

Working with us is easy! In fact, it's even easier than that!



**КОМПОЗИТ
ГРУПП**
ЧЕЛЯБИНСК

Designer and manufacturer of composite polymer
fiberglass rebars

Seven Reasons to Choose Composite Rebars

It does not corrode and is resistant to the impact of aggressive media, including the alkaline environment of concrete.

It is 3 times as strong as steel in terms of tensile strength. In this regard, steel rebars are substituted with composite rebars of a smaller cross-section, which are equal in terms of strength. This reduces the weight and the cost of reinforcement and helps preserve its physical and mechanical properties.

A 9-fold decrease in weight as compared to corresponding steel rebars. Thus, 1 m of dia. 12-mm steel rebars has a weight of 0.89 kg while 1 m of dia. 8-mm composite rebars, which is similar in terms of strength, has a weight of 0.08 kg. This allows for saving on transportation and reduces the weight of the structure.

This allows for saving up to 50 % of the cost when used instead of steel bars. Apart from the fact that composite rebars **only cost 30-40 % of the cost of their steel counterparts**, substantial savings are further achieved through the improvement of the supply logistics system. Composite rebars can be

supplied in coils of 100 m each; one coil, which weighs 8 kg, can be easily transported by a simple Gazelle truck.

Composite rebars have a low thermal conductivity.

For example, the thermal conductivity of glass-fiber rebar constitutes 0.48 W/mK while the same characteristic of steel rebars is 56 W/mK, i.e., 100 times as bad.

They preserve their strength characteristics under the impact of low temperatures. Operating temperatures range from -70 °C to +100 °C.

The composite material is dielectric, **radiolucent, and insensitive to magnetic radiation.**

Composite Group is a dynamic research and manufacturing company that specializes in production and introduction of innovative reinforcing elements made of composite materials and offers composite fiberglass rebars from stock.

Non-metallic composite (fiberglass) rebars are made of glass roving and composite materials. They feature a combination of high strength and corrosion resistance.



Equally efficient substitution

Metal-to-Fiberglass Reinforcement Substitution Table

Metal (class A-III (A400C))	Composite polymer fiberglass reinforcement (CFR)
6 A-III	4 CFR
8 A-III	5.5 CFR
10 A-III	6 CFR
12 A-III	8 CFR
14 A-III	10 CFR
16 A-III	12 CFR
18 A-III	14 CFR
20 A-III	16 CFR

The term "diameter of plastic rebars equal in terms of strength" means the outer diameter, whereat plastic rebars correspond to steel rebars of a given diameter in terms of strength.

Comparative Characteristics of Fiberglass and Steel Reinforcement Bars

Characteristics	Metal (class A-III (A400C))	Composite polymer fiberglass reinforcement (CFR)
Material	Steel	Polymer-linked glass roving based on epoxy resin
Tensile Strength, <i>MPa</i>	390	1,000
Young's modulus, <i>MPa</i>	200,000	55,000
Elongation per unit length, %	25	2.2
Density <i>t/cub.m</i>	7	1.9
Corrosion resistance	Corrosive	Stainless steel
Thermal conductivity	Thermally conductive	Thermally non-conductive
Electrical conductivity	Electrically conductive	Dielectric;
Manufactured profiles, <i>mm</i>	6-80	4-20
Bar length, <i>m</i>	6-12	Any factory length. Also available in coils.
Environmental friendliness	Environmentally friendly	Non-toxic, Hazard Class 4 (low hazard)
Parameters of the equally strong rebar cage under a load of 25 t/m ²	When 8 A-III rebars are used, the mesh size equals 14x14 cm; and the weight, 5.5 kg/m ²	When using CFR 8 rebars, the mesh size equals 23x23 cm, weight 0.61 kg/m ² . 9-fold weight reduction.

Application

In concrete frames of buildings and structures for various purposes;

For light and heavy concrete (foam concrete, cover slabs, floor slabs, and solid foundations);

For layered brickwork;

As anchors for fastening external thermal wall insulation for buildings;

For foundations below the grade level; As meshes and bars in structures;

As flexible bracings for three-layer stone walls of civil, industrial, and agricultural buildings and structures where such walls include a base layer, a veneered layer, and a layer of rigid insulation;

For strengthening the shoreline;

For construction of maritime and port facilities;

For installation of drainage, reclamation, and sanitation networks;

For installation of the roadbed and fencing structures;

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



Restoration work;

Infrastructure facilities for chemical plants;

Products made of concrete with prestressed and unstressed reinforcement (lighting poles, OPTL poles, OPTL insulating traverses, road surface and sidewalk slabs, fence slabs, curbs, poles and supports; railway sleepers; fittings for manifolds, pipeline and pipeline route (district heating, cable conduits) utility systems;

For construction of houses made of non-removable formwork;

This material is potentially attractive for creation of earthquake-resistant flanges of both existing and newly constructed buildings and structures.



Composite rebars are used in accordance with the requirements of design documents for frames of buildings and structures for various purposes. This material is designed for use in industrial, civil, and road construction.



+7 (351) 215-22-23, 725-89-28



armatura@composit-group.ru

36 2nd Paveletskaya Street, Building 1, Office No. 303,
Chelyabinsk, the Russian Federation 454047

Phone: 8 (351) 215-22-23, 725-89-28

Fax: 8 (351) 725-89-29

armatura@composit-group.ru

compositgroup74.ru



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