Raise3D Hyper Speed ABS Technical Data Sheet

Hyper Speed ABS Filament is one of the specially developed high-speed filament line for FFF printing. During high-speed printing, the filament is rapidly fed into the heat block, and the polymer has very little time to melt itself from solid to a molten state, which can cause nozzle clogging and poor bonding quality between layers. Moreover, ABS usually undergoes unfavored warpage and delamination of the printed part during high-speed printing without heated chamber.

With optimized molecular weight and stiffness, Raise3D Hyper Speed ABS are able to achieve faster melting and cooling during high-speed printing which results in lower temperature gradient and inner-stress of printed part. With almost zero-warpage and improved interlayer bonding, Hyper Speed ABS is also perfectly suitable for many functional prototyping parts, tools and fitting with different post-processing possibilities.

Physical Properties

Property	Testing Method	Typical Value
Density (g/cm³)	ISO 1183, GB/T 1033	1.08
Heat Distortion Temperature (°C)	Custom method	73
Melt Flow Index (g/10 min)	ISO 1133 (220 °C, 10 kg)	55
Water absorption (%)	ISO 62: Method 1	0.36
Odor	/	Almost odorless
Solubility	/	Insoluble in water

Note:
Tested with 3D printed specimen of 100% infill.

Mechanical Properties

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527	1770 ± 165 MPa
Young's modulus (Z)	ISO 527	1445 ± 156 MPa
Tensile strength (X-Y)	ISO 527	45 ± 9 MPa
Tensile strength (Z)	ISO 527	29 ± 5 MPa
Elongation at break (X-Y)	ISO 527	40 ± 3 %

Elongation at break (Z)	ISO 527	15 ± 5 %
Bending modulus	ISO 178	1950 ± 165 MPa
Bending strength	ISO 178	52 ± 7 MPa
Impact strength	ISO 180	7.0 ± 1.0 KJ/m2

Note:
All testing specimens were printed under the following conditions:
Nozzle diameter=0.4mm, nozzle temperature = 250 °C, printing speed = 200 mm/s, build plate temperature = 70 °C, infill = 100%.
All specimens were conditioned at room temperature for 24h prior to testing.

Testing Geometries

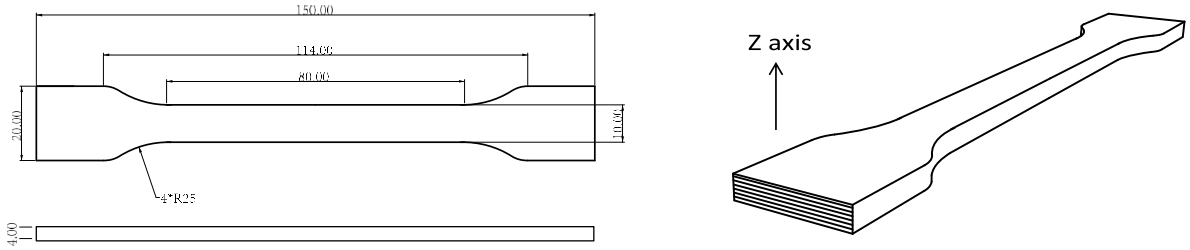

Fig 1. Tensile testing specimen

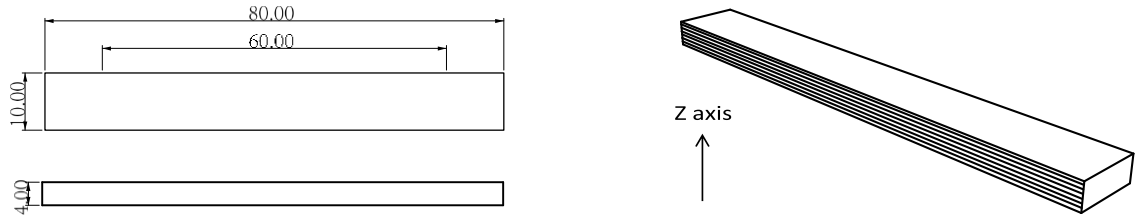

Fig 2. Flexural testing specimen

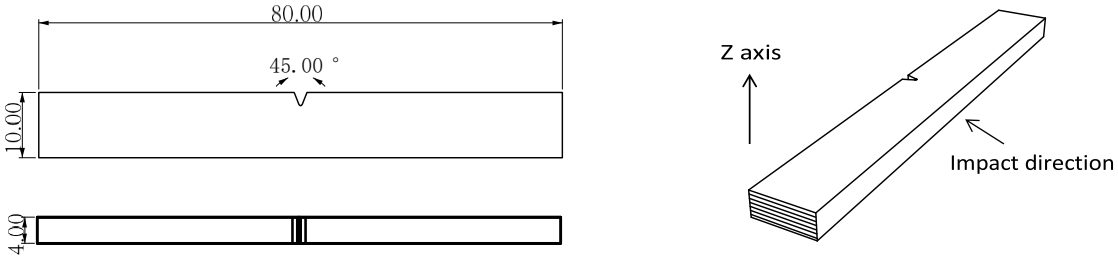

Fig 3. Impact testing specimen

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. Enduse 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.