

# Maximum Strength Deformed GFRP Reinforcement Bar

## Sustainable, rust-proof alternative to traditional steel reinforcement

Maximum Strength Deformed glass fiber reinforced polymer (GFRP) Reinforcement Bar is the only integrally ribbed or deformed maximum strength GFRP reinforcement bar.

This reinforcement bar is 1/4th the weight of steel, 1/10th the CO<sub>2</sub> footprint, and is 3 times stronger. This equates to enhanced jobsite safety, with significant savings in transportation and handling costs.

Maximum Strength Deformed GFRP Reinforcement Bar is non-corrosive and non-conductive which makes it suited for any environmental exposure.

Maximum Strength Deformed GFRP Reinforcement Bar does not conduct electricity, is non-magnetic, does not interfere with RF signals, and is UV Stable.



### Steel Corrosion

Structures using steel rebar in corrosive environments will begin to fail after 10 years. Corrosion costs the private and public sectors hundreds of billions of dollars in repairs and maintenance costs a year.

Maximum Strength Deformed GFRP Reinforcement Bar can save the current costs of corrosion and eliminate all failures due to corrosion because it will outlive the concrete it is reinforcing.

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**Maximum Strength Deformed GFRP Grade III Reinforcement Bar Specifications**

Part No.	Description	Size	Weight	Mean Cross Sectional Area	Minimum Tensile Load
SBMSGFRP2	#2x20' Max. Strength GFRP Rebar	1/4"	0.08 lb/ft	0.049 in <sup>2</sup>	7,419 lbf
		6mm	0.12 kg/m	32 mm <sup>2</sup>	33 kN
SBMSGFRP3	#3x20' Max. Strength GFRP Rebar	3/8"	0.15 lb/ft	0.11 in <sup>2</sup>	16,636 lbf
		10mm	0.22 kg/m	71 mm <sup>2</sup>	74 kN
SBMSGFRP4	#4x20' Max. Strength GFRP Rebar	1/2"	0.24 lb/ft	0.20 in <sup>2</sup>	29,675 lbf
		13mm	0.35 kg/m	132 mm <sup>2</sup>	132 kN
SBMSGFRP5	#5x20' Max. Strength GFRP Rebar	5/8"	0.34 lb/ft	0.31 in <sup>2</sup>	45,411 lbf
		16mm	0.5 kg/m	202 mm <sup>2</sup>	202 kN
SBMSGFRP6	#6x20' Max. Strength GFRP Rebar	3/4"	0.47 lb/ft	0.44 in <sup>2</sup>	64,070 lbf
		20mm	0.7 kg/m	285 mm <sup>2</sup>	285 kN
SBMSGFRP7	#7x20' Max. Strength GFRP Rebar	7/8"	0.60 lb/ft	0.60 in <sup>2</sup>	87,675 lbf
		22mm	0.9 kg/m	390 mm <sup>2</sup>	390 kN
SBMSGFRP8	#8x20' Max. Strength GFRP Rebar	1"	0.82 lb/ft	0.78 in <sup>2</sup>	112,180 lbf
		25mm	1.22 kg/m	507 mm <sup>2</sup>	507 kN
SBMSGFRP9	#9x20' Max. Strength GFRP Rebar	1-1/8"	0.94 lb/ft	1.0 in <sup>2</sup>	146,126 lbf
		29mm	1.4 kg/m	650 mm <sup>2</sup>	650 kN
SBMSGFRP10	#10x20' Max. Strength GFRP Rebar	1-1/4"	1.16 lb/ft	1.2 in <sup>2</sup>	184,118 lbf
		32mm	1.72 kg/m	819 mm <sup>2</sup>	819 kN
SBMSGFRP11	#11x20' Max. Strength GFRP Rebar	1-3/8"	1.45 lb/ft	1.55 in <sup>2</sup>	224,810 lbf
		36mm	2.15 kg/m	1,000 mm <sup>2</sup>	1,000 kN

**Maximum Strength Deformed Grade III GFRP Reinforcement Bar Specifications**

<b>Guaranteed Tensile Strength</b>	> 145 ksi	> 1000 MPa
<b>Young's Modulus, E</b>	> 8702 ksi	> 60GPa
<b>Ultimate Strain, <math>\epsilon_{fu}</math></b>	> 1.7%	> 1.7%
<b>Transverse Shear Strength, <math>\tau</math></b>	> 31.9 ksi	> 220 MPa
<b>Bond Strength to Concrete</b>	2.9 ksi minimum	20 MPa minimum
<b>Strength of Bend (Straight Portion)</b>	> 130 ksi	> 900 MPa
<b>Strength of Bend (Bend Portion w/ minimum Radius Bend: 4x Diameter of Bar)</b>	> 87 ksi	> 600 MPa
<b>Young's Modulus, E (Bend Bar)</b>	7250 ksi	50 GPa
<b>Glass Transition Temperature, <math>T_g^\circ</math></b>	257° F	125° C

## 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



### Cold Temperature Storage



### Seawall



### Freezer Slab



### Infrastructure Rehabilitation



### Bridge



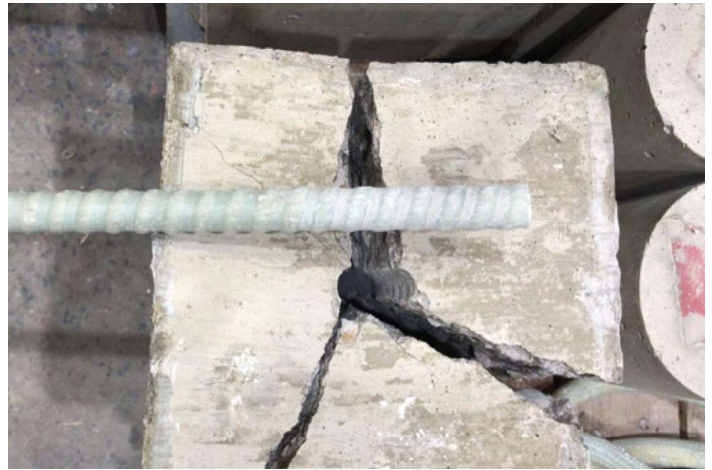
### Non-Structural



## 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.

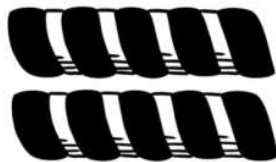
There are many benefits to the Integral Rib. Not only are there less cracks with smaller crack widths, you can also avoid 50% of traditional bent bar applications by using straight lengths of Maximum Strength Deformed GFRP Reinforcement Bar. These applications include but are not limited to joining slabs,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



## Products

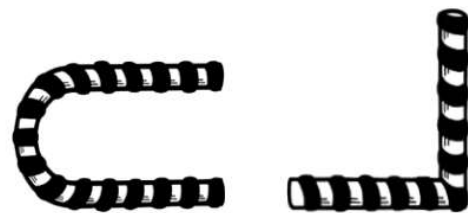
### Straight Bar

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



### Bent Bar

- Structural bent rebar
- Custom shapes for any project



## Compliance

### USA:

- ASTM D7957/D7957M-17
- ACI 440.1R-15
- 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

### 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