MRG®
Composites
PIONEERS OF THE REBAR REVOLUTION

**India's most trusted and No.1 selling GFRP bars brand**



www.mrg-composites.com

# ABOUT US

The **Machine Retail Group (MRG),** established in 2007, introduced modern industrial equipment in Russia and India. Since 2019, MRG Composites India has pioneered **GFRP (Glass Fibre Reinforced Polymer) Rebars,** offering a lightweight and high-strength alternative to iron rebars.
Within a short span, MRG became India's largest manufacturer and No. 1 selling brand in GFRP rebars.

Working closely with BIS, NHAI, IRC, and MORTH, MRG played a key role in developing Indian standards, leading to the approval of:
**IS 18255:2023, IS 18256:2023, IRC:137-2022.**

In 2022, MRG secured multiple NHAI projects, achieving a major milestone in India's road and infrastructure sector.

# ATTRIBUTES OF
## MRG GFRP REBARS

- Corrosion Resistant
- Water Resistant
- Stronger
- Less Thermal Expansion
- Lighter
- Radio Transparent
- Cost Effective
- Lasting Durability
- Zero Maintenance
- Low Install Cost
- Longer Life Span
- Easy Handling & Cutting
- Eco Friendly
- Fast and Safe Installation
- Dielectric
- Reduced concrete coverage
- Easy to Transport
- Savings in overlapping cost

# APPLICATIONS OF
## MRG GFRP REBARS

### Infrastructure & Civil Engineering

- Approach slabs
- Bridge Decks and Bridge Deck overlays, Walkways of Foot Over Bridge, Slab Culverts
- Bridge cum Bandhara, including Deck Slabs and Barriers between Piers
- Concrete Roads including Jointed Plain Concrete Pavement, Continuously- Reinforced Concrete Pavements (CRCP) and Short-Panel Concrete Pavements (both cast-in-situ and precast)
- RCC roads & pavements
- Friction slabs
- Retaining Walls
- Noise barriers
- Box Culverts
- Drainage Structures
- Plain Concrete Components
- Crash Barriers & Bridge Parapets
- Pedestrian Parapets and Railings
- Bulkheads and Bulkhead Copings
- Mechanically Stabilised Earth Wall Panels and Copings
- Ground beams
- Tunnels (cuttable zones)
- Lintels & sunshades
- Medians & utility ducts

### Precast Elements & Structural Components

- Septic & water tanks
- Manholes covers & chambers
- Culverts & box sections
- Precast slabs & beams
- Non-structural walls
- Retaining panels & blocks
- Precast U Drains
- Boundary Wall
- Kanda Cover

### Commercial, Residential & Industrial Construction

- Foundations & basements
- Industrial flooring
- Slabs on grade
- Swimming Pool
- Parking decks & ramps
- Partition elements
- Mivan Walls
- Institutional Buildings (MRI Area Walls)

### Water & Wastewater Infrastructure

- Water treatment plants
- Sewage & drainage tanks
- STP/ETP structures
- Underground tanks
- Box drains & sumps
- High-moisture zones

### Marine & Coastal Applications

- Jetties
- Seawalls & breakwaters
- Harbors & coastal slabs
- Tidal/splash zones
- Shoreline protection

### Transport, Metro & Public Infrastructure

- Airports (runways/taxiways)
- Metro stations & tunnels
- Railway platforms
- Highway barriers
- Bus terminals & public slabs
- Electrified rail safety zones

## TABLE OF SUBSTITUTION BY TENSILE STRENGTH

| MRG GFRP REBARS | | | METAL REBARS | |
|---|---|---|---|---|
| Diameter | Weight (Per 12 meter bar) | | Diameter | Weight (Per 12 meter bar) |
| 3 | 0.204 | = | ---- | ---- |
| 3.5 | 0.276 | = | ---- | ---- |
| G4 | 0.360 | = | 06 mm | 2.75 kg |
| 5 | 0.528 | = | ---- | ---- |
| G6 | 0.780 | = | 08 mm | 4.74 kg |
| 7 | 0.900 | = | 10 mm | 7.40 kg |
| G8 | 1.356 | = | 12 mm | 10.65 kg |
| G10 | 2.040 | = | 14 mm | 14.52 kg |
| G12 | 2.880 | = | 16 mm | 18.93 kg |
| 14 | 3.240 | = | 18 mm | 24.00 kg |
| G16 | 5.124 | = | 22 mm | 35.76 kg |
| 18 | 6.276 | = | 25 mm | 46.22 kg |
| G20 | 8.076 | = | 28 mm | 58.02 kg |
| 22 | 9.804 | = | 32 mm | 75.79 kg |
| G25 | 11.676 | = | 40 mm | 118.52 kg |
| G32 | 16.320 | = | ---- | ---- |

NOTE : 1. G' represents the nominal diameter of the bar in accordance with BIS specifications.
2. Weight of individual bars may vary within an allowable tolerance of ±2%.

## MRG GFRP VS. METAL REBARS: MECHANICAL PROPERTIES

| PROPERTIES | METAL REBARS | MRG GFRP REBARS |
|---|---|---|
| Tensile strength (Mpa or $N/mm^2$) | 500 – 600 | 1000+ |
| Shear strength | 120 | ≥ 152 |
| Bond strength (Mpa or $N/mm^2$) | 14* | ≥ 11 |
| Compression (Mpa or $N/mm^2$) | 500 | 450 |
| Modulus of elasticity (Gpa) | 160 – 200 | ≥ 50 |
| Elongation (%) | 25 | ≥ 1.5 |
| Durability | Terms are prescribed in special building codes | 80 years + |
| Density ($Ton/m^3$) | 7.8 | 1.9 |
| Corrosion resistance to aggressive environment | Appearance of rust | Stainless material preserving properties even in alkaline concrete environment |
| Ecological compatibility | Ecologically friendly material | Does not emit harmful and toxic substances during storage and use |
| Electrical conductivity | Electrically conductive material | Dielectric |

We at MRG have an in-house testing laboratory and perform batch-wise test reports as per Indian standards **IS 18255:2023**

MRG GFRP Rebars are available in coils and straight packaging, and can also be supplied in custom bent shapes to meet project specific requirements.



**Coil**

Length : 12/50/100 meters
Diameter : 3 mm to 12 mm



**Straight Rebars**

Length : 12 meters*
Diameter : 3 mm to 32 mm



**Bent Elements**

- Note: Customised length and diameter are available on request.

## HEADQUARTERS & DISTRIBUTION NETWORK

Delivering Quality Across Borders with a Strong Global Network.

**PAN INDIA DISTRIBUTOR NETWORK**

**UAE** | **KENYA** | **RUSSIA**





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ISO

**An ISO 9001 : 2015**
Certified Company


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**Get in touch**

Also available on: