PRO-BLK 10

Production-grade rigid resin, 3D Systems Figure 4® PRO-BLK 10

Printer **Axtra3D Lumia X1**

Process **Hi-Speed SLA (HPS)**

Resin **3D Systems**

OVERVIEW

PRO-BLK 10 is a production-grade rigid resin that behaves much like an injection-molded thermoplastic. Parts have a smooth surface and crisp sidewalls, and hold their properties over time under UV and humidity.

With 12% elongation and necking before break, it handles snap-fits and assembly loads better than typical brittle SLA resins. It is our default choice for black end-use plastic parts.

KEY BENEFITS

- Thermoplastic-like toughness with 12% elongation at break
- Long-term stability of properties under UV and humidity
- Smooth, molded-looking surface and sharp detail
- Accurate, low-distortion parts for fast first articles

MECHANICAL & THERMAL PROPERTIES

Property	Test method	Typical value
TENSILE & FLEXURAL		
Tensile strength, ultimate	ASTM D638	63 MPa 9,140 psi
Tensile modulus	ASTM D638	2,320 MPa 336 ksi
Elongation at break	ASTM D638	12 %
Flexural strength	ASTM D790	92 MPa 13,340 psi
Flexural modulus	ASTM D790	2,290 MPa 332 ksi
IMPACT & HARDNESS		
Izod impact, notched	ASTM D256	24 J/m 0.45 ft-lb/in
Izod impact, unnotched	ASTM D4812	614 J/m 11.5 ft-lb/in
Hardness	ASTM D2240	Shore 79D
THERMAL & FLAMMABILITY		
Heat deflection temp., 0.455 MPa	ASTM D648	70 °C 158 °F
Heat deflection temp., 1.82 MPa	ASTM D648	56 °C 133 °F
Glass transition temp. (Tg)	DMA	62 °C 144 °F
Flammability	UL 94	HB

Typical values, not guaranteed minimums. Specimens were tested in the ZY orientation; 3D Systems reports similar values in every orientation. Properties depend on full cleaning and UV post-cure.

GENERAL MATERIAL PROPERTIES

Material	Density	Color
Rigid photopolymer Photopolymer resin	**1.16 g/cm³** ASTM D792, printed part	**Black** Opaque, smooth finish

DIMENSIONAL TOLERANCES

Direction	First inch (25 mm)	Each additional inch (25 mm)
XY (horizontal)	± 0.002 in · ± 0.05 mm	+ 0.001 in · + 0.025 mm
Z (vertical)	± 0.003 in · ± 0.08 mm	+ 0.001 in · + 0.025 mm

Typical IA3D tolerances for Hi-Speed SLA on the Axtra3D Lumia X1. Support contact points leave small marks that are sanded smooth. Large, flat or thin sections can move slightly during UV post-cure, and flatness depends on geometry. For critical fits or tighter requirements, **talk to an engineer**.

TYPICAL APPLICATIONS

- Motor housings and enclosures
- Electrical connectors
- Snap-fits, clips and living features
- Automotive interior components
- Low-volume production parts in place of soft tooling

GOOD TO KNOW

- **Compliance:** UL 94 HB; biocompatible capable per ISO 10993-5 and 10993-10 (per 3D Systems)
- **Heat:** 56 °C (133 °F) HDT at 1.82 MPa. For hot or high-stiffness parts, see RG 3280
- **As printed:** smooth black surface; support marks are sanded smooth

TEST CONDITIONS & SOURCE

Source: Axtra3D Material Guide 2025 (Lumia X1) and 3D Systems Figure 4® PRO-BLK 10 data sheet (3DS-40113B). Values are 3D Systems typical values tested to the ASTM methods shown, specimens printed in the ZY orientation, conditioned 40 h at 23 °C / 50% RH, UV post-cured. Axtra3D lists the same values for this resin. Unit conversions and tolerances are by IA3D.

Disclaimer: Material properties are provided as a general reference to help with material selection. Actual part properties depend on geometry, orientation, wall thickness, build position, cleaning, post-cure and service conditions, and may differ from the values shown. This sheet does not guarantee specific properties or suitability for a particular application. Validate critical parts under real operating conditions.

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