



Highlights

- Unmatched efficiency
- Reproducibility in use
- Highest performance index of all diamond types
- Significant increase in material removal rate due to self-sharpening properties
- Very short processing times even at low pressure

Polycrystalline synthetic diamond powder, precision size range

Microdiamant DP

Polycrystalline diamond powder is produced through detonation synthesis. Its distinguishing characteristics are the high compressive strength, toughness and the micro-rough surface of the diamond particles. In lapping and polishing applications, these properties enable very high surface qualities and significantly higher material removal rates at the same time. DP diamond is suitable for applications from abrasive lapping of superhard materials to high-gloss polishing of high-precision components.

High particle strength

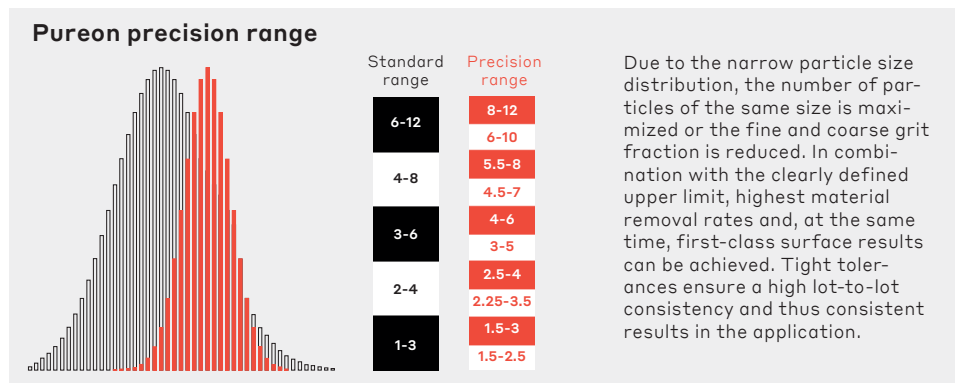
Allows for three times higher working pressure than monocrystalline diamond and highest material removal rates.

Rough particle surface

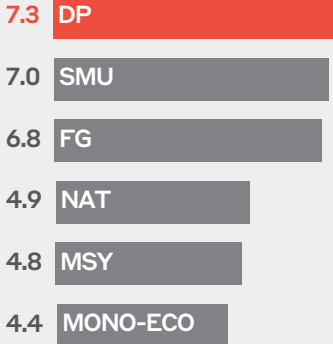
Provides a variety of contact points between the particle and the workpiece. Very short processing times are possible when polishing with low pressure.

Typical application

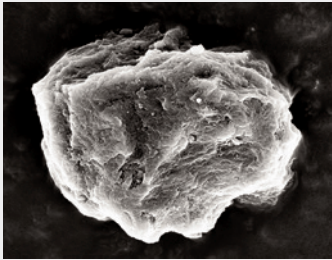
Versatile use from abrasive lapping to high-gloss polishing.



Performance index



Polycrystalline structure enables self-sharpening



Polycrystalline diamond grain



Pureon offers a wide range of customized solutions. More information can be found on www.pureon.com/products/overview

Self-sharpening

Individual crystallites break out of the grain under load, creating new cutting edges. Automatic re-sharpening results in maximum removal rates over the entire service life.

Order information

Order code DP 1.5-3 Mikron
 Packing 100, 1'000 or 5'000 carats. Unless specified, orders will be sent in bulk packing units.
 Units Carat [ct], 1ct = 0.2 grams
 Micrometer [µm, Micron]
 1 micrometer = 0.001 millimeter

Synthesis

The ultra-short process duration of the explosion synthesis creates diamond particles with a polycrystalline structure, meaning that each diamond grain consists of innumerable primary crystals of around twenty nanometers in size. The rough particle surface and the high compressive strength result from the characteristic polycrystalline particle structure without cleavage planes. Specific grinding and cleaning processes guarantee a regular, blocky grain shape and high product purity.

Application recommendations

DP diamond is used for lapping and polishing applications with highest demands regarding surface quality and removal rate. Typical applications are lapping and polishing of sapphire, SiC, synthetic precious stones, ceramics, hard metal, soft to very hard metals, as well as composite materials.

Precision size range

Grit size micron	Median (D50) micron	Median tolerance micron	Upper limit (D99) micron
DP 0 – 0.03	0.018	0.014 – 0.022	0.06
DP 0 – 0.05	0.025	0.020 – 0.030	0.09
DP 0 – 0.1	0.050	0.040 – 0.060	0.15
DP 0 – 0.15	0.075	0.060 – 0.090	0.20
DP 0 – 0.2	0.090	0.070 – 0.110	0.25
DP 0 – 0.25	0.125	0.105 – 0.145	0.33
DP 0 – 0.35	0.18	0.155 – 0.205	0.42
DP 0 – 0.5	0.23	0.197 – 0.263	0.53
DP 0.25 – 0.5	0.35	0.31 – 0.39	0.70
DP 0.25 – 0.75	0.50	0.45 – 0.55	0.90
DP 0.5 – 1	0.71	0.65 – 0.77	1.28
DP 0.75 – 1.25	1.00	0.95 – 1.05	1.70
DP 1 – 1.5	1.19	1.13 – 1.25	2.02
DP 1 – 2	1.42	1.35 – 1.49	2.27
DP 1.25 – 2.25	1.69	1.61 – 1.77	2.62
DP 1.5 – 2.5	2.00	1.90 – 2.10	3.00
DP 1.5 – 3	2.39	2.27 – 2.51	3.47
DP 2.25 – 3.5	2.84	2.70 – 2.98	4.12
DP 2.5 – 4	3.37	3.20 – 3.54	4.89
DP 3 – 5	4.02	3.82 – 4.22	5.83
DP 4 – 6	4.87	4.63 – 5.11	6.82
DP 4.5 – 7	5.70	5.42 – 5.98	7.87
DP 5.5 – 8	6.80	6.46 – 7.14	9.18
DP 6 – 10	8.10	7.70 – 8.50	10.94
DP 8 – 12	9.60	9.12 – 10.08	12.86
DP 10 – 16	12.50	11.90 – 13.10	17.88
DP 10 – 20	15.00	14.20 – 15.80	21.45
DP 15 – 25	20.00	19.00 – 21.00	26.50
DP 20 – 30	25.00	23.70 – 26.30	32.50

Other diamond types / sizes available.

Contact

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