

Raise3D Premium ABS Technical Data Sheet

Raise3D Premium ABS is an ABS based filament designed specifically for desktop FDM/FFF 3D printing. It offers superior printing quality, excellent mechanical strength and heat resistance, with great warping resistance and interlayer bonding quality.

Physical and Thermal Properties

Property	Testing Method	Typical Value
Density (g/cm ³ at 23 °C)	ISO 1183, GB/T 1033	1.12
Glass transition temperature (°C)	DSC, 10 °C/min	101
Vicat Softening temperature (°C)	ISO 306 GB/T 1633	104
Melt index (g/10 min)	220 °C, 2.16 kg	9-14
Decomposition temperature (°C)	TGA, 20 °C/min	> 380
Heat distortion temperature (°C)	ISO 75 0.45MPa	98
Heat distortion temperature (°C)	ISO 75 1.8MPa	100
Long-term service temp. (°C)	/	-20 - 90
Odor	/	Almost odorless
Solubility	/	Insoluble in water
Flame Retardancy	UL94, 1.5 mm	HB

Note:

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

Mechanical Properties¹

Property	Testing Method	Typical Value
Young's modulus (MPa, X-Y)	ISO 527, GB/T 1040	2174 ± 285
Tensile strength (MPa, X-Y)	ISO 527, GB/T 1040	33 ± 1
Elongation at break (% , X-Y)	ISO 527, GB/T 1040	2.7 ± 0.4
Bending modulus (MPa)	ISO 178, GB/T 9341	2850 ± 300
Bending strength (MPa)	ISO 178, GB/T 9341	73 ± 1
Charpy Impact strength (kJ/m ²)	ISO 179, GB/T 1043	12.6 ± 1.1

Note:

All testing specimens were printed under the following conditions:

Nozzle temperature = 255°C, printing speed = 60 mm/s, build plate temperature = 100°C, infill =100% .



Recommended printing conditions

Parameter	Recommended Setting
Nozzle temperature (°C)	245 - 265
Build Surface material	BuildTak®
Build surface treatment	/
Build plate temperature(°C)	90 - 105
Cooling fan	Turned off
Printing speed (mm/s)	30 - 50
Raft separation distance (mm)	0.20
Retraction distance (mm)	1
Retraction speed (mm/s)	20
Recommended environmental temperature (°C)	20 - 50
Threshold overhang angle (°)	50

Note:

1. Based on 0.4 mm nozzle and ideaMaker. Printing conditions may vary with different nozzle diameters.



Testing Geometries

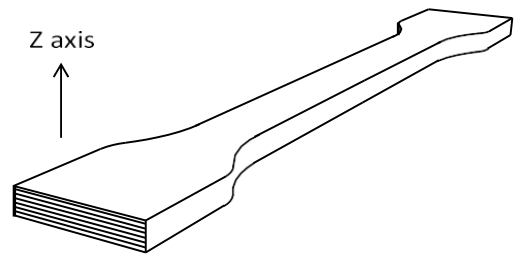
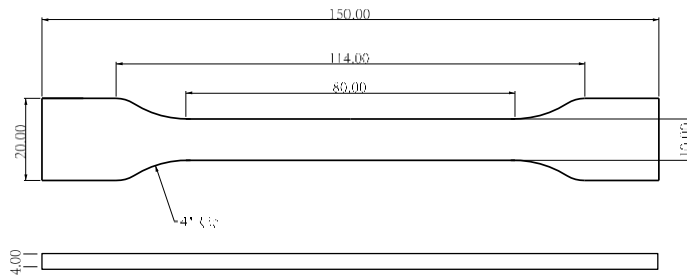


Fig 1. Tensile testing specimen

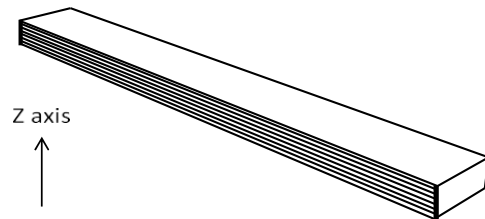
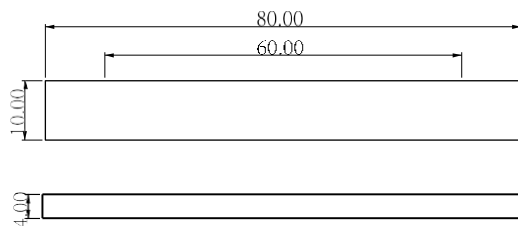


Fig 2. Flexural testing specimen

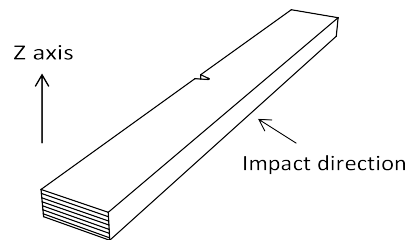
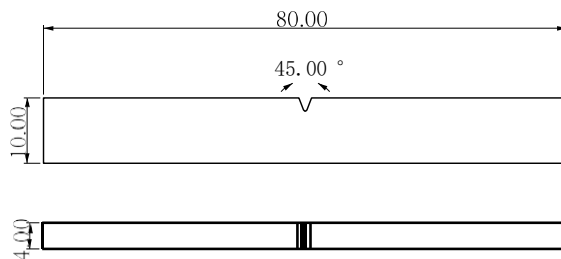


Fig 3. Impact testing specimen

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.

Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Raise3D materials for the intended application. Raise3D makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application.



Raise3D shall not be made liable for any damage, injury or loss induced from the use of Raise3D materials in any particular application.

