FIBERGLASS REBAR (GFRP)

Satyam Composites Pvt Ltd is a leading manufacturer of FRP Rebar in India. FRP (Fiber Reinforced Polymer) rebar is a reinforcing bar made of composite materials using Russian Technology. Unlike traditional steel rebar, which is made of carbon steel, FRP rebar is made of high-strength fibers, such as glass or carbon fibers, embedded in a polymer matrix.FRP rebar is commonly used in a variety of applications, including bridge decks, parking structures, marine structures, and industrial floors. It is also increasingly being used in residential construction as a reinforcement material for foundations, walls, and slabs.

RANGE OF FRP REBAR:






ADVANTAGES OF FRP OVER TRADITIONAL STEEL BAR

FRP rebar has several advantages over traditional steel rebar:

- **Corrosion resistance:** FRP rebar is non-corrosive, It does not rust or corrode when exposed to water or other corrosive substances. hence it is an ideal material for use in harsh environments.
- **High strength-to-weight ratio:** FRP rebar is much lighter than steel rebar, while still being very strong. This makes it easier to handle and transport, and can also reduce the weight of concrete structures.
- **Electrically non-conductive:** FRP rebar is electrically non-conductive, which means it does not conduct electricity or create electrical currents in concrete structures. This makes it suitable for use in applications where electrical current is present, such as in power plants.
- **Longer service life:** FRP rebar has a longer service life than steel rebar, due to its resistance to corrosion and other forms of degradation. This means that structures reinforced with FRP rebar can last longer and require less maintenance over time.
- **Design flexibility:** FRP rebar can be customized to meet specific design requirements, such as the diameter, length, and placement pattern of the reinforcing bars. This allows for more precise control over the structural properties of the reinforced concrete.

SATYAM COMPOSITES

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FRP REBAR TECHNICAL DATASHEET

TYPE	SCPL-6 MM	SCPL -8 MM	SCPL-10 MM	SCPL -12 MM	SCPL-14 MM	SCPL -16 MM	SCPL-18 MM	SCPL -20 MM
Diameter (mm)	6	8	10	12	14	16	18	20
Tensile Strenght (Mpa)	400	400	450	450	450	500	500	550
Shear Strenght (Mpa)	100	100	105	105	105	110	110	115
Weight (g/m)	150	160	200	230	260	300	450	600
Rod Torque (N.m)	40	45	45	45	45	50	50	50
Anti-Tensile ability of nut (kN)	70	70	80	80	80	80	80	80
Elastic Modulus (Gpa)	35-41	35-41	35-41	35-41	35-41	35-41	35-41	35-41

*All values are approximate

MANUFACTURING PROCESS:

- Fiber selection: The first step is to select the type of fibers to be used, which can include glass, carbon, or aramid fibers. The fibers are typically chosen based on their strength, stiffness, and other properties.
- Resin preparation: The selected fibers are then impregnated with a polymer resin, which can be either epoxy, Isophthalic, or vinyl ester.
- Fiber placement: The fibers are then carefully placed in a mold or mandrel in a specific pattern, such as a helix or a grid. The placement pattern can be customized based on the specific requirements of the application.
- Curing: The resin is then allowed to cure or harden, either at room temperature or in a heated chamber. The curing process can take several hours or days, depending on the type of resin and the curing conditions.
- Cutting and finishing: Once the composite material has cured, it is cut to the desired length and diameter. The ends may be machined or sanded to ensure a smooth, even finish.
- Testing: The finished FRP rebar is then subjected to various tests to ensure that it meets the required strength, stiffness, and other mechanical properties

Applications:

- Bridge Decks and Barrier Walls
- Roads, Parking Garages and Concrete Slabs
- Tunneling and Temporary Reinforcement
- Dams, Sea Walls and Marine Applications

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