





TerraTech is a pioneering company in the technology of manufacturing composite construction materials, leading the way in innovation and sustainability.

The Future of Construction in Africa

Glass Fiber Reinforced Polymers Is now Made in Egypt in all diameters

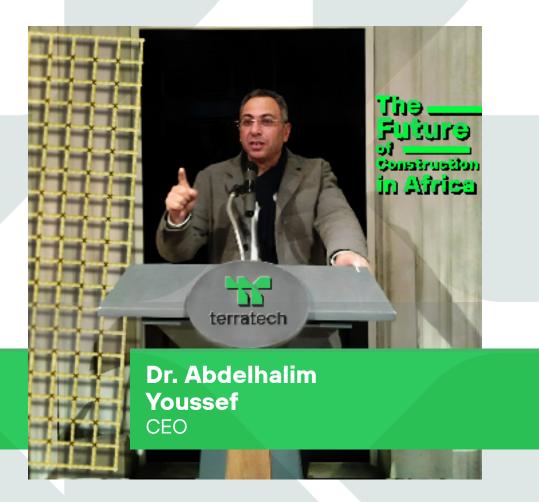




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CEO Message



We have concluded, after many scientific studies, that local production and manufacturing is one of the most important ways of development, and that continuous research and development is the basis of sustainable development. For that, we strive with all our efforts to transfer the technology of education, vocational and technical training. We are working on continuous development in the industry and the localization of advanced industries and innovative technological solutions with the aim of improving human life and achieving sustainable development goals

A. Halimyourset

Terratech GFRP



About Company

TerraTech is a pioneering force in the technology of manufacturing composite construction materials, leading the way in innovation and sustainability. We are proud to be pioneers in the field of composite materials for construction, driving forward advancements that redefine the future of the industry. Our expertise extends beyond Glass Fiber Reinforcement Polymers (GFRP) to encompass a wide range of composite materials tailored to meet the evolving needs of modern construction/infrastructure projects.

Terra Tech Company possesses modern technologies in the building materials system and sewage plants.

TerraTech has a dedicated team for scientific research and continuous development of its products. Terra Tech is agents of European and Russian companies in the field of modern and diverse building materials technologies.





What we **Produce?**

Terra Tech manfuctring glass fiber rainforsed polymars with all diametrs (6mm-40mm), we can provide the rebar with the required lengthes acording to the design and the project.

Fiber Reinforced Polymers

Fiberglass reinforced polymers are called by several names, including (fiberglass rods-a replacement for rebar - fiberglass bars).

Terra Tech manufactures glass fiber bars with various diameters ranging from 6 mm to 40 mm.

Glass fiber reinforced polymers are manufactured by Terra Tech according to Russian standard specifications (GOST) and English standard specifications.

Vision

To lead the way in transforming the construction industry through innovative and sustainable composite materials, driving excellence and environmental responsibility worldwide.



Mission

To pioneer the development and adoption of advanced composite construction materials, delivering superior quality, performance, and value to our customers while promoting a greener, more sustainable future for construction projects globally.



BUILD WITH MODERN TECHNOLOGIES

Glass Fiber Reinforcement Polymers

Composite rebar is a non-metallic rod made from multiple layers of glass fibers impregnated with a thermoplastic binder. During polymerization, these rods transform into a strong and rigid composite structure known as GFRP rebar. This type of reinforcement has wide application in construction and has become one of the most sought-after and modern building materials, gaining recognition in various parts of the world. Its popularity is due to several advantages compared to traditional metal reinforcement.

Fiberglass rebar, also known as fiber reinforced polymer (FRP), It is a type of reinforcing bar used in concrete construction. It is made by encasing a core of glass fibers in a polymer matrix, such as epoxy or polyester, creating a bar that is strong, durable and resistant to corrosion. The main benefits of fiberglass rebar include its corrosion resistance, which makes it ideal for use in environments where steel rebar would degrade, such as marine or coastal structures or structures exposed to chemicals.



Terratech GFRP



Why should we replace steel

reinforcement with Glass Fiber Reinforced Polymer?

The economic efficiency of replacing steel reinforcement and mesh with composite alternatives in structures where composite reinforcement can be precisely used ranges from 20 to 35%. Such savings are achieved due to the high strength properties of the composite material, which are 3-2 times higher compared to steel, resulting in an equal strength replacement of steel reinforcement with composite—of smaller diameter with similar strength characteristics in tension.

Therefore, this represents significant economic efficiency, primarily in replacing the material itself.

In addition to this, significant factors contributing to further cost reduction in construction are:

Minimization of logistical costs due to the lightweight nature of composite reinforcement, the possibility of compact packaging of products into coils, and consequently, reducing transportation costs and unloading expenses.

Increased speed of installation works, thus reducing labor costs.

Adaptive lengths contribute to a waste-free installation, serving as an additional factor in overall cost-effectiveness.



How to choose suitable diameter of Glass Fiber Bar for your project?

Glass Fiber rebar of 7 ,6, and 8 mm is suitable for providing the desired strength margin to monolithic structures under standard loads. With this cross-section, it is recommended for use in reinforcing concrete structures such as strip foundations in low-rise construction up to 3 stories, monolithic reinforcement belts, industrial floors, flat roofs, service areas for industrial and commercial facilities, access roads to infrastructure facilities, technological platforms, ramps, silo bases, and livestock complexes in the agro-industrial complex. The material is used for reinforcing road surfaces (to protect against damage to the edge of the road surface adjacent to the roadside and to prevent the appearance of cracks on the surface). Additionally, GFRP rebar properties are indispensable for reinforcing road construction elements (drainage channels, speed bumps, road barriers, reinforcement of embankments, in retaining walls for anti-slip protection, reinforcement of foam block masonry, and other applications).

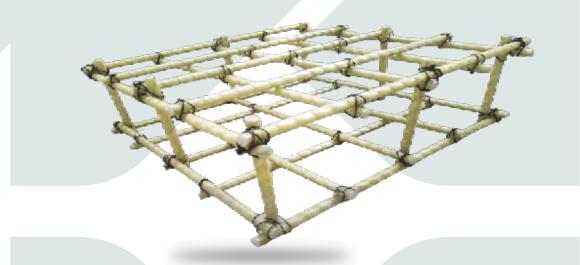
Composite reinforcement of 16, 14, 12, 10 mm, and larger provides the highest strength. Such reinforcement should be used in concrete structures where a significant strength reserve is required: concrete foundations of grain silos and reservoirs, settling tanks, and high-load technological zones. Among other applications, the material is suitable for reinforcing underground reservoirs, collectors, oil collectors, reservoirs of water treatment facilities, pools, fountain basins, and chemical, oil refining, and other industrial infrastructure objects. It is also used in the construction of coastal structures (dams, breakwaters, embankments, reinforcement of emergency shores to prevent the destruction of nearby structures and utilities), concreting of industrial sites for gas distribution stations, power substations, and concrete technological boxes and wells for servicing heat, water supply, drainage, and other utility channels. Additionally, fiber reinforcement bars are applied in the construction of temporary engineering structures, protective underground shelters, anti-splinter protective structures, the installation of protective layers on bridges, foundations of railway and tram tracks, tunnels, railroad crossings, and airport runways.



What's the best way to bond composite rebar?

To securely bind composite rebar, it's worth using:

- Steel tying wire
- Plastic ties



Can I combine steel and composite reinforcement?

Combining composite and steel reinforcement is not only possible but often necessary. This is because, upon completion of the manufacturing process, composite reinforcement cannot be bent as it is not ductile, unlike steel, and cannot be used as a bent element of the frame. The solution to this situation is straightforward—using it in combination with steel. For example, when reinforcing a foundation, composite rebar can be used as the primary material, while steel reinforcement is used at the corners.

GFRP Advantages & Technical Specifications



HIGH TENSILE STRENGTH

 GlassFiber is stronger than traditional steel bars in tensile strengthand reach up 1350 MPa



NO CORROSION

 High corrosion resistance fiberglass is resistant to aqueous, alkaline and acid solutions, which guarantees the durability of the structures being constructed.



LIGHT WEIGHT

 Low specific gravity, the weight of fiberglass reinforcement is 5 times less than that of a metal.



EXPANSION COEFFICIENT SIMILAR TO CONCRETE

 The temperature expansion of fiberglass is on the same level as concrete, which completely eliminates the formation of cracks in the foundation.



HIGH HEAT INSULATING

 Temperature Range, Composite fittings can be operated in the range from (-100 to + 100 C). Metal rods are not used at this temperature.



RADIO TRANSPARENCY

 Fiberglass does not interfere with radio waves, unlike metal counterparts.



DIELECTRIC

 non - conducting electricity and safe, It is advisable to use where the use of dielectrics is required.



DURABILITY

 The service life of fiberglass reinforcement in concrete is more than 80 years.

9

LOWER COST IS UP TO 50%

 When replacing metal reinforcement with fiberglass reinforcement of the same diameter, the estimated cost is significantly reduced. When replacing with equal strength with reinforcement of a different diameter, but with the same tensile strength - the savings reach up to 50%. 10

 The service life of reinforcing fiberglass is more than 80 years as a rule, metal does not withstand such a period.

12

 eco-friendly, at production of composite reinforcement a carbon dioxide is emitted by 40 times less, than at Production of metal.

11

TRANSPORTATION IS UP TO 90% CHEAPER

 Due to lower weight and volume, shipping costs are reduced.

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It is steady against seismological activity of the earth, Fiber reinforcement do not lose its main technical Characteristics even at the earthquake, so it is the best choice for reinforcing of concrete.



waste-free since it is delivered in coils of 50/100 running meters and it is cut into necessary size, it allows to Save up to 5% of the total amount of reinforcement.





FRP Charactristics

Parameter	GFRP		
Tensile strength	800 - 1300 MPA		
Modulus of elasticity	50,000 MPA		
Density	1.9 - 2.0 kg/m3		
Ultimate elongation (Relative extension) %	2.2		
Temporary tensile strength	From 800 MPA		
Coefficient of linear expansion at *10-5/C	9 - 12		
Ultimate compression strength	300 MPA		
Decrease in tensile strength after aging in alkaline medium	not more than 25%		
Elongation	2.3%		
Electrical conductivity	Non conductive (Dielectric)		
Thermal Conductivity	Non-Transparent (0,35)		
Enviromntal Friendliness	No harmful and toxic substances emission		
Corrosion and Chemical resistance	Non-Corroding material, 1st group chmical resistancce, including the alkaline enviroment of concrete		
Fire Resistance	Calculated parameter (Depend on thickness of concrete?		



Technical Comparison Table (FRP & Steel)

GFRP Ø	Steel Ø	GFRP Weight	Steel Weight	GFRP Packaging
7 mm	10 mm	0.086 kg	0.6 kg	Bars / Coils
8 mm	12 mm	0.096 kg	0.9 kg	Bars / Coils
10 mm	14 mm	0.145 kg	1.2 kg	Bars / Coils
12 mm	16 mm	0.200 kg	1.5 kg	Bars / Coils
14 mm	18 mm	0.300 kg	1.6 kg	Bars
16 mm	20 mm	0.460 kg	2.0 kg	Bars
18 mm	22 mm	0.560 kg	3.0 kg	Bars
20 mm	24 mm	0.650 kg	3.9 kg	Bars
22 mm	26 mm	0.730 kg	4.8 kg	Bars
24 mm	28 mm	0.860 kg	6.3 kg	Bars

- Glass Fiber Rebar is used in non-bearing structures Because of the elasticity modulus of GFRP rebar, then in case of using GFRP rebar in lo-duty and ground-level structures, you do need to make additional calculations for the design and bigger steel rebar is replaced by smaller GFRP rebar (i.e. Ø = 12 mm steel is replaced by Ø 8mm GFRP) due to higher tensile strength of GFRP rebar.
- GFRP can be used in any other structures and additional calculations for design should be done.

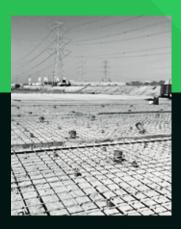
General Fields of Application



For creating hydraulic structures, road construction, reinforced concrete products.



For construction of research centers and medical institutions that may require the use of equipment that is sensitive to electromagnetic oscillations.



For light and heavy concrete (foam concrete, cover slabs, floor slabs, and monolithic foundations).



For construction of maritime and por facilities.

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Quality Control

Quality Control of Products Manufactured It is recognized that the major characteristic of composite rebar is tearing properties, and by this parameter the composite rebar is three times better than metal rebar.

The tearing properties of the finished product are based on using the roving in the production process for manufacturing composite rebar.

we test tearing properties first of all before using certain raw materials in production.

All raw materials that arrive at our Company passes quality control on the basis of the laboratory and research centers that specialist in same fields.

Terra tech Certified from Ejac in Design, development, Manufacturing and sale of composite polymer products intended for reinforcement of building structures and elements in civil, industrial, road construction.

(ISO 2015 - 9001), (ISO 2015 - 14001), (ISO 2018 - 45001)







Terratech GFRP

GFRP TESTS















ISO CERTIFICATES







M

(ISO 9001 - 2015)

M

(ISO 14001 - 2015)

W

(ISO 45001 - 2018)





Implemented Projects

- Yacht Marina Project Suez Canal General Authority Canal Company for Ports and Major Projects
- Construction of factory floors and warehouses for Kernell Trade and Export
 Company Alef District Fifth Settlement.
- Trade Bird Organizations Company Makram Ebeid Eng. Nasr.
- Heaven Beach Village Project West Gulf Urban Development Company Ain Sokhna.
- Group of villas Gloria Compound Sheikh Zayed.
- Villas multiple villages on the North Coast swimming pools corridors landscape.
- Special projects, villas and garages.
- Nubaria Farms West Minya Farms Farm in Assiut
- · Fish ponds and farms, Kafr El-Sheikh Borg El Arab Rashid
- · A group of factories in the industrial zone in El Minya Governorate
- A group of factories in the industrial zone in Assiut



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