HiMax™ Non-Crimp Fabrics
For Civil Engineering

Hexcel's HiMax™ non-crimp fabrics are layers of unidirectional fibers that are placed in predetermined orientations and stitch bonded. These multiaxial reinforcements provide strength and stiffness in multiple directions depending on the controlled orientation of the fibers.

The HiMax™ range of carbon and glass non-crimp fabrics provides superior structural reinforcement for the construction and repair of buildings, bridges, roads, pipes and numerous other civil engineering applications.

HEXCEL®

Superior Structural Reinforcement and Repair

HiMax™ carbon and glass non-crimp fabrics are used in a variety of different civil engineering applications:

- Pipe fittings for water and sewage
- Pedestrian and car bridges and tunnels
- Chambers
- Access covers
- Fences, guard-rails and platforms
- Facades and architectural elements
- Pipe cabling

Hexcel offers a very wide range of HiMax™ non-crimp fabrics for these applications including unidirectional (UD), biaxial, triaxial and quadaxial reinforcements, in carbon, glass and hybrids.

Hexcel works with customers to define the most appropriate fabric architecture, and manufactures fabric samples to enable the customer to run tests against qualification standards.

Leak Management and Pipe Repair

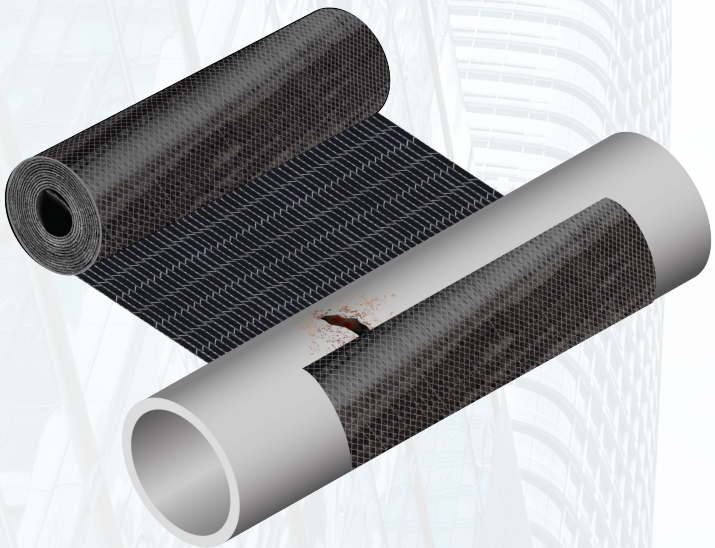
HiMax™ multiaxial carbon fabrics are used to overcome issues of leakage and structural weakening in pipes and other liquid carrying vessels. The carbon fabrics are wrapped around the affected area, a resin system is then applied and cured.

Multiaxial fabrics provide high levels of drapeablity thanks to the textile construction. Carbon is the preferred fiber for pipe repairs, due to the high stiffness, and high modulus carbon is often selected as it enables a thinner patch to be used, accommodating any space limitations.

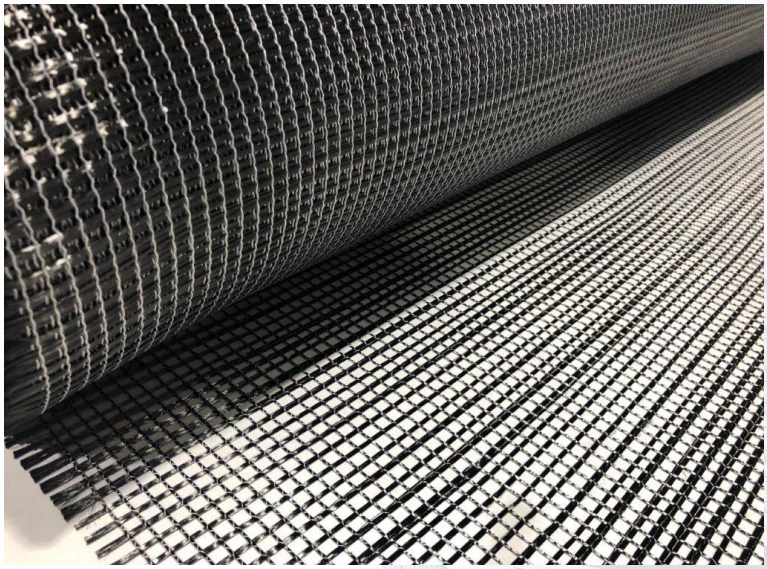
This method of managing and repairing leaks is suitable for all pipe sizes, fittings, valves, vessels and platforms, and is compatible with steel and PVC.

It is a superior alternative to traditional clamping, providing high strength and stiffness and a number of other benefits including fast processing, without any welding. Composites do not corrode so a long service life is assured.

Typical Hexcel products used for this application are heavyweight carbon biaxial and triaxial reinforcements, and E-glass reinforcements that combine short and long fibers.



Fire Protection for Building Structures



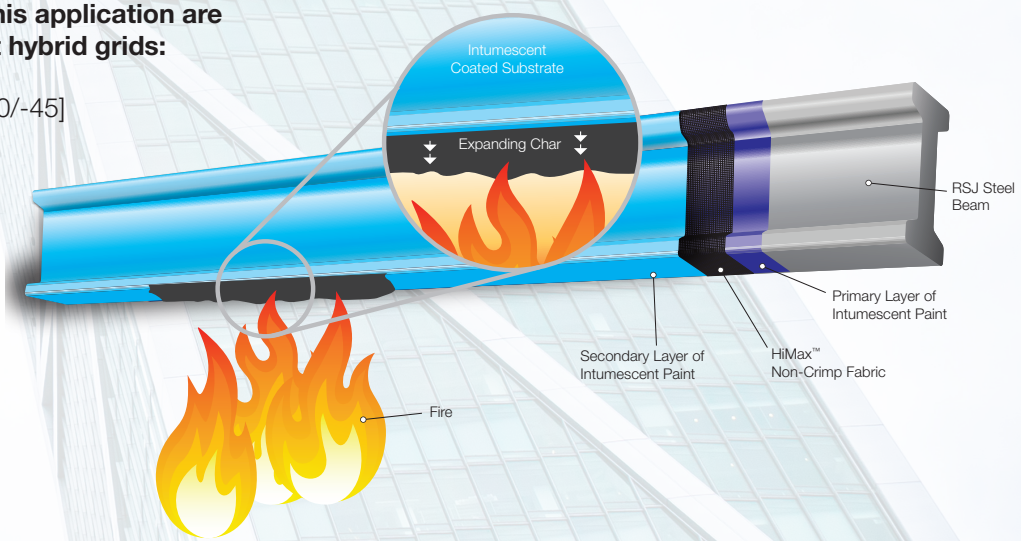
HiMax™ geogrids are “net-like” non-crimp fabrics, made from carbon fibers, basalt fibers, or blend of the two. They are used in combination with hydrocarbon intumescent coatings to protect building structures in case of fire.

The reinforced coating is a passive fire protection measure. The coating expands through the grid when burning to form char that increases in volume to distance the flames and the generated heat from the protected structural members.

Carbon fiber is favored for its higher degradation temperature. In particularly complex and aggressive fire scenarios, the presence of the carbon grid enhances positional stability of the expanded char, preventing flaking and supporting the underlying structure that it protects.

Typical Hexcel products used for this application are HiMax™ carbon and carbon/basalt hybrid grids:

- FCIM372 [C12k, 150 gsm, 0/+45/90/-45]
- XCIM258 [C12k, 200 gsm, 0/90]
- FCIM103 [C50k, 470 gsm, 0/90]
- FBA007-V2 [C3k, 65 gsm, 0/90]



Trust in Hexcel

Structural repair and strengthening with fiber-reinforced composite materials brings economic advantages in the long term thanks to the long service life and low maintenance. Practically, this is achievable only by using materials made with a robust and in-control manufacturing process, guaranteeing high quality and standards.

Stringent safety regulations result in costly and long qualification programs. Hexcel supports and assists customers by identifying the most appropriate tailored solutions for the specific applications and sampling materials for qualification purposes.

Hexcel customers can count on a vast product portfolio, with a very wide range of fabric architecture, combined with a commitment to quality and technology innovations.

Hexcel Product Family

HexTow® Carbon Fiber

HiFlow™ Resins

HexMC®-i Molding Composite

HexForce® Reinforcements

Polyspeed® Laminates & Pultruded Profiles

HexWeb® Honeycomb Core

HiTape® Advanced Reinforcements

Modipur® Polyurethane

HexWeb® Engineered Core

HexPly® Prepregs

HexBond™ Adhesives

HexTool® Tooling Material

HiMax™ Multiaxial Reinforcements

HexAM™ Additive Manufacturing

For more information

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HiMax™ sales are supported by Hexcel's Official Distributor network [link to Hexcel.com]

Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax™ multiaxial reinforcements
- HexPly® prepregs
- HexMC®-i molding compounds
- HiFlow™ RTM resins
- HexBond™ adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles
- HexAM™ additive manufacturing

For US quotes, orders and product information call toll-free 1-866-601-5430. For other worldwide sales office telephone numbers and a full address list, please go to:

http://www.hexcel.com/contact

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