

News TECHNOLOGY

**FRP** - *Fibre Reinforced Polymers*

**VHDRS® CarFib** INNOVAZIONE



Carbon fibre, Glass fibre or other fabrics, plates and connectors for structural strengthening.

Rational systems for anti-corrosion repair of reinforced concrete, structural collaborating with Composite Materials.

Resistant to fire.

Innovative Systems with very high Performance

↘ SYSTEMS

**VHDRS®** *CarFib*

*Very High Durability Repair Systems  
Carbon Fibres & Composite Materials*

- **Rational anti-corrosion Repair**
- **Bi-facial structural collaboration**
- **Structural Reinforcement with *CarFib* Composite Materials**
- **Structural Reinforcement with Mixed Systems**

REFOR-tec® - *CarFib*  
Reactive Forces Technologies

- **Seismic retrofitting**  
*Guideline CNR -DT 200/2004*
- **Systems Resistant to FIRE**

# Rational systems for anti-corrosion repair of reinforced concrete, structural collaborating with Composite Materials.

The causes of degradation are varied but 95% of the problems is due to the corrosion of the reinforcement in the concrete caused mainly by carbonation and/or attack by chlorides

TECNOCHEM ITALIANA S.p.A. has formulated and developed the Systems **VHDRS®** (Very High Durability Repair & Prevention Systems) containing **MuCis®** (Multiple Corrosion Inhibiting Synergies) for the durable repair in function of the diverse situations of degradation and of the various goals of the restoration

Structural reinforcement with Composite Materials are designed for :

- Adaptation to new stresses
- Adaptation to seismic solicitations

Of existing structures in time

**OFTEN DEGRADED**

Proper diagnosis of the physico-mechanical properties of the substrate is essential to establish the quality of repairs

- Mechanical resistance
- Shear resistance
- Modules of elasticity and deformation

Effect of a repair with a normal anti-shrinkage mortar



corrosion of the steel, expansion and cracking

Effect of the repair with the system **VHDRS® MuCis®**




no corrosion, no cracking

The problems of degradation are inevitably and properly addressed before implementing a structural reinforcement

Each system of restoration of reinforced concrete to be effective must be able to withstand considerable stresses from the earliest periods after application.

Durable repairs and rational systems of anti-corrosion repair are essential when you are planning a subsequent reinforcement with composite materials.

## STRUCTURAL ANTI-CORROSION REPAIRS

Protection of exposed reinforcement and reconstruction with structural mortars complying to the STANDARD  EN 1504-3 CLASS R4 or with micro-concrete REFOR-tec®

## REINFORCEMENT WITH CARBON FIBRE FABRICS AND PLATES

- Shear and flexural reinforcement of beams
- Reinforcement of the extrados of vaults
- Flexural reinforcement of floors
- Reinforcement of nodes by shear transfer to the buffers
- Tensile reinforcement of the end of columns and beams.

## HI-TECH INNOVATION

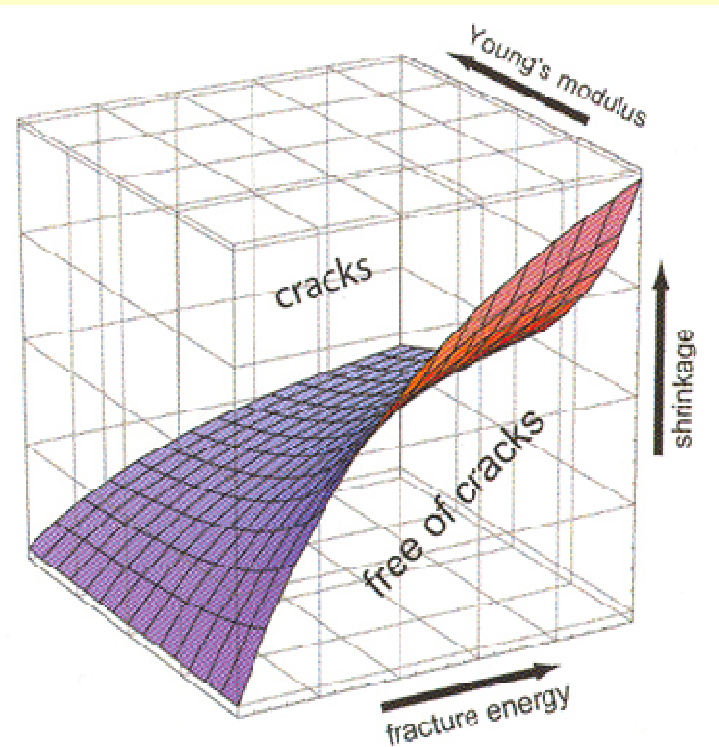
### Mixed Reinforcements for exceptional Performances

Systems **REFOR-tec®** UHPFRCC - Ultra High Performance Fiber Reinforced Cementitious Composites

**1<sup>st</sup> International Award in the "Special Projects" Category for the year 2012 for the STRUCTURAL REINFORCEMENT with SEISMIC RETROFITTING**

United in :

System **VHDRS® CarFib** to improve the local ductility of structural elements and to adapt to loads and stresses expected in the Project.



**SHRINKO-tec®**



**Multiple Corrosion Inhibiting Synergies**

**For the repair and restoration of degraded concrete with special fibre reinforced structural mortars**

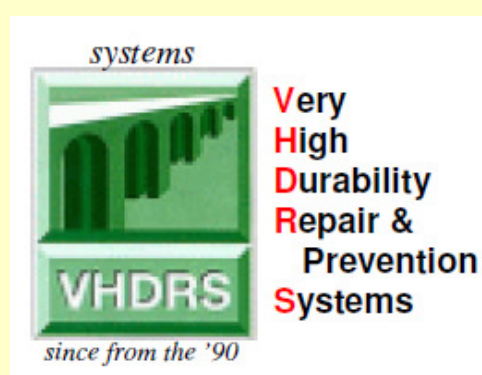
**Anti-corrosion – Anti-shrinkage  
– Very high adhesion to the substrate**

Capable in a very efficient structural collaboration at the interface of repair mortars/concrete

**for the structural strengthening by carbon fibre fabrics or plates and specific epoxy resins**

capable of very effective structural collaboration at the interface with special structural fiber-reinforced mortars

**eventual as thermal shield  
capable to protect the epoxy resins in case of fire.**



**SHRINKO-tec®**



**VHDRS® CarFib**

PRODUCT	DESCRIPTION	SPECIFIC CHARACTERISTICS	USE
MuCis® mia 200	Multiple function migrating and contact corrosion inhibitor for the impregnation of existing concrete structures , with anodic protection. <b>EN 1504-9 principle 11 [CA] -11.3</b>	Anodic and cathodic protection, migrates to the structure, reaches and protects the steel inside.	Recommended for all concrete structures reinforced or pre-stressed particularly when subject to extremely aggressive conditions.
MuCis® PROTEZIONE FERRO bi- component	Premixed thixotropic slurry with passivating activity for corrosion protection of reinforcing bars. <b>EN 1504-7 type ZA.1</b> <b>CE approved Certificate N. 0988 CPD 0645 principio 11 [CA] - 11.1, 11.2 (according Standard EN 1504-9)</b>	Compressive strength : 25 MPa Modulus of elasticity : 8000 MPa Adhesion to concrete : > 2,5 MPa	Anti-corrosion treatment for the steel reinforcement after preparation, and before the application of the repair mortar.
BS 38 MuCis® bi- component	Polymer modified structural repair mortar for repairs and large surface resurfacing. Fibre-reinforced, thixotropic mortar, anti-corrosion, with shrinkage compensation sra, and accelerated setting, also in version HSM (waterproof) <b>EN 1504-3 class R3 Structural</b> (MR2) <b>CE approved EN 998-2</b>	Compressive strength : 32 MPa Flexural strength : 8,5 MPa Modulus of elasticity : 15000 MPa Adhesion to concrete : 2,6 MPa	Anti-corrosion repairs and fairing of reinforced concrete and masonry .
BS 38/39-2,5 MuCis® sra (bi- component)  HFE-tec®	Thixotropic fibre-reinforced structural mortar, anti-corrosion, super-adhesive, with shrinkage compensation sra . <b>CE approved Certificate N. 1305-CPD-0808;</b> <b>EN 1504-3 class R3 structural</b> <b>On concrete and masonry</b> For restoration, including structural on existing reinforced concrete, for repairs, levelling, regularization, smoothing of the substrate, fixings, etc. and structural reinforcement of masonry. Applied with a trowel or spray.	Compressive strength : 40 MPa Flexural strength : 10 MPa Modulus of elasticity : 18000 MPa Adhesion to concrete : 2,3 MPa	For structural anti-corrosion repairs on reinforced concrete. Reinforced renders, deep sealing of joints and cracks, repairs, levelling, regularization, smoothing of the support, fixation. For structural reinforcement of masonry. Applied with a trowel or spray.
BS 91 ANCORA mono and bi- component	Structural pourable mortar, high fluidity, anti-corrosion, for anchoring, reinforcement casting, consolidation. <b>Consumption</b> : 1,9 Kg./m <sup>2</sup> /mm thickness <b>CE approved 1305-CPD-0808 ; EN 1504-3 Class R4</b> <b>CE approved 1305-CPD-0808 ; EN 1504-6</b>	Compression strength : 69 MPa Flexural strength : 9 MPa Modulus of elasticity : 33000 MPa Adhesion to concrete : 2,5 MPa Sliding : displacement < di 0,33 mm with load of 75 kN	Anchoring of reinforcement, backfilling, and inducement of seismic isolators. Rehabilitation of deteriorated structures by casting in moulds. Underpinning. Consolidation of foundations and soil
BS 40 INIEZIONE	Cement based injection slurry with controlled expansion for the injection in concrete or masonry and for anchoring of reinforcement. <b>CONSUMPTION</b> : about 1,65 Kg/l. <b>CE approved 1305-CPD-0808 ; EN 1504-5 ZA.1a</b>	Compression strength : 92 MPa Flexural strength : 10,5 MPa	Consolidating injection on concrete, masonry, rock and foundation soil. Cable filling for post tensioning, or anchoring of reinforcement bars.
BS 5-F	Structural fibre-reinforced mortar, thixotropic, with compensated shrinkage. <b>CONSUMPTION</b> : 1,85 Kg./m <sup>2</sup> /mm thickness <b>CE approved 1305-CPD-0808 ; EN 1504-3 Class R3</b>	Compression strength : 40 MPa Flexural strength : 9,5 MPa Dynamic modulus of elasticity : 26500 MPa Static modulus of elasticity : 21500 MPa	Structural repairs in class R3 of concrete and masonry. Reinforced renders. Applied with a trowel or spray
BS 37	Structural fibre-reinforced mortar, thixotropic, with compensated shrinkage. <b>CONSUMPTION</b> : 1,85 Kg./m <sup>2</sup> /mm thickness <b>CE approved 1305-CPD-0808 ; EN 1504-3 Class R4</b>	Compression strength : 60÷78 MPa Flexural strength : 8,5÷9,5 MPa Dynamic modulus of elasticity : 24000÷30000 MPa Adhesion to concrete : 2 MPa	Structural repairs in the class R4 on concrete and masonry. Reinforced rendering, applicable by trowel or spray-equipment.
BS 37 FPL-LIGHT	Pozzolanic fibre-reinforced lightweight mortar, high-capacity of deformation and fracture energy. Suitable for systems <b>HFE-tec® masonry</b> . <b>RESA</b> : 1,5 Kg/m <sup>2</sup> /mm <b>CE approved 1305-CPD-0808 ; EN 1504-3 Class R2</b> <b>CE approved EN 998-1/OC – mono-layer mortar for external rendering.</b>	Compressive strength : > 20 MPa Flexural strength : > 8 MPa Modulus of elasticity : 12000 MPa Adhesion to stone and concretes: > 1,5 MPa Fracture energy : 3500 N/m Thermal insulation λ= 0,73 W/mK	<b>Systems HFE-tec® masonries</b> - (High Fracture Energy Technologies) - high-energy fracture of masonry new or old by carrying reinforcements with reinforced renders, meshes and connectors in metal or glass fibre. In the case of seismic events, the energy dissipation capacity and increase of the ductility without variations of shear strength of the structure.
LIME INJECTION	Colloidal lime injection for consolidation and re-strengthening of masonry structures. <b>Consumption</b> : 1160 Kg/m <sup>3</sup>	Compression strength : 10-12 MPa Flexural strength : 3,5 MPa Modulus of elasticity : 5000-7500 MPa Adhesion to brick : > 1Mpa	Consolidating injection in walls of brick, stone or mixed with high penetration and low heat of hydration. Great adhesion to stone surfaces, bricks and the reinforcing bars / connectors in steel or glass
LIME INJECTION 9000	Colloidal lime injection for consolidation and re-strengthening of masonry structures. <b>Consumption</b> : 1400 Kg/m <sup>3</sup>	Compression strength : 13 MPa Flexural strength : 3,0 MPa Modulus of elasticity : 9000 MPa Adhesion to brick : > 1Mpa	Consolidating injection in walls of brick, stone or mixed with high penetration and low heat of hydration. Great adhesion to stone surfaces, bricks and the reinforcing bars / connectors in steel or glass
BS 28 / POZ MuCis®	Thixotropic mortar, bi-component fibre-reinforced, with reactive micro-silica, super-adhesive, with low modulus of elasticity, with fibres fib-energy® MC 40/8 for repairs and ductile reparations. <b>CE approved EN 998-2</b>	Compression strength : 30 MPa Flexural strength : 9,0 MPa Modulus of elasticity : 9000 MPa Adhesion to concrete : 2,6 Mpa	For structural repairs and anti-corrosion fairing of masonry.
BS 39 MuCis® (bi-component)	Thixotropic structural mortar, fibre-reinforced, anti-corrosion, super-adhesion, with shrinkage compensation sra. <b>EN 1504-3 class R4 structural</b> (MT3)	Compression strength : 55 MPa Flexural strength : 11 MPa Modulus of elasticity : 22300 MPa Adhesion to concrete (Autostrada method): 11,11Mpa	For structural repairs and anti-corrosion fairing of concrete and masonry
REFOR-tec® GF5/ST-HS	Micro-concrete UHPFRCC (Ultra High Performance Fibre Reinforced Cementitious Composite)	Compression strength : 130 MPa Flexural strength : 32 MPa Direct tensile strength : 8,5 MPa Shear strength : 16 MPa Modulus of elasticity : 38000 MPa Adhesion to concrete : >3 MPa	Structural strengthening and retrofitting with absorption and transfer of shear or tensile stress in the face of events with high dynamic loads, for jacketing of beams, columns, walls and nodes

ANTICORROSION REPAIR AND PROTECTION FOR REINFORCED CONCRETE

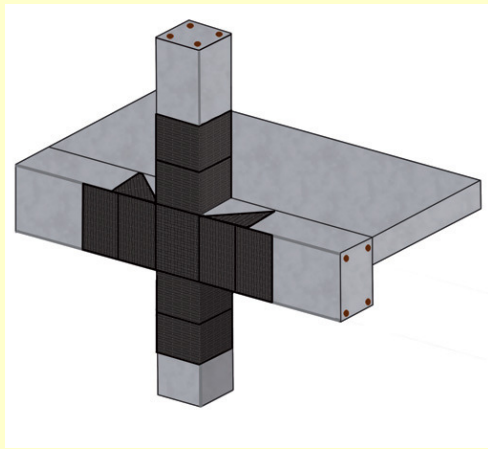
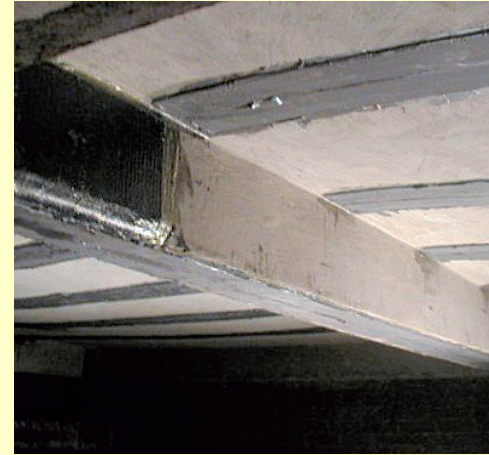
RESINS	<b>Tecnoepo R</b>	Epoxy-amine based product modified with reactive diluents, formulated as an adhesive-putty paste, high thixotropy, two-component, room temperature curing <b>Guidelines CNR - DT 200/2004.</b>	Compressive strength : >50 MPa Flexural strength : >20 MPa Modulus of elasticity : ≥7 GPa Adhesion to concrete: concrete failure Adhesion by direct tensile (steel): >16MPa	For the sealing of cracks, discontinuities in general in concrete, installation of injection nipples, sealing interventions, concrete bonding of steel, tiles, bricks, stones, wood.
	<b>Tecnoepo 700 primer</b>	Epoxy-amine based product, formulated as adhesive promoter, bi-component, hardening at room temperature. <b>Guidelines CNR - DT 200/2004.</b>	Compressive strength : >60 MPa Flexural strength : >45 MPa Modulus of elasticity : ≥7 GPa Adhesion by direct tensile (steel): >20MPa	Priming of the surface that host The reinforcement in composite materials, prior regularization of the same.
	<b>Tecnoepo 701</b>	Epoxy-amine based product, formulated as adhesive /matrix, bi-component, hardening at room temperature. <b>Guidelines CNR - DT 200/2004.</b>	Compressive strength : >50 MPa Flexural strength : >20 MPa Modulus of elasticity : ≥0,9 GPa Adhesion by direct tensile (steel): >20MPa	Adhesive for the gluing of composite materials to the substrate . N.B.: the adhesive must well impregnate the complete fibre.
	<b>Tecnoepo 701/L</b>	Epoxy-amine based product, formulated as adhesive /matrix, bi-component, hardening at room temperature. <b>Guidelines CNR - DT 200/2004. EN 1504-4 table ZA. 1a</b>	Compressive strength : >60 MPa Flexural strength : >35 MPa Modulus of elasticity : ≥4 GPa Adhesion by direct tensile (steel): >16MPa	Adhesive for the gluing of pultruded composite laminate plates to the substrate.
	<b>Tecnoepo 400</b>	Adhesive for structural bonding. CE approved 1305-CPD-0808;EN 1504-4 ZA. 1a and ZA. 1b Product for structural bonding of reinforced concrete with adhering mortar, of adhering concrete or for bonding of plates.	Compressive strength : >80 MPa Flexural strength : >40 MPa Modulus of elasticity : 5731 MPa Shear strength : >7MPa Direct tensile strength : > 25MPa	As adhesive for : -castings (fresh concrete on fresh resin) -assembly of elements of structures made of concrete -assembly of prefabricated elements (segments) -grouting of anchor bolts and studs -reinforcement bars or steel plates.
	<b>Tecnoepo IN03</b>	Epoxy resin at very low viscosity for the structural injection in reinforced concrete with transmission of stresses. CE approved 1305-CPD-0808 ;EN 1504-5 ZA.1a	Compressive strength : >75 MPa Flexural strength : >70 MPa Tensile Load at break : >40 MPa Flexural modulus of elasticity : > 2300 MPa	Sealing rigid cracks and joints in concrete structural elements and / or iron - steel. Sealing joints in masonry floors and roofs. Injection of wood. Specific structural elements: beams, columns and slabs, panels and segments prefabricated;

FABRICS, PLATES, CONNECTORS, NETS IN CARBON FIBRE, GLASS FIBRE, STEEL, OTHER	<b>Tecnofib C240 (300 gr/m<sup>2</sup>)</b>	Carbon macro-fibre fabric, uni-directional. Tensile modulus of elasticity 240 GPa. Weight 300 g/m <sup>2</sup> .	Tensile strength: 4.800 MPa Tensile modulus: 240 GPa Elongation : 2,1% Weight : 300 g/m <sup>2</sup> Calculation thickness : 0,167 mm	Reinforcement of structures in the reinforced concrete, walls, arches, vaults and tunnels.
	<b>Tecnofib C240 (600 gr/m<sup>2</sup>)</b>	Carbon macro-fibre fabric, uni-directional. Tensile modulus of elasticity 240 GPa. Weight 600 g/m <sup>2</sup> .	Tensile strength: 4.800 MPa Tensile modulus: 240 GPa Elongation : 2,1% Weight : 600 g/m <sup>2</sup> Calculation thickness : 0,333 mm	Reinforcement of structures in the reinforced concrete, walls, arches, vaults and tunnels.
	<b>Tecnofib CROSS 230 (300 gr/m<sup>2</sup>)</b>	Carbon macro-fibre fabric, bi-directional. Tensile modulus of elasticity 240 GPa. Weight 300 g/m <sup>2</sup> .	Tensile strength: 4.800 MPa Tensile modulus: 240 GPa Elongation : 2,1% Weight : 300 g/m <sup>2</sup> Calculation thickness : 0,166 mm	Reinforcement of structures in the reinforced concrete, walls, arches, vaults and tunnels.
	<b>Tecnofib TETRA CARB (380 gr/m<sup>2</sup>)</b>	Quadro-axial carbon fibre fabric with high tenacity.	Tensile strength: 4.800 MPa Tensile modulus: 240 GPa Elongation : >1,5% Weight : 380 g/m <sup>2</sup>	Strengthening of structures with a predominantly plate behavior as slab floors, vaults, masonry walls.
	<b>Tecnofib Fiocco C240</b>	Connector made with unidirectional carbon fiber filaments of high tenacity enclosed in a net.	Tensile strength : 4800 Mpa Tensile modulus of elasticity : 240 GPa Deformation till break : 2% Available diameters : 6, 8, 10 or 12 mm	Additional bars in vaults, masonry couples. In the application cycle of reinforced rendering and anti-tilt system, for the fixation of carbon fibre net.
	<b>Tecnofib Fiocco Glass 73</b>	Connector made with unidirectional alkali resistan glass fiber filaments enclosed in a net.	Tensile strength : 2000 Mpa Tensile modulus of elasticity : 73 GPa Deformation till break : 3,5% Available diameter :6, 8, 10 or 12 mm	Additional bars in vaults, masonry couples. In the application cycle of reinforced rendering and anti-tilt system, for the fixation of glass fibre net.
	<b>Tecnofib Fiocco Steel 162</b>	Connector made with filaments uni-directional carbon steel with very high tensile strength and elastic modulus.	Tensile strength : 2800 Mpa Tensile modulus of elasticity : 162 GPa Deformation till break : 1,78% Available diameters : 6, 8, 10 or 12 mm	Additional bars in vaults, masonry couples.
	<b>TECNOPLATE P pultruse (160 GPa)</b>	Pultruded uni-directional carbon plates in different sizes. Guideline <b>CNR - DT 200/2004.</b>	Tensile strength: 2600 Mpa Tensile modulus of elasticity: 160 GPa Elongation: 1,4%	Strengthening of reinforced concrete structures
	<b>TECNOPLATE P pultruse (210 GPa)</b>	Pultruded uni-directional carbon plates in different sizes. Guideline <b>CNR - DT 200/2004.</b>	Tensile strength: 2400 Mpa Tensile modulus of elasticity: 210 GPa Elongation: 0,95%	Strengthening of reinforced concrete structures
	<b>TECNOPLATE P pultruse (250 GPa)</b>	Pultruded uni-directional carbon plates in different sizes. Guideline <b>CNR - DT 200/2004.</b>	Tensile strength: 2300 Mpa Tensile modulus of elasticity: 130 GPa Elongation: 1,3%	Strengthening of reinforced concrete structures .
	<b>TECNOBOLT®</b>	Carbon fibre rod, obtained by pultrusion process of carbon fibre and impregnation with epoxy resin. <b>Guidelines CNR - DT 200/2004.</b>	Tensile strength: 1724 Mpa Modulus of elasticity: 160 GPa Elongation: 1,8%	Strengthening of masonry vaults and domes, repair of cracks in walls and brick arches, flexural strengthening of wood structures.
	<b>TECNOFIB C390</b>	Carbon macro-fibre fabric, uni-directional, with tensile modulus of elasticity 400 GPa. High elasticity modulus. <b>Guidelines CNR - DT 200/2004.</b>	Tensile strength: 4800 MPa Tensile modulus: 390 GPa Elongation : 1,2% Weight : 300/400g/m <sup>2</sup> Calculation thickness : 0,167/0,222 mm	Reinforcement of structures in the RC, walls, arches, vaults and galleries.
	<b>TECNOFIB GLASS 73</b>	Uni-directional glass fibre textile. Tensile modulus 73 GPa. Low rigidity . <b>Guidelines CNR - DT 200/2004.</b>	Tensile strength: 2.300 MPa Tensile modulus: 73 GPa Elongation : 3,5% Weight : 160/300g/m <sup>2</sup> Calculation thickness : 0,063-0,120 mm	Reinforcement of walls, backfilling, floors.
	<b>TECNOFIB GLASS NET 73</b>	Bi-directional balanced, glass fibre net. Tensile elasticity modulus 73 GPa. Low rigidity . <b>Guideline CNR - DT 200/2004.</b>	Tensile strength : 2600 Mpa Tensile modulus : 73 GPa Weight : 180 g/m <sup>2</sup> Calculation thickness: 0,141 mm	Reinforcement of walls, curtain walls, arches, vaults and concrete structures
	<b>TECNOFIB GLASS NET 10</b>	Glass fibre net particularly indicated for the reinforcement of mortars, and backfilling, even in seismic areas. <b>Guidelines CNR - DT 200/2004.</b>	Width of grid : 10 x 10 mm Weight 140 g/m <sup>2</sup> Tensile strength > 1.900 N/ 5 cm warp Elongation 4,5%	Reinforcement of walls, curtain walls, arches, vaults and concrete structures
	<b>TECNOFIB GLASS NET G8</b>	Bi-directional glass fibre net, balanced type. <b>Guidelines CNR - DT 200/2004.</b>	Tensile strength : 60 kN/m Tensile elasticity modulus : 73 GPa Weight : 220 g/m <sup>2</sup> Grid : 8,3 x 9,5 mm	Reinforcement of walls, curtain walls, arches, vaults and concrete structures
	<b>TECNOFIB GLASS NET 510</b>	Glass fibre mesh, with alkali-resistant treatment for the reinforcement in seismic areas. <b>Guidelines CNR - DT 200/2004.</b>	Elongation till break : 3,5 % Tensile load till break : Warp >6.600 N/5cm Weft > 6.200 N/5cm Medium thickness of the mesh : 0,95 mm weight : 510 g/m <sup>2</sup> Dimension grid 10x8 mm	Reinforcement of walls, curtain walls, arches, vaults and concrete structures
	<b>TECNOFIB TETRA GLASS</b>	Reinforcement system with quadro-axial glass fibre mes, balanced type. <b>Guidelines CNR - DT 200/2004.</b>	Tensile strength: 2.600 MPa Tensile modulus: 73 GPa Weight : 123-240g/m <sup>2</sup> (on request)	Reinforcement of walls, backfilling, arches, vaults, concrete structures.
	<b>TECNOFIB GLASS NET 340</b>	Glass fibre mesh, with alkali-resistant treatment for the reinforcement in seismic areas. <b>Guidelines CNR - DT 200/2004.</b>	Width of the grid 28 x 28 mm Weight 340 g/m <sup>2</sup> Tensile load till break : Warp >3.500 N/5cm Weft > 4.600 N/5cm Elongation 3,5%	Reinforcement of walls, curtain walls, arches, vaults and concrete structures

**Tecnofib Stainless Net – STAINLESS STEEL WELDED NET INOX AISI 304**

DISTANCE mm	WIRE DIAMETER mm	WEIGHT Kg/m2
50	2	1
25,4	1,47	1,2
16	1	0,98
11	1	1,13
6,35	0,63	0,70

<b>Heat shield</b>	<p><b>TECNOLITE HS (Heat Shield)</b></p> <p>Superlight render, thermal-insulating, fire-stop, sound absorbing, dehumidification, heat shield : class 0 (in-combustible) (according standard uni en iso 1182-95)</p> <p>REI 115 – RE 180 (according memo n. 91 and decree 30/11/83) with only 30 mm thickness applied.</p>	<p>Thermal conductivity <math>\lambda</math>: from <b>0,1006 W/mK for a dry density of 420 Kg/m<sup>3</sup></b> (rendering as fire-shield, insulation, sound absorption) to <b>0,055 W/mK for a dry density of 240 Kg/m<sup>3</sup></b></p> <p>Vapour diffusion resistance <math>\mu</math>: 5,5</p> <p>Application thickness: 3 - 5 cm</p> <p><u>Incombustible</u>: does not burn or propagates fire , melts &gt;1150°C</p>	<p>Thermal insulation, remediation of environment, dehumidification, sound absorption</p> <p>Rendering : <b>RASTUCCO RASATURA</b></p> <p>Mineral paint : <b>SILPAIN</b></p>
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*Carbon fibre fabric*



*Carbon fibre laminate*

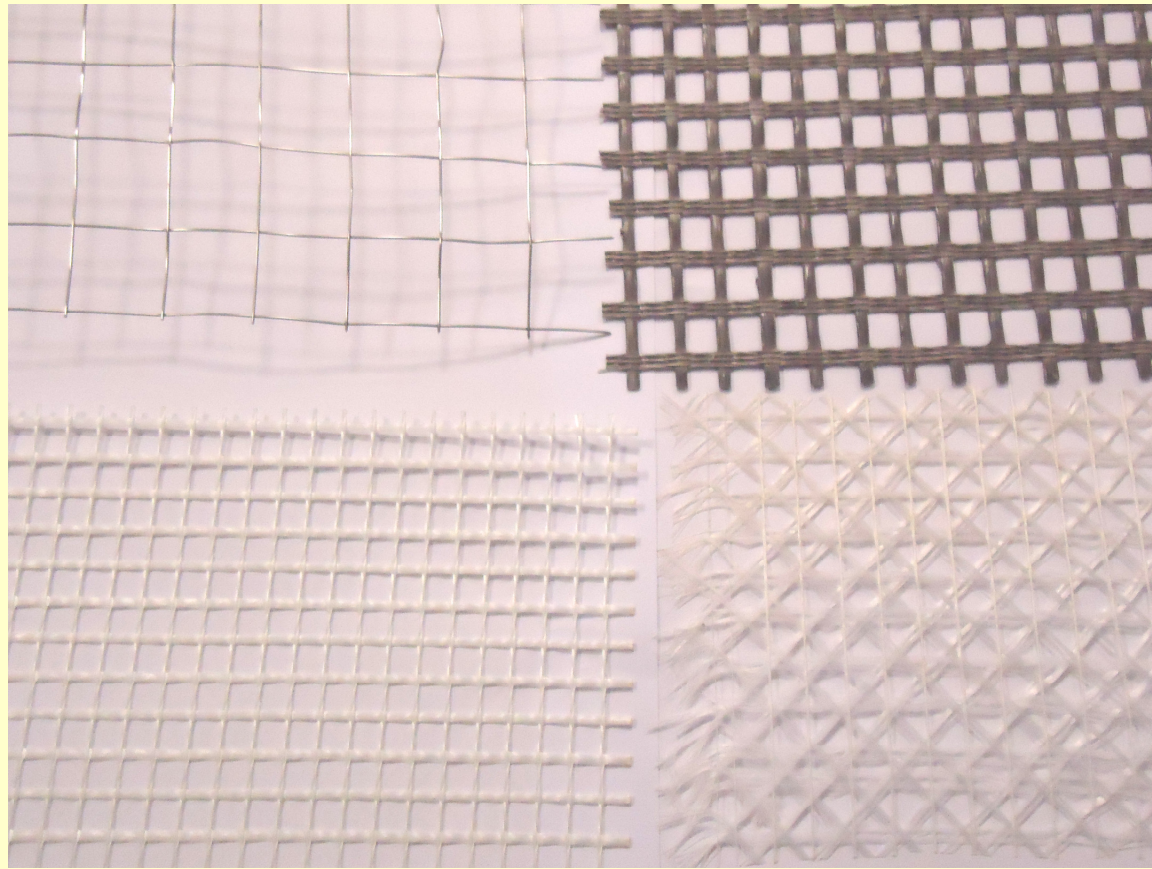


*Pultruded carbon fibre connectors*



*Glass fibre fabric*

*Types of net in Stainless Steel, Carbon fibre, Glass fibre.*



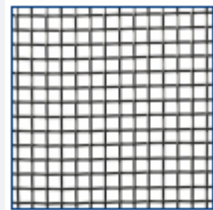
*Tecnofib fiocco C240*



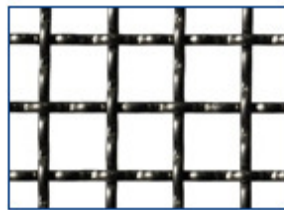
*Tecnofib fiocco Glass 73*



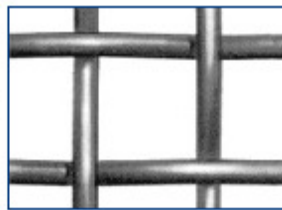
*Tecnofib fiocco Steel 162*



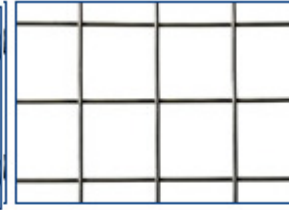
Reti tessute



Reti ondulate

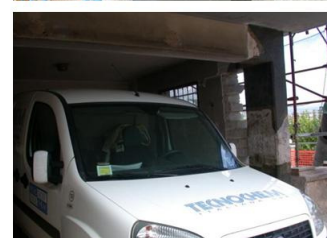


Reti ad alta resistenza



Reti elettrosaldate

**Various Interventions VHDRS® CarFib on NODES - BEAMS - PILLARS**



**NECESSITY:**

**STRENGTHENING OF A REINFORCED CONCRETE FRAME  
ALREADY DAMAGED FROM THE EARTHQUAKE**

**SOLUTION:**

Repair of the structural continuity  
by injection of the structural resin **TECNOEPO IN 03**.  
Consequent application of carbon fibre fabric **TECNOFIB C240**  
+ quadriaxial fabric of carbon micro-fibres **TECNOFIB TETRA CARB**

**Tecnoepo IN 03**

EPOXY RESIN WITH VERY LOW VISCOSITY FOR THE STRUCTURAL INJECTIONS IN  
CONCRETE MICRO - CRACKS WITH STRESS TRANSMISSION  
CE approved - Certificato n. 1305 - CPD - 0808  
EN 1504-5 prospetto ZA.1a

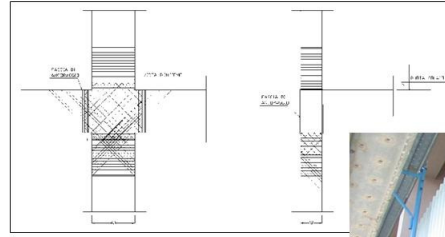
**TecnoFib C240**

REINFORCEMENT SYSTEM WITH CARBON FIBRE FABRICS

**TecnoFib TETRA CARB**

REINFORCEMENT SYSTEMS WITH CARBON FIBRE FABRICS

**Intervention on beam/pillar nodes with carbon fibres**



**CRACKS - FILLINGS**

**Structural adhesives and sealants**

**Tecnoepo R**

GREY



**CRACKS - FILLINGS**

**Tecnoepo IN 03**

EPOXY RESIN WITH VERY LOW VISCOSITY FOR THE STRUCTURAL INJECTIONS IN  
CONCRETE MICRO - CRACKS WITH STRESS TRANSMISSION  
CE approved - Certificato n. 1305 - CPD - 0808  
EN 1504-5 prospetto ZA.1a



**Structural Adhesives**

**Tecnoepo 700 primer**



**TecnoFib C240**

REINFORCEMENT SYSTEM WITH CARBON FIBRE FABRICS



**Tecnoepo 701**



**TecnoFib TETRA CARB**

REINFORCEMENT SYSTEMS WITH CARBON FIBRE FABRICS



**Tecnoepo 701**



**TecnoFib C240**

REINFORCEMENT SYSTEM WITH CARBON FIBRE FABRICS



**Tecnoepo 701**



***Requests for information and/or Assistance :***

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