



## PA12 Black V1 Powder Technical Data Sheet

Powder for high-strength, low warping, functional parts and small-batch end-use parts.

PA12 Black Powder is a general-purpose engineering-grade material with balanced properties, offering good mechanical strength, chemical resistance and dimensional stability. It is ideal for batch printing of industrial functional parts and end-use components, offering outstanding printing stability.

### Benefits

- Exceptional dimensional accuracy and stability
- High strength with strong impact resistance
- Balanced mechanical properties

- Excellent print surface quality
- High reuse rate
- Easy to print

### Applications

- Small-batch end-use parts
- Functional prototypes
- Jigs and fixtures

- Lightweight, structurally strong functional parts
- Industrial-grade connectors and housings
- Customized prosthetics, orthotics and other medical components

## Mechanical Properties

Property	Testing Method	Typical Values (X-Direction)	Typical Values (Y-Direction)	Typical Values (Z-Direction)
Tensile Strength (MPa)	ISO 527-2	50	48	49
Elongation at Break (%)	ISO 527-2	9	7	6
Tensile Modulus (MPa)	ISO 527-2	1791	1783	1952
Flexural Strength (MPa)	ISO 178	70	/	/
Flexural Modulus (MPa)	ISO 178	1483	/	/
Flexural Strain (%)	ISO 178	10	/	/
Impact Strength / notched A (kJ/m <sup>2</sup> )	ISO 179-2	4	4	4
Impact Strength / unnotched (kJ/m <sup>2</sup> )	ISO 179-2	24	26	25
Shore Hardness (D)	ISO 868-2003	81	/	79

## Thermal Properties

Property	Testing Method	Typical Values
Heat Deflection Temperature @0.45 MPa (°C)	ISO 75-2	127
Heat Deflection Temperature @1.8 MPa (°C)	ISO 75-2	51
Vicat Softening Temperature / A50 (°C)	ISO 306	174
Vicat Softening Temperature / B50 (°C)	ISO 306	147

## Other Properties

Property	Testing Method	Typical Values
Powder Color	/	Black
Part Density (g/cm <sup>3</sup> )	ISO 1183.1-2004	1.024
Bulk Density (g/cm <sup>3</sup> )	ISO 60 / ASTM D1895	0.521

---

### 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. Raise3D makes 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.