

MATERIAL PROPERTIES

Pultex® Fiber Reinforced Polymer **SuperStructural** Profiles Wide Flange Sections and I-Sections 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

Pultex® **SuperStructural** Profiles are identified with veil-imprinted symbols.

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
Full Section				
Modulus of Elasticity (12.7mm thick profiles)	Full Section ²	GPa	26.8-27.6	26.8-27.6
(6.4mm & 9.5mm thick profiles)	Full Section ²	GPa	26.8	26.8
Shear Modulus (Modulus of Rigidity)	Full Section ²	GPa	27.6	27.6
Flexural Stress	Full Section ²	GPa	3.4	3.4
	Full Section ²	MPa	226.9	226.9
Flange Section - Mechanical				
Tensile Strength (LW)	D638	MPa	275.0	317.3
Tensile Modulus (LW)	D638	GPa	28.6	28.6
Compressive Strength (LW)	D695	MPa	315.7	362.1
Compressive Strength (CW)	D695	MPa	122.4	140.2
Compressive Modulus (LW)	D695	GPa	26.5	26.5
Compressive Modulus (CW)	D695	GPa	13.1	13.1
Flexural Strength (LW)	D790	MPa	295.2	339.3
Flexural Modulus (LW)	D790	GPa	13.7	13.7
Interlaminar Shear (LW) ⁵	D2344	MPa	27.5	30.9
Shear Strength By Punch (PF)	D732	MPa	37.8	41.2
Notched Izod Impact (LW)	D256	J/m	1,494.6	1,708.1
Notched Izod Impact (CW)	D256	J/m	1,121.0	1,281.1
Maximum Bearing Strength (LW)	D953	MPa	226.9	261.2
Maximum Bearing Strength (CW) ³	D953	MPa	158.1	182.2
Poisson's Ratio (LW)	D3039	mm/mm	0.35	0.35
Poisson's Ratio (CW)	D3039	mm/mm	0.12	0.12
Web Section – Mechanical				
Tensile Strength (LW)	D638	MPa	208.3	240.6
Tensile Strength (CW)	D638	MPa	72.2	82.5
Tensile Modulus (LW)	D638	GPa	21.3	21.3
Tensile Modulus (CW)	D638	GPa	9.6	9.6
Compressive Strength (LW)	D695	MPa	257.8	296.5
Compressive Strength (CW)	D695	MPa	97.6	112.3

Additional properties located on back

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MATERIAL PROPERTIES

Pultex[®] Fiber Reinforced Polymer **SuperStructural** Profiles Wide Flange Sections and I-Sections

Metric Version

(cont'd)

Property (coupon values)	ASTM Test	Units	1500/1525	
			Series	1625 Series
Web Section - Mechanical				
Compressive Modulus (LW)	D695	GPa	19.2	19.2
Compressive Modulus (CW)	D695	GPa	13.1	13.1
Flexural Strength (LW)	D790	MPa	297.8	342.4
Flexural Strength (CW)	D790	MPa	119.3	136.8
Flexural Modulus (LW)	D790	GPa	13.1	13.1
Flexural Modulus (CW)	D790	GPa	12.0	12.0
Interlaminar Shear (LW) ⁵	D2344	MPa	23.4	26.8
Shear Strength By Punch (PF)	D732	MPa	37.8	41.2
Notched Izod Impact (LW)	D256	J/m	2,028.4	2,295.3
Notched Izod Impact (CW)	D256	J/m	1,014.2	1,174.3
Maximum Bearing Strength (LW)	D953	MPa	233.6	268.1
Maximum Bearing Strength (CW) ³	D953	MPa	206.2	237.2
Poisson's Ratio (LW)	D3039	mm/mm	0.35	0.35
Poisson's Ratio (CW)	D3039	mm/mm	0.12	0.12
In-plane Shear (LW)	Modified D2344 ⁴	MPa	48.3	48.3
Physical				
Barcol Hardness ¹	D2583		33	39
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

LW = lengthwise

CW = crosswise

PF = perpendicular to laminate face

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

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

³Crosswise bearing strength of the Web sections of 1/4" profiles = 20,500 psi.

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

⁵Tested on a 3:1, span to depth ratio.

Property	ASTM Test	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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