FIBERGLASS REBAR
CERTIFIED QUALIFICATION TEST REPORT (ASTM D7957)

Physical and Mechanical Properties

Meets ASTM D7957 material standards and requirements

ASTM Ref.	Property	Certified Results Glass FRP Rebar				
		SI	**M10**	**M13**	**M16**	**M19**
ASTM D7957	Bar Designation No.	**US**	**#3**	**#4**	**#5**	**#6**
ASTM E1356	Mean Glass Transition Temperature (DSC)	°C	106	104	105	105
		°F	223	219	221	220
ASTM E2160	Mean Degree of Cure	%	>98	>97	>97	>97
ASTM D7205	Guaranteed Ultimate Tensile Force	kN	78	119	196	219
		kip	17.9	26.8	44.1	49.3
	Nominal Ultimate Tensile Strength	MPa	1210	1090	1120	970
		ksi	176	159	163	141
	Nominal Mean Tensile Modulus of Elasticity	GPa	57.1	56.3	58.7	55.5
		Msi	8.3	8.2	8.5	8.1
	Nominal Mean Ultimate Tensile Strain	%	2.1	1.9	1.9	1.4
	Mean Measured Cross-Sectional Area	mm^2	94	159	249	346
		$inch^2$	0.146	0.247	0.386	0.536
ASTM D7913	Guaranteed Bond Strength	MPa	9.9	13.7	10.0	7.9
		ksi	1.4	2.0	1.4	1.1
ASTM D7617	Guaranteed Transverse Shear Strength	MPa	202	189	178	165
		ksi	29.3	27.3	25.8	23.9
ASTM D2584	Fiber Mass Content	%	85	85	86	85
ASTM D570	Mean Moisture Absorption to Saturation at 50°C	%	0.54	0.56	0.73	0.72
	Moisture Absorption in 24 hrs. at 50°C		0.09	0.10	0.14	0.11

Why Fiberglass Rebar?

Corrosion has a huge environmental and economic impact on concrete structures. Rust and corrosion of internal reinforcing steel is one of the main causes of failure of concrete structures. Inevitable concrete will crack, creating a direct avenue for chlorides to begin oxidizing the steel rebar. Fiberglass Rebar is a proven and successful alternative reinforcement that will give structures a longer service

Handling and Placement

Please follow guidelines in ACI440.5-08 “Specification for Construction with FRP Bars”.
Field handling and placement is the same as for epoxy or galvanized steel bars. To cut fiberglass rebar, use appropriate tools and do not use shear force. FRP bars can be cut using a fine blade saw, grinder, carborundum or diamond blade. Coating and sealing of exposed ends of FRP bars is not necessary. Do not weld FRP bars. Use overlap of 40 times diameter of the bar. To tie FRP bar, it is recommended to use nylon tie wire or plastic coated wire, but regular steel tie wire can be used. You may also use heavy-duty zip tie. Note: In precast applications, the “floating” of FRP bars during vibration is possible. Care should be taken to adequately secure FRP in the formwork.

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