PA 12 Smooth (PA 12 S)

HP Multi Jet Fusion

Description

PA12 Smooth is a nylon 12 material engineered for superior surface finish, chemical resistance, accuracy, and durability. Ideal for prototyping, detailed parts, and end-use applications, it reduces post-processing time and costs while delivering smooth, high-quality surfaces.

Mechanical Properties

Property	PA-12 Smooth	Test Method
Tensile Strength (MPa)	Average XY (45) Average Z (43)	ASTM D638
Tensile Modulus (MPa)	Average XY (1700) Average Z (1700)	ASTM D638
Elongation at Yield (%)	Average XY (10) Average Z (6)	ASTM D638
Elongation at Break (%)	Average XY (12) Average z (6)	ASTM D638
Impact Strength (kJ/m²)	Average XY (3,2) Average Z (2,5)	ASTM D256
Density (g/cm³)	0.98	ASTM D792

Benefits

•Reduced lead times (up to 30–50% faster turnaround)
•Premium surface finish (up to 70% smoother surface quality)
•Lower cost per part (up to 25% cost reduction)
•High powder reusability (up to 85% powder recyclability)
•Excellent detail resolution (≈0.3–0.5 mm feature capability)
•Industrial mechanical performance (strong, durable nylon-like properties)
•Industrial chemical performance (resistant to oils, fuels, and many industrial chemicals)

Typical Applications

For functional parts that require durability, impact resistance, and reliable performance in repeated-use environments. The material's strength and dimensional stability make it suitable for tools and fixtures used in production settings.

Manufacturing and production tooling
e.g. assembly jigs, alignment fixtures, drill guides, and low-volume molds.

Consumer products and housings
e.g. product enclosures, clips, brackets, wearable components, and customized accessories.

Medical and assistive applications
e.g. prosthetic components, orthotic supports, ergonomic tools, and custom assistive devices.

Dimensional Properties

Property	Typical Value
Dimensional Tolerance	±0.3% – ±0.5%
Minimum Feature Size	~0.3 – 0.5 mm
Wall Thickness (Minimum)	0.8 – 1.0 mm
Surface Roughness (Ra)	~5 – 10 µm
Shrinkage Rate	Low – Moderate
Detail Resolution	High