

# Helix Steel AISI 304

## Cold-drawn stainless-steel helical bar



Helical bar in AISI 304 stainless steel, cold drawn, with high mechanical performance, for the reinforced styling of joints and for connections, including through-holes, on masonry, reinforced concrete, arches and vaults. Suitable for the consolidation of structures in seismic areas; advantageous in combination with hydraulic binders (cement and hydraulic lime) and with resin matrix binders, it particularly facilitates the achievement of physical and mechanical performances in combination with Unisan mortar, with those of the REPAR, GROUT family and with the structural resins of the SYNTECH family. The optional accessory Connector Steel Aisi 304, supplied separately on request, allows the connection between the passing helical bar and the helical bar positioned deeply on the stripped joint.

**CUSTOMS CODE:** 7222 3097

**COMPONENTS:** Single-component

**APPEARANCE:** Roll

**AVAILABLE COLORS:** Steel

**PACKAGING AND DIMENSIONS:** Ø 6 mm Roll 10 m - Ø 8 mm Roll 10 m - Ø 10 mm Roll 10 m - Ø 12 mm Roll 10 m

## FEATURES AND BENEFITS

Helix Steel AISI 304 bars are available in a range of diameters: 6, 8, 10 or 12 mm, all characterised by their durability even in aggressive environments, their high tensile and shear strength, and excellent flexibility. Such characteristics make the use of these bars particularly advantageous in combination with hydraulic binders (cement, hydraulic lime), air binders (air lime) and resinous matrix binders. Flexibility, handling and versatility with various binder matrices, permit the realisation of rapid, non-invasive reinforcement operations, being easy to apply and with low installation costs. Very high mechanical physical benefits come when combined with our mortars of the REPAR, GROUT and Unisan lines and the structural resins of the SYNTECH line.

## FIELDS OF APPLICATION

Reinforcement operations on concrete and masonry structures. Reinforced pointing of joints. Structural one-sided connections or through-holes crossing the entire section. Helical morphology allows optimal gripping on bricks, mortars, stones and on old walls of historical and cultural interest generally. The durability against atmospheric and environmental conditioning makes the use of Helix Steel AISI 304 bars particularly advantageous in the structures affected by the presence of aggressive soluble salts (sulphates, nitrates, phosphates).

## ALLOWED SUPPORTS

Cement-based or lime-based mortars - Bricks - Mixed walls (bricks and stones) - Brickworks - Stone walls - Bricks

## PREPARATION OF SUPPORTS

Reinforced pointing of joints: Deep stripping of joints can ensure the placement of the bar at a depth of a few centimetres from the surface. To remove any loose and crumbly parts (stone, bricks, enticing mortar, etc.). Cleaning and saturation of the substrate with pressure washing. To remove any saline efflorescence by brushing or sandblasting. Connections on masonry, concrete, arches and vaults: Make sure that there are no loose or crumbly parts on the substrate. Stripping of mortar joints. Cleaning and saturation of the substrate with pressure washing. To remove any saline efflorescence by brushing or sandblasting.



## MODE OF USE

Reinforced pointing of joints: Reinforced pointing of masonry joints by filling part of the joint profile with an initial layer of Unisan fibre-reinforced composite mortar (see the data sheet), then on the mortar whilst still wet, inserting the Helix Steel AISI 304 bar before covering with a final layer of Unisan mortar. Press the mortar inside the joint, being sure to press well until totally full and flush with the wall. The temperature of the substrate must be between +5° and +35° C. Connections on masonry, concrete, arches and vaults: After carefully preparing the substrate and before applying the first layer of structural mortar (lime- or cement-based depending on the type of operation), wet with water at low pressure until complete saturation, bearing in mind that a lack of saturation may prevent adhesion and cause cracking in the mortar. If necessary, apply a rough coat of Untersana mortar. Proceed with creating holes of a suitable diameter and inclination (at 45° if the operation is undertaken only on one side of the structural element). Before they are bent in anticipation of the mesh, the connectors emerge from the substrate by at least 10–15 centimetres from flush with the wall. Apply an initial coat of Unisan fibre-reinforced composite mortar (see the technical data sheet) by hand (with stainless steel trowel or putty knife) or with a plastering machine to achieve a thickness of about 1.5 centimetres, leaving the surface sufficiently rough to facilitate the adhesion of the subsequent layer. Alternatively, depending on the structural requirements, mortars of the REPAR line can be used. Place the primed alkaline-resistant fibreglass mesh of the ARMAGLASS STUCTURA line (see the technical data sheet of the selected product), placing it on the still-fresh mortar by passing the Helix Steel AISI 304 connector between the bars of the mesh. After bending the connector, restraining the mesh, apply a second finishing layer of mortar (Unisan or REPAR) at a thickness of about 1.5 centimetres.

## APPLICATION METHODS

Apply by hand

## KEY FEATURES

- ☒ Diameter: 6 / 8 / 10 / 12 mm
- ☒ Nonflammable
- ☒ Unlimited shelf-life
- ☒ UV-resistant
- ☒ Length: 10 m
- ☒ Suitable for contact with drinking water
- ☒ Use wearing protective gloves

## CONSUMPTION

Product to be purchased as needed.

## STORAGE AND CONSERVATION

Store the product in its original packing, in a fresh and dry environment, avoiding frost and direct sunlight.



PHOTO GALLERY



ADDITIONAL CONTENT



GEOMETRIC AND MECHANICAL CHARACTERISTICS	Ø 6	Ø 8	Ø 10	Ø 12
OUTER DIAMETER	6.0 mm	8.0 mm	10.0 mm	12.0 mm
INNER DIAMETER	3.5 mm	4.0 mm	4.0 mm	4.8 mm
CROSS-SECTION RESISTANCE	8.9 mm <sup>2</sup>	10.4 mm <sup>2</sup>	12.9 mm <sup>2</sup>	15.1 mm <sup>2</sup>
LAST TENSILE BREAKING LOAD	9.4 kN	11.1 kN	16.0 kN	18.9 kN
TENSILE STRENGTH	1056 MPa	1067 MPa	1240.03 MPa	1251.65 MPa
ELASTIC MODULUS	122 GPa	122 GPa	122 GPa	122 GPa



## WARNINGS AND PRECAUTIONS

The general information, along with any instructions and recommendations for use of this product, including in this data sheet and eventually provided verbally or in writing, correspond to the present state of our scientific and practical knowledge. Any technical and performance data reported is the result of laboratory tests conducted in a controlled environment and thus may be subject to modification in relation to the actual conditions of implementation.

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