Avonlea
INTERIOR PRODUCTS

The #1 Solution for Concrete Reinforcement

Fiberglass Rebar - The Obvious Replacement to Steel

A Paradigm Shift in Reinforcing Concrete

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 oxidition process causes the rebar to expand which results in the cover concrete to spall, leading to failure.

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 starting to realize **MST-BAR is the solution**.

The Only Authentic Integrally Ribbed GFRP

MST R 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 less cracks with smaller crack widths, 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 embediment lengths.

MST-BAR vs. Steel Rebar

1/4 THE WEIGHT OF STEEL

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

3x STRONGER THAN STEEL

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

NON CORROSIVE AND NON CONDUCTIVE

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

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.

Steel Rebar Corrode

100 years ago, steel rebar was developed as the only option for reinforcing concrete. However, many of the structures developed before steel rebar are still standing today. **Structures using steel rebar in corrosive environements will begin to fail after 10 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 detemining the moment of failure can mean the difference between life and death.

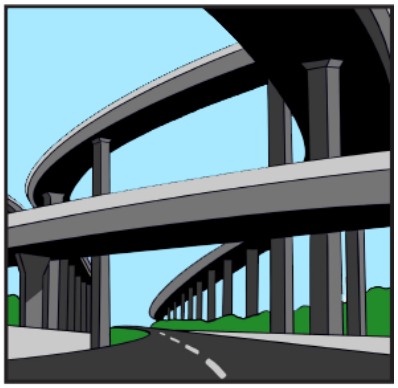
MST-BAR can save the current costs of corrosion and eliminate all failures due to corrosion because it will outlive the concrete it is reinforcing.

Applications

MST-BAR is accepted to be used anywere that steel rebar is used. It is especially necessary to use in **coastal areas, near high voltage currents and near magnetic fields.** For example:

DAMS

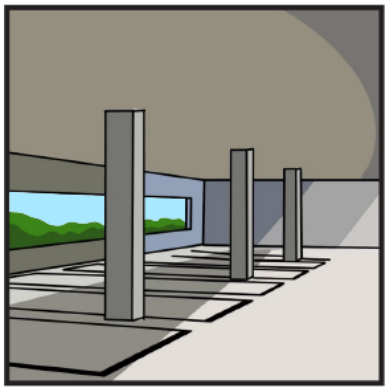
BUILDINGS



ROADS AND BRIDGES

POOLS AND PATIOS

PIERS



PARKING GARAGES

FLORIDA SEAWALL PROJECT

INSULATED CONCRETE FORM

NON-STRUCTURAL PROJECTS

PANAMA RETROFIT

OHIO BRIDGE

MST-BAR IN ACTION

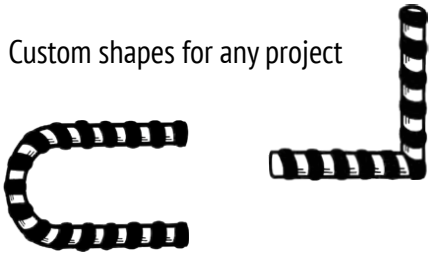
Products

STRAIGHT BAR

- Structural and non-structural rebar
- Available in custom lengths (4ft - 60ft)
- Diameters in stock: 10mm - 25mm
- Custom diameter up to 55mm

BENT BAR

- Structural bent rebar
- Custom shapes for any project



QUALITY SERVICE

The dedicated, experienced and hard-working team at MST Rebar Inc. is committed to delivering quality MST-BAR products quickly and efficiently **anywhere in the world**. Be it a warehouse or job-site destination, we are committed to ensuring that MST-BAR gets to where you need it **on time**. You can trust the team at MST Rebar Inc. to meet your needs.

Specs

IMPERIAL		#2	#3	#4	#5	#6	#7	#8	#9	#10	#11
METRIC		6	10	13	16	20	22	25	29	32	36
Minimum Tensile Load	kN	33	74	132	202	285	390	507	650	819	1000
	lbf	7419	16636	29675	45411	64070	87675	112180	146126	184118	224810
Cross Sectional Area	mm2	32	71	132	201	285	387	491	645	819	1007
Weight	kg/m	0.12	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
Young's Modulus , E	>60GPa >8702KSI
Ultimate Strain , εfu	>1.7%
Transverse Shear Strength , τ	>220 MPa 31.9 ksi
Bond Strength to Concrete	20 MPa Minimum 2900 Psi Minimum

Strength of Bend (Straight Portion)	>900 MPa
Strength of Bend (Bend Portion with Minimum Radius Bend : 4x Diameter of Bar)	>600 MPa
Young's Modulus , E (Bend Bar)	50 GPa
Glass Transition Temperature, Tg°	125C°

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