

Fiberforge Carbon/Nylon Angle-Ply Blank

Representative Material Data

Material	Fiber	Carbon
	Matrix	PA6
	Laminate Orientation	[±30]_s

Property	Test Standard	Units	Quantity
Fiber Content by Weight	ASTM D 3171	%	64
Arial Weight		g/m ²	720
Density	ASTM D 3173	g/cm ³	1.5
Minimum Blank Thickness		mm	0.5

Mechanical				
Property	Test Standard	Units	Longitudinal	Transverse

Tensile

Strength	ASTM D 3039	MPa	510	64
Modulus	ASTM D 3039	GPa	41	10
Elongation at Break	ASTM D 3039	%	4.2	1.2

Flexural

Strength	ASTM D 790	MPa	550	140
Modulus	ASTM D 790	GPa	35	8.5

Compressive

Strength		MPa	220	39
Modulus		GPa	140	10
Poisson's Ratio (calculated)		—	1.3	0.29

Thermal				
Property	Test Standard	Units	Quantity	

Heat Deflection Temperature @ 0.45 MPa	ASTM D 648	°C	220±10
Coefficient of Thermal Expansion (calculated)		µm/m°C	—
Processing Temperature		°C	235±15

This data sheet lists common material, mechanical, and thermal characteristics of only one possible anisotropic tailored blank. Blanks can be made:

- thicker by adding plies
- to a desired shape, including cut-outs, to reduce scrap on final forming
- with different and/or additional ply-angles to change the anisotropic nature of the material
- with variable thickness/number of lamina.

Materials available off-the shelf or by special order.

Fiber:	Matrix:
Carbon	PA
Glass	PBT
Aramid	PEKK
	PE
	PPS
	PEEK
	PET
	TPU
	PP
	Others

This representative data was tested, measured, or calculated using standard methods and is subject to change without notice; it should be used for informational purposes only. Fiberforge makes no warranties and assumes no liability in connection with the use of this information. This data is not intended to substitute for your own testing to determine suitability for your particular application. The data listed here should not be used to establish specification limits. Nothing in this publication is to be construed as a license to operate under or a recommendation to infringe upon any intellectual property right. Fiberforge's Relay™ Station and Tailored Blanks™ are protected by US patents #6,607,626; 6,939,423; 7,235,149, and patents pending.

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Fiberforge Carbon/Nylon Unidirectional Blank

Representative Material Data

Material	Fiber	Carbon
	Matrix	PA6
	Laminate Orientation	[0]_n

Property	Test Standard	Units	Quantity
Fiber Content by Weight	ASTM D 3171	%	65
Arial Weight		g/m ²	360
Density	ASTM D 3173	g/cm ³	1.5
Minimum Blank Thickness		mm	0.125

Mechanical				
Property	Test Standard	Units	Longitudinal	Transverse

Tensile

Strength	ASTM D 3039	MPa	1,100	50
Modulus	ASTM D 3039	GPa	120	7.1
Elongation at Break	ASTM D 3039	%	0.92	0.68

Flexural

Strength	ASTM D 790	MPa	1,700	84
Modulus	ASTM D 790	GPa	190	16

Compressive

Strength (calculated)		MPa	1,000	110
Modulus (calculated)		GPa	87	5.4
Poisson's Ratio (calculated)		—	0.03	
Izod, notched	ASTM D 256	J/m	2,400	6.6

Thermal				
Property	Test Standard	Units	Longitudinal	Transverse

Heat Deflection Temperature @ 0.45 MPa	ASTM D 648	°C	226	208
Coefficient of Thermal Expansion	ASTM E 831	µm/m°C	-0.36	
Processing Temperature		°C	235±15	

This data sheet lists common material, mechanical, and thermal characteristics of only one possible anisotropic tailored blank. Blanks can be made:

- thicker by adding plies
- to a desired shape, including cut-outs, to reduce scrap on final forming
- with different and/or additional ply-angles to change the anisotropic nature of the material
- with variable thickness/number of lamina.

Materials available off-the shelf or by special order.

Fiber:	Matrix:
Carbon	PA
Glass	PBT
Aramid	PEKK
	PE
	PPS
	PEEK
	PET
	TPU
	PP
	Others

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