

Chelfix Wrap 301

Unidirectional High Strength Carbon Fiber Fabric
For Strengthening



Product Description Chelfix Wrap 301 is a dry fabric constructed of very high strength, aerospace grade carbon fibers.

Areas of Application

Load Increase:

- Increase in loads in commercial buildings.
- Increase in traffic weight and volume on bridges.
- Installation of heavy equipment in industrial facilities.
- Increase of vibration in structures.

Improve Structural Condition:

- Reduce deformations.
- Reduce stresses in existing structural elements.
- Limit or arrest crack propagation.

Seismic Retrofitting:

- Columns wrapping reinforcement for improving ductility and shear strength.
- Masonry walls reinforcement for improving out-of-plane bending and in-plane shear strengths.
- Beam and slab reinforcement.

Change Structural System (Structural Alterations):

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

Aging and Damaged Structures:

- Aging of old deteriorated construction materials.
- Corrosion of steel bars in concrete.
- Vehicles collision impact on structures (impact damage).

Design or Construction Errors:

- Lack of adequate well-detailed reinforcing bars.
- Inadequate member cross section.
- Substandard concrete material strength.

Advantages

- High strength to weight ratio. Can add significant strength to a structure without adding significant dead load.
- When it's wrapped around the stirrup tightening areas of the column, it acts an additional stirrup.
- Increase the cutting capacity of the column.
- Increases vertical transport capacity when wrapped around circular columns.
- It prevents the wall from being scattered in any kind of wall, in the face of impact and explosion.

Advantages

- When the column is completely wrapped, the stretchability of the column increases in great extent, so there is no breakage in the columns even at larger oscillations.
- The most obvious advantage of the carbon fiber repair method is that it can achieve a multiple of the robustness achieved with conventional methods, even though it adds only a few millimeters of thickness.
- Stronger than steel but much more lightweight, no corrosion problem. it can easily take shape.

Application Instructions

Surface Quality: The surface of the application should be free from all kinds of dust, dirt, weak and volatile particles, cement grout residues, oil and dirt and be dry. Concrete bottom surface should be clean, strong and have sufficient compressive strength (at least 25 N/mm²), its pull-off strength should be at least 1.5 N/mm². Concrete should be strong and have sufficient strength. **Surface Preparation:** The application surface should be cleaned using methods such as applying compressed air to maintain maximum adhesion strength. Weak concrete parts should be repaired and restored with high strength repair mortar. The plaster on the construction element must be removed, the surface must be cleaned, and necessary repairs should be made. CHELFIX WRAP 301 is cut and made ready for application. The prepared CHELFIX EP 3000 TIX is rubbed to concrete. It is then brought onto the CHELFIX WRAP 301 to ensure that the epoxy is adhered to the carbon by hand. In adhesion process, the underlying epoxy is ensured to come out with a slight knurled roller. If the epoxy is insufficient, the CHELFIX EP 3000 TIX is again used to fill the carbon fibers with epoxy. Carbon fibers do not burn but epoxy can ignite after a certain temperature. Because of this reason, very thin epoxy is applied on the carbon plate, then the sand is spread in dry condition and plaster is applied on it. Spreading sand provides adherence between carbon fiber and plaster.

Application Notes / Restrictions

- CHELFIX WRAP 301 systems should be implemented by specialist practitioners.
- Prior to application, the design of the strengthening project must be made by a civil engineer.
- It must be projected and held accountable.
- Final check of the application must be made by universities / independent testing organizations / inspectors.

Technical Data

General Information	
Color	Black
Structure of Material	Carbon
Unit Weight	300 gr/m ²
Grain Size	Dmax : 0.007 mm
Nominal Wall Thickness	0.17 mm
Performance Information	
Tensile Strength	> 4.000 MPa
Modulus of Elasticity	> 230.000 Mpa
Elongation at Break	1.7 %

Packaging

Chelfix Wrap 301 is available in 50 cm x 100 m roll.

Storage

Chelfix Wrap301 has unlimited shelf life in Dry Storage Conditions.