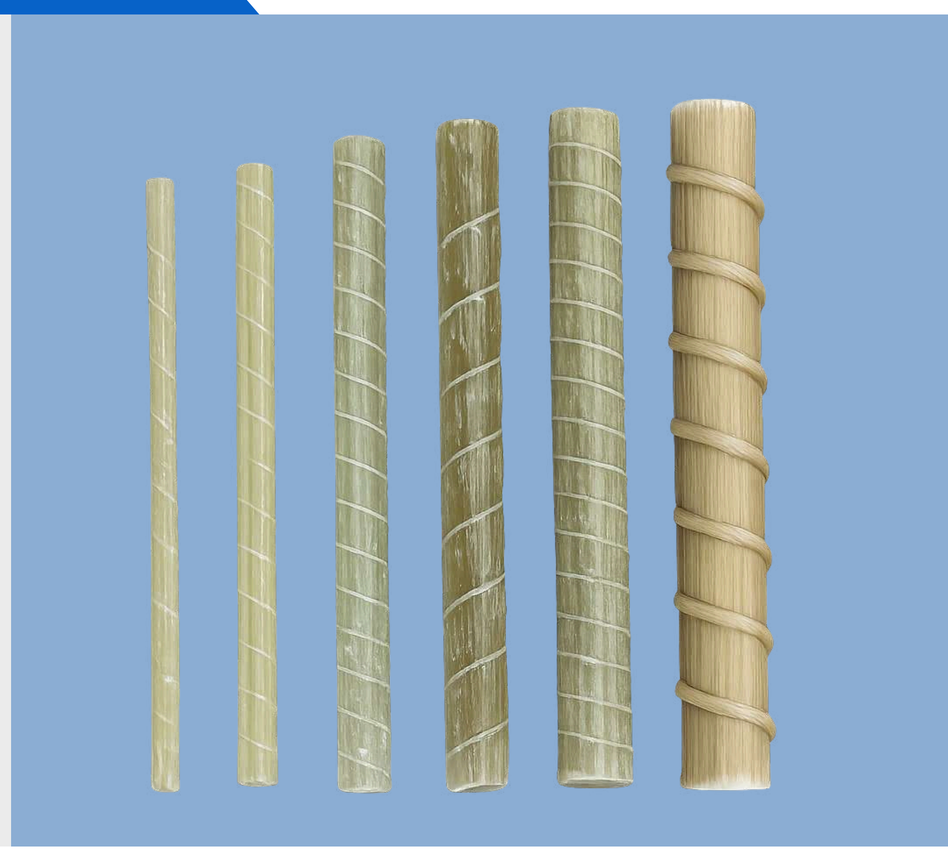
TECHNICAL DATA SHEET

Starbars™ GFRP Bar

PRODUCT DESCRIPTION

Starbars™ GFRP Bar is a high-performance fibreglass reinforcement solution designed to replace conventional steel reinforcement in concrete structures. This advanced GFRP rebar (Glass Reinforced Polymer rebar) combines exceptional tensile strength, light weight, and corrosion-free performance — delivering a longer-lasting, sustainable reinforcement option for civil and infrastructure projects.

Manufactured from continuous glass fibres within a polymer matrix, Starbars™ GFRP Bar delivers high strength-to-weight performance and corrosion-free fibreglass concrete reinforcement. It complies with ASTM D7957/D7957M-22 and ACI SPEC 440.5-22, and is suitable for design under ACI 440.11-22 and BS EN 1992-1-1:2023.



FEATURES & BENEFITS

- **High Tensile Strength:** ≥ 1000 MPa, outperforming traditional steel reinforcement bars.
- **Lightweight:** Approximately 4× lighter than steel, improving transport and installation efficiency.
- **Corrosion-Resistant:** Will not rust or degrade in saltwater, chemical, or alkaline environments.
- **Deformed Reinforcing Bar Profile:** Provides excellent bonding with concrete for structural reliability.
- **Thermal Compatibility:** Coefficient of expansion similar to concrete — minimises cracking.
- **Non-Conductive and Non-Magnetic:** Suitable for electromagnetic-sensitive areas such as hospitals and airports.
- **Sustainable Construction:** Up to 70% lower carbon footprint than steel reinforcement.
- **Long Service Life:** 100+ years of dependable structural performance with zero corrosion maintenance.

APPLICATIONS

- Bridge decks, approach slabs, and barrier walls
- Marine and coastal structures (piers, wharfs, docks, seawalls)
- Foundations, slabs, and footings exposed to chlorides or moisture
- Water and wastewater treatment infrastructure
- Civil, industrial, and chemical processing structures
- Retaining walls, tunnels, pavements, and decks
- Electromagnetic-sensitive zones such as MRI facilities and radar stations

PACKAGING & AVAILABILITY

Product Code	Description
121478	Fibreglass Deformed Bar 10mm x 6000mm
122358	Fibreglass Deformed Bar 12mm x 6000mm
121480	Fibreglass Deformed Bar 16mm x 6000mm

- ***Available Diameters (Stocked):*** *10 mm, 12 mm, 16 mm*
- ***Other Sizes:*** *Additional diameters and cut-to-length options are available upon request — Danterr can custom manufacture to meet specific project requirements (lead times may apply).*

TECHNICAL SPECIFICATIONS

PHYSICAL PROPERTIES

Property	Specification
Material	Fiberglass reinforced with polymer-based epoxy
Manufacturing Method	Pultrusion
Ultimate Tensile Strength	≥ 1000 MPa
Modulus of Elasticity	~65,000 MPa
Density	~1,850 kg/m³
Thermal Expansion Coefficient	Similar to concrete – reduces thermal cracking
Flexural Strength	High flexibility with strong structural integrity
Corrosion Resistance	100% rust-proof; resistant to saltwater and chemical attack
Electrical Conductivity	Non-conductive
Magnetic Properties	Non-magnetic
Thermal Conductivity	None
Creep Rupture Limit	≤ 30% of ultimate tensile strength (per ACI 440.11-22)
Expected Service Life	100+ years

INSTALLATION & HANDLING

- **Storage:** Store off the ground on level supports and protect from direct UV exposure.
- **Handling:** Lightweight bars can be manually carried, reducing lifting equipment needs.
- **Cutting:** Cut using diamond or carbide-tipped blades — do not flame cut or shear.
- **Bending:** No field bending permitted. All bends or hooks must be factory-formed as per ACI SPEC 440.5-22.
- **Fixing:** Use plastic or non-metallic spacers and ties to maintain non-conductivity and corrosion resistance.
- **Concrete Compatibility:** Fully compatible with standard concrete mixes and installation procedures.

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SAFETY

- Non-hazardous under normal handling conditions
- Use standard PPE (gloves, safety glasses, dust mask) when cutting or trimming
- No rust or sharp edges, ensuring safer handling on-site
- Environmentally safe – contains no leachable materials or contaminants

SUSTAINABILITY

- Reduces CO_2 emissions by up to 70% compared to traditional steel rebar.
- Corrosion-free design minimises maintenance and replacement waste.
- Lightweight for efficient transport, lowering handling energy and site emissions.
- Extended design life (100+ years) promotes sustainable, long-term infrastructure development.

COMPLIANCE

- **ASTM D7957/D7957M-22** – Standard Specification for Solid Round GFRP Bars for Concrete Reinforcement
- **ACI SPEC 440.5-22** – Construction Specification for GFRP Reinforcing Bars
- **ACI CODE 440.11-22** – Building Code Requirements for Structural Concrete Reinforced with GFRP Bars
- **BS EN 1992-1-1:2023 (Annex R)** – Eurocode for Design of Concrete Structures
- **SIRIM Product Certification License (PCL)** – Verified product quality and consistency

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