



ORLITECH® BAR has the advantage over steel reinforcement in faster installation and less connection. It is one of the best options to replace steel concrete reinforcement to prevent corrosion, reduce the weight of concrete elements, including thickness of precast panels and reduce carbon.

The ORLITECH® BAR is a high-strength, durable basalt fibre bar with a diameter from 2.5-32 mm.

This reinforcement is produced in straight bars with a length of 2 to 12 m. Reinforcement with a diameter of 4 to 10 mm is also available in coils of 50-100M.

We offer bars in two variants, with and without a sand surface treatment. The surface treatment consists of applying a silica sand before the pultrusion process, giving the bar an improved bond to concrete by up to 60%.

The use of ORLITECH® BAR composite reinforcement increases the lifetime of concrete structures as it is unaffected by the presence of chlorides and carbonation. In fact, research suggests the carbonation process will improve the strength of the concrete in the long term. ORLITECH® BAR has a high resistance to corrosion in acidic, alkaline and other corrosive environments.

Technical Data	Composite Bars Orlitech®	Steel Rebar
Diameter mm	4-32 mm	6-32 mm
Tensile Strength MPa	1200	550
Modulus of Elasticity, MPa	50-55	200
Thermal Conductivity W/mK	<0.46	56.00
Density, g/cm ³	2.0	7.85
Electrical Conductivity	Non-Conductive	Conductive
Corrosion and alkaline resistance	High Resistance	Low Resistance
Heat Resistance °C	150	600
Magnetic Characteristic	Non-Magnetic	Magnetic

ORLITECH BAR composite reinforcement has undergone physical and mechanical tests at various universities around the world and is certified against ASTM D7957 – currently the only standard for the use of FRP in reinforced concrete.



6mm ORLITECH BFRP BAR

No	Characteristic	Required (R)/ Declared (D) value
1	Tensile Strength	D: $f_{u,c}$ min. 1100MPa
2	Elongation at 50% of Tensile Strength	D: ϵ_u 1.0% - 1.22%
3	Modulus of Elasticity Tensile Rigidity	D: E: min 43GPa min 1400kN
4	Alkali resistance	D: $R_{et} \geq 63\%$ E_m : min 101%GPa E_A : min 101%kN
5	Fibre Content	D: min 85%
6	Bond Strength	min 11N/mm ²

8mm ORLITECH BFRP BAR

No	Characteristic	Required (R)/ Declared (D) value
1	Tensile Strength	D: $f_{u,c}$ min. 1100MPa
2	Elongation at 50% of Tensile Strength	D: ϵ_u 1.0% - 1.28%
3	Modulus of Elasticity Tensile Rigidity	D: E: min 43GPa min 2400kN
4	Alkali resistance	D: $R_{et} \geq 100\%$ E_m : min 86%GPa E_A : min 103%kN
5	Fibre Content	D: min 86%
6	Bond Strength	min 16N/mm ²

10mm ORLITECH BFRP BAR

No	Characteristic	Required (R)/ Declared (D) value
1	Tensile Strength	D: $f_{u,c}$ min. 1100MPa
2	Elongation at 50% of Tensile Strength	D: ϵ_u 1.18% - 1.36%
3	Modulus of Elasticity Tensile Rigidity	D: E: min 49GPa min 3889kN
4	Alkali resistance	D: $R_{et} \geq 86\%$ E_m : min 92%GPa E_A : min 92%kN
5	Fibre Content	D: min 86%
6	Bond Strength	min 11N/mm ²

Possible use of composite reinforcement:

Civil construction:

Reinforcement of concrete structures
Reinforcement of foundation slabs
Repair and reinforcement of concrete floors, brick and stone walls
Reinforcement and mainly the weight reduction of monolithic and structural elements

Construction and Agriculture:

In the manufacture of concrete barriers and thin-walled elements
Reinforcement of concrete and anhydrite floors
Reinforcement of concrete tanks, sewerage shafts and covers
Reconstruction and redevelopment of buildings and historical objects
Strengthening of water works and coastal structures
Construction of silage pits, gutter reinforcement and troughs

Road and Railway engineering:

Reinforcement of road, pavements, motorways and airfields
Weight reduction and reinforcement of bridges and bridge structures
Reinforcement of retaining walls, road, railway embankments
Reinforcement of concrete sleepers for rail and tram networks
Fencing and non-corrosion barriers