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- Supplier** - StonCor Africa (Pty) Ltd
- Chemical Duty** - Acidic and low concentration Alkali conditions
- Resin System** - StonCor ISOFR – The resin formulation is designed for industrial and chemical processing applications where corrosion resistance is important.
- Manufacture Method** - Pultruded moulded, with a 35% resin to 65% fibreglass ratio.
- Fire Retardancy** - Complies with ASTM E-84 Flame Spread rating of 25 or less.
- UV Stable** - Yes
- Colour** - Grey

Pultruded structural shapes are to have the minimum longitudinal mechanical properties listed below:

Property	ASTM Method	Value	Units
Tensile Strength	D-638	30,000 (206)	psi (MPa)
Tensile Modulus	D-638	2.5 x 10 ⁶ (17.2)	psi (GPa)
Flexural Strength	D-790	30,000 (206)	psi (MPa)
Flexural Modulus	D-790	1.8 x 10 ⁶ (12.4)	psi (GPa)
Flexural Modulus (Full Section)	N/A	2.8 x 10 ⁶ (19.3)	psi (GPa)
Short Beam Shear (Transverse)	D-2344	4,500 (31)	psi (MPa)
Shear Modulus (Transverse)	N/A	4.5 x 10 ⁵ (3.1)	psi (GPa)
Coefficient of Thermal Expansion	D-696	4.4 x 10 ⁻⁶ (8.0 x 10 ⁻⁶)	in/in/°F (cm/cm/°C)
Flame Spread	E-84	25 or less	N/A

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Deflection of FRP Beam

100 x 30 x 6 CHANNEL

Laterally Supported

SPAN - m	MAXIMUM LOAD		DEFLECTION				
			L/100	L/150	L/180	L/240	L/360
1.00	10005	F _v	—	8486	7070	5299	3528
1.25	7398	F _b	7055	4699	3913	2932	1950
1.50	5137	F _b	4270	2842	2366	1771	1176
1.75	3774	F _b	2763	1837	1529	1143	758
2.00	2889	F _b	1882	1250	1040	776	513
2.25	2282	F _b	1336	886	736	549	361
2.50	1848	F _b	980	679	538	400	262
2.75	1527	F _b	738	488	404	300	195
3.00	1283	F _b	569	375	310	229	—

The part weight has been deducted in the above table.

150 x 40 x 6 CHANNEL

Laterally Supported

SPAN - m	MAXIMUM LOAD		DEFLECTION				
			L/100	L/150	L/180	L/240	L/360
1.50	12227	F _v	---	9882	8231	6167	4103
1.75	9767	F _b	---	6568	5470	4096	2722
2.00	7477	F _b	6854	4561	3797	2841	1886
2.25	5907	F _b	4937	3283	2731	2042	1353
2.50	4784	F _b	3663	2434	2024	1512	1000
2.75	3954	F _b	2787	1850	1537	1147	756
3.00	3322	F _b	2165	1435	1192	888	584
3.25	2830	F _b	1713	1134	941	699	458
3.50	2440	F _b	1377	909	754	559	364
3.75	2125	F _b	1121	739	612	453	293
4.00	1867	F _b	924	608	502	370	239
4.25	1654	F _b	769	505	416	306	196
4.50	1475	F _b	646	423	348	255	162

The part weight has been deducted in the above table.

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Deflection of FRP Beams

203 x 56 x 9.5 CHANNEL

Laterally Supported

SPAN - m	MAXIMUM LOAD		DEFLECTION				
			L/100	L/150	L/180	L/240	L/360
1.50	24179	F _v	---	---	---	18752	12486
1.75	20724	F _v	---	20598	17157	12856	8555
2.00	18133	F _v	---	14641	12193	9133	6073
2.25	15580	F _b	---	10726	8931	6686	4442
2.50	12619	F _b	12120	8064	6712	5022	3332
2.75	10428	F _b	9321	6198	5157	3856	2555
3.00	8762	F _b	7308	4856	4039	3017	1996
3.25	7465	F _b	5826	3868	3216	2400	1584
3.50	6436	F _b	4713	3126	2597	1936	1275
3.75	5606	F _b	3861	2558	2124	1581	1038
4.00	4926	F _b	3200	2117	1757	1306	855
4.25	4363	F _b	2678	1770	1467	1088	710
4.50	3891	F _b	2262	1492	1236	915	594
4.75	3492	F _b	1926	1268	1049	775	501
5.00	3151	F _b	1652	1085	897	661	425
5.25	2858	F _b	1426	935	771	566	362
5.50	2603	F _b	1238	809	667	488	310
5.75	2382	F _b	1081	705	579	423	266
6.00	2187	F _b	948	616	506	367	229

The part weight has been deducted in the above table.

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Deflection of FRP Beams

102 X 102 X 6.4 SQUARE TUBE

Laterally Supported

SPAN - m	MAXIMUM LOAD		DEFLECTION				
			L/100	L/150	L/180	L/240	L/360
1.25	18674	F _v	—	14850	12368	9266	6163
1.50	15561	F _v	13724	9135	7606	5694	3782
1.75	12704	F _b	8980	5973	4970	3717	2464
2.00	9726	F _b	6166	4097	3407	2545	1682
2.25	7684	F _b	4401	2920	2426	1809	1192
2.50	6223	F _b	3241	2147	1782	1326	870
2.75	5142	F _b	2450	1619	1343	996	650
3.00	4320	F _b	1893	1248	1033	764	495
3.25	3680	F _b	1489	979	809	596	383
3.50	3173	F _b	1190	779	642	471	300
3.75	2763	F _b	964	628	517	377	237
4.00	2428	F _b	789	512	420	304	189
4.25	2150	F _b	653	421	344	248	151
4.50	1918	F _b	545	349	284	203	—

The part weight has been deducted in the above table.


Axial load of frp columns

75 x 75 x 6 ANGLE

Allowable Concentric Axial Stresses and Loads

A = 916 mm² r = 15 mm b/t = 12

True Length (m)	F _a (MPa)	P _a (kN)
0.25	25.02	22.92
0.50	19.01	17.41
0.75	13.78	12.62
1.00	11.23	10.29
1.25	9.42	8.63
1.50	8.04	7.36
1.75	7.20	6.59
2.00	6.53	5.98
2.25	5.94	5.44
2.50	5.47	5.01
2.75	4.88	4.47

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Axial load of frp columns

75 x 75 x 9 ANGLE

Allowable Concentric Axial Stresses and Loads

A = 1348 mm² r = 15 mm b/t = 8

True Length (m)	F _a (MPa)	P _a (kN)
0.25	43.64	45.31
0.50	24.67	25.62
0.75	17.88	18.57
1.00	14.58	15.14
1.25	12.23	12.70
1.50	10.43	10.83
1.75	9.34	9.70
2.00	8.48	8.80
2.25	7.70	8.00
2.50	7.10	7.38
2.75	6.34	6.58

50 X 50 X 6 ANGLE

Allowable Concentric Axial Stresses and Loads

A = 594 mm² r = 10 mm b/t = 8

True Length (m)	F _a (MPa)	P _a (kN)
0.25	24.52	14.55
0.50	13.60	8.07
0.75	9.94	5.90
1.00	7.86	4.67
1.25	6.70	3.97
1.50	5.82	3.45
1.75	4.92	2.92