



Filazoo Filament

Technical Data Sheet V1.0



ABS

Acrylonitrile Butadiene Styrene — impact-resistant general-purpose filament

DOCUMENT NO.	REVISION	ISSUE DATE	DIAMETER	NET WEIGHT
FZ-TDS-ABS-001	V1.0	28/08/26	1.75 mm	1 kg

1 Description

Filazoo ABS is a classic impact-resistant engineering filament valued for its toughness, machinability and moderate heat resistance. It tolerates post-processing well — sanding, drilling, gluing and acetone vapour smoothing all work cleanly — making it a practical choice wherever a part needs light-to-moderate mechanical toughness and a smoother finish after printing. With a heat deflection temperature of approximately 95 °C at 0.45 MPa and a glass transition of approximately 105 °C, it holds up to warm environments better than PLA or PETG.

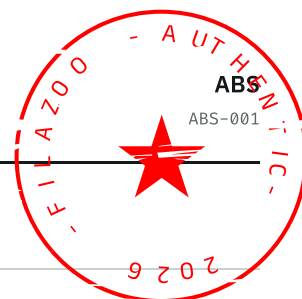
Typical applications — enclosures and housings, automotive interior trim, mechanical fixtures, and prototypes intended for sanding, gluing or vapour-smoothed finishing.

Processing summary — ABS is prone to warping and layer splitting without a heated, enclosed chamber; keep part cooling low and print on a heated bed, using a brim or enclosure for larger parts. Fumes during printing mean good ventilation is recommended.

2 Product Specification

Table 1 — Filament and packaging specification

PARAMETER	UNIT	VALUE
Filament diameter	mm	1.75
Diameter tolerance	mm	± 0.02
Net filament weight	kg	1
Spool material	—	PC + ABS (heat resistance 90 °C)
Spool dimensions (ø × H)	mm	ø 200 × 67 mm
Colour range	—	Standard colour range



3 Recommended Printing Parameters

Table 2 — Recommended starting parameters

PARAMETER	UNIT	VALUE
Drying before printing	°C / h	70 – 80 °C for 8 h
Printing and storage humidity	—	Dry storage; sealed with desiccant
Nozzle size	mm	≥ 0.4
Nozzle type	—	Brass or hardened steel
Nozzle temperature	°C	230 – 250
Build plate type	—	PEI, glass or ABS slurry
Bed surface preparation	—	Clean; adhesive recommended
Bed temperature	°C	80 – 100
Part cooling fan	—	Off to low
Printing speed	mm/s	40 – 150
Enclosed chamber	—	Recommended – reduces warping and splitting
Chamber temperature	°C	45 – 60
Retraction length / speed	mm / mm·s ⁻¹	0 – 1.0 mm / 20 – 40 mm·s ⁻¹
Max overhang angle	°	~ 70
Max bridging length	mm	~ 40

Values are starting points; ABS warps readily without an enclosure — optimum settings vary with printer and part geometry.

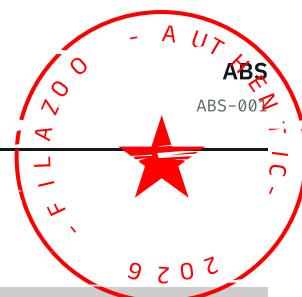
4 Material Properties

Values are typical results measured on standard printed specimens and are intended for design reference and comparison. They are not guaranteed minima.

4.1 Physical and thermal properties

Table 3 — Physical and thermal properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Density	ISO 1183	g/cm ³	~ 1.05
Melt flow rate (MFR)	220 °C, 2.16 kg	g/10 min	~ 2.5 ± 0.3
Melting temperature	DSC	°C	~ 225
Glass transition temperature	DSC	°C	~ 105
Vicat softening temperature	ISO 306	°C	~ 95
Heat deflection temperature	ISO 75, 0.45 MPa	°C	~ 95
Heat deflection temperature	ISO 75, 1.8 MPa	°C	~ 85
Saturated water absorption	25 °C, 55 % RH	%	~ 0.65



4.2 Mechanical properties

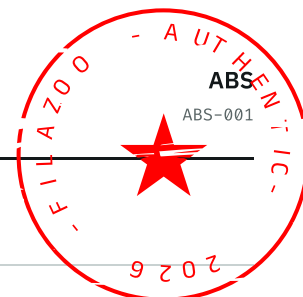
Table 4 — Mechanical properties

PROPERTY	TEST METHOD	UNIT	TYPICAL VALUE
Young's modulus (X–Y)	ISO 527 / GB/T 1040	MPa	~ 2200 ± 200
Young's modulus (Z)	ISO 527 / GB/T 1040	MPa	~ 1800 ± 180
Tensile strength (X–Y)	ISO 527 / GB/T 1040	MPa	~ 45 ± 5
Tensile strength (Z)	ISO 527 / GB/T 1040	MPa	~ 40 ± 4
Elongation at break (X–Y)	ISO 527 / GB/T 1040	%	~ 4
Elongation at break (Z)	ISO 527 / GB/T 1040	%	~ 2
Flexural modulus	ISO 178 / GB/T 9341	MPa	~ 2200 ± 120
Flexural strength	ISO 178 / GB/T 9341	MPa	~ 65 ± 5
Impact strength, notched	ISO 179 / GB/T 1043	kJ/m ²	~ 10
Impact strength, unnotched	ISO 179 / GB/T 1043	kJ/m ²	~ 20

4.3 Chemical and physical characteristics

Table 5 — General characteristics of ABS

PARAMETER	VALUE
Composition	Acrylonitrile butadiene styrene (ABS)
Odour	Noticeable styrene odour when printing – ventilate the area
Skin hazard	No hazard in solid filament form
Chemical stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water; soluble in acetone
UV and weathering resistance	Poor – yellows and embrittles under prolonged outdoor exposure
Acid resistance	Limited resistance
Alkali resistance	Resistant to dilute bases
Organic solvent resistance	Dissolved by acetone and some solvents (used for vapour smoothing)
Oil and grease resistance	Resistant to common oils and greases
Flammability	Flammable
Combustion products	Carbon oxides, nitrogen oxides, styrene vapour



5 Test Conditions

5.1 Specimen printing conditions

Table 6 — Conditions used to produce test specimens

PARAMETER	UNIT	VALUE
Nozzle temperature	°C	240
Bed temperature	°C	90
Printing speed	mm/s	90
Infill density	%	100
Layer height	mm	0.2
Specimen conditioning / annealing	°C / h	23 °C / 50 % RH for 24 h (ISO 291)

5.2 Specimen geometry

Test specimens follow the geometry defined by the referenced standards. All dimensions in millimetres.

Figure 1 — Tensile specimen

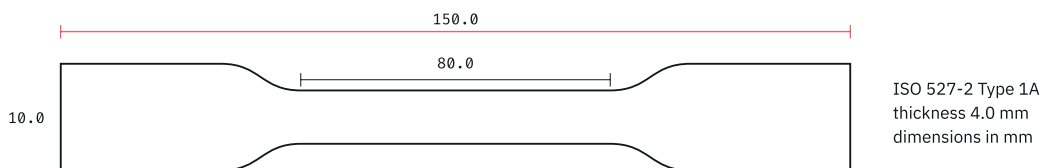


Figure 2 — Flexural specimen

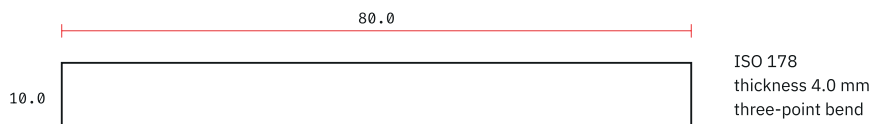
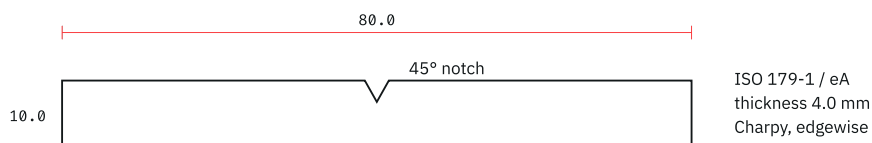


Figure 3 — Impact specimen



6 Disclaimer

The performance values in this document are typical values obtained from standard printed specimens. They are provided for design reference and comparison only and do not constitute a specification or a warranty of performance. Actual printed part performance depends on many further factors, including the printer, hotend and nozzle, slicer settings, part geometry, wall count and infill, build orientation, and ambient conditions.

Users are responsible for the legality, safety and suitability of anything they print. Filazoo accepts no responsibility for the use of its materials in any particular application, or for any damage arising in the course of using them.