

OVERTURE EASY NYLON TECHNICAL DATA SHEET

OVERTURE EASY Nylon is based on a copolymer of Nylon 6 and Nylon 6,6. This filament is a strong and tough thermoplastic polymer with heat resistance of up to 180°C.

Physical Properties

Property	Testing method	Typical value
Density	ISO 1183, GB/T 1033	1.12 (g/cm ³ at 23°C)
Vicat Softening temperature	ISO 306 GB/T 1633	181.2 (°C)
Melt index	260 °C, 1.2 kg	13.0 (g/10 min)
Melting temperature	DSC, 10 °C/min	187.7 (°C)

Tested with 3D printed specimen of 100% infill

Mechanical Properties (Dry State)

Property	Testing method	Typical value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2349 ± 182 (MPa)
Tensile strength (X-Y)	ISO 527, GB/T 1040	71.3 ± 2.1 (MPa)
Tensile strength (Z)	ISO 527, GB/T 1040	50.3 ± 1.4 (MPa)
Elongation at break (X-Y)	ISO 527, GB/T 1040	8.4 ± 0.9 (%)
Bending modulus (X-Y)	ISO 178, GB/T 9341	1598 ± 201 (MPa)
Bending strength (X-Y)	ISO 178, GB/T 9341	85.0 ± 2.7 (MPa)
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	7.9 ± 2.6 (kJ/m ²)

All testing specimens were printed under the following conditions: nozzle temperature = 265 °C, printing speed = 45 mm/s, build plate temperature = 50 °C, infill = 100% All specimens were annealed at 80°C for 7h and dried for 48h prior to testing

Mechanical Properties (Wet Status)

Property	Testing method	Typical value
Young's modulus (X-Y)	ISO 527, GB/T 1040	1162 ± 274 (MPa)
Tensile strength (X-Y)	ISO 527, GB/T 1040	26.3 ± 2.1 (MPa)
Tensile strength (Z)	ISO 527, GB/T 1040	14.4 ± 1.8 (MPa)
Elongation at break (X-Y)	ISO 527, GB/T 1040	245.3 ± 22.5 (%)
Bending modulus	ISO 178, GB/T 9341	769 ± 88 (MPa)
Bending strength	ISO 178, GB/T 9341	37.6 ± 8.1 (MPa)
Charpy impact strength	ISO 179, GB/T 1043	21.1 ± 2.7 (kJ/m ²)

All specimens were annealed at 80 °C for 30 min, and conditioned at 50% relative humidity and ambient temperature for 15 days prior to testing

Recommended printing conditions

Nozzle temperature	250 - 270 (°C)
Build Surface material	PA film, PI film, Textured PEI
Build surface treatment	Applying PVA glue to the build surface
Build plate temperature	25 - 50 (°C)
Cooling fan	Turned off
Printing speed	30-50 (mm/s)
Raft separation distance	0.1 - 0.2 (mm)
Retraction distance	3-6 (mm)
Retraction speed	40 - 60 (mm/s)

Threshold overhang angle

55 (°)

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

Warm Prompt

- Abrasion of the brass nozzle happens quite often when printing OVERTURE EASY Nylon. A wear-resistant nozzle, such as hardened steel and ruby nozzle, is highly recommended to be used with OVERTURE EASY Nylon.
- OVERTURE EASY Nylon is sensitive to moisture and should always be stored and used under dry conditions (relative humidity below 20%).
- If OVERTURE EASY Nylon is used as the support material for itself, please remove the support structure before excessive moisture absorption. Otherwise the support structure can be permanently bonded to the model.
- After the printing process, it is recommended to anneal the model in the oven at 70°C for 2 hours.

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.