

NUPLEX WRAP (DRY)

Carbon Fibre Fabric Remedial Reinforcement System

DESCRIPTION

Nuplex Wrap (Dry) is an externally applied carbon fibre strengthening system for reinforced concrete, masonry or timber. It consists of two components, R300TX epoxy based impregnating resin and Nuplex Wrap UT-70 carbon fibre fabric.

USES

Nuplex Wrap (Dry) can be used to strengthen reinforced concrete structures, brickwork and timber for flexural and shear loads due to:

- Loading increases.
- Damage to structural parts.
- Changes in structural system.
- Design or construction defects.
- Earthquake/seismic requirements.

Nuplex Wrap (Dry) can also be used in reprofiling and confinement work on columns, beams and walls as part of a repair and restoration system.

ADVANTAGES

- Multifunctional, can be used in bending and in shear.
- Low in weight.
- Available in any length.
- Flexible, fits around any given structural element.
- Excellent chemical and weathering resistance.
- Low overall thickness.
- Economic application.
- Easy to use solvent free impregnating resin.

STORAGE AND SHELF LIFE

When not exposed to direct sunlight, Nuplex Wrap UT-70 has unlimited shelf life. R300TX, when stored in the original sealed containers within the temperature range of +5°C to +25°C, this product will keep for a minimum of eighteen (18) months.

SURFACE PREPARATION

The substrate should be prepared by sandblasting or grinding. Any dust, loose particles and laitance should be removed using an industrial vacuum cleaner. The substrate should be free of grease and oil and have a maximum moisture content of 4%.

The surface to be bonded must be level. Steps and formwork marks should be no greater than 0.5mm.

Structural corners should be rounded to a radius of at least 10mm. This can be achieved using a diamond grinding disk.

MIXING

R300TX is supplied in factory proportioned units comprising the correct quantities of Part A and Part B. Thoroughly stir both

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In accepting our goods the customer acknowledges:

- The materials are of a hazardous nature and that the customer is responsible for disposal of the container in accordance with the requirements and regulations of the relevant supervising government.
- The materials have a limited shelf life and must be stored strictly in accordance with the guidelines and specifications relating to the particular product.
- The company gives no warranty as to the applicability for the particular use by the customer and the customer shall be responsible for having to ensure that the materials are fit for the use by the customer.

components separately using a slow running drill/stirrer with a helical paste mixer (max. speed 600rpm).

APPLICATION

If any necessary patching work needs to be done on the surface, this must be done with Corset 300, on the day preceding the actual bonding operations. Application of the Nuplex Wrap (Dry) system can be broken up into 4 steps.

1. Apply the well mixed R300TX to the prepared substrate by lamb skin roller. This seals the substrate and promotes adhesion.
2. Place Nuplex Wrap UT-70 onto the resin coating in the required direction. Carefully work the fabric into the resin with a plastic roller until the resin is squeezed out between the rovings.
3. Application of more than one layer of fabric – apply more resin, as in step 1. This must be done within 1 hour (at 20°C) after the application of the previous layer. If this is not possible, a waiting time of at least 12 hours must be observed before the next layer is applied. Apply the next layer as in step 2.
4. The system can be coated using Surecoat 200 coating for protective or aesthetic purposes.

CLEANING

Clean all tools immediately after use with Nuplex Epoxy Thinners. Wash hands and skin thoroughly in warm soapy water. Cured material can only be removed mechanically.

TECHNICAL DATA (TYPICAL)

Nuplex Wrap UT-70	Carbon Fibre Fabric
Form	High strength carbon fibres
Colour	Black
Weight	300-400g/m ²
Thickness	0.22mm (based on 400g/m ² total area of carbon fibres)
Tensile strength	4400 MPa
Tensile Elastic Modulus	245 000 MPa
Elongation at Break	1.8%
Packaging	Supplied in 500 mm width Length 50 m 300 mm and 1000 mm widths available on request
R300TX	Impregnation
Appearance	Part A: White Part B: Grey Part A + B: Light Grey when mixed
Mix Ratio	A : B = 4 : 1 by weight
Density	1.10 kg / litre (A+B)
Pot Life	100 minutes (at 15°C) 30 minutes (at 35°C)
Open Time	30 minutes (at 35°C)
Viscosity	500cP (A & B)

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Adhesive Strength	4.3 MPa (concrete failure)
Tensile Strength	30 MPa (cured 7 days at 23°C)
Flexural E-Modulus	3800 MPa (cured 7 days at 23°C)
Application Temperature	5°C to 35°C (ambient and substrate)
Packaging	5 kg tins Part A = 4 kg Part B = 1 kg
Consumption Rates	<ul style="list-style-type: none">• Applying R300TX to prepared substrate 0.7 to 1.2kg/m².• Applying R300TX to applied fabric 0.5kg/m².
Design	<ul style="list-style-type: none">• Design calculations must be made and certified by an independent consulting structural engineer.• For design details refer to Nuplex's Structural Strengthening Engineering Guidelines.
Important Notes	<ul style="list-style-type: none">• If required on site, the fabric can be cut by sharp scissors or knife. Never fold the material.• When overlapping, the fabric must extend at least 100mm over the applied fabric (in the fibre direction).• Overlapping is not necessary when placing several fabric webs side by side.• At low temperatures and/or high humidity, the surface of the epoxy and the fabric may become sticky. Before a further coat of adhesive or layer of fabric is applied, the stickiness must be removed with a water soaked sponge, followed by rinsing with plenty of water.• Prevent exposure of the carbon fabric to constant U.V. light.• Ambient temperature during application must be at least 3°C above dew point.• Constant exposure to service temperatures >50°C may affect the performance of the product.
Handling Precautions	<ul style="list-style-type: none">• Avoid contact with the skin, eyes and avoid breathing it's vapour.• Wear protective gloves when mixing or using.• If poisoning occurs, contact a doctor or the Poisons Information Centre.• If swallowed, do NOT induce vomiting. Give a glass of water.• If skin contact occurs, remove contaminated clothing and wash skin thoroughly.• If in eyes, hold eyes open, flood with water for at least 15 minutes and see a doctor.

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