Deformed GFRP Reinforcement Bar Sustainable, rust-proof alternative to traditional steel reinforcement

Deformed glass fiber reinforced polymer (GFRP) Reinforcement Bar is 1/4th the weight of steel resulting in a 75% CO₂ footprint reduction. All grade 3 (structural) GFRP reinformcement bar is 3 times stronger than steel which equates to enhanced jobsite safety, with significant savings in transportation and handling costs.

Deformed GFRP Reinforcement Bar is non-corrosive and non-conductive which makes it suited for any environmental exposure. Deformed GFRP Reinforcement Bar does not conduct electricity, is non-magnetic, does not interfere with RF signals, and is UV Stable.



Maximum Strength Deformed Grade III GFRP Reinforcment Bar Specifications			
Guaranteed Tensile Strength	> 145 ksi	> 1000 MPa	
Young's Modulus, E	> 8702 ksi	> 60GPa	
Ultimate Strain, ε _{fu}	> 1.7%	> 1.7%	
Transverse Shear Strength, τ	> 31.9 ksi	> 220 MPa	
Bond Strength to Concrete	2.9 ksi minimum	20 MPa minimum	
Strength of Bend (Straight Portion)	> 130 ksi	> 900 MPa	
Strength of Bend (Bend Portion w/ minimum Radius Bend: 4x Diameter of Bar	> 87 ksi	> 600 MPa	
Young's Modulus, ɛ (Bend Bar)	7250 ksi	50 GPa	
Glass Transition Temperature, T _g ° 257° F		125° C	



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Deformed GFRP Grade III Reinforcement Bar Specifications						
Part No.	Description	Use / Replace	Size	Weight	Mean Cross Sectional Area	Minimum Tensile Load
SBMSGFRP3	#3x20' Deformed Grade III GFRP Rebar	Structural / #3	3/8"	0.147 lb/ft	0.11 in ²	16,636 lbf
			10mm	0.22 kg/m	71 mm ²	73.4 kN
SBMSGFRP4 #4x20' D GFRP R	#4x20' Deformed Grade III	Ctm. stungl / #4	1/2"	0.185 lb/ft	0.2 in ²	29,675 lbf
	GFRP Rebar	Structural / #4	13mm	0.275 kg/m	129 mm ²	132 kN
SBMSGFRP5 #5	#5x20' Deformed Grade III GFRP Rebar	Structural / #5	5/8"	0.32 lb/ft	0.31 in ²	45,411 lbf
			16mm	0.476 kg/m	200 mm ²	202 kN
SPMSCEPPS	#6x20' Deformed Grade III GFRP Rebar	Structural / #6	3/4"	0.45 lb/ft	0.44 in ²	64,100 lbf
SBMSGFRP0			20mm	0.7 kg/m	284 mm ²	285 kN
SBMSGFRP7 #7x20' Deformed Grade III GFRP Rebar	#7x20' Deformed Grade III		7/8"	0.53 lb/ft	0.60 in ²	87,190 lbf
	Structural / #7	22mm	0.79 kg/m	388 mm ²	388 kN	
SBMSGFRP8 #8x20 GFRP	#8x20' Deformed Grade III GFRP Rebar	Structural / #8	1"	0.8 lb/ft	0.79 in ²	112,180 lbf
			25mm	1.19 kg/m	509 mm ²	499 kN
SBMSGFRP9	#9x20' Deformed Grade III GFRP Rebar	Structural / #9	1-1/8"	1.13 lb/ft	1.0 in ²	144,770 lbf
			29mm	1.68 kg/m	644 mm ²	644 kN
SBMSGFRP10	#10x20' Deformed Grade III GFRP Rebar	Structural / #10	1-1/4"	1.25 lb/ft	1.23 in ²	177,940 lbf
			32mm	1.86 kg/m	792 mm ²	792 kN

Deformed GFRP Grade I & Grade II Reinforcement Bar Specifications						
Part No.	Description	Use / Replace	Size	Weight	Mean Cross Sectional Area	Minimum Tensile Load
SBGFRP3MAX #3x20' 3MAX Defe Grade I GFRP Re	#3x20' 3MAX Deformed	Flatwork / W1.4xW1.4 @ 18"-24" OC	3/8"	0.15 lb/ft	0.11 in ²	15,950 lbf
	Grade I GFRP Rebar		9.5mm	0.22 kg/m	71 mm ²	70.9 kN

Design Aid for Slab on Ground with GFRP for Temperature Zone Subzero to +212 F			
Slab Thickness	GFRP Required in each Direction	Notes	
4 inches	Mid-strip: 3MAX Bar @ 14" OC Edge-strip: 3MAX Bar @ 18" OC	Sawcut control joints at 13ft to 16ft spacing maximum, dep of sawcut shall be 25% of slab thickness.	
6 inches	Mid-strip: 3MAX Bar @ 14" OC Edge-strip: 3MAX Bar @ 18" OC	spacing accordingly based on tensile capacity of the GFRP, capacity between the two is 26%, therefore spacing can be increased by 26%.	
6 inches (12 kPa loads)	Mid-strip: 3MAX Bar @ 14" OC Edge-strip: 3MAX @ 18" OC	Expansion joints shall be at maximum spacing of 50ft. Mid-strip is 50% of width of panel between joints. Edge-strip is 25% of width of panel along all joints.	
8 inches	Mid-strip: 3MAX Bar @ 14" OC Edge-strip: 3MAX Bar @ 18" OC	All #3 Horizontal Bar rebars are placed at mid-depth of slab unless otherwise noted. Cover to additional top rebars shall be 1" to 1-1/2" minimum.	

Applications

Maximum Strength Deformed GFRP Reinforcement Bar is accepted to be used anywhere that steel rebar is used. It is especially necessary to use in coastal areas, near high voltage currents and near magnetic fields. Some examples would include dams, buildings, roads and bridges, pools and patios, piers, and parking garages.

Project Examples

Bridge



Insulated Concrete Form





Infrastructure Rehabilitation



Cold Temperature Storage



Seawall





Bridge



Non-Structural



The Only Authentic Integrally Ribbed GFRP

The specially engineered and designed Integral Rib mechanically locks the Maximum Strength Deformed GFRP Reinforcement Bar into the concrete. Unlike every other rebar (steel or GFRP), the only way to pull it out of the concrete is to break the concrete itself.

There are many benefits to the Integral Rib. Not only are there less cracks with smaller crack widths, you can also avoid 50% of traditional bent bar applications by using straight lengths of Maximum Strength Deformed GFRP Reinforcement Bar. These applications include but are not limited to joining slabs, joining walls to floors, corners, anchoring and less embediment lengths.





Products

Straight Bar

- Structural and non-structural rebar
- Available in custom lengths (4ft 60ft)
- Diameters in stock: #3 #8
- Custom diameter up to 2-1/8"



Compliance

USA:

- ASTM D7957/D7957M-17
- ACI 440.1R-15 • ACI 440.3R-12
- ACI 440.3R-12 • ACI 440.6-08 (R2017)
- ACI 440R-07
- AASHTO LRFD for GFRP-18
- ICC-ES AC454
- ICC-ES AC521
- Section 932-3 of Florida DOT

Bent Bar

- #3 #6, and #8 Structural bent rebar
- Custom shapes for any project



Canada:

- CAN/CSA S807-19
- CAN/CSA S806-12 (R2017)
- ·CAN/CSA S6-19
- MTO- 9.65.90
- SIMTReC Design Manual No. 3 (Version 2)
- SIMTRec Design Manual No. 5