



TECHNICAL DATA SHEET

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ABS 3D Printer Filament

Acrylonitrile butadiene styrene (ABS) · Product code CX01 · 1.75 mm and 2.85 mm

Base resin: Acrylonitrile butadiene styrene (ABS)

Typical values for the base resin. Printed parts vary with print settings, orientation and moisture content.

Physical properties

Property	Standard	Unit	Typical value
Mass density, 23 °C	ISO 1183	g/cm ³	1.03
Melt flow index, 220 °C / 10 kg	ISO 1133	ml/10 min	13
Melt flow index, 200 °C / 5 kg	ASTM D1238	g/10 min	1.1
Mold shrinkage	ISO 294-4	%	0.4–0.7
Rockwell hardness, R scale	ASTM D785		108
UL 94 flammability, 1.5 mm	UL 94		HB

Mechanical properties

Property	Standard	Unit	Typical value
Tensile strength at yield, 50 mm/min	ISO 527	MPa (psi)	40 (5,800)
Tensile strength at break, 50 mm/min	ISO 527	MPa (psi)	30 (4,350)
Tensile elongation, 50 mm/min	ISO 527	%	35
Flexural strength, 2 mm/min	ISO 178	MPa (psi)	58 (8,410)
Flexural modulus, 2 mm/min	ISO 178	MPa (psi)	1,800 (261,000)
Izod impact strength, notched, 23 °C	ISO 180/1A	kJ/m ²	34
Izod impact strength, notched, –30 °C	ISO 180/1A	kJ/m ²	23
Charpy impact strength, notched, 23 °C	ISO 179	kJ/m ²	36
Charpy impact strength, notched, –30 °C	ISO 179	kJ/m ²	25
Tensile strength at yield, 6 mm/min	ASTM D638	MPa (psi)	37.8 (5,470)
Tensile elongation, 6 mm/min	ASTM D638	%	30
Flexural strength, 2.8 mm/min	ASTM D790	MPa (psi)	60.8 (8,800)
Flexural modulus, 2.8 mm/min	ASTM D790	MPa (psi)	2,160 (3.1 × 10 ⁵)
Izod impact strength, notched, 6.4 mm, 23 °C	ASTM D256	J/m (ft-lb/in)	314 (5.9)
Izod impact strength, notched, 3.2 mm, 23 °C	ASTM D256	J/m (ft-lb/in)	402 (7.5)

Thermal properties

Property	Standard	Unit	Typical value
Vicat softening temperature, 1 kg, 50 °C/h	ISO 306	°C (°F)	104 (219)
Vicat softening temperature, 5 kg, 50 °C/h	ISO 306	°C (°F)	96 (205)
Heat distortion temperature, 1.8 MPa, unannealed	ISO 75/A	°C (°F)	82 (180)
Heat distortion temperature, 1.8 MPa, annealed	ISO 75/A	°C (°F)	97 (207)
Vicat softening temperature, 1 kg, 50 °C/h	ASTM D1525	°C (°F)	103 (217)
Heat distortion temperature, 1.8 MPa, annealed	ASTM D648	°C (°F)	95 (203)
Heat distortion temperature, 1.8 MPa, unannealed	ASTM D648	°C (°F)	85 (186)

Filament specifications

Diameter	Nominal	Minimum	Maximum	Tolerance
1.75 mm	1.75 mm (0.0689 in)	1.72 mm (0.0677 in)	1.78 mm (0.0701 in)	±0.03 mm (±0.0012 in)
2.85 mm	2.85 mm (0.1122 in)	2.79 mm (0.1098 in)	2.91 mm (0.1146 in)	±0.06 mm (±0.0024 in)

Recommended print settings

Nozzle temperature	245–265°C
Bed temperature	90–110°C
Enclosure	An enclosure is required
Part cooling fan	0–30% (off for the first layer)
Drying	Dry an opened spool at 80°C for 4–6 hours
Storage	Keep filament dry: store it sealed, and dry it again only after the spool has been exposed to air
Bed adhesion	use WELD3D, ABS slurry or Kapton tape

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