

Carbon G



High Strength Carbon Fabric

Description

Hammerfast Carbon G is a carbon fabric produced from high-strength carbon fiber yarn with a unidirectional weave, and is especially preferred for structural strengthening applications. Despite being five times lighter than steel, the structure of carbon fiber is fourteen times more resistant to tensile stress than steel. It is one of the strongest materials known in the world.

Advantages

- Stronger and lighter than steel.
- Resistant to corrosion.
- Easily formable and adaptable to different shapes.
- Exhibits low thermal expansion and high resistance to heat and chemicals.
- When wrapped around columns, it significantly increases their flexibility and load-bearing capacity, while preventing cracking and spalling.
- Enhances the axial load-carrying capacity and shear strength of columns.
- When applied to walls, it prevents dispersion and fragmentation against impact and blast hazards.

Areas of Use

- Used for the repair of columns and beams in moderately to lightly damaged structures as part of seismic (earthquake) strengthening.
- Used in the repair of corroded bridges, viaducts, columns, and beams.
- Used in the repair and strengthening of historical structures and monuments.
- Used on walls to prevent fragmentation and blowout caused by impact.

Surface Preparation

All residues on the application surface such as paint, plaster, oil, rust, and weak cement laitance must be removed by scraping until the concrete surface is fully exposed, and dust and dirt should be cleaned off using compressed air.

Weak or deteriorated concrete sections on the surface should be broken out and filled using high-strength repair mortars such as

Hammerfast RM-150 T or Hammerfast EP-145 structural repair mortars, and all necessary repairs should be completed.

Before bonding the carbon fabric, the surface should be primed with Hammerfast EP-110 G epoxy primer at a consumption rate of 300–400 g/m². After the primer has fully cured, the bonding process should be carried out..

Application

Hammerfast Carbon G is cut to the required length according to the application area and prepared for use. Hammerfast EP-400 G epoxy carbon fabric adhesive is applied to the surface using a spatula or roller.

The carbon fabric is then firmly pressed onto the surface to ensure proper adhesion and bonding with the epoxy, leaving no air voids. During bonding, Hammerfast EP-400 G adhesive is forced through the carbon fabric using a serrated (spiked) roller.

Throughout this process, the carbon fibers must be fully saturated with the epoxy. The application should be carried out homogeneously over the entire surface so that the epoxy resin emerges uniformly on the top surface. If the epoxy is insufficient, an additional layer of Hammerfast EP-400 G should be applied to the surface. Before the epoxy adhesive cures, fine sand is broadcast over the surface.

Consumption

Hammerfast EP-110 G= 300-400 g/m²

Hammerfast EP-400 G= 1,2-1,5 lt/m²

Technical Properties

Color	Black
Structure	Carbon
Unit weight	300 g/m ²
Roll dimensions	50 cm × 100 m roll
Weave type	Unidirectional
Tensile strength	4200-4900 Mpa
Elastic modulus	240.000 Mpa
Elongation at break	Max. % 2
Thickness	0,17 mm

Note: Values measured at 23 ± 2 °C and 50 ± 5 % relative humidity.

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Important Notes

- Hammerfast Carbon G should be applied by specialized teams.
- The strengthening project design must be prepared by a civil/structural engineer prior to application.
- Final inspections of the application should be conducted by an independent auditor, universities, or certified testing organizations.

Storage and Shelf Life

Unlimited under dry storage conditions.

Safety Precautions

- Keep out of reach of children.
- Do not eat or swallow.
- Keep away from foodstuffs
- Do not inhale or allow contact with skin.
- May cause an allergic reaction.
- In case of contact with eyes, rinse thoroughly with plenty of water and seek medical advice.
- It is recommended to use gloves, goggles, and protective clothing during use.
- Wash hands thoroughly with water after handling.
- For detailed safety information, read the Material Safety Data Sheet (MSDS).

Packaging

50 cm x 100 m roll

Cleaning of Tools

All tools used for bonding carbon fabric should be cleaned immediately after use with an aromatic solvent.

Quality Certificates

- ISO 9001
- ISO 14001

