Structural

QUANTOM Structural Systems

QUANTOM® Wrap 115G

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E-Glass Fiber Fabric for Structural Strengthening Systems

Description

QUANTOM® Wrap 115G is a unidirectional E-Glass fiber fabric. When used in conjunction with QUANTOM® EPR3001 or QUANTOM® EPR3301 epoxy laminating resin, the system can provide a dry lay-up or wet lay-up applied composite strengthening system.

Where to Use

Strengthening of reinforced concrete structures, masonry and timber, structural elements on structures such as bridges, parking structures, marine structures, chimneys, silos, tunnels and tanks, pipelines, etc.

Loading increase

- Increasing the live loads in warehouses.
- Increased traffic volumes on bridges.
- Installation of heavy machinery in industrial buildings and vibrating structures.
- Change in building use.

Seismic strengthening

- Column wrapping.
- Shear Strengthening.
- Flexural strengthening.
- Masonry walls out of plane bending prevention.

Damage to structure parts

- Aging of RC structures.
- Aging of construction materials.
- Vehicle impact.
- Fire.

Change in structural system

- Removal of walls or columns.
- Removal of slab sections for openings.

Design or construction defects

- Insufficient reinforcements.
- Insufficient structural ductility.

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Advantages

- Very thin layer ideal for confined spaces.
- Dry lay-up.
- Use for shear, confinement or flexural strengthening.
- Flexible, can be wrapped around complex shapes.
- High strength.
- Light weight.
- Non-corrosive.
- Alkali resistant.
- Low aesthetic impact.

Notes on Resin

Description	First Coat	Inter-Layer Coat
Resin Consumption	1.0-1.2 kg/m2	0.8 - 1.0 kg/m2

Shelf Life

Resins: 2 years in original, unopened packaging.
Store dry at 15° - 25°C (41° - 77°F).
Condition product to 18° - 24°C (65° - 75°F) before using.
Fabric: Unlimited, store dry at 5° - 32°C (41° - 89°F).

Fiber Properties

Primary fiber direction: 0° Unidirectional
Tensile strength: 2300 MPa
Tensile E-modulus: 90 GPa
Elongation: 3.9%
Density: 2.54 gr/cm3
Areal weight: 115 gr/m2
Thicknes: 0.045 mm

Laminate Properties

Laminate thickness:	1.0 mm per layer (impregnated with Quantom® EPR3001/3301)
Ultimate load:	103 kN/m width per layer Tensile
E-modulus:	?kN/mm2 (based on typical laminate thickness of 1.0 mm)

Note: The above values are typical and indicative only. The achievable laminate properties obtained from tensile test are dependant on the impregnating/ laminating resin used and the type of tensile testing procedure. Apply material reduction factors according to the relevant design standard.

How to Use

Surface Preparation: Prepare the surface by sandblasting or grinding. Remove any dust or loose particles by means of an industrial vacuum cleaner. The surface must be clean, free from grease and oil and should be dry with the maximum substrate moisture content of < 4% by weight.
The surface to be bonded must be level, with no irregularities or protrusion > 0.5 mm.
Larger deviations must be leveled with QUANTOM® EPR 311.
The adhesive tensile strength of the substrate being strengthened must be at least 1.5 MPa .
All corners of the structure must be rounded to a radius of 20 mm .

Mixing: Consult QUANTOM® EPR 3301 or QUANTOM® EPR 3001 Product Data Sheet for information on epoxy resin.
Pre-mix each component. Mix entire unit, do not batch. Add contents of component B to component A. Mix thoroughly for 3 minutes with a mixing paddle on a low speed mixing drill (300-400rpm) until uniform in colour. Pour the mixed epoxy into a clean container and mix again for approximately 1 minute at low speed, keeping air entrainment to a minimum.
Pot life starts with the mixing of both components A and B. At low ambient temperature it will be longer, at elevated temperatures it will be shorter. The larger the quantity of mixed material, the

shorter the pot life.

Application: Cut the fabric to the desired length. Then apply the mixed QUANTOM® EPR 3001 or QUANTOM® EPR 3301 epoxy resin directly onto the prepared substrate at a quantity of 1.0 to 1.2 kg/m2 depending on the surface profile, using a trowel, brush or spatula.
Carefully place the fabric onto the resin coating in the required direction with gloved hands and smooth out. Work out any irregularities or air pockets with a plastic spatula or laminating roller. Let the resin squeeze out between the rovings of the fabric.
If more than one layer of fabric is required, apply additional QUANTOM® EPR 3001 0r QUANTOM® EPR 3301 (0.8 to 1.0 kg/m2) within 60 minutes at 20°C after the application of the previous layer. If the waiting time exceeds 60 minutes at 20°C , wait 12 hours before continuing the lay-up process. Then repeat as above.
At low temperatures and/or high relative humidity it may be longer than 12 hours for the surface may become slightly tacky. Before laying up another layer of fabric, the tackiness must be removed. This can be accomplished by washing the surface with a wet sponge or rinsing with water.
To add cementitious top coat systems to the cured epoxy, apply an additional layer of epoxy (15-20 mils) and blind (broadcast) the surface with silica sand to promote adhesion before coating.

Clean Up

Ventilate area. Confine spill. Collect with absorbent material. Dispose of in accordance with current, applicable local, state and federal regulations. Uncured material can be removed with approved solvent. Cured material can only be removed mechanically.

Limitations

Overlapping of the fabric in the direction of the fibers must be 200 mm minimum.

- When placing fabric sheets side by side, overlapping is not necessary.
- Minimum substrate and ambient temperature 4°C .
- Ambient temperature must be 3°C above the Dew Point.
- Maximum service temperature is 60°C .
- Do not thin with solvents.
- Material is a vapor barrier after cure.
- Minimum age of concrete must be 21-28 days depending on curing and drying conditions.
- Prevent exposure of the strengthening system to direct sunlight.
- Protect the freshly applied resin from rain for a minimum of 12 hours.

Disclaimer:

The information, and, in particular, the recommendations relating to the application and end-use of Quantom products, are given in good faith based on Quantom 's current knowledg and experience of the products when properly stored, handled and applied under normal conditions in accordance with Quantom's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Quantom reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users should always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Delivery

Dimensions: 100X0.5 m
Packaging Type: Roll

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General technical data for QUANTOM® structural wrap systems

Product name	Description	Thickness (mm)	Tensile strength(MPa)	Elastisity Modulus (GPa)	Elangation at breack	Areal weight (gr/m2)
QUANTOM®Wrap 300 C	High strength carbon UD fabric	0.168	4950	235	1.9%	304
QUANTOM®Wrap 240 C	High strength carbon UD fabric	0.135	4950	235	1.9%	243
QUANTOM®Wrap 200 C	High Modulus carbon UD fabric	0.112	4950	235	1.9%	202
QUANTOM®Wrap 150 C	High Modulus carbon UD fabric	0.084	4950	235	1.9%	151
QUANTOM®Wrap 300 A	Armid UD fabric	0.210	2800	110	2.0%	300
QUANTOM®Wrap 200 A	Armid UD fabric	0.140	2800	110	2.0%	200
QUANTOM®Wrap 300 B	Basalt UD fabric	0.330	4000	100	3.1%	300
QUANTOM®Wrap 200 B	Basalt UD fabric	0.220	4000	100	3.1%	200
QUANTOM®Wrap 600 G	E-glass UD fabric	0.236	2300	90	3.9%	600
QUANTOM®Wrap 400 G	E-glass UD fabric	0.157	2300	90	3.9%	400
QUANTOM®Wrap 200 G	E-glass UD fabric	0.078	2300	90	3.9%	200
QUANTOM®Wrap 230 G	E-glass UD fabric	0.090	2300	90	3.9%	230
QUANTOM®Wrap 115 G	E-glass UD fabric	0.045	2300	90	3.9%	115

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