FIBRO HFR - HIGH FRACTURE RESISTANCE

Supply and installation of three-component pourable grout with diffuse reinforcement using high-strength steel fibers having a consumption of 25 kg /m^2 (components A + B + C) for each centimeter of thickness created.

The product must be used for:
• Structural reinforcement and seismic upgrade/improvement of highly stressed reinforced concrete elements and with the need of high ductility performance
• Structural reinforcement and seismic upgrade/improvement of reinforced concrete, brick-cement, corrugated sheets, wood and mixed brick-steel beam floors
• Reinforcement, restoration and casing of reinforced concrete structures such as beams, even prestressed, pillars, curbs, floors, slabs, etc...
• The product is particularly suitable for thin “RE-LINING” in combination with the AMPHIBIA waterproof membrane in structures subjected to hydraulic pressure

The material must have the following characteristics:
EC Certification according to EN 1504-3 - Class R4

Specification	Test method	Values
Mixture bulk density	-	> 2.5 kg/l
Flexural strength after 1 day *after 7 days* *after 28 days*	UNI EN 196-1 UNI EN 196-1 UNI EN 12190	> 10 Mpa >15 Mpa > 18 Mpa
Compressive strength after 28 days	UNI EN 12190	134.5 MPa
Adhesion to the concrete	UNI EN 1542	4.41 MPa
Compressive modulus of elasticity after 28 days	UNI EN 13412	35.7 GPa
Capillary absorption coefficient	UNI EN 13057	0.14 kg*m^{-2}*h$^{-0,5}$
Average residual flexural strength *CMOD$_1$: 0.500 mm* *CMOD$_2$: 1.500 mm* *CMOD$_3$: 2.500 mm* *CMOD$_4$: 3.500 mm*	UNI EN 14651	 f$_{R1}$: 15.2 MPa f$_{R2}$: 14.0 MPa f$_{R3}$: 12.4 MPa f$_{R4}$: 11.1 MPa
Residual operational tensile strength	UNI EN 14651	 f$_{Fts}$: 13.58 MPa
Residual ultimate tensile strength	UNI EN 14651	 f$_{Ftu}$: 10.86 MPa
Pressurised impermeability	UNI EN 12390-8	8 Bar: no passage
National approvals	**Certificate**	
Environmental Product Declaration 0298 (EPD)	EPDItaly 0298 (30/05/2027) www.epditaly.it	

as well as Fibro Hfr Volteco or a product with equal or superior characteristics.
The technical data must be supported by test certification issued by an accredited official laboratory and / or be subjected to quality control according to ISO 9001.
For further details on the individual products and installation specifications, refer to the relevant technical data sheets which can be downloaded in the updated version on the website www.volteco.com.