

MATERIAL PROPERTIES

Pultex® Fiber Reinforced Polymer Structural Profiles Rectangular Tubes, Channels, Angles, Square Tubes, Round Tubes

*Includes all angles except 102 x 6, 102 x 10, 102 x 13, 152 x 10 and 152 x 13 which are **SuperStructurals**. Please consult the Pultex® Fiber Reinforced Polymer **SuperStructural** Profiles Angles Material Properties*

Metric Version

1500 Series - Thermoset Polyester – Olive Green

1525 Series - Thermoset Polyester Class 1 FR – Slate Gray (Dark Gray)

1625 Series - Thermoset Vinyl Ester Class 1 FR – Beige

The following data was derived from ASTM coupon and full section testing. The results are average values based on random sampling and testing of production lots. Composite materials are not homogeneous; and therefore, the location of the coupon extraction can cause variances in the coupon test results. Creative Pultrusions publishes an average value of random samples from production lots.

Property (coupon values)	ASTM Test	Units	1500/1525 Series	1625 Series
Mechanical				
Tensile Strength (LW)	D638	MPa	226.9	257.8
Tensile Strength (CW)	D638	MPa	51.6	55.0
Tensile Modulus (LW)	D638	GPa	17.2	20.6
Tensile Modulus (CW)	D638	GPa	5.5	6.9
Compressive Strength (LW)	D695	MPa	226.9	257.8
Compressive Strength (CW)	D695	MPa	113.4	137.5
Compressive Modulus (LW)	D695	GPa	20.6	20.6
Compressive Modulus (CW)	D695	GPa	6.9	8.2
Flexural Strength (LW)	D790	MPa	226.9	257.8
Flexural Strength (CW)	D790	MPa	75.6	85.9
Flexural Modulus (LW)	D790	GPa	11.0	13.7
Flexural Modulus (CW)	D790	GPa	5.5	6.9
Modulus of Elasticity	Full Section ²	GPa	19.2-22.0	19.2-22.0
(Channels)	Full Section ²	GPa	19.2	19.2
(Square and Rectangular Tubes)	Full Section ²	GPa	22.0	22.0
Shear Modulus	Full Section ²	GPa	2.9	2.9
Interlaminar Shear (LW) ³	D2344	MPa	31.0	31.0
Shear Strength By Punch (PF)	D732	MPa	37.8	41.2
Notched Izod Impact (LW)	D256	J/m	1494.6	1601.4
Notched Izod Impact (CW)	D256	J/m	213.5	266.9
Maximum Bearing Strength (LW)	D953	MPa	206.2	206.2
Maximum Bearing Strength (CW)	D953	MPa	123.7	123.7
Poisson's Ratio (LW)	D3039	mm/mm	0.35	0.35
Poisson's Ratio (CW)	D3039	mm/mm	0.15	0.15
In-Plane Shear (LW)	Modified D2344 ⁴	MPa	48.3	48.3

LW = lengthwise

CW = crosswise

PF = perpendicular to laminate face

Additional properties located on page back



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(cont'd)

Property (coupon values)	ASTM Test	Units	1500/1525 Series	1625 Series
Physical				
Barcol Hardness ¹	D2583		45	45
Water Absorption	D570	% Max	0.6	0.6
Density	D792	Mg/m ³	1.66-1.93	1.66-1.93
Specific Gravity	D792		1.66-1.93	1.66-1.93
Coefficient of Thermal Expansion (LW)	D696	10 ⁻⁶ K ⁻¹	8	8
Thermal Conductivity (PF)	C177	W/mK	0.58	0.58
Electrical				
Arc Resistance (LW)	D495	seconds	120	120
Dielectric Strength (LW)	D149	kV/mm	1.58	1.58
Dielectric Strength (PF)	D149	kV/mm	7.9	7.9
Dielectric Constant (PF)	D150	@60Hz	5.2	5.2

¹ Pultex® uses a synthetic surface veil that reduces the Barcol Hardness, but does not reflect lack of cure.

² Full section testing based on a 3-point bend with simply supported end conditions (Reference The New and Improved Pultex® Pultrusion Global Design Manual, Appendix B, for details).

³ Tested on a 3:1, span to depth ratio.

⁴ Follow ASTM D2344, but rotate coupon 90° (cut section of coupon length faces up).

⁵ In-plane Shear (CW) values for square tubes and rectangular tubes = 17.2 MPa; angles = 26.2 MPa

Property	ASTM Test	Value	Value
		1525	1625
Flammability Classification	UL94	(VO)	(VO)
Tunnel Test	ASTM E-84	25 Max	25 Max
Flammability Extinguishing	ASTM D635	Self extinguishing	Self extinguishing
NBS Smoke Chamber	ASTM E662	650	650

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