

G105

Technical Data Sheet (Ver. 1.0, last updated: Dec., 2017)

G105 is cost-effective 3D printing filament based on PETG, It features good printability, large overhang angles and environmental friendliness.

Physical Properties¹

Property	Testing Method	Typical Value
Density (g/cm ³ at 21.5 °C)	ASTM D792 (ISO 1183, GB/T 1033)	1.3
Melt index (g/10 min)	220 °C, 2.16 kg 240 °C, 2.16 kg	3.9 10.8
Glass transition temperature (°C)	DSC, 10 °C/min	81
Vicat Softening temperature ¹ (°C)	ASTM D1525 (ISO 306 GB/T 1633)	84

1. Tested with 3D printed specimen of 100% infill

Mechanical Properties¹

Property	Testing Method	Typical Value
Young's modulus (MPa) (X - Y)	ASTM D638 (ISO 527, GB/T 1040)	1472 ± 270
Tensile strength (MPa) (X - Y)	ASTM D638 (ISO527, GB/T 1040)	31.9 ± 1.1
Elongation at break (%) (X - Y)	ASTM D638 (ISO527, GB/T 1040)	6.8 ± 0.9
Bending modulus (MPa) (X - Y)	ASTM D790 (ISO 178, GB/T 9341)	1174 ± 64
Bending strength (MPa) (X - Y)	ASTM D790 (ISO 178, GB/T 9341)	53.7 ± 2.4
Charpy Impact strength (kJ/m ²) (X - Y)	ASTM D256 (ISO 179, GB/T 1043)	5.1 ± 0.3

1. 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 Conditions¹

Parameter	Recommended Setting
Nozzle temperature (°C)	230 - 240
Recommended build surface	BuildTak® (recommended)
Build plate temperature (°C)	80
Model cooling fan	Turned on
Printing speed (mm/s)	40 - 50
Raft separation distance (mm)	0.1 - 0.2
Retraction distance (mm)	1 - 3
Retraction speed (mm/s)	20 - 80
Recommended environmental temperature (°C)	Room temperature
Threshold overhang angle (°)	70
Recommended support materials	S01 (PI), S02N (PI)
Other Comments	

1. Based on 0.4 mm nozzle and Simplify 3D v4.0. Printing conditions may vary with different nozzle diameters

Appendix: Testing Geometries

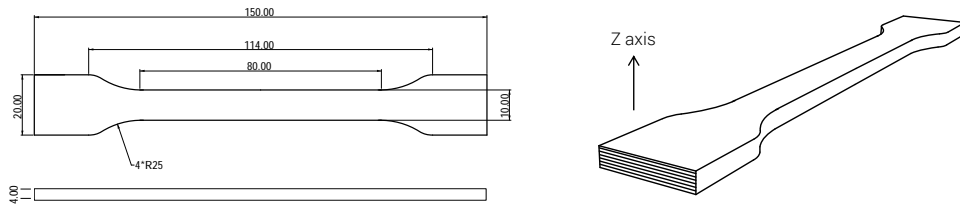


Fig 1. Tensile testing specimen

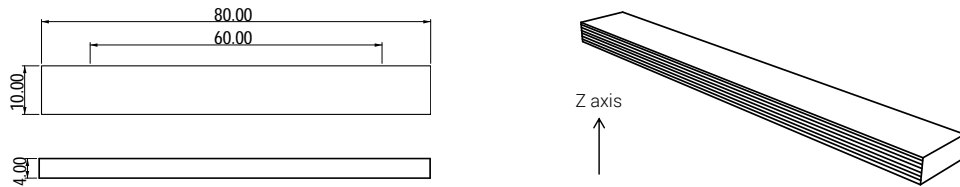


Fig 2. Flexural testing specimen

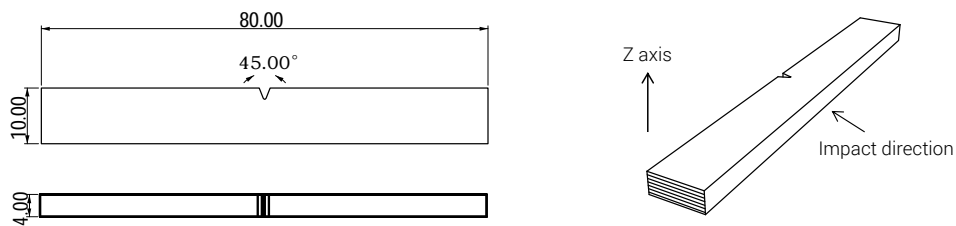


Fig 3. Impact testing specimen

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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