

Details Make Perfect



CR GEMS SUPERABRASIVES CO., LTD.

Sales Center
Shanghai Factory
Add: No.3802,Shengang Road,Shanghai 201611,China
Tel: +86-21-6413 6696
Fax: +86-21-6413 6695
Email: crgems@crgems.cn

Shandong Factory
Add: No.45 North Weiyu Road,Liaocheng,Shandong 252000,China
Email: production@crgems.cn

Website
www.crgems.cn

 **MICRO DIAMOND POWDER**



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.



Raw Material

High quality and stable diamond raw material is one of the key conditions to produce superior quality micro diamond powder. Our own diamond production line can ensure the stability and continuity of raw material.



Environment

Clean workshop is established to prevent the pollution of external dust particle during production, and thus to effectively ensure product purity.



Surface Cleaning

Surface cleanness is an important factor to affect the wettability between diamond powder and bond. Deep cleaning can effectively remove the anions and cations of residual salts and thus to improve the retention between micro diamond powder and matrix.





Impurity Control

There are two sources of impurities, one is the impurity mixed during the production, another source is the inclusions, which are generally metal and graphite inside the diamond, and the inclusions would be exposed after being crushed. The residual impurities inside the diamond will be monitored and removed through our special treatment.



Particle Size Distribution

Particle size distribution is an important index which will affect the grinding effect. Malvern laser particle size analyzer is introduced to detect the PSD. The particle size classification equipment is self-designed to strictly control the size of micro diamond powder.



Crystal Shape

Optical photography can help to detect the ratio of length and diameter of micro diamond powder, avail to analyze the shape distribution, and find abnormal particles beyond the specification.

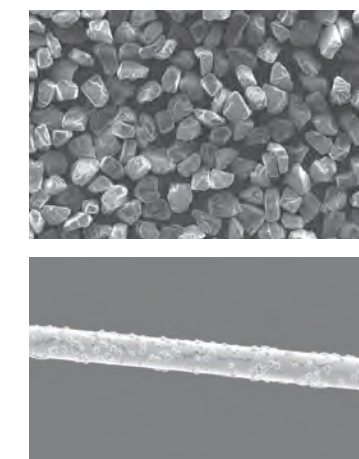
SEM micrograph can be used to observe the detailed morphology and detect abnormal particles.



GMP-S Series for Slicing

Product Feature: Monocrystalline micro diamond powder, 3-D blocky particle shape, sharp cutting edges, uniform shape and narrow particle size distribution.

Product Application: It is suitable for diamond dicing blade and wire saw. The blade made by this diamond is very sharp and could minimize the chips when cutting glass or wafer. The retention between diamond and bond is increased to improve tools' life span whether by sintering or electroplating. When it is used on wire saw to slice the silicon wafer, the tension change is small, the probability of wire disconnection is reduced, fast cutting is achieved with the sharp cutting edges.

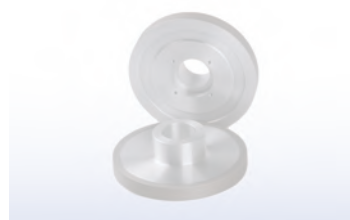
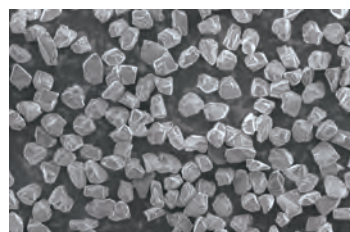


Micro Diamond Powder for Grinding

GMP-M Series for Metal Bond Tools

Product Feature: Monocrystalline micro diamond powder, 3-D blocky particle shape, high purity, good mechanical strength, strong impact resistance when grinding. High purity can avoid expansion in the crystal during sintering, improve the mechanical strength of diamond particles, and extend the tool's life span.

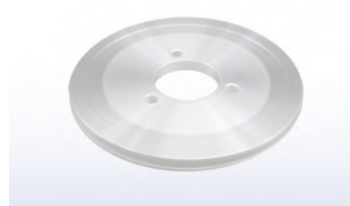
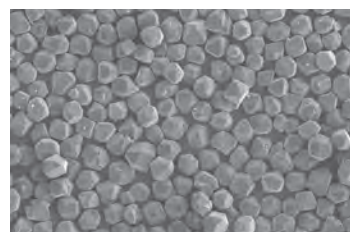
Product Application: This diamond is used for metal bond tools. Good surface cleanness can improve the retention between diamond and bond, the diamond will not be easy to fall off during grinding. It could avoid concentration reduction and burn workpiece by excessive heat during the processing.



GMP-MG As Grown Micro Diamond Powder

Product Feature: As grown micro diamond powder, with very complete shape, high strength, good thermal impact resistance, high surface cleanness, relatively concentrated particle size distribution.

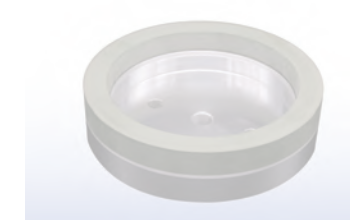
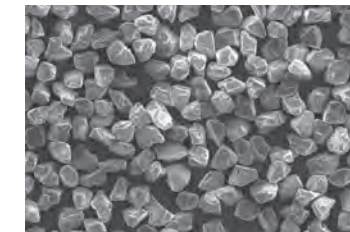
Product Application: It is suitable for metal bond diamond tools, synthesis of PCD. High grinding efficiency can be achieved in the industry of semiconductor, automobile and aerospace.



GMP-R Series for Resin Bond Tools

Product Feature: Irregular fragile shape, sharp cutting edges, easy to break down during grinding, high grinding efficiency. Clean surface enables good retention between resin bond and diamond, extend tools' life span.

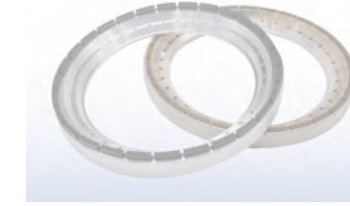
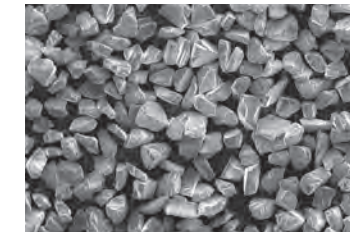
Product Application: The product is widely used in resin bond tools, which can bring good surface finish for workpiece. It is also used as grinding paste, suspension, etc. with good sharpness and high polishing speed.



GMP-V Series for Vitrified Bond Tools

Product Feature: Monocrystalline micro diamond powder with good self-sharpening, easy to break away from the particle, good wettability with vitrified bond.

Product Application: The product is suitable for vitrified bond tools. Particle fracturing provides a self-sharpening mechanism for the tools and thus improves the grinding efficiency.

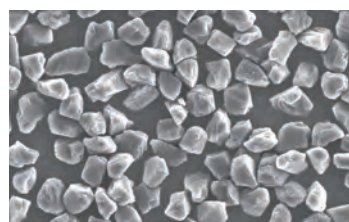


GMP-LP Series for Lapping & Polishing

GMP-LP1

Product Feature: Monocrystalline micro diamond powder, high purity, isomorphous particle shape, narrow particle size distribution.

Product Application: GMP-LP1 is used to produce polishing paste and polishing suspension. Due to its excellent sharpness, there is no scratch during polishing, and thus workpiece surface accuracy can be improved. It is widely used in the processing of ceramics, wire drawing dies, PCD, optical glass, semiconductor, etc.

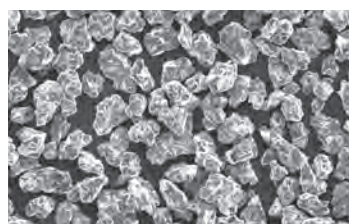


GMP-LP2

Product Feature: Polycrystalline micro diamond powder, multi micro cutting edges on the surface, good shape consistency, superior friability, relatively narrow particle size distribution.

Product Application: GMP-LP2 is widely used for processing the materials such as semiconductors, ceramics, cemented carbide, optical glass and various gemstones.

As the pressure increases during lapping, the powder has very good self-sharpness and can greatly improve grinding efficiency, thereby reduce energy consumption and save the labor cost.

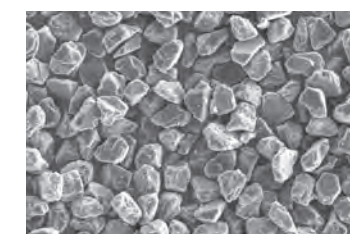


GMP Coated Diamond Series

GMP -Ti

Product Feature: Tight coating, without aggregation, can protect diamond from corrosion by carbon fusion bond during sintering, and improve the retention between diamond and bond .

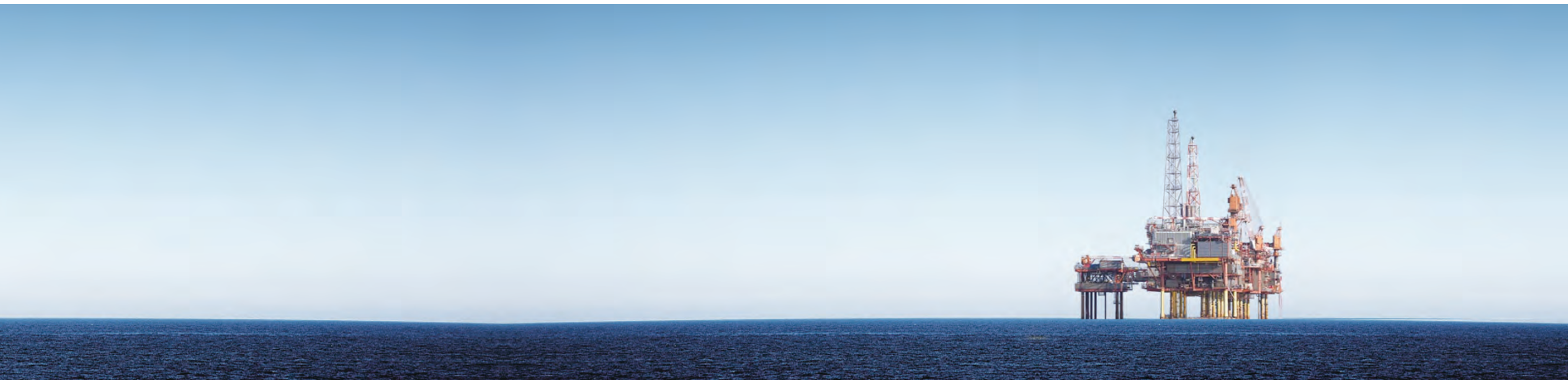
Product Application: It is suitable for metal bond tools that used for cutting and grinding of ceramic, optical glass, silicon, sapphire and other materials.



Available Coating

	Ti (Titanium)	TNA (Nickel Alloy)	NA (Nickel)	Cu (Copper)
GMP	≥M7/14	≥M7/14	≥M7/14	≥M7/14

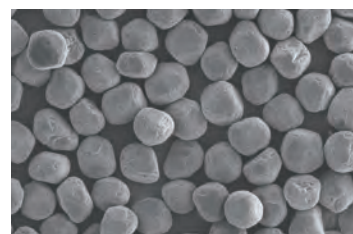
Note: The coating and coating level can be customized.



GMP-Y Round Diamond

Product Feature: Rough surface, spherical shape, relatively high purity. The spherical shape can improve the precision during the grinding, while the numerous free cutting edges on the surface help to improve grinding accuracy.

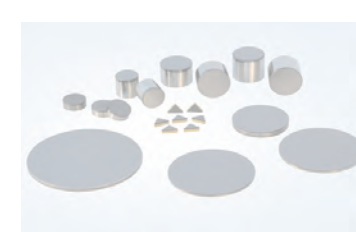
Product Application: It can be used in materials and workpieces which require high surface accuracy, such as wafer back thinning, optical glass grinding, non-ferrous metal grinding and high precision wheel dresser.



GMP-PCD Series for PCD

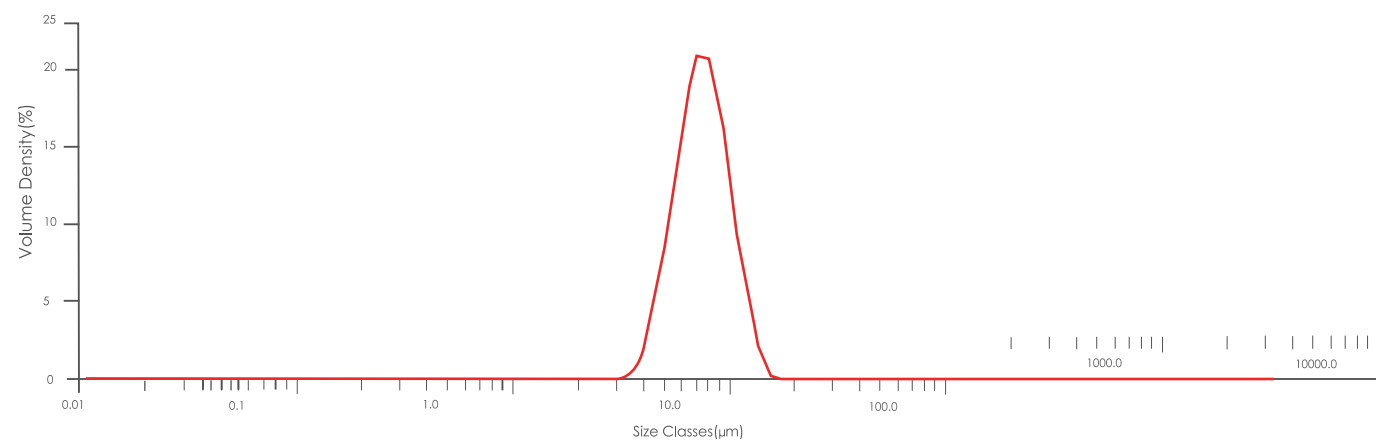
Product Feature: 3-D blocky particle shape and high surface cleanness. In the process of sintering, the surface ion control can highly enhance the retention and its high purity can reduce the damages which caused by impurities as well. Good shape uniformity and high mechanical strength of crystals can dramatically improve the quality of PCD.

Product Application: It is applicable to the production of polycrystalline diamond, polycrystalline drawing dies, PCD, etc.

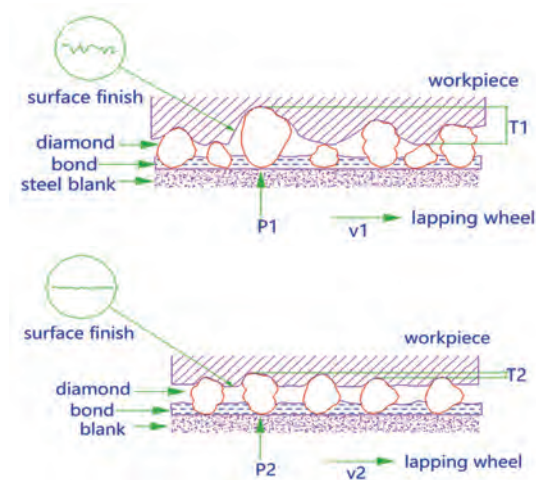


Particle Size Distribution

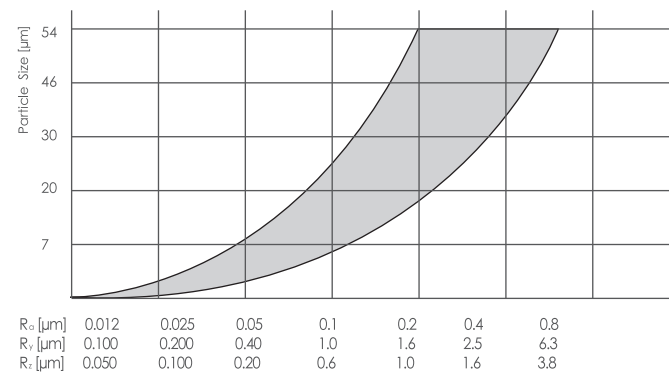
Uniformity of the particle size is one of the most important parameter for micro diamond powder. Difference of the average particles and PSD would affect the surface quality of the workpiece which be processed. To ensure the size uniformity, we adopt advanced sorting process, and every batch would be strictly inspected. The maximum width in all dimension would be defined as the real size of the particle. Quality stability is guaranteed by Electronic Scanning Microscope and Malvern laser particle size analyzer.



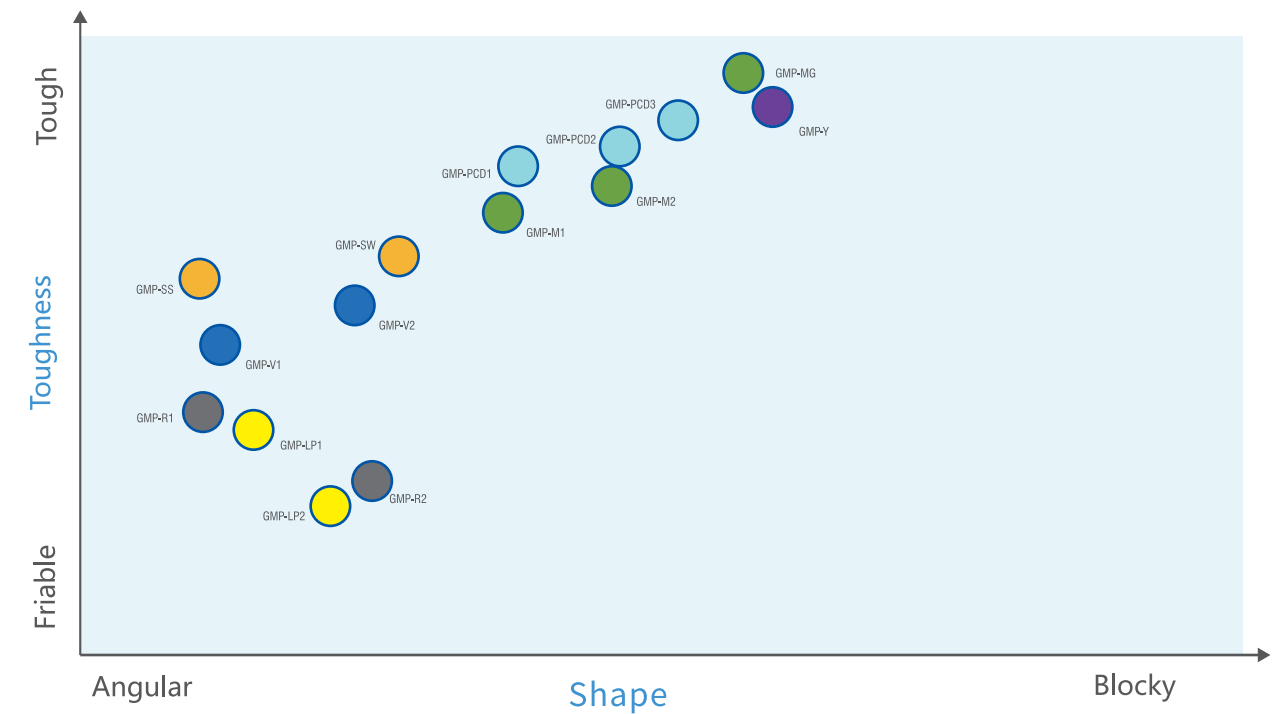
Influence of Performance and Distribution Range on Workpiece Finish



Quantitative Relationship Between Particle Size and Workpiece Roughness



Blocky Shape & Toughness of GMP



Available Size of GMP

Products Series	Products Models	Range of Available Particle Size (D50)
GMP-S	GMP-SS	5-50um
	GMP-SW	
GMP-M	GMP-M1	5-50um
	GMP-M2	
	GMP-MG	8-50um
GMP-R	GMP-R1	5-50um
	GMP-R2	0.5-50um
GMP-V	GMP-V1	5-50um
	GMP-V2	
GMP-LP	GMP-LP1	0-5um
	GMP-LP2	0-50um
GMP-Y	GMP-Y	20-50um
GMP-PCD	GMP-PCD1	1-50um
	GMP-PCD2	
	GMP-PCD3	

Note: Special size can be customized.