rPETG

Polyethylene terephthalate glycol, BigRep rPETG

Printer **BigRep ONE · BigRep VIIO**

Process **Large-format FDM**

Filament **Ø 2.85 mm**

OVERVIEW

rPETG is a well-balanced, easy-to-print engineering material with good chemical resistance. It is tougher than the PLA-based grades and a reliable choice for design iterations and functional large parts.

It has the highest tensile strength of our unfilled large-format materials and roughly twice the notched impact strength of PLA-based blends.

KEY BENEFITS

- Balanced strength and toughness
- Good chemical resistance
- Heat deflection of 63 °C (145 °F) under load
- Cost-effective for design iterations at large scale

MECHANICAL & THERMAL PROPERTIES

Property	Test method	Typical value
TENSILE & FLEXURAL		
Tensile strength	ISO 527	54 MPa 7,830 psi
Tensile modulus	ISO 527	1,800 MPa 261 ksi
Flexural strength	ISO 178	68 MPa 9,860 psi
Flexural modulus	ISO 178	2,000 MPa 290 ksi
IMPACT		
Charpy impact, notched	ISO 179	10 kJ/m²
THERMAL		
Heat deflection temp., 1.8 MPa (HDT A)	ISO 75	63 °C 145 °F
Heat deflection temp., 0.45 MPa (HDT B)	ISO 75	70 °C 158 °F
Vicat softening temp.	ISO 306	78 °C 172 °F
Glass transition temp. (Tg)	DSC	85 °C 185 °F

Printed parts are directional. BigRep does not state how its test specimens were made or oriented. On large-format FDM parts, strength across layers (Z) is noticeably lower than along them (XY). The values above are typical values, not guaranteed minimums. Design with margin and orient load paths in XY where you can.

GENERAL FILAMENT PROPERTIES

Material	Density	FDA compliant
PETG Filament base	**1.23 g/cm³** ISO 1183	**No** Raw filament, per BigRep

DIMENSIONAL TOLERANCES

Direction	First inch (25 mm)	Each additional inch (25 mm)
XY (horizontal)	± 0.020 in · ± 0.51 mm	+ 0.003 in · + 0.08 mm
Z (vertical)	± 0.030 in · ± 0.76 mm	+ 0.003 in · + 0.08 mm

Typical IA3D tolerances for large-format FDM across our BigRep printers. Holes and bores print slightly undersize; drill or ream features that need a fit. Flatness and warp on large, thin or flat sections depend on geometry. For critical fits or tighter requirements, **talk to an engineer**.

TYPICAL APPLICATIONS

- Functional prototypes and design iterations
- Enclosures, covers and guards
- Parts exposed to cleaners and mild chemicals
- Jigs, fixtures and shop aids
- Display and retail fixtures

GOOD TO KNOW

- **Compliance:** REACH compliant and RoHS certified
- **Need outdoor or UV resistance?** See ASA
- **As printed:** layer lines are visible on large-format parts

TEST CONDITIONS & SOURCE

Source: BigRep rPETG filament data sheet (bigrep.com/filaments/rpetg, last updated 30.07.2025). Values are BigRep typical values tested to the ISO methods shown. BigRep does not state specimen preparation, orientation or print settings. 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, print settings 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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