

TECHNICAL DATA

A PROPERTY	SPECIFICATIONS
Type of Fibre	E-CR Glass
Type of Resin	Epoxy/Vinyl Ester
Production Process	Pull Winding Pultrusion
Bar Geometry	Indented
Surface Treatment	Optional if Required
Coefficient of Longitudinal Thermal Expansion	Not Available
Coefficient of Transverse Thermal Expansion	Not Available
Colour	Light Brown

			Values for GFRP Rebar Dia in mm						
B. PROPERTY	Test Method	Unit	6	8	10	12	16	20	25
Mean Ultimate Tensile Strength	ASTM D7205	Mpa	1050						
Standard Deviation of Ultimate Tensile Strength		Mpa	Not Available						
Number of Samples for Standard Deviation		Count	Not Available						
Mean Transverse Shear Strength		Mpa	140	140	140	140	140	140	140
Standard Deviation of Transverse Shear Strength		Mpa	Not Available						
Number of Samples for Standard Deviation		Count	Not Available						
Mean Bond Strength		Mpa	7.9	7.9	7.9	7.9	7.9	7.9	7.9
Standard Deviation of bond strength		Mpa	Not Available						
Number of Samples for Standard Deviation`		Count	Not Available						
C. PROPERTY	Test Method	Unit							
Nominal Cross Section Area	ASTM D792	sq mm	32	55	73	113	199	314	510
Unit Weight/Length	ASTM D792	kg/m	0.056	0.1	0.155	0.225	0.400	0.620	0.980
Nominal Ultimate Tensile Force	ASTM D7205	KN	27	44	59	85	131	189	297
Nominal Ultimate Tensile strength	ASTM D7205	Mpa	844	830	808	752	658	602	582
Nominal Ultimate tensile strain	ASTM D7205	%	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Nominal Ultimate transverse shear strength	ASTM D7617	Mpa	140	140	140	140	140	140	140
Nominal Tensile Modulus of Elasticity	ASTM D7205	Mpa	65000						
Nominal Bond Strength	ASTM D7913	Mpa	7.9	7.9	7.9	7.9	7.9	7.9	7.9
D. PROPERTY	Test Method	Unit							
Fibre Mass Content	ASTM D2584		75	75	75	75	75	75	75
Mean Glass Transition Tempreature	ASTM E1356		102'	102'	102'	102'	102'	102'	102'
Degree of Cure	ASTM E2160		97'	97'	97'	97'	97'	97'	97'
Moisture Absorption in 24 Hours at 50 °C	ASTM D570		\$0.25%	\$0.25%	\$0.25%	\$0.25%	\$0.25%	\$0.25%	\$0.25%
Moisture Absorption to saturation at 50°C	ASTM D570		\$1.0%	\$1.0%	\$1.0%	\$1.0%	\$1.0%	\$1.0%	\$1.0%
Total Enthalpy of Polymerisation	ASTM E2160		Not Available						
Alkaline Resistance Tensile load retention	ASTM D7705-A		\$80%	\$80%	\$80%	\$80%	\$80%	\$80%	\$80%

Disclaimer: \$ Reasonable care has been taken in the preparation of this information, but the manufacturer makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. All information mentioned in this document is believed to be approximate & is given without acceptance of liability. All values have been generated from limited data. The values listed for Diameter, weight, Area and Tensile strengths are approximate values, unless otherwise noted. Users should make their own assessment of the suitability of any product for the purpose required. The following factors are unrelated to GFRP Rebar by ABHUVA and may affect performance of the structure or flatwork soil/ support type and compaction, loadtype and magnitude, engineering design, installation or implementation, concrete strength and thickness, joint layout and ground slope.

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Titanbar 46 (ASTM D7957, ACI 440.6, IRC 137:2022)

Titanbars 46 (ASTM D7957, ACI 440.6, IRC 137:2022)									
	Units	#2 (6mm/ 0.23in)	#3 (10mm/ 0.39in)	#4 (13mm/ 0.51in)	#5 (16mm/ 0.62in)	#6 (19mm/ 0.74in)	#7 (22mm/ 0.86in)	#8 (25mm/ 0.98in)	#10 (32mm/ 1.25in)
Guaranteed tensile force	kN	27	59	96	130	182	241	297	437
	kip	6.1	13.2	21.6	29.1	40.9	54.1	66.8	98.2
Tensile modulus	GPa		46						
	ksi		6670						
Guaranteed transverse shear capacity	MPa		150						
	ksi		23.2						
Primary Materials		Epoxy Backboned Vinylester and Corrosion Resistant E-CR Glass							
Weight	g/m	97	144	315	415	589	780	1030	1680
	lb/ft	0.07	0.096	0.211	0.278	0.395	0.524	0.692	1.128
Nominal cross-sectional area	mm ²	32	71	129	199	284	387	510	819
	in ²	0.049	0.11	0.20	0.31	0.44	0.60	0.79	1.27
Outer diameter (including ribs)	mm	8.2	10.0	14.0	16.0	19.0	21.8	25.0	31.4
	in	0.250	0.375	0.500	0.625	0.750	0.875	1.000	1.270

Please contact our team for information on the material properties, shape availability and dimensional limitations of bent bars.

Titanbars 60 (CSA Grade III), (ASTM D7957, ACI 440.6, IRC 137:2022)

	Units	#2 (6mm)	#3 (10mm)	#4 (13mm)	#5 (15/16mm)	#6 (19/20mm)	#7 (22mm)	#8 (25mm)	#9 (30mm)	#10 (32mm)
Guaranteed tensile force	kN	27	71	129	199	284	387	510	600	735
	kip	7.2	16	29	44	64	87	115	134.9	165.2
Tensile modulus	GPa			60						
	ksi			8700						
Guaranteed transverse shear capacity	MPa			180						
	ksi			26.1						
Primary Materials				Epoxy Backboned Vinylester and Corrosion Resistant E-CR Glass						
Weight	g/m	97	185	315	476	702	960	1252	1575	2050
	lb/ft	0.07	0.12	0.21	0.32	0.47	0.64	0.84	1.06	1.37
Nominal cross-sectional area	mm ²	32	71	129	199	284	387	510	645	819
	in ²	0.049	0.110	0.200	0.310	0.440	0.600	0.790	1.000	1.270
Outer diameter (including ribs)	mm	8.2	10.8	14.0	17.2	20.6	24.1	27.4	30.8	35.0
	in	0.315	0.425	0.551	0.677	0.807	0.949	1.087	1.213	1.378

Direct Comparisons: Steel And Titanbars

Material Properties	Units	Titanbars	Stainless Steel (ASTM A955)	Steel (ASTM A615)
Tensile Strength	MPa	800 - 1100	420	420
	ksi	116 - 159	60	60
Tensile Modulus	GPa	46 - 60	200	200
	KSI	6675 - 8700	29000	29000
Bond Strength	MPa	10	10	10
	PSI	1450	1450	1450
Thermal Conductivity	W/ (m·°C)	< 1 (1)	16	54
	BTU/(hr·ft·°F)	< 0.6 ⁽¹⁾	10	32
Electrical Resistivity	Ω·m	> 200 x 10 ¹⁰	1 x 10 ⁻⁴	1.5 x 10
	Ω·in	> 8 x 10 ¹³	4 x 10 ⁻⁵	6 x 10
Unit Weight	kg/m ³	2100	7800 - 8000	7850
	lb/ft ³	130	485 - 500	490

Approximate value