

Kimisteel INOX 800

ST4-0622

Stainless steel unidirectional reinforcing fabric with high resistance, used in structural reinforcing system.



DESCRIPTION

Kimisteel INOX 800 is a unidirectional reinforcing fabric made out of micro stainless steel strands, very resistant against corrosion and very useful in case of support affected by rising damp issues and in general exposed to aggressive environments.

The product, combined with inorganic matrix, can be used in consolidation works of existing masonry and RC structures.

Kimisteel INOX 800 is part of Kimisteel INOX 800 SYSTEM which got the CVT n. 207.

ADVANTAGES

- High mechanical resistance guaranteeing reduced thickness and weight of the intervention; this stainless steel fabric has not been affected when tested under salt fog condition and slightly impacted when tested in acid environments.
- The fabric is ideal for the structural reinforcement of prestigious historic-monumental buildings and for all cultural assets subject to protection by the Italian Legislative Decree 42/2004.
- Easy and fast to be applied even in case of safety works.

USES

- Reinforcing masonry and RC structures;
- Construction of reinforced masonry perimetral beams;
- Construction of reinforced masonry structures

WORKS

- Structural reinforcing systems using stainless steel fabrics with organic or inorganic matrix ([SA63](#))
- Stainless steel reinforced masonry perimetral beams ([SA114](#))

APPLICATION

For more details about a specific intervention, please see the technical specifications and technical data sheets of each single product involved.

Prepare the surface to be reinforced with a proper cleaning removing any old material that can affect the adhesion of the reinforcing system and apply eventually mechanical anchoring devices or adequate holes to allow anchoring of the ends of the steel fabric.

If necessary, on irregular surfaces apply as skimming coat an adequate mortar from **Basic**, **Betonfix**, **Tectoria** or **Limepor** range.

Prime the surface, using Kimicover FIX or Kimitech ACR depending on the nature and type of surface, then apply the **Kimitech EP-TX** in case of organic matrix or a high mechanical resistance mortar from **Betonfix**, **Basic** or **Tectoria** range in case of inorganic matrix.

Once applied the first coat of matrix proceed anchoring the stainless steel fabric to the mechanical devices or in the holes previously drilled. Lay the fabric, apply the pre-tension and anchor the other end of the fabric. Using a trowel proceed pushing the fabric allowing the matrix to wrap accurately the micro-strands of the fabric.

Fresh on fresh apply one more coat of matrix, covering all the surface of the applied steel fabric and creating a total thickness of 10 mm.

The product can be used to create connectors for reinforcing systems using the following procedure:

- Drill the holes where is necessary to install the connectors;
- Cut the fabric respecting dimension required; normally, if the intervention is performed just on one side of the wall the dimension of the connectors will be the two-thirds of the thickness of

- the wall plus 10 cm (at least);
- Roll the fabric up;
- Insert the rolled up fabric in the hole and seal with chemicals from Kimitech range or mortar from Basic, Betonfix or Limepro range.

Characteristics of a connector created rolling up a stainless steel fabric with 10 cm of width	Typical value
Fabric width	10 cm
N° strands	16
Nominal steel area (16 strands with 0,483 mm ² nominal section)	7,72 mm ²

PACKAGING

25 m rolls (10 and 30 cm width).

STORAGE

The fabrics is moisture sensitive. Store the product in a dry and covered place.

Characteristics	Kimisteel INOX 800
Colour	Polished steel
Type of stainless steel	AISI 316
Specific weight	7,85 g/cm ³
Grammage	800 g/m ²
Number of strands/10 cm	16
Cable diameter	1 mm
Strand resistant section	0,483 mm ²
Minim tensile resistance of strands	930 N
Fabric width	100 - 300 mm
Theoric steel thickness	0,1 mm
Resistant section per unit width	100 mm ² /m
Tensile elastic modulus Efib [GPa]	177,6
Resistance per unit width of the fabric	123,8 N/mm

DURABILITY

Kimia obtained from certified laboratories results on tensile tests on Kimisteel INOX 800 samples conditioned with aging treatments in order to evaluate the performance of the product when attacked by different aggressive chemical conditions.

In particular the samples have been treated under aging treatments as following:

- Marine environment (salt fog tests – 120 hours);
- Acid environment (acid solution tests – 24 hours).

Comparing resistances at failure before and after the ageing cycles, **Kimisteel INOX 800 was resulted not affected by salt fog aggression and slightly affected by acid solution treatment**; in the latter case a loss of 33% in terms of tensile resistance has been detected.

WARNINGS

Product intended for professional use.

The product is an item according to the definitions of Regulation (EC) n. 1907/2006 and therefore does not

require a Safety Data Sheet.

Never allow the product to come into contact with water or store it in particularly damp conditions before use.

When applying in particularly aggressive areas, consult the Technical Support Service for the best choice of matrix and finish.

The product must be applied so that it is totally submerged in the matrix and there are no areas in which the fabric remains uncovered.

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

SK63 - Structural reinforcing systems using stainless steel fabrics with organic or inorganic matrix

1) Shoring the structure if necessary. Clean the support removing any materials that can affect the good adhesion of next applications. Rounding edges (minimum radius of 2cm). Accurate sealing of existing cracks with suitable resins or mortars. In case the surface to be treated is quite irregular, smooth the surface with adequate hydraulic mortars.

2) Prime the surface with the bi-component epoxy resin in aqueous solution Kimicover FIX by Kimia S.p.A. or similar product, respecting a minimum consumption of 0,3 Kg/m².

The bi-component epoxy primer will be prepared following strictly the instructions indicated in the TDS issued by the manufacturer and it will have the following characteristics:

- Number of components: 2 (A+B);
- Solvent free
- Start setting time at 20°C: 2 hours;
- Minimum application temperature: +5 °C;
- Density (A+B) EN 2811-1: 1,10 ± 0,05 g/cm³;
- Refraction index of resin: 1,550;
- Refraction index of hardner: 1,365.

3) Apply the first coat of **Kimitech EP-TX** by Kimia S.p.A. or similar product in case of organic matrix or a high mechanical resistance mortar from **Betonfix, Basic or Tectoria** range by Kimia S.p.A. or similar products in case of inorganic matrix.

4) Cut the unidirectional stainless steel fabric **Kimisteel INOX 800** by Kimia S.p.A. or similar product, according to the length needed. While the matrix is still fresh, lay the unidirectional, stainless steel fabric **Kimisteel INOX 800** by Kimia S.p.A. or similar product, by trowel slightly pressing the fabric into the matrix, to be sure the steel will be completely embedded inside the matrix. The stainless steel fabric will have the following characteristics:

- Number of strands/10 cm: 16;
- Cable diameter: 1 mm;
- Cable diameter: 1 mm;
- Grammage: 800 g/mq;
- Type of stainless steel: AISI 316;
- Theoretic thickness: 0,1 mm;
- Resistance per unit width of the fabric: 123,8 N/mm.

5) Apply on the steel fabric, the next coat of matrix, by trowel, previously used for glue the fabric on the existing surface.

SK114 – Stainless steel reinforced masonry perimetral beams

1) Clean the support removing any materials that can affect the good adhesion of next applications. Accurate sealing of existing cracks with suitable resins or mortars. In case the surface to be treated is quite irregular, smooth the surface with adequate hydraulic mortars.

2) Lay the first level of bricks. Prime the surface with the bi-component epoxy resin in aqueous solution **Kimicover FIX** by Kimia S.p.A. or a similar product. Apply, by trowel, one coat of high compressive resistance mortar from **Basic**, **Tectoria** or **Limepor** ranges by Kimia S.p.A. or similar products. While the mortar is still fresh lay the unidirectional stainless steel fabric **Kimisteel INOX 800**, by Kimia S.p.A. or a similar product, by trowel slightly pressing the fabric into the matrix, to be sure the steel will be completely embedded inside the matrix.

Apply the second coat of high compressive resistance mortar from **Basic**, **Tectoria** or **Limepor** ranges by Kimia S.p.A. or similar products respecting an adequate thickness to proceed with the next level of bricks.

3) Once created 3 or 4 levels of bricks, drill vertically holes in order to insert connectors capable to anchor the new bricks perimetral beams to the underneath existing masonry walls.