



GLASS FIBER REINFORCED POLYMER (GFRP)REBARSThe Future of Sustainable Reinforcement

Rust-Free | Lightweight | Non-Corrosive |
100-Year Design Life
A product by Mangla Infraprojects LLP



ABOUT FIBAR⁺

WHO WE ARE

Fibarplus is a next-generation GFRP (Glass Fiber Reinforced Polymer) rebar brand, developed to transform the way modern infrastructure is built.

Engineered for strength, durability, and sustainability, Fibarplus rebars deliver a rust-free, corrosion-resistant, and maintenance-free alternative to conventional steel reinforcement—ensuring structures that last a century or more.

Driven by advanced engineering, proven technology, and a commitment to innovation, Fibarplus supports infrastructure, marine, industrial, and coastal projects with high-performance composite reinforcement solutions that reduce lifecycle costs and environmental impact.

Fibarplus is a brand name of **Mangla Infraprojects LLP**

OUR PURPOSE

To replace steel with a superior, sustainable alternative -building stronger, safer, and longer-lasting structures



WHAT IS GFRP?

UNDERSTANDING THE TECHNOLOGY

Glass Fiber Reinforced Polymer (GFRP) is an advanced composite material that combines:

High-strength glass fibers (for tensile capacity)

Durable polymeric thermoset resin (for corrosion resistance)

The result: a structural reinforcement bar that's 2× stronger than steel, ¼ the weight, and 100% corrosion-proof.

How It Works

The glass fibers bear tensile load.

The polymer resin ensures durability and chemical resistance.

Why It's the Future

Unlike steel, GFRP does not rust, expand, or weaken when exposed to saltwater, chemicals, or alkaline concrete – giving structures a 100+ year lifespan.



WHY FIBARPLUS GFRP REBARS

Corrosion-Free

Corrosion-Free

- Exceptional resistance to water, salinity, and chemicals
- No rust, leaching, or corrosion at bends, riers & parapets
- Eliminates need for cathodic protection or anti-shrink additives

Non-Conductive & Non-Magnetic

- Perfect for MRI rooms, airports, data centers, and power stations
- Zero electromagnetic interference

Thermal Stability

- Expansion coefficient similar to concrete
- No cracks from temperature fluctuations

High Strength, Low Weight

- Twice the tensile strength of TMT bars
- 1/4 the weight of steel easier transport, handling, and installation

Sustainable by Design

- 70% less embodied energy than steel
- Zero water/gas consumption in manufacturing
- Can be recycled as aggregate after life cycle



TECHNICAL & COST COMPARISON

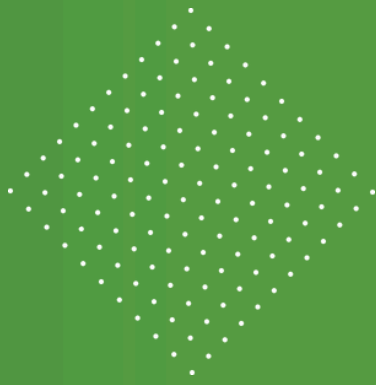
Performance Comparison

TECHNICAL

Property	Steel (TMT)	Fibarplus Gfrp
Tensile Strength	420-550 MPa	800-1100 MPa
Modulus of Elasticity	200 GPa	50-55 GPa
Density	7850 kg/m ³	1900-2000 kg/m ³
Bond Strength	14 MPa	12.5 MPa
Thermal Conductivity	54 W/m°C	<1 W/m°C
Electrical Resistivity	1.5-10 Ω-m	>200x10 ¹⁵ Ω-m
Service Life	Low	100+ years
Conductivity	Conductive	Non-magnetic
Magnetic Behavior	Magnetic	Non-magnetic

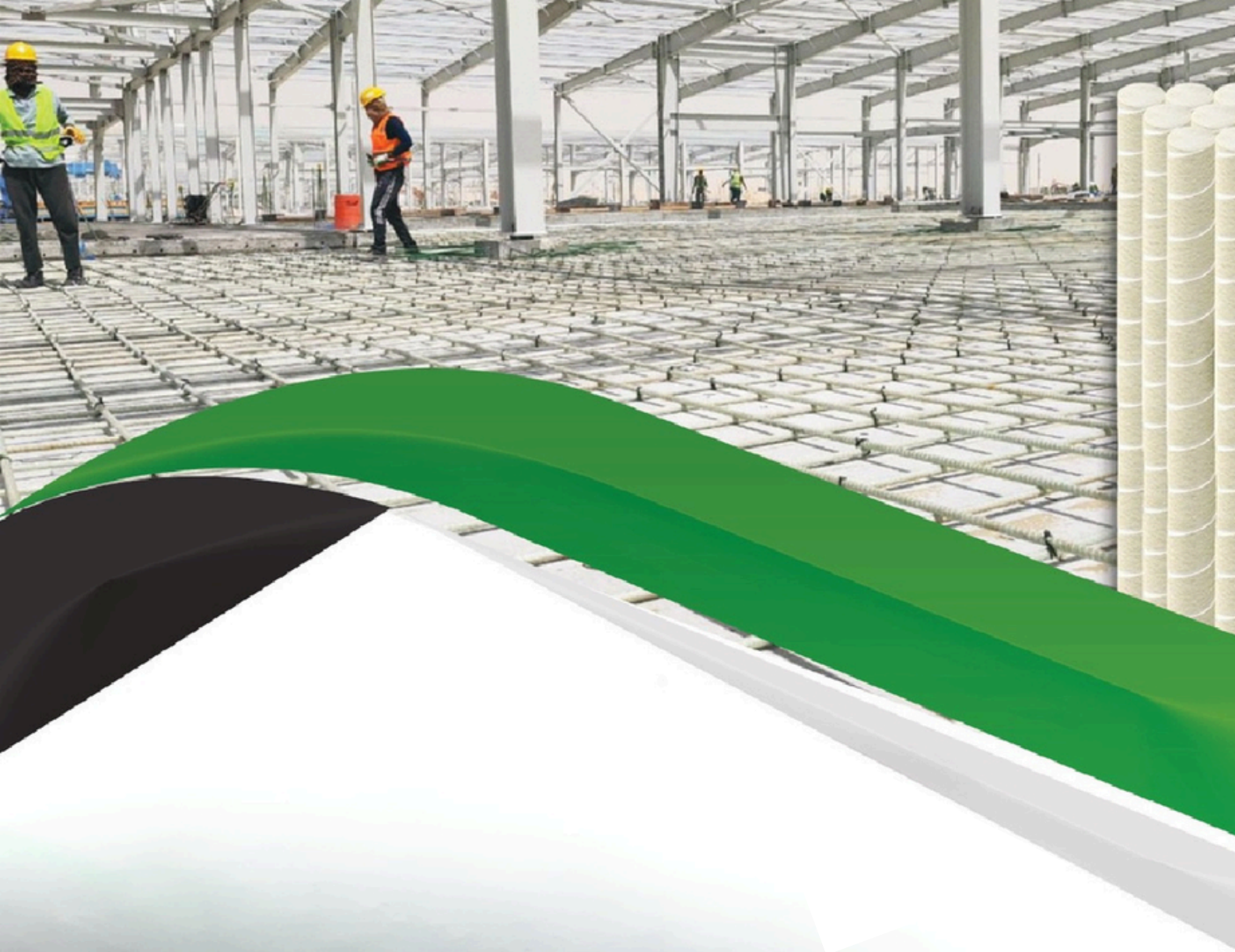
COST

Feature	Steel Rebar	Fibarplus Gfrp
Maintenance	High	None
Concrete Cover	Thick	Reduced
Installation	Heavy Labor	Easy Handling
Transport Cost	High	Low
Service Life	25-40 yrs	100+ yrs
Lifecycle Cost	High	4-25x Cost Advantage



Comparative Characteristics

CHARACTERISTICS	Steel	Fibar Plus GFRP reinforcement
Material Composition	Carbon Steel	ECR Fiberglass, Epoxy Resin / Vinyl Ester Resin
Fiber Content (%)	No Fibres	75-80%
Modulus of elasticity (GPa)	200	45-60
Elongation %	25	2 - 2.2
Corrosion resistance to Aggressive media	Subject to Corrosion	100% Corrosion Proof
Heat Conductivity	Heat - Conductive	Non - Heat Conductive
Electro Conductivity	Conducts Electricity	Non Conducting
Operating Temp. C	-40° to +350°	-40° to +120°
Shear Strength. Mpa	120	>=150
Tensile Strength (MPa)	650	1100+
Compressive Strength. Mpa	350	150-200
Strength of adhesion to concrete. Mpa	6-9	10-12
Density (ton/m ³)	7.85	1.8 - 2.1
Produced profiles. mm	06 - 40 mm	04 - 32 mm
Length	The rods of length 6-12 m	According to Customer request
Longevity	Comparative Limited Service Life	Predicted life is more than 100 years



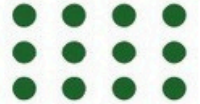
Comparison table of reinforcement characteristics

Steel Rebar		Fibar Plus GFRP reinforcement				
Dia (mm)	Approx. Weight (Kg/m)	Replacing GFRP rebar Dia (mm)	Approx. Weight (Kg/m)	CSA (mm ²) Cross Section Area	Tensile Strength (Mpa)	Ultimate Tension (KN)
06	0.220	04	0.0239	13.566	1150	16
08	0.400	06	0.0537	29.274	1100	32
10	0.620	06	0.061	29.274	1100	32
12	0.910	08	0.106	51.265	1050	54
14	1.200	10	0.166	80.540	980	79
16	1.500	12	0.2148	117.097	870	102
18	2.000	16	0.3820	210.062	764	160
25	3.850	20	0.5979	318.159	752	239
32	6.320	25	0.9327	495.874	744	369
40	9.876	32	1.5281	808.248	716	579

A large photograph of a construction site. In the foreground, there is a grid of yellow Fibarplus GFRP rebar on a concrete slab. In the background, three construction workers in white hard hats and high-visibility vests are looking at blueprints on a table. Further back, a yellow crane is lifting a large roll of rebar. The city skyline is visible in the distance under a clear sky.

SUSTAINABILITY CYCLE

A GREEN MATERIAL FOR A
SUSTAINABLE FUTURE



RAW MATERIALS

MANUFACTURING

- No water or gas used
- Lower CO₂ and power consumption
- Minimal waste production

DISTRIBUTION

- 4× lighter than steel → 70% lower fuel use
- Reduced crane and tailpipe emissions

END OF LIFE

- Fully recyclable — crush and reuse as coarse aggregate

IN USE

- Zero maintenance
- Long service life
- Less cement and water required
- Enables seawater mixing for concrete

NEW POINT ADDED:

- Corrosion-free design eliminates costly repairs and enhances structural safety

Sustainability is not an
afterthought it's built into
every Fibarplus GFRP Rebar.

APPLICATIONS

Infrastructure

Infrastructure

- Bridge decks, approach slabs, box culverts
- Flood channels, drainage systems
- Noise barriers & parapets

Coastal & Marine

- Seawalls, dry docks, marine ports, underwater foundations

Buildings & Industrial

- Foundations, retaining walls, factory floors
- Chemical plants, water treatment facilities, substations

Special Applications

- Tunnel Boring Machine (TBM) soft eyes
- Metro walls & diaphragm walls
- MRI rooms, hospitals, & radio-sensitive areas
- **High-voltage zones where electrical conductivity must be zero**

Wherever corrosion is a threat —
Fibarplus GFRP is the solution.





STANDARDS & CERTIFICATIONS

Global Design Standards

International & National Design Standards

- ACI 440.1R-15 / 440.11-22 – Structural Concrete with FRP
- FIB Bulletin 40 – FRP Reinforcement in RC Structures
- AASHTO LFRD-01 – GFRP in Bridge Decks
- CSA S806 / S6 – Canadian FRP Design Codes
- IRC:137-2022 – Indian Road Congress –
Use of FRP in Road Projects

Tested & Verified By

- IIT Hyderabad
- G.S. Institute of Technology & Science
- Geo Designs & Research Pvt. Ltd.
- NHAI & IRC Approved



GFRP WORLDWIDE IMPACT

Proven in Landmark Projects

Golden Gate Bridge – USA

Jizan Flood Mitigation Channel –
Saudi Arabia

Port of Rotterdam – Netherlands

Grand Paris Express Metro – France

Yas Island F1 Circuit – UAE



From highways to harbors, GFRP is transforming the global infrastructure landscape.



ABOUT FIBARPLUS

Company Vision

To revolutionize reinforcement with innovative, eco-conscious, and high-performance composite solutions.

Our Values

Integrity: Engineering you can trust

Innovation: Driven by R&D

Sustainability: Building responsibly

Excellence: Quality that lasts a century

Our Expertise

- Structural composite manufacturing
- Design consultation for GFRP usage
- Supply for infrastructure, road, and marine projects
- Project-specific technical support for optimal GFRP integration

Group Companies

1



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4



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5



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KURANWALA, DERABASSI-BARWALA ROAD, KURANWALA,
SAS NAGAR, PUNJAB - 140507, INDIA.

has been assessed by RAPL and found to comply with the requirements of

ISO 14001 : 2015

Environmental Management Systems

For the following activities:

DESIGN, DEVELOPMENT, MANUFACTURING, TESTING, AND SUPPLY OF GLASS FIBER REINFORCED POLYMER (GFRP), REBARS AND RELATED COMPOSITE REINFORCEMENT PRODUCTS FOR CONSTRUCTION, INFRASTRUCTURE, AND INDUSTRIAL APPLICATIONS.

Certificate Number: E20251239538

Date of certification: 27/12/2025

Ist Surveillance on or before: 26/12/2026

IIInd Surveillance on or before: 26/12/2027

Certification Valid Until: 26/12/2028



Accredited
EMS Certification CAB# 119012

Director (Certification)
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This Certificate can be verified at www.iafcertsearch.org



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ISO 45001 : 2018

Occupational Health and Safety Management Systems

For the following activities:

DESIGN, DEVELOPMENT, MANUFACTURING, TESTING, AND SUPPLY OF GLASS FIBER REINFORCED POLYMER (GFRP), REBARS AND RELATED COMPOSITE REINFORCEMENT PRODUCTS FOR CONSTRUCTION, INFRASTRUCTURE, AND INDUSTRIAL APPLICATIONS.

Certificate Number: E20251239539
Date of certification: 27/12/2025
Ist Surveillance on or before: 26/12/2026
IInd Surveillance on or before: 26/12/2027
Certification Valid Until: 26/12/2028



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SAS NAGAR, PUNJAB - 140507, INDIA.

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ISO 9001 : 2015

Quality Management Systems

For the following activities:

DESIGN, DEVELOPMENT, MANUFACTURING, TESTING, AND SUPPLY OF GLASS FIBER REINFORCED POLYMER (GFRP), REBARS AND RELATED COMPOSITE REINFORCEMENT PRODUCTS FOR CONSTRUCTION, INFRASTRUCTURE, AND INDUSTRIAL APPLICATIONS.

Certificate Number: E20251239537
Date of certification: 27/12/2025
Ist Surveillance on or before: 26/12/2026
IInd Surveillance on or before: 26/12/2027
Certification Valid Until: 26/12/2028



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