

RESTORATION EVEN IN HIGH THICKNESSES OF REINFORCED CONCRETE ELEMENTS WITH THIXOTROPIC MORTARS

Restoration and reinforcement of reinforced concrete elements

APPLICATION DATA SHEET

restoration and protection of degraded reinforced concrete structures with thixotropic mortar through:

1. Removal of the damaged concrete;
2. treatment of the existing metal reinforcement;
3. protective treatment of the reinforcement bars;
4. cortical restoration;
5. skimming;
6. final protective coat.

1) REMOVAL OF THE DAMAGED CONCRETE

The surfaces to be restored must be prepared by completely removing the damaged concrete by hand or mechanical chipping or by other suitable means such as hydro-scarifying, in order to obtain a solid support, free of loose parts and sufficiently rough.

The concrete in contact with the visible metal reinforcements must be removed from each side of bars using a needle gun; the areas to be skimmed will be preliminarily sanded and / or water sandblasted to eliminate any residue of old paint, dirt, disarming, mosses and / or lichens, dust, friable materials in general that would prevent the perfect adherence of the mortar to the substrate.

2) TREATMENT OF THE EXISTING METAL REINFORCEMENT

Perform the brushing of exposed reinforcing bars or proceed with hydro-sandblasting in order to remove the rust and bring the surface to "white-metal" condition (hydro-sandblasting is not necessary if the preparation of the surface has been carried out by hydro-scarification, but it is necessary when a long period of time elapses from this operation due to particular organizational requirements of the site, before the treatment of the reinforcing bars).

3) PROTECTIVE TREATMENT OF REINFORCEMENT BARS

Carry out the protective treatment of exposed reinforcement bars by applying single-component re-alkalizing hydraulic mortar Betonfix KIMIFER with a CE mark in conformity with UNI EN 1504-7, applied with a brush, according to the consumption rates in the Technical Data Sheet, on the metal reinforcement to be protected.

4) CORTICAL RESTORATION

Soak the area to be treated, taking care to remove, when casting, any pools of water (s.s.d. conditions).

Reconstruction of degraded concrete parts by application of ready-to-use anti-shrinkage hydraulic mortar with thixotropic effect added with synthetic fibers Betonfix FB with CE mark according to UNI EN 1504-3 Class R4. The mortar can be applied with a trowel or with a plastering machine, taking care to spread and compact it with a trowel or a ruler.

When applied in several layers (higher than 3 cm), between a coat and the other run the leveling, improve the roughness with a notched trowel and wet the surface before applying the next layer. Wait at least 12-24 hours before laying the next coat.

On large surfaces where the repair mortar is not confined within well-defined areas to be restored, it is advisable to apply the electro-welded 2 wire 5x5 mesh, or other section and mesh indicated by the D.L., fixed to the support with "L" shaped steel pieces and anchored with epoxy resin in previously drilled holes.

5) SKIMMING

Possible protective skimming by applying a double coat of single-component mortar, with excellent characteristics of impermeability to water and to carbon dioxide and resistance to atmospheric agents, freezing and thawing cycles, with high adherence, with maximum granulometry of the aggregates 0, 5 mm, Betonfix RS with CE mark in

conformity with UNI EN 1504-3 Class R2, for an average total thickness of 3 mm finished with trowel or sponge.

In order to increase the durability of the skimming, fiberglass mesh Kimitech 350 can be placed between the two layers of skim coat.

6) FINAL PROTECTIVE COAT

Once the substrate is cured, carry out the anti-carbonation protective coating of the reinforced concrete structure through the use of one-component elastomeric resin with CE mark according to UNI EN 1504-2 Kimicover BLINDO. The resin will be diluted with 10-15% of drinking water and will be applied in a double layer by brush, roller or spray respecting the consumption rates indicated in the Technical Data Sheet.

POSSIBLE ALTERNATIVES

-As an alternative to Betonfix FB it is possible to use: Betonfix RCA, anti-shrinkage thixotropic mortar marked R3 with low modulus.

-For the protection of the reinforcing bars and the restoration it is possible to use: Betonfix MONOLITE N, normal setting anti-shrinkage thixotropic mortar, added with synthetic fibres or with the rapid version Betonfix MONOLITE R.

-As an alternative to Betonfix RS it is possible to use: Betonfix R30, smoothing mortar with max grain size 0.5 mm or Betonfix R52, smoothing mortar with max grain size 0.7 mm.

-As an alternative to Kimicover BLINDO (or to Betonfix RS + Kimicover BLINDO) it is possible to use Kimicover DUO, a two-component elastic cement-based waterproofing system, mixed with 33% of the weight of component B, respecting the consumption rate indicated in the Technical Data Sheet.