

PA NEXT Black V1 Powder Technical Data Sheet

High-toughness, high-density powder for bend-resistant, crack-resistant functional parts with isotropic strength in all directions

Raise3D PA NEXT Black Powder is a next-generation SLS 3D printing material engineered for superior toughness and exceptional isotropic performance. With 4-5x higher elongation at break compared to standard PA12, ultra-high powder flowability, and near-perfect isotropic mechanical properties (XYZ deviation within 1 MPa), PA NEXT is the ideal choice for dynamic load-bearing parts, flex-resistant components, and complex structures requiring multi-directional strength.

Benefits

- Exceptional toughness
- Ultimate isotropy
- Superior powder flowability
- High reuse rate
- Balanced mechanical properties
- Easy to print

Applications

- Industrial dynamic load-bearing components
- Automotive chemical-resistant structural parts
- Precision load-bearing structural components
- Custom tooling and fixtures
- Outdoor/low-temperature accessories

Mechanical Properties

Property	Testing Method	Typical Values (X-Direction)	Typical Values (Y-Direction)	Typical Values (Z-Direction)
Tensile Strength (MPa)	ISO 527-2	45	46	45
Elongation at Break (%)	ISO 527-2	36	35	30
Tensile Modulus (MPa)	ISO 527-2	1590	1670	1660
Flexural Strength (MPa)	ISO 178	55.1	53.15	49.05
Flexural Modulus (MPa)	ISO 178	1450	1530	1335
Impact Strength / notched A (kj/㎡)	ISO 179-2	2.89	2.48	2.54
Unnotched Charpy impact strength (kj/㎡)	ISO 179-2	35.58	32.36	34.07
Shore Hardness D	ISO 868-2003	79.5	80	80

Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice. Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Raise3D materials for the intended application. Raise3Dmakes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Raise3D shall not be made liable for any damage, injury or loss induced from the use of Raise3D materials in any particular application.

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Thermal Properties

Property	Testing Method	Typical Values (X-Direction)	Typical Values (Y-Direction)	Typical Values (Z-Direction)
Heat Deflection Temperature@0.45 MPa(°C)	ISO 75-2	156.5	/	/
Heat Deflection Temperature@1.8 MPa(°C)	ISO 75-2	48.3	/	/
VICAT Softening Temperature/10N(°C)	ISO 306	170.3	/	/
VICAT Softening Temperature/50N(°C)	ISO 306	152	/	/

Other Properties

Property	Testing Method	Typical Values
Powder Color	/	Black
Density (g/cm^3)	ISO 1183.1-2004	1.065
Powder Bed Density (g/cm^3)	/	0.492
Bulk Density (g/cm^3)	ISO 60/ ASTM D1895/ GB-T 5162	0.66

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