

## PolyMax™ PETG

PolyMax™ PETG offers better mechanical properties than any other regular PETG making it a good candidate for a wide range of applications.

### Physical Properties

Property	Testing method	Typical value
Density	ASTM D792 (ISO 1183, GB/T 1033)	1.25 (g/cm <sup>3</sup> at 21.5 °C)
Glass transition temperature	DSC, 10 °C/min	79 (°C)
Vicat Softening temperature	ASTM D1525 (ISO 306 GB/T 1633)	82 (°C)
Melt index	220 °C, 2.16 kg 240 °C, 2.16 kg	3.9 (g/10 min) 17.1 (g/10 min)
Decomposition temperature	TGA, 20 °C/min	373 (°C)

Tested with 3D printed specimen of 100% infill

### Mechanical Properties

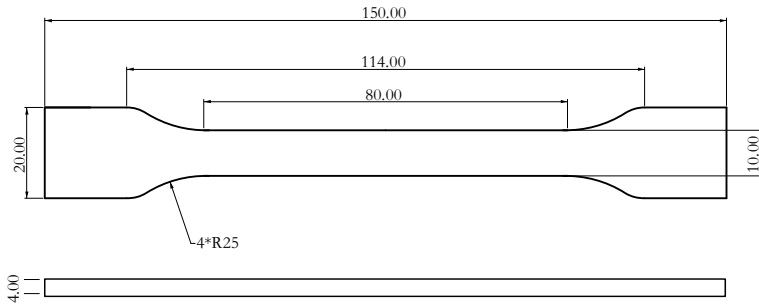
Property	Testing method	Typical value
Young's modulus (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	1523 ± 50 (MPa)
Young's modulus (Z)	ASTM D638 (ISO 527, GB/T 1040)	1603 ± 40 (MPa)
Tensile strength (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	31.7 ± 0.1 (MPa)
Tensile strength (Z)	ASTM D638 (ISO 527, GB/T 1040)	29.4 ± 1.0 (MPa)
Elongation at break (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	4.4 ± 0.6 (%)
Elongation at break (Z)	ASTM D638 (ISO 527, GB/T 1040)	3.1 ± 0.5 (%)
Bending strength (X-Y)	ASTMD790 (ISO 178, GB/T 9341)	58.3 ± 0.4 (MPa)
Bending strength (Z)	ASTMD790 (ISO 178, GB/T 9341)	55.1 ± 4.9 (MPa)
Charpy impact strength (X-Y)	ASTM D256 (ISO 179, GB/T 1043)	9.7 ± 2.6 (kJ/m <sup>2</sup> )
Charpy impact strength (Z)	ASTM D256 (ISO 179, GB/T 1043)	2.4 ± 0.5 (kJ/m <sup>2</sup> )

All testing specimens were printed under the following conditions:  
nozzle temperature = 240 °C, printing speed = 45 mm/s, build plate temperature = 80 °C, infill = 100%

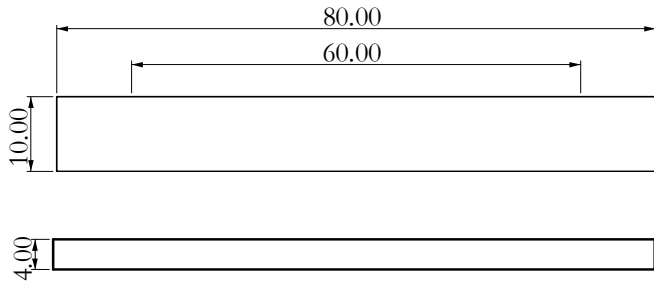
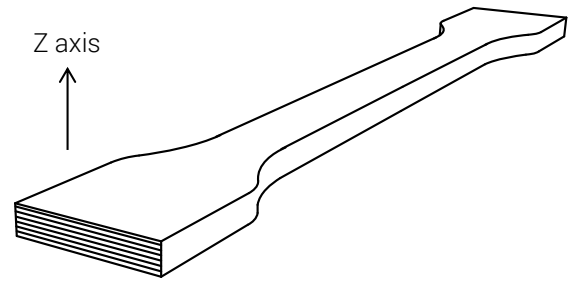
### Recommended printing conditions

Parameter	
Nozzle temperature	230 - 240 (°C)
Build Surface material	BuildTak (recommended)
Build plate temperature	70 - 80 (°C)
Cooling fan	Turned on
Printing speed	30 - 50 (mm/s)
Raft separation distance	0.15 - 0.2 (mm)
Retraction distance	1 - 3 (mm)
Retraction speed	20 - 80 (mm/s)
Recommended environmental temperature	25 (°C)
Threshold overhang angle	70* (°)

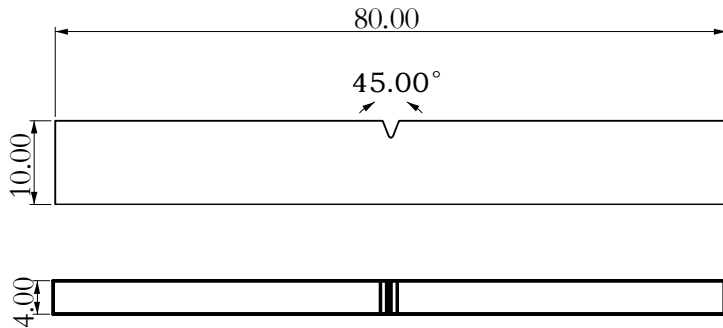
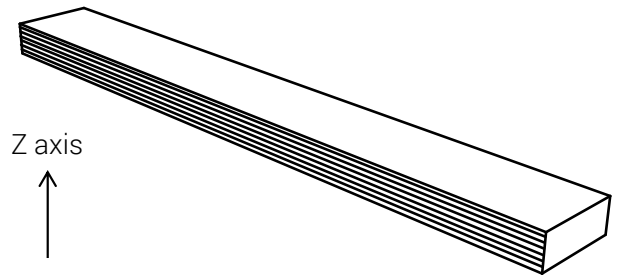
Based on 0.4 mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters



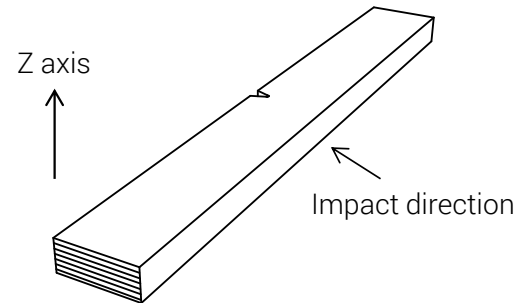
Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)



Flexural testing specimen; ASTM D790 (ISO 178, GB/T 9341)



Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)



## 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.

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