

MST BAR

PREMIUM REINFORCEMENT



Building a better future.

superformicf.com



PREMIUM REINFORCEMENT

MST-BAR® Grade III GFRP

IMPERIAL		#3	#4	#5	#6	#7	#8	#9	#10	#11
METRIC		10	13	15	20	22	25	29	32	36
Minimum Tensile Load	kN	74	132	202	285	390	507	650	819	1000
	lbf	16636	29675	45411	64070	87675	112180	146126	184118	224810
Cross Sectional Area	mm ²	71	132	201	285	387	491	645	819	1007
Weight	kg/m	0.22	0.35	0.5	0.7	0.9	1.22	1.4	1.72	2.15

Guaranteed Tensile Strength	>1000 MPa >145 Ksi	Strength of Bend (Straight Portion)	>900 MPa
Young's Modulus , E	>60GPa >8702KSI	Strength of Bend (Bend Portion with Minimum Radius Bend : 4x Diameter of Bar)	>600 MPa
Ultimate Strain , ε_{fu}	>1.7%	Young's Modulus , E (Bend Bar)	50 GPa
Transverse Shear Strength , τ	>220 MPa 31.9 ksi	Glass Transition Temperature, T_g°	125C°
Bond Strength to Concrete	20 MPa Minimum 2900 Psi Minimum		



Benefits of MST-BAR



1/4 The Weight of Steel

Get 4x the product on your trucks and save on transportation costs. MST-BAR is also significantly easier to handle and use.



3x Stronger Than Steel

With a tensile strength of 3x the amount of steel and a fatigue resistance of 20x the amount of steel, MST-BAR is the trusted solution for any project.



Greener Solutions

The manufacturing process of MST-BAR produces far less carbon emissions than the steel industry, which has a devastating impact on the environment. MST-BAR can be ordered to exact sizes, so it is manufactured to that size with no cutting or waste.



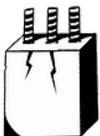
Lifespan of +100 Years

MST-BAR will never corrode, which can lead to spalls in the concrete. While steel has a lifespan of 50 years, MST-BAR will outlast the concrete it is reinforcing.



Non-Corrosive & Non-Conductive

MST-BAR is non-corrosive and suited to any environmental exposure. MST-BAR does not conduct heat, cold, or electricity.



Superior Bond Strength

Our rebar delivers a bond strength to concrete 3x the amount as steel. The only way to pull out the bar is to break the concrete.

Structural Rebar

ICC Approved for Structural Use

MST-BAR is a Glass Fiber Reinforced Polymer (GFRP) Rebar. It is the only GFRP Rebar that is an Integrally Ribbed Maximum Strength Rebar. MST-BAR is the only GFRP Rebar that bonds to concrete better than steel. Steel Rebar oxidizes in concrete which creates rust cancers. The oxidation process causes the rebar to expand, resulting in the cover concrete spalling and failing.

MST-BAR is 4x lighter than steel rebar; 3x stronger than steel rebar; does not conduct heat, cold, or electricity; substantially reduces workplace injuries; takes half the time to install with half the amount of people; requires no maintenance or repairs; and lasts longer than the concrete it is reinforcing. Governments are specifying it, and the world is realizing that MST-BAR is the solution.

MST Rebar Inc.'s specially engineered and designed Integral Rib mechanically locks MST-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 fewer cracks with smaller crack widths, but you can also avoid 50% of traditional bent bar applications by using straight lengths of MST-BAR. These applications include but are not limited to joining slabs, joining walls to floors, corners, anchoring and less embedment lengths.



MST-BAR can eliminate the need for L bars in footing. Switch to dowels that can be wet set in after the concrete pour to save screed time and get a flatter footing.

Steel Rebar is NOT the Solution

One hundred years ago, steel rebar was developed as the only option for reinforcing concrete. However, many structures developed before steel rebar still stand today. Structures using steel rebar in corrosive environments will begin to fail after ten years.

Corrosion costs the private and public sectors hundreds of billions of dollars in repair and maintenance costs a year. Corroding steel rebar is a ticking time bomb because determining the moment of failure can mean the difference between life and death.

MST-BAR can save the current costs of corrosion and eliminate all failures due to corrosion because it will outlive the concrete it is reinforcing.



DIRECT COMPARISON BETWEEN STEEL & PREMIUM REINFORCEMENT

MATERIAL PROPERTIES	UNITS	 PREMIUM REINFORCEMENT	STAINLESS STEEL (ASTM A955)	STEEL (ASTM A615)
Tensile strength ⁽¹⁾	PSI	145,000 – 200,000	60,000	60,000
	MPa	1000 – 1200	420	420
Modulus of elasticity	KSI	8800	29,000	29,000
	GPa	60 – 63	200	200
Bond strength	PSI	3500	1450 ⁽²⁾	1450 ⁽²⁾
	MPa	24	10 ⁽²⁾	10 ⁽²⁾
Thermal conductivity	BTU/(hr-ft-°F)	< 0.6 ⁽²⁾	10 ⁽²⁾	32 ⁽²⁾
	W/ (m-°C)	< 1 ⁽²⁾	16 ⁽²⁾	54 ⁽²⁾
Electrical resistivity	Ω-in	>10 ¹¹⁽²⁾	4x10 ⁻⁵⁽²⁾	6x10 ⁻⁶⁽²⁾
	Ω-cm	>10 ¹¹⁽²⁾	1x10 ⁻⁴⁽²⁾	1.5x10 ⁻⁵⁽²⁾
Unit weight	lb/ft ³	130	485 – 500	490
	kg/m ³	2100	7800 – 8000	7850
Required concrete cover ⁽³⁾	in	3/4	1 1/2 – 3	1 1/2 – 3
	mm	20	40 – 75	40 – 75
Shear Strength	PSI	35,000	36,000	36,000
	MPa	240	250	250

⁽¹⁾ Guaranteed tensile strength for MST bars, yield strength for stainless and black steel bars

⁽²⁾ Approximate value

⁽³⁾ For exposed conditions, as per ACI 440.5 and ACI 318



Visit superformicf.com/mst-bar-knowledge-base/ to view documents and videos on the SuperForm MST-BAR knowledge base.

ICC Certified



ESR #4664 -
First Fiberglass Rebar Certified
with International Code Council (ICC)

Save on Transport



At 1/4 the weight of steel, you can save
on shipping costs. One truck load of
MST-BAR = four trucks loads of steel rebar.

Easy to Handle



MST-BAR is easy to handle, whether by
hand or by machine. MST-BAR can be
cut by numerous tools to fit the
needs of any project.

Stronger than Steel



MST-BAR has a tensile strength 3x
stronger than steel and a bond strength
to concrete 3x stronger than steel.
No other GFRP can compete.

Structural & Flat Bar



MST-BAR can be used anywhere
concrete needs to be reinforced -
whether it is slab, structural or custom
work; MST Rebar will get the job done.

Non-Corrosive



MST-BAR is 100% non-corrosive so
it is the perfect product for concrete
pool builders or contractors
working in coastal areas.

20' LENGTHS*				
ITEM CODE	Bar #	LBS. / 20' LENGTH	# of BARS / LIFT	LBS. / LIFT
MST-9	#3 Grade I 3 MAX (10mm)	2.1	500	1050
MST-10	#3 Grade II 4 MAX (10mm)	2.68	500	1340
MST-11	#3 Grade III 4EQ (10mm)	2.68	500	1340
MST-13	#4 Grade III (13mm)	4.42	250	1105
MST-15	#5 Grade III (15mm)	7	200	1400
MST-17	#6 Grade III (20mm)	10.21	150	1531
MST-19	#8 Grade III (25mm)	18	75	1350

* Custom lengths and bends are an option. Contact for more info.
- Sold per lift

Non-Structural		Structural (Engineered, Certified)		
		#3 (10mm)*	#4 (13mm)	#5 (15mm)
				
10mm .4"	11mm .43"	11.5mm .46"	14mm .55"	18mm .70"
Grade I 3 MAX	Grade II 4 MAX	Grade III	Grade III	Grade III

Grade II is less flexible and a better option for flatwork since fewer rebar chairs are required.

*In the USA #3 is equivalent to #4 steel.
In ICF, MST-BAR can replace steel rebar at a 1:1 ratio.
You can usually downsize MST-BAR one size from the steel bar size in structural slabs.
ie. If using 15mm (#5), you can use 13mm (#4) MST-BAR





T 877.627.3555
F 403.627.3553
E info@superformicf.com

superformicf.com

Follow Us On



Distributed by:



Local Community Approval Steps:

- a. Call local building officials to see if MST-BAR fiberglass rebar can be used structurally. If not, proceed to the next step.
- b. Email spec sheet, steel comparison, and ICC approval document to local building officials. (located in MST-BAR knowledgebase. Hit the link below.)
superformicf.com/mst-bar-knowledge-base/
- c. If you encounter any issues, contact the SuperForm Technical Department at technical@superformicf.com or 877.627.3555 ext 5. They will help get it approved for your local community.

