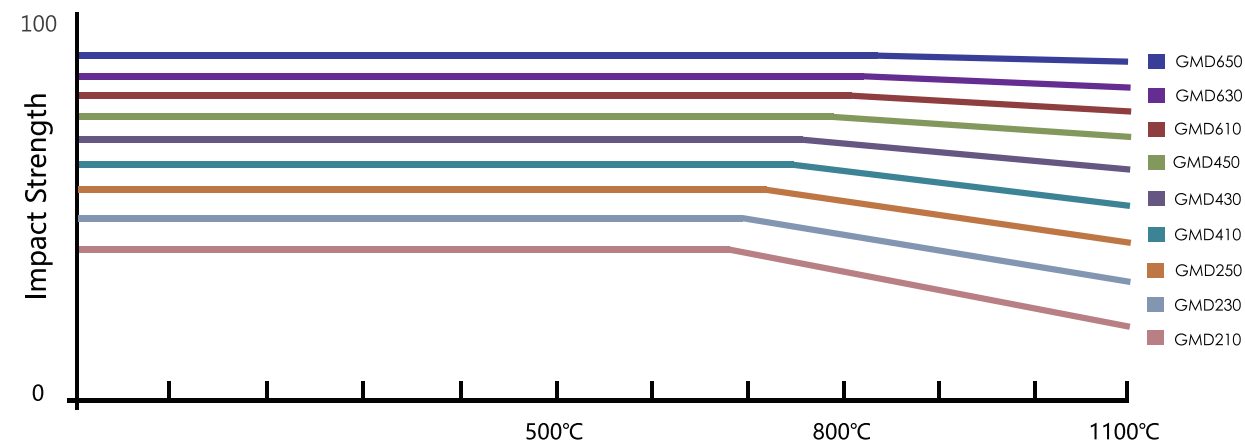


GMD 210

GMD210 has lots of sharp edges, it is suitable for the lower load grinding and large area contact processing applications.



Impact Strength and Thermal Stability

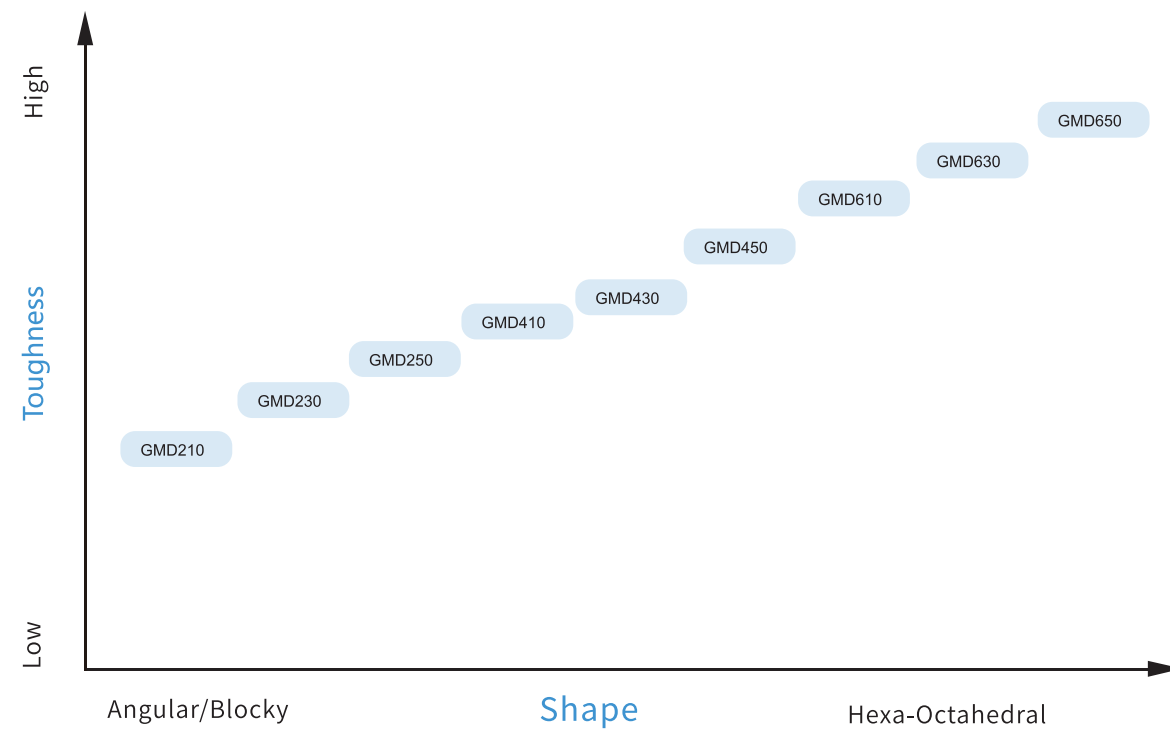


Available Grade and Size

Size Grade	80/100 (D181)	100/120 (D151)	120/140 (D126)	140/170 (D107)	170/200 (D91)	200/230 (D76)	230/270 (D64)	270/325 (D54)	325/400 (D46)	400/500 (D39)	500/600 (D33)
GMD210	*	*	*	*	*	*	*	*	*	*	*
GMD230	*	*	*	*	*	*	*	*	*	*	*
GMD250	*	*	*	*	*	*	*	*	*	*	*
GMD410	*	*	*	*	*	*	*	*	*	*	*
GMD430	*	*	*	*	*	*	*	*	*	*	*
GMD450	*	*	*	*	*	*	*	*	*	*	*
GMD610	*	*	*	*	*	*	*	*	*	*	*
GMD630	*	*	*	*	*	*	*	*	*	*	*
GMD650	*	*	*	*	*	*	*	*	*	*	*

Note: Special size can be customized.

Particle Toughness and Shape



Application Recommend

Grade	Tools	Application
GMD610-GMD650	Grinding wheel for precision cutting and grooving, Drill bit, Edging wheel for automobile glass,etc.	Semiconductor, Glass, Carbide alloy, Magnetic material,etc.
GMD410-GMD450	Edging wheel for glass, Metal bond grinding wheel, Grinding disc,etc.	Glass, Ceramic, Gemstone, Carbide alloy, Magnetic material,etc.
GMD210-GMD230	Metal bond grinding wheel, Electroplated drill bit, Bevel polishing wheel,etc.	Glass, Ceramic, Magnetic material,etc.

Coatings Brief

Coating generally improves the wettability of the diamond, making the retention between the diamond and the bond stronger. At the same time, the coating can also protect the diamond from the corrosion of materials such as metal powder in the formulation, thereby prolong the life of the tool.

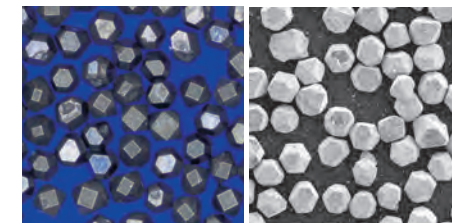
Available Coating and Coating Level

Coating Types	Description	Coating Level
Ti	Titanium	1%~6%
Tc	Titanium	3%~8%
Cr	Chromium	2%~6%
Si	Silicon	2%~6%
Cu	Copper	30%、50%、56%
Co	Cobalt	
TNE	Nickel Alloy (Smooth)	
TNA	Nickel Alloy (Rough)	

Note: The coating and coating level can be customized.

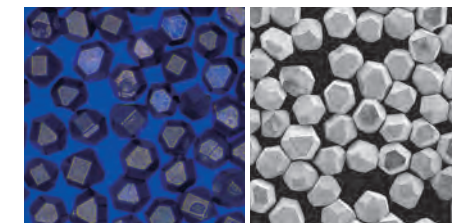
GMD-Ti

GMD-Ti is a titanium coating, by which, it can prevent corrosion of Fe, Cr and W from at high temperature during the manufacturing process of diamond tool. This coating can improve the retention between the diamond and the bond, prevent the diamond from peeling off, and extend the life of the diamond tools.



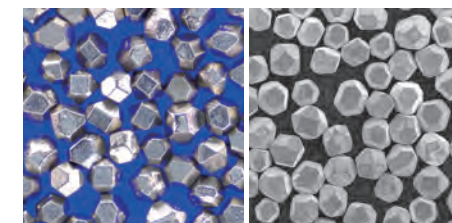
GMD-TC

GMD-TC coating is similar to but denser than Ti, a layer of Tic is created. It can effectively expand sintering temperature and extend tools' life span.



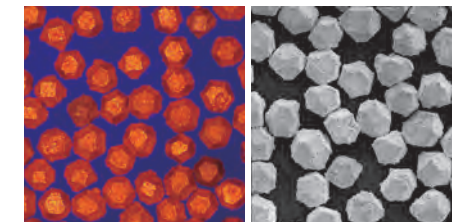
GMD-TNE

GMD-TNE is a nickel alloy coating that makes diamond surface smooth. Tool life can be prolonged by strong retention between nickel layer and bond. Coating can well protect diamond from being eroded and increase the working height of grits at the same time, so as to improve cutting efficiency and reduce power consumption.



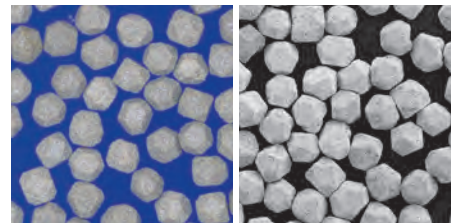
GMD-Cu

GMD-Cu is a copper coating that can enhance the retention between diamond and bond, as well as improve the tools' heat emission property. It is applicable for soft bonded tools.



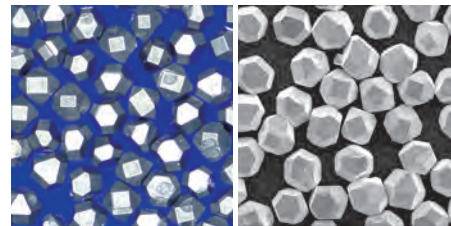
GMD-TNA

GMD-TNA is a rough nickel alloy coating. Because of gully structured surface, the specific surface would be enlarged, and the retention between diamond and bond will be improved. The tool life and cutting efficiency could also be improved, then power consumption could be reduced.



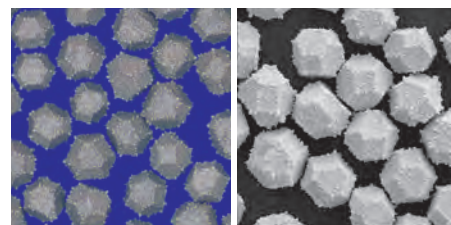
GMD-Cr

GMD-Cr is a chromium coating. Chromium has excellent surface wettability and affinity on diamond. During sintering, a layer of Cr_3C_2 is formed between diamond and metal bond, which significantly strengthens the retention.



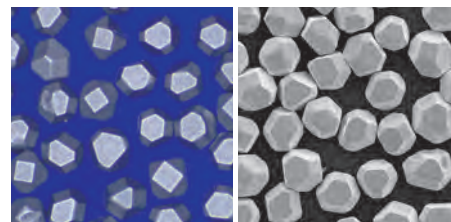
GMD-Co

GMD-Co is a cobalt coating that can increase the retention between diamond and bond, improve the sharpness of the tools effectively and extend the tool's life.



GMD-Si

GMD-Si is a silicon coating that improves diamond's thermal stability, wear resistance, and protects the diamond against iron corrosion. Furthermore, Si coating can strengthen the retention between bond and diamond, and improve tools' heat emission property. Hence it can greatly expand diamond's application conditions and extend the tools' life.

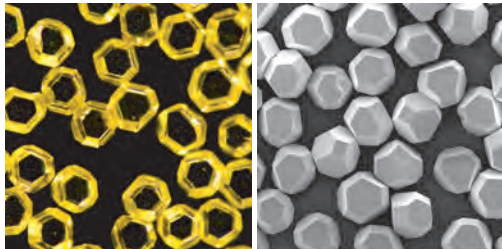


GMDP Series

The GMDP wheel grit is designed to meet customers' stricter requirements, especially in the industry of high precision application. Such kind of industry is very critical on wheel grit. To meet such demand, GMDP is manufactured by material of very high purity, and sorted with rigorous procedure. GMDP has 9 grades to meet various application requirements.



GMDP wheel grit can greatly reduce negative influence on workpiece caused by diamond impurity. Furthermore, it can keep tool's shape better as well as prolong its life. Diamond of uniform shape ensures uniform grinding effect during processing, and thus to ensure the processing accuracy.



Available Grade and Size

Size Grade	80/100 (D181)	100/120 (D151)	120/140 (D126)	140/170 (D107)	170/200 (D91)	200/230 (D76)	230/270 (D64)	270/325 (D54)	325/400 (D46)	400/500 (D39)	500/600 (D33)
GMDP210	*	*	*	*	*	*	*	*	*	*	*
GMDP230	*	*	*	*	*	*	*	*	*	*	*
GMDP250	*	*	*	*	*	*	*	*	*	*	*
GMDP410	*	*	*	*	*	*	*	*	*	*	*
GMDP430	*	*	*	*	*	*	*	*	*	*	*
GMDP450	*	*	*	*	*	*	*	*	*	*	*
GMDP610	*	*	*	*	*	*	*	*	*	*	*
GMDP630	*	*	*	*	*	*	*	*	*	*	*
GMDP650	*	*	*	*	*	*	*	*	*	*	*

Note: Special size can be customized.

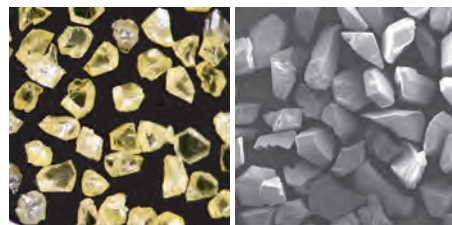
GRD Series

GRD wheel grit consists of mono-crystal diamond and poly-crystalline diamond. GRD10 and GRD20 are mono-crystalline diamond of great sharpness. They are applicable for resin and vitrified bond tools. GRD40 and GRD60 are polycrystalline diamond consists of numbers of fine grits. Such kind of structure ensures fantastic sharpness.



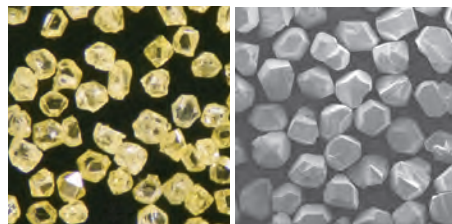
GRD10

It is mono crystal of needle shaped and angular diamond with good sharpness. Grits are applicable for low impact and high material removal rate, such as the grinding of carbide alloy.



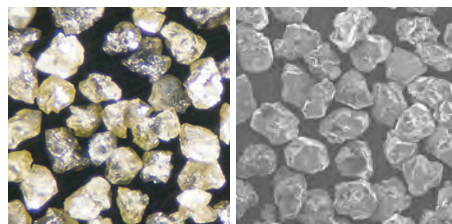
GRD20

Grits are mainly block-shaped mono crystal with relatively high impact resistance. Thus it makes them more suitable for higher impact than GRD10 and applicable for resin and vitrified bond tools.



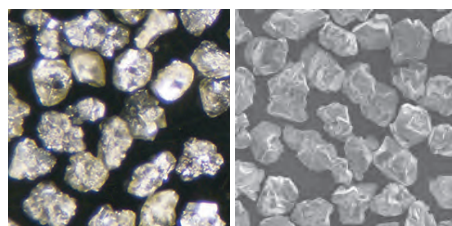
GRD40

Poly-crystalline, blocky shape, outstanding fragility, micro fractured structure with great sharpness. Suitable for grinding of low load, fast speed and precision.



GRD60

Poly crystalline, blocky shape, tougher than GRD40. Fresh cutting edges could be created during grinding. It is applicable for application of high efficiency and wide contact area.



Available Grade and Size

Size \ Grade	GRD10	GRD20	GRD40	GRD60
40/45 (D426)	*	*	—	—
45/50 (D356)	*	*	—	—
50/60 (D301)	*	*	—	—
60/70 (D251)	*	*	—	—
70/80 (D213)	*	*	—	—
80/100 (D181)	*	*	*	*
100/120 (D151)	*	*	*	*
120/140 (D126)	*	*	*	*
140/170 (D107)	*	*	*	*
170/200 (D91)	*	*	*	*
200/230 (D76)	*	*	*	*
230/270 (D64)	*	*	*	*
270/325 (D54)	*	*	*	*
325/400 (D46)	*	*	*	*
400/500 (D39)	*	*	*	*
500/600 (D33)	*	*	*	*

Note: "—" stands for unavailable, "*" stands for available. Special size can be customized.

Application Recommend

Grade	Tools	Application
GRD10、GRD20	Cutting blade, Resin bond grinding wheel, etc.	Semiconductor, Glass, Ceramic, Carbide alloy, Magnetic material, etc.
GRD40、GRD60	Great sharpness resin grinding wheel, etc.	Gemstone, Semiconductor, Glass, Ceramic, etc.

Coatings Brief

GRD wheel grit exhibit better performance with different coatings. Generally, the wettability of the diamond can be improved, so that the retention between the diamond and the bond is stronger. Meanwhile, the coatings improve heat dissipation, and reduce workpiece surface heat damage.

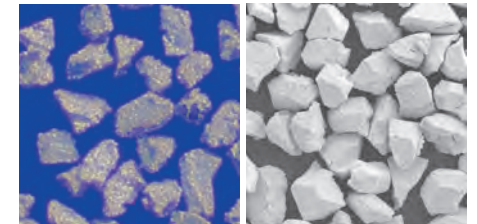
Available Coating and Coating Level

Coating Types	Description	Coating Level
NA	Nickel (Rough)	30%、56%、60%
NE	Nickel (Smooth)	30%、56%
Cu	Copper	50%

Note: The coating and coating level can be customized.

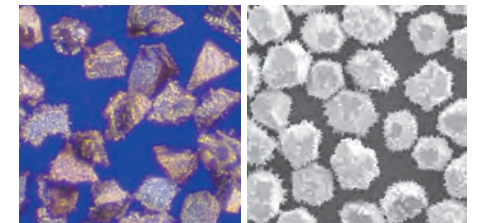
GRD-NA

GRD-NA is a nickel coating with coating level of 30%, 56%and 60%, and suitable for resin bond. Such kind of coating improves retention and thermal dissipation, which help to extend the life-span of tools.



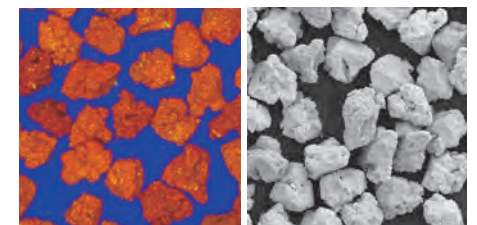
GRD-NE

GRD-NE is a nickel coating with coating level of 30%, 56%, which help to improve the retention between diamond and bond. With improvement of the retention, tools' life-span can be extended accordingly. Great thermal conductivity helps to improve the surface finish.



GRD-Cu

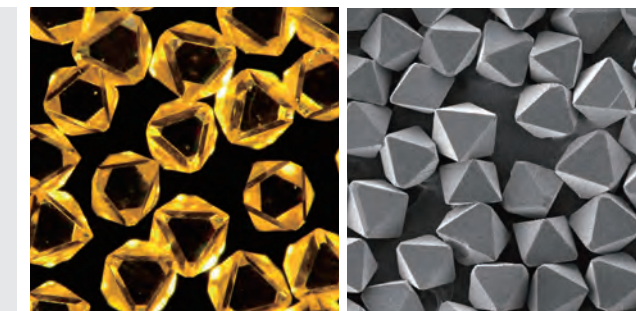
GRD-Cu is a chemical copper coating that can greatly improve heat dissipation of wheel, reduce heat damage on workpiece surface. It's suitable for dry or wet grinding of carbide alloy, PCD,etc.



GMT Series

The GMT octahedral diamond is characterized with octahedral crystal shape, with eight { 111 } faces, sharp edges and tips. Meanwhile, GMT diamond has high purity, very low magnetism, regular and uniform crystal shape as well as highly-centralized grain size. Therefore, it has relatively high SCT and impact strength.

GMT diamond is ideal for high efficiency and high precision applications, especially for orderly arraying tools. It brings accurate and uniform dimension, as well as fine surface finish to the processed objects. Such as cutting blade and CMP pad conditioner for sapphire, LED glass wafer and silicon.



Available Grade and Size

GMT-5+ octahedral diamond has stable quality, its performance is highly praised by customers. By further special treatment of diamonds, GMT-5P minimizes static electricity and magnetism, meeting the stringent requirements of electronics and other industries.

Size \ Grade	GMT-5+	GMT-5P
60/70 (D251)	*	*
70/80 (D213)	*	*
80/100 (D181)	*	*
100/120 (D151)	*	*
120/140 (D126)	*	*
140/170 (D107)	*	*
170/200 (D91)	*	*

Note: Special size and coating can be customized.

