



12.02 XPERT PROFIBRE CW SYSTEM

Heavy Duty Carbon Fibre Reinforced Polymer Wrap

PRODUCT DESCRIPTION

XPERT PROFIBER CW system is a set of externally bonded carbon Fibre texture products along with resin products that enable site installation of the CFRP structural strengthening system on concrete, masonry or timber.

APPLICATIONS

To strengthen structures where flexural and shear reinforcement is required for:

- Increasing loading capacity.
- Complying with standards, regulations, specifications and design philosophies.
- Satisfying structure utilization requirements.
- Structural repairs.
- Protecting structures against natural disasters.

ADVANTAGES

- Thin system with application in layers (max of 3 layers).
- Flexible surface geometry accommodation.
- No corrosion & resistance to external factors.
- Thixotropic solvent free impregnation resin for easy use.
- Multi-functional use as bending or shear reinforcement.

STANDARD

XPERT PROFIBER CW designs are conducted as per ACI 440, FIB 14, and ISIS # 3, 4, 5.

METHOD OF USE

Substrate Preparation: All substrates shall be free from oil, grease or any contaminants. It is recommended to blast clean substrates and clean from all debris or dust. Substrate shall be dry with a maximum moisture content of 4% and should be a minimum of 28 days old. The temperature application range is 10 - 35°C for substrate and ambient temperatures. Dew point of the substrate should be taken into consideration. All corners receiving the fabric shall be rounded to a minimum radius of 10 - 20 mm depending on fabric type.

The bond surface shall be even and free from irregularities, pinholes or formwork marks. Fill all pinholes and smooth irregularities using a twin pack epoxy putty and leveling mortar such as XPERT Quickmast. Adhesion of the impregnation resin values shall not fall below 1.5 N/mm².

Priming: Prepared surfaces should be primed using XPERT Primer. The primer should be applied by rollers at the rate of 0.25 - 0.30 kg/m² and allowed to cure for 24 hours.

Mixing: To ensure proper mixing XPERT Quickmast, a mechanically powered mixer or drill fitted with a suitable paddle should be used. Entire contents of the base and hardener should be poured into a suitable size container and mixed for 3 minutes. Pot life monitoring is crucial, where working in hot weather, components can be cooled down prior to mixing.

TECHNICAL PROPERTIES

XPERT PROFIBER CW: Fibre orientation is 0° (Unidirectional)
Fibre type: E-glass Fibre

Properties for the Impregnation / Encapsulating Resin XPERT Quickmast

CATEGORY	PARAMETERS
Flexural E-Modulus	> 2700 MPa
Tensile strength: BS 6319	> 25 MPa
Adhesive strength: (concrete failure)	> 3.5 MPa
Pot life	90 min @ 25°C 50 min @ 35°C
Open time	30 min
Sag flow	3 - 5 min @ 35°C
Mixing ratio	2:1
Mixed density	≈ 1.1
Compressive strength: BS 6319	> 60 MPa
Flexural strength: BS 6319	> 30 MPa
Color: (Mixed)	Yellowish
Solids:	100%

When overlapping is necessary, always overlap in the Fibre direction with a minimum overlapping distance of 100 mm.

Further renders can be achieved by adding a covering layer of the impregnation resin at a rate of 0.25 kg/m² with quartz sand broadcast to work as the bonding medium for cementitious coatings. Always protect reinforcement from direct exposure to UV rays.

APPLICATION OF PROFIBER CARBON WRAP

Apply the mixed XPERT Quickmast to the prepared substrate using a brush or roller at a rate of 0.275 kg/ m² depending on the roughness of the substrate. Within the open time of the adhesive resin, place the XPERT PROFIBER CW fabric onto the resin in the required direction and carefully work the fabric into the resin using a plastic laminating roller until the resin is squeezed out through the fabric and should be rolled again to encapsulate resin impregnation.

Another coat of XPERT Quickmast is applied over the impregnated fabric at the rate of 0.275 kg/m² so as to insure a complete tight and dense system.

When applying additional fabric layers; apply impregnation resin XPERT Quickmast at a rate of 0.25 kg/m² on the first layer, wet on wet. If the application of the resin was not possible within the open time of the first application, a waiting period of 12 hours shall be observed prior to application of the second layer.

PACKAGING

- XPERT PROFIBER CW is available by roll in plain card board box.
- XPERT Primer is available in 5 and 15 kg/sets.
- XPERT Quickmast is available in 5 and 15 kg/sets.

COVERAGE

- XPERT Primer: 0.25 - 0.30 kg/m² per coat.
- XPERT Quickmast: 0.55 kg/m² per layer for 2 coats.

STORAGE

XPERT PROFIBER CW has an unlimited shelf life, if stored away from UV light. Always store in a shaded temperature-controlled area.