

# Properties

	ASTM TEST METHOD	UNITS/VALUE	SERIES 500/525 SHAPES	SERIES 625 SHAPES	SERIES 500/525 PLATE ④			SERIES 625 PLATE ④		
					1/8" 3.175mm	3/16" - 3/8" 4.76-9.5mm	1/2" - 1" 9.5-25.4mm	1/8" 3.175mm	3/16" - 1/4" 4.76-6.35mm	3/8" - 1" 9.5-25.4mm
<b>MECHANICAL</b>										
Tensile Stress, LW	D638	psi N/mm <sup>2</sup>	30,000 207	30,000 207	20,000 138	20,000 138	20,000 138	20,000 138	20,000 138	20,000 138
Tensile Stress, CW	D638	psi N/mm <sup>2</sup>	7,000 48.3	7,000 48.3	7,500 51.7	10,000 68.9	10,000 68.9	7,500 51.7	10,000 68.9	10,000 68.9
Tensile Modulus, LW	D638	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	2.5 17.2	2.6 17.9	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4
Tensile Modulus, CW	D638	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	0.8 5.52	0.8 5.52	0.7 4.83	0.9 6.21	1.0 9.65	1.0 6.89	1.0 6.89	1.0 9.65
Compressive Stress, LW	D695	psi N/mm <sup>2</sup>	30,000 207	30,000 207	24,000 165	24,000 165	24,000 165	24,000 165	24,000 165	24,000 165
Compressive Stress, CW	D695	psi N/mm <sup>2</sup>	15,000 103	16,000 110	15,500 107	16,500 114	20,000 138	16,500 114	17,500 121	17,500 121
Compressive Modulus, LW	D695	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	2.5 17.2	2.6 17.9	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4	1.8 12.4
Compressive Modulus, CW	D695	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	0.8 5.52	0.8 5.52	0.7 4.83	0.9 6.21	1.0 9.65	1.0 6.89	1.0 6.89	1.0 9.65
Flexural Stress, LW	D790	psi N/mm <sup>2</sup>	30,000 207	30,000 207	24,000 165	24,000 165	24,000 165	24,000 165	24,000 165	24,000 165
Flexural Stress, CW	D790	psi N/mm <sup>2</sup>	10,000 68.9	10,000 68.9	10,000 68.9	13,000 89.6	17,000 117	10,000 68.9	13,000 89.6	17,000 117
Flexural Modulus, LW	D790	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	1.6 11.0	1.6 11.0	1.1 7.58	1.1 7.58	1.4 6.65	1.1 7.58	1.1 7.58	1.4 6.65
Flexural Modulus, CW	D790	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	0.8 5.52	0.8 5.52	0.8 5.52	0.8 5.52	1.3 8.95	0.8 5.52	0.8 5.52	1.3 8.95
Modulus of Elasticity ①	full section	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	2.6 17.9	2.8 19.3						
Modulus of Elasticity: W & I shapes > 4" W & I shapes > 102mm	full section	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	2.5 17.2	2.5 17.2						
Shear Modulus, LW ② ⑧	—	10 <sup>6</sup> psi 10 <sup>9</sup> N/mm <sup>2</sup>	0.425 2.93	0.425 2.93						
Short Beam Shear, LW ⑦ ⑧	D2344	psi N/mm <sup>2</sup>	4,500 31.0	4,500 31.0						
Bearing Stress, LW D953		psi N/mm <sup>2</sup>	30,000 207	30,000 207	32,000 220.6	32,000 221	32,000 221	32,000 221	32,000 221	32,000 221
Poisson's Ratio, LW ⑧	D3039	in/in mm/mm	0.33 .330	0.33 .330	0.31 .310	0.31 .310	0.31 .310	0.32 .320	0.32 .320	0.32 .320
Notched Izod Impact, LW	D256	ft-lbs/in J/mm	25 1.33	25 1.33	15 .801	10 .533	10 .533	15 .801	10 .533	10 .533
Notched Izod Impact, CW	D256	ft-lbs/in J/mm	4 .214	4 .214	5 .267	5 .267	5 .267	5 .267	5 .267	5 .267
<b>PHYSICAL</b>										
Barcol Hardness	D2583	—	45 ③	45 ③	40	40	40	40	40	40
24 hr Water Absorption ⑥	D570	% Max	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Density	D792	lbs/in <sup>3</sup> 10 <sup>-3</sup> g/mm <sup>3</sup>	.062-.070 1.72-1.94	.062-.070 1.72-1.94	.060-.068 1.66-1.88	.060-.068 1.66-1.88	.060-.068 1.66-1.88	.060-.068 1.66-1.88	.060-.068 1.66-1.88	.060-.068 1.66-1.88
Coefficient of Thermal Expansion, LW ⑧	D696	10 <sup>-6</sup> in/in/°F 10 <sup>-6</sup> mm/mm/°C	7 1.2	7 1.2	8 1.45	8 1.45	8 1.45	8 1.45	8 1.45	8 1.45
Thermal Conductivity ⑧	C177	BTU-in/ft <sup>2</sup> Hr/°F w/(m <sup>2</sup> ·K)	4 .58	4 .58						

All values are minimum ultimate properties from coupon tests except as noted.

- ① This value is determined from full section simple beam bending of EXTREN® structural shapes.
- ② The Shear Modulus value has been determined from tests with full sections of EXTREN® structural shapes. (See Strongwell's *Design Manual* for further information.)
- ③ Value would be 50 if the surfacing veil were not there.
- ④ Plate compressive stress/modulus measured edgewise and flexural stress/modulus measured flatwise.
- ⑤ Values apply to Series 525 and 625.
- ⑥ Measured as a percentage maximum by weight.
- ⑦ Span to depth ratio of 3:1; EXTREN® angles will have a minimum value of 4000 psi and the I/W shapes are tested in the web.
- ⑧ Typical values because these are shape and composite dependent tests.

LW — Lengthwise      PF — Perpendicular to laminate face  
 CW — Crosswise      N.T. — Not Tested