

FILLING OF CRACKS WITH HELICOIDAL BARS IN STAINLESS STEEL OR PULTRUDED

Local interventions

APPLICATION DATA SHEET

Filling of cracks in brick masonry structures, unfired clay and tuff, by inserting helicoidal and pultruded bars through:

1. drilling of holes;
2. insertion of bars and grouting

1A) DRILLING OF HOLES (HELICOIDAL BARS)

Drilling of pilot holes on either side of the crack, with a suitable inclination with respect to its profile (such as to avoid the slipping off helical bars), to be carried out in compact areas of the masonry, for a depth equal to or greater than the length of the bar and in the number planned by the project.

The holes will be made with a smaller diameter than that of the bar; in particular, the hole must have a diameter smaller than about two millimeters (for example, for a ϕ 10 bar a hole with a diameter of 8 mm will be made). The holes will be tilted alternately upwards and downwards with a scheme studied in the design phase.

1B) DRILLING OF HOLES (PULTRUDED BARS)

Drilling of pilot holes on either side of the crack, with a suitable slope (such as to avoid the slipping off of bars), to be carried out in compact areas of the masonry, for a depth equal to or greater than the length of the bar and in the number planned by the project. The holes will be made with a diameter 2-4 mm bigger than the one of the bar and will be sloped alternately upwards and downwards with a pattern studied in the design phase.

2A) INSERTION OF BARS AND GROUTING (HELICOIDAL BARS)

Installation of Kimisteel INOX X-BAR of appropriate diameter and length, inside the hole with chuck Kimisteel SDS DREEL installed on a hammer drill (combined or pickaxe) with SDS Plus connection, with a minimum stroke

of 3 J and a minimum wattage of 700W .

As an alternative it is possible to install the bars with manual pusher Kimisteel MANUAL DRILL.

After installing the Kimisteel SDS Drill on an SDS Plus plug-in drill, install the bar inside the pre-hole, with only percussion until it is completely inserted.

If there is a need to use Kimisteel INOX X-BAR in lengths greater than 50 cm, the bar may bend and can make it difficult to apply; in order to reduce this phenomenon, we recommend the use of suitable extensions for chucks or the use of steel hollow tubes. Once the bars have been inserted, fill the hole with suitable resins of the Kimitech line or mortars of the Betonfix, Limepor or Tectoria lines.

2B) INSERTION OF BARS AND GROUTING (PULTRUDED BARS)

Insert the pultruded bar Kimitech TONDO CB. Then grout with two-component fluid epoxy resin Kimitech EP-IN. Once the bars have been inserted, fill the hole with suitable resins from the Kimitech line or mortars from the Betonfix, Limepor or Tectoria lines.

POSSIBLE ALTERNATIVES

- Kimisteel INOX X-BAR are available in diameters of 6, 8, 10 mm; they are available in AISI 304 INOX steel or AISI 316 INOX steel variants

- As an alternative to Kimitech TONDO CB it is possible to use: Kimitech TONDO VR, fiberglass bar.
For overhead applications and of modest depth, as an alternative to Kimitech EP-IN it is possible to use: Kimitech EPOXY CTR, epoxy resin in cartridge