



Filazoo Filament

Technical Data Sheet V1.0



ASA-CF

Carbon-Fibre Reinforced ASA — stiffer, UV-stable outdoor filament

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

1 Description

Filazoo ASA-CF combines ASA's weather and UV resistance with chopped carbon fibre for substantially higher stiffness than standard ASA. It keeps ASA's excellent colour and surface retention under sunlight while giving parts a more rigid feel — useful where an outdoor part must resist both weathering and mechanical load. With thermal resistance in the same range as standard ASA and a matte, fibre-textured finish, it targets structural outdoor components rather than cosmetic ones.

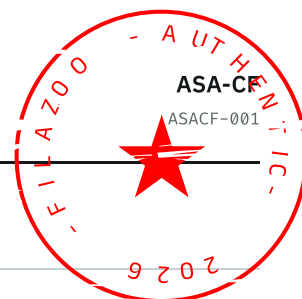
Typical applications — outdoor structural brackets, drone and robotics frames exposed to sunlight, signage armatures, and functional outdoor parts that need more rigidity than standard ASA.

Processing summary — ASA-CF is warp-sensitive like standard ASA, and the carbon fibre is additionally abrasive, so a hardened or diamond-tipped nozzle is required. An enclosed chamber, minimal part cooling and dry storage are all recommended, as with standard ASA.

2 Product Specification

Table 1 — Filament and packaging specification

PARAMETER	UNIT	VALUE
Filament diameter	mm	1.75
Diameter tolerance	mm	± 0.03
Net filament weight	kg	1
Spool material	—	PC + ABS (heat resistance 90 °C)
Spool dimensions (ø × H)	mm	ø 200 × 67 mm
Colour range	—	Black



3 Recommended Printing Parameters

Table 2 — Recommended starting parameters

PARAMETER	UNIT	VALUE
Drying before printing	°C / h	70 – 80 °C for 6 – 8 h
Printing and storage humidity	—	Dry storage; sealed with desiccant
Nozzle size	mm	≥ 0.4 (0.6 recommended)
Nozzle type	—	Hardened steel / diamond tip (required)
Nozzle temperature	°C	245 – 265
Build plate type	—	PEI or glass with adhesive
Bed surface preparation	—	Clean; adhesive recommended
Bed temperature	°C	90 – 100
Part cooling fan	—	Off to low
Printing speed	mm/s	40 – 150
Enclosed chamber	—	Recommended – reduces warping
Chamber temperature	°C	45 – 60
Retraction length / speed	mm / mm·s ⁻¹	0.8 – 1.4 mm / 20 – 40 mm·s ⁻¹
Max overhang angle	°	~ 68
Max bridging length	mm	~ 40

Values are starting points; optimum settings vary with printer, hotend and part geometry. An enclosed, heated chamber materially improves layer bonding

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	~ 1.16 (estimated)
Melt flow rate (MFR)	210 °C, 2.16 kg	g/10 min	~ 1.8 ± 0.3 (estimated)
Melting temperature	DSC	°C	~ 230
Glass transition temperature	DSC	°C	~ 106
Vicat softening temperature	ISO 306	°C	~ 102
Heat deflection temperature	ISO 75, 0.45 MPa	°C	~ 98
Heat deflection temperature	ISO 75, 1.8 MPa	°C	~ 90
Saturated water absorption	25 °C, 55 % RH	%	~ 0.5



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	~ 3800 ± 250
Young's modulus (Z)	ISO 527 / GB/T 1040	MPa	~ 1800 ± 200
Tensile strength (X–Y)	ISO 527 / GB/T 1040	MPa	~ 40 ± 3
Tensile strength (Z)	ISO 527 / GB/T 1040	MPa	~ 34 ± 3
Elongation at break (X–Y)	ISO 527 / GB/T 1040	%	~ 3.5
Elongation at break (Z)	ISO 527 / GB/T 1040	%	~ 2
Flexural modulus	ISO 178 / GB/T 9341	MPa	~ 3700 ± 180
Flexural strength	ISO 178 / GB/T 9341	MPa	~ 75 ± 5
Impact strength, notched	ISO 179 / GB/T 1043	kJ/m ²	~ 6
Impact strength, unnotched	ISO 179 / GB/T 1043	kJ/m ²	~ 10

4.3 Chemical and physical characteristics

Table 5 — General characteristics of ASA-CF

PARAMETER	VALUE
Composition	Carbon-fibre reinforced acrylonitrile-styrene-acrylate (ASA-CF)
Odour	Slight odour when printing; low relative to ABS
Skin hazard	Cut fibre ends can be sharp – gloves recommended
Chemical stability	Stable under normal storage and handling
Solubility	Insoluble in water
UV and weathering resistance	Resistant – the principal advantage over ABS-CF
Acid resistance	Resistant
Alkali resistance	Resistant
Organic solvent resistance	Not resistant to some organic solvents
Oil and grease resistance	Not resistant to some oils and greases
Flammability	Flammable
Combustion products	Water, carbon oxides, nitrogen oxides



5 Test Conditions

5.1 Specimen printing conditions

Table 6 — Conditions used to produce test specimens

PARAMETER	UNIT	VALUE
Nozzle temperature	°C	255
Bed temperature	°C	95
Printing speed	mm/s	90
Infill density	%	100
Layer height	mm	0.2
Specimen conditioning / annealing	°C / h	80 – 90 °C for 6 – 12 h

5.2 Specimen geometry

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

Figure 1 — Tensile specimen

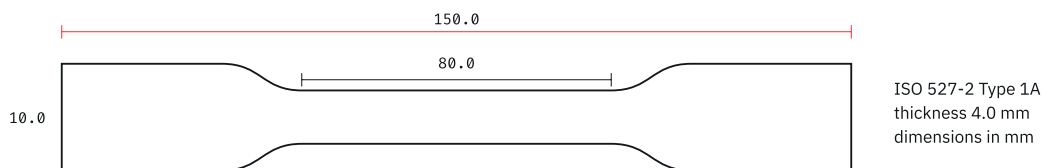


Figure 2 — Flexural specimen

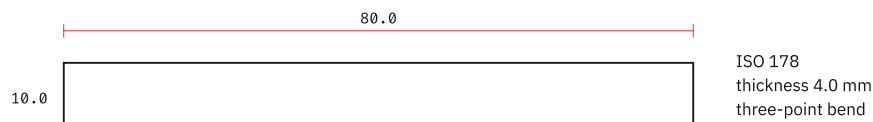
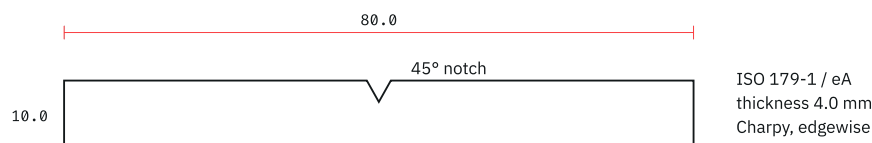


Figure 3 — Impact specimen



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.

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