

Betonfix HCR EVO/TX

High performance, high ductility thixotropic cementitious grout with fibres



Scheda Tecnica rev.03_04/2026

DESCRIPTION

Betonfix HCR EVO/TX is a two-component system used for non-shrink cementitious grouts, with corrosion inhibitors, fiber-reinforced, with thixotropic consistency, very high mechanical strength at short and long curing, high ductility, high resistance to sulphates.

Part	Packaging	Appearance	Mixing ratio (Ref. To a bag of powder - Part A)
Betonfix CR/HC/TX evo Part A	Bag 25 kg	Powder	25 Kg*
Kimitech FMR Part B	Bag 20 kg	Fibres	1,125 Kg

* The dosage of component B must be equal to 4.5% of component A. Contact the Technical Office for further information.

ADVANTAGES

- High performance: very high compression and flexural strength even in small thicknesses (thanks to the metal fibers, it has a good tensile strength); mechanical development and final adhesion required for r4 mortars already within the first 2 days; high strength/weight ratio; high ductility.
- exceptional values of adherence to the old substrate and reinforcement bars.
- it is characterized by a ductile behavior thanks to metallic fibers; it is an essential property for structural reinforcement and to increase resistance against dynamic stresses and impacts adhesion required for r4 mortars already within the first 2 days; high strength/weight ratio; high ductility.

USES

Betonfix HCR EVO/TX system is used to carry out the restoration and consolidation, in small thicknesses, of inclined structural elements, such as sloping slabs (structural reinforcement with low thickness collaborative extradossal casting for slabs) and for the restoration and

reinforcement of concrete beams and pillars. For the slabs, perform a collaborative extradossal casting which can be contained in 3-4 cm of thickness, even if there is no steel welded mesh..

WORKS





Restoration and consolidation of inclined slabs by means of application of high performance and ductility thixotropic grout (SA120)

CERIFICATIONS

The Betonfix HCR EVO/TX system is CE marked as R4 mortar according to EN 1504-3 ("Structural and non-structural repair") and is made out of the following components:



APPLICATION

	Manual application		Normal curing time: 150 ± 30 mins
			Mixing water: 3,125 lt/ 25Kg
	Max thickness per coat: 25 -100 mm for horizontal application 30-100 mm for vertical application		

The system is ready to use with the simple addition of potable water.

The mixing of the products can be carried out in a simple concrete mixer or preferably with a mechanical mixing unit. Add half of part A (powder) and start mixing adding half the amount of water shown in the table. Mix until a homogeneous and fluid mixture is obtained, then add the remaining part of the powder and the remaining part of water until the desired mixing ratio is obtained. Mix further

for at least another 5 minutes. Weigh the quantity of fibers required in relation to the volume of the casting to be performed and add them gradually (over a period of about 3 minutes), using special fiber routing equipment. Add all the fibers, mix for at least 2-3 minutes.

The substrate must be previously treated by mechanical scarification suitable to guarantee a rough surface, and free of flaking parts, clean and free from dust, grease, oil and release agents in general.

Application on slabs

Check if exposed rods treatment is necessary. Assess the need for insertion of shear connectors to ensure a connection of the system with the existing slab and steel connectors for the connection to the perimetral structures. The presence of the connecting pins is mandatory for low thicknesses castings.

Saturate the area to be treated, taking care to eliminate, at the time of casting, any pools of water.

Prepare the guides (wood or metal), as high as the thickness that has been planned for the reinforcement, to help the operator in the screeding phases of the material. Run the casting Betonfix HCR EVO/TX and, before proceeding with the straight edge, on fresh product with a spiked roller, of suitable thickness, in order to eliminate any air pockets.

Apply Antievaporante W on fresh in order to allow the perfect curing time of casting.

For special application contact the Technical Department.

CONSUMPTION

20 Kg/m²/cm

PACKAGING

- Component A: bag 25 Kg.
- Component B: bag 20 Kg.

STORAGE

Store in a dry, sheltered place; in these conditions and in unopened containers, the product maintains its stability for 12 months.

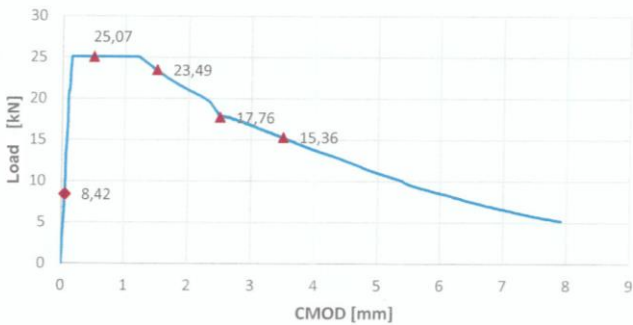
CHARACTERISTICS	VALUE
Color	Grey
Max dimension of aggregate EN 1015-1	6 mm
Bulk of hardened mortar EN 1015-10	2386 ± 50 kg/m ³
Bulk of fresh mortar EN 1015-6	2375 ± 50 Kg/m ³
Curing time (start) EN 196-3	40 ± 10 minutes
Curing time (end) EN 196-3	150 ± 30 minutes
Min. temperature of application	+5 °c
pH of the mixture	12 ± 0,5
Stability EN 196-3	< 10 mm
Exudation UNI 8988	None
Exposure class	X0 XC1, XC2, XC3, XC4 XD1, XD2, XD3 XS1, XS2, XS3 XF1, XF2, XF3, XF4, XA1

CHARACTERISTICS (MIXING WATER 12%)	LIMITS EN 1504-3 FOR R4 MORTARS	VALUE
Compressive strength in 28 days EN 12190 [MPa]	In 28 days ≥ 45	In 1 day ≥ 50 In 7 days ≥ 80 In 28 days ≥ 105
Flexural strength in 28 days [MPa]	Not required	≥ 18
Direct tensile strength in 28 days [MPa]	Not required	8
Secant elastic modulus on compression EN 13412 [GPa]	≥ 20	27
Chloride content EN 1015-17 [%]	≤ 0,05	≤ 0,05
Concrete adhesion (EN 1542) [MPa]	≥ 2	3
Thermal compatibility measured as adhesion (EN 1542) after 30 dry thermal cycles EN 13687-4 [MPa]	≥ 2	> 2
Thermal compatibility measured as adhesion (EN 1542) after 30 thundershower cycles EN 13687-2 [MPa]	≥ 2	> 2
Thermal compatibility measured as adhesion (EN 1542) after 50 freezethaw cycles with de-icing salts EN 13687-1 [MPa]	≥ 2	2,9
Resistance to accelerated carbonation, EN 13295 Depth of carbonation, dk < reference concrete type MC 0.45 a/c	Depth of carbonation, dk < reference concrete type MC 0.45 a/c	OK
Waterproofing (capillary absorption coefficient, EN 13057) [Kg/m ² ·h ^{1/2}]	≤ 0,5	< 0,5

Betonfix hcr evo/tx thanks to the presence of metal fibers is characterized by a ductile behavior, essential for structural reinforcement and to increase resistance against dynamic stresses and shocks.

FLEXURAL TENSILE STRENGTH TEST EN 14651

Graph: Load - CMOD



Characteristics	Value
F_L [KN]	8,42
$LOP f_{ctL}$ [N/mm ²]	2,70
F_1 [KN]	25,07
$F_{R,1}$ [N/mm ²]	8,02
F_2 [KN]	23,49
$F_{R,2}$ [N/mm ²]	7,52
F_3 [KN]	17,76
$F_{R,3}$ [N/mm ²]	5,68
F_4 [KN]	15,36
$F_{R,4}$ [N/mm ²]	4,91
F_{END} [KN]	5,19
F_{END} [N/mm ²]	1,66

F_L : max load for $cmod = 0-0,05$ mm;
 $F_{tct,l} = lop$: limit of proportionality;
 F_j ($j = 1, 2, 3, 4$) : $cmod1 = 0,5$ mm, $cmod2 = 1,5$ mm, $cmod3 = 2,5$ mm, $cmod4 = 3,5$ mm;
 F_{end} ; f_{end} : values at the end of the test
 $Cmod$: crack mouth opening displacement

The energy dissipated, thanks to the ductile behavior, results 10 times higher than the energy we would have in case of fragile failure after the maximum load.

WARNING

Product for professional use.
 The addition of more water than recommended will cause the components to separate and lead to the loss of the product's mechanical and chemical properties.

Do not remix the product by adding water once it has started to set: it will lose all its chemical and physical properties.

Do not add concrete, additives or other Betonfix mortars. Before using, check bags have not been damaged, and do not use the product if there are any lumps.

Use the entire contents once the bag has been opened. Take all necessary precautions to ensure correct curing of castings. Do not use at temperatures below +5 °C.

Wet with water for the first 48 hours, or cover with plastic coverings or damp jute bags.

The Obligations of marking are not related to the intrinsic nature of a given product, but to the use to which a specific material is used: before making the order in Kimia, the buyer shall submit all the documentation available to the works supervision in order to determine the materials suitability (in terms of certifications and performance) in relation to the use for which they are intended.

For further information and advice on safe handling, storage and disposal of chemical products, the user must refer to the most recent Safety Data Sheet, containing physical, ecological, toxicological and other data related to safety.

All technical data shown in this Technical Data Sheet are based on laboratory tests. Actual measurement data may vary due to circumstances beyond our control.

The information and requirements indicated in this Technical Data Sheet are based on our current knowledge and experience and are to be considered, in any case, purely indicative. They cannot guarantee the final result of the applied product and they have to be confirmed by exhaustive practical applications; therefore the user must test the suitability of the product for the intended application and its purpose. Users must always refer to the latest version of the local technical data sheet related to the product.

TECHNICAL SPECIFICATIONS

SK120 - Restoration and consolidation of inclined slabs by means of application of high performance and ductility thixotropic grout

(SK120) Removal of the existing floor and careful removal of the degraded and inconsistent concrete by mechanical scarification to guarantee a rough surface, and free of flaking parts. The surface roughness must be at least 5 mm to ensure adhesion between the existing hood and the reinforcement grout. Make sure the surface is clean and free from dust, grease, oil and release agents in general.

Evaluate the need of a treatment of exposed metal rods. For the treatment of the rods, use Betonfix Kimifer mortar by Kimia S.p.A. or similar product. The product will be applied by brush on the metal reinforcement to be

protected.

Evaluate the need for inserting pegs to ensure a collaborative connection of the system with the existing floor and metal connectors for connection to the perimeter structures.

The rungs must be fixed in advance to the casting to the load-bearing elements of the floor (joists, etc.).

The perimeter metal connectors must be grouted with special epoxy resins, such as Kimitech EP-IN, or cementitious grout, such as Betonfix 200.

Insert connections by means of metal bars, anchored to the curb or perimeter wall, grouted with special epoxy resins, such as Kimitech EP-IN, or cementitious grouts, type Betonfix 200.

Wet the area to be treated and remove any stagnant water at the time of casting.

Prepare guides (in wood or metal), as high as the thickness that has been provided for reinforcement, to help the operator during the material spreading.

For the casting, a high-performance and ductility fiber-reinforced thixotropic cement mortar will be used, such as Betonfix HCR EVO/TX by Kimia S.p.A.

A thickness of about 2-3 cm will be achieved and spread out using a straight edge.

It is advisable to use a bubble breaker, of suitable thickness, to eliminate any air pockets.

Apply an anti-evaporator, ANTIEVAPORANTE W by Kimia SpA on fresh concrete, using a roller or spray. This forms a film that prevents the evaporation of the mixing water in the first phases of hardening of the product and guarantees an excellent degree of curing.

The thixotropic grout for structural interventions will be prepared and applied scrupulously following the indications reported on the technical data sheets supplied by the manufacturer and must have the following characteristics:

- Compressive strength after 28 days EN 12190: 1 day > 50 MPa; at 28 days \geq 105 MPa;
- Elastic secant modulus on compression EN 13412 [Gpa] = 27;
- Tensile strength at 28 days \geq 8 Mpa;
- Flexural strength after 28 days \geq 18 MPa;
- Compliance with concrete (EN 1542) [MPa] \geq 2;

The product will be in possession of reports of tests related to the determination of the compressive elastic modulus and the compressive and flexural strength carried out in notified laboratories.

The mortar will be CE marked as R4 according to EN 1504-3. The manufacturer will be able to provide specific reports related to the initial type tests performed at notified laboratories for the most relevant data (adhesion, carbonation resistance, elastic modulus and

chloride content). In addition to the certifications on the single material, the manufacturer will be able to demonstrate the solidity of its know-how in the sector of restoration of structures in r.c. through experiments on the durability of their own solutions.