OVERTURE TURBO PLA TECHNICAL DATA SHEET

OVERTURE TURBO PLA is a high speed PLA filament with good printing performance.

Physical Properties

Property	Testing method	Typical value
Density	ISO 1183, GB/T 1033	1.30 (g/cm^3 at 23˚C)
Vicat Softening temperature*	ISO 306 GB/T 1633	65.5 (˚C)
Melt index	210 ° C, 2.16 kg	26.0 (g/10 min)
Melting temperature	DSC, 10 ° C/min	N/A

*Tested with 3D printed specimen of 100% infill

Mechanical Properties (Normal Speed)

Property	Testing method	Typical value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2515 ± 71 (MPa)
Tensile strength (X-Y)	ISO 527, GB/T 1040	51.6 ± 0.3 (MPa)
Tensile strength (Z)	ISO 527, GB/T 1040	36.3 ± 1.2(MPa)
Elongation at break (X-Y)	ISO 527, GB/T 1040	10.5 ± 3.8 (%)
Bending modulus(X-Y)	ISO 178, GB/T 9341	2371 ± 55 (MPa)
Bending strength(X-Y)	ISO 178, GB/T 9341	75.5 ± 0.9(MPa)
Notched Charpy impact strength(X-Y)	ISO 179, GB/T 1043	2.9 ± 0.1(kJ/㎡)

All testing specimens were printed under the following conditions: nozzle temperature = 220 °C, printing speed = 60 mm/s, build plate temperature = 65 °C, infill = 100% All specimens were conditioned at room temperature for 24h prior to testing

Mechanical Properties (High Speed)

Property	Testing method	Typical value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2346 ± 36 (MPa)
Tensile strength (X-Y)	ISO 527, GB/T 1040	45.6 ± 0.5 (MPa)
Tensile strength (Z)	ISO 527, GB/T 1040	30.1 ± 2.0(MPa)
Elongation at break (X-Y)	ISO 527, GB/T 1040	4.8 ± 0.8 (%)
Bending modulus(X-Y)	ISO 178, GB/T 9341	2199 ± 35 (MPa)
Bending strength(X-Y)	ISO 178, GB/T 9341	70.1 ± 0.9(MPa)
Notched Charpy impact strength(X-Y)	ISO 179, GB/T 1043	2.81 ± 0.1(kJ/㎡)

All testing specimens were printed under the following conditions: nozzle temperature = 230 °C, printing speed = 300 mm/s, build plate temperature = 65 °C, infill = 100% All specimens were conditioned at room temperature for 24h prior to testing

Recommended printing conditions

Nozzle temperature	190 - 205 (°C)-Normal Speed 205 - 230 (°C)-High Speed
Build Surface material	OVERTURE Build Surface, Textured PEI
Build surface treatment	None, Applying PVA glue to the build surface
Build plate temperature	25-60 (°C)
Cooling fan	Turned on
Printing speed	60-100 (mm/s)-Normal Speed 100-600 (mm/s)-High Speed
Raft separation distance	0.1-0.2 (mm)
Retraction distance	1-3 (mm)
Retraction speed	20 - 40 (mm/s)
Threshold overhang angle	60 (°)

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

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 OVERTURE materials for the intended application. OVERTURE makes no warranty of any kind, unless announced separately, to the fitness for any use or application. OVERTURE shall not be made liable for any damage, injury or loss induced from the use of OVERTURE materials in any application.