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composite engineering



## STRUTTURA TIXO - TX 259

**CEMENT-BASED, STRUCTURAL, CLASS R4, PREMIXED, POLYMER MODIFIED, THIXOTROPIC MORTAR WITH SYNTHETIC FIBERS FOR REHABILITATION AND REPAIR OF CONCRETE STRUCTURES.**

CODE TX259-25

25 kg bag



**STRUTTURA TIXO - TX 259** is a structural cementitious mortar, thixotropic, polymer-modified, single-component, reinforced with synthetic fibers, with high adhesion to the substrate, resistant to atmospheric agents. The product is suitable for the repair of elements in artworks and road/rail infrastructure, residential civil structures, hydraulic works, industrial facilities, and sports facilities.

High adhesion to the substrate, volumetric stability, resistance to atmospheric agents and freeze/thaw cycles, as well as high mechanical strength even at short curing times, allow for durable, reliable work ensuring a good speed of commissioning of structures.

**STRUTTURA TIXO - TX 259** mortar is also suitable for preparing masonry structure supports for subsequent installation of **FRP** and **FRCM** structural reinforcements, as it ensures high mechanical performance and strong adhesion to the substrate.

The presence of freeze-dried polymers inside the **STRUTTURA TIXO - TX 259** mortar bag, mixed with the powders, avoids the use and disposal of additional plastic containers and contributes to reducing the environmental impact of manufacturing, transportation, and processing processes.

**STRUTTURA TIXO - TX 259** can be applied manually or using a plastering machine for thicknesses ranging from 10 to 50 mm per layer. It can be applied on hydro-blasted surfaces, milled surfaces, or on supports prepared by sandblasting, hydro-sandblasting, or high-pressure water washing (400 bar).



# STRUTTURA TIXO - TX 259

## INFORMATION FOR USE

Average consumption	18,4 kg/m <sup>2</sup> per cm of applied thickness
Mixing water	15 - 17 % (3,75 - 4,25 liters per 25 kg bag)
Granulometry	≤ 3,0 mm
Application	Manual or with a plastering machine (do not use continuous cycle plastering machine without previous mixing)
Color	Cement Grey
Minimum thickness per layer	10 mm
Maximum thickness per layer	50 mm
Application temperature	+ 5 °C / + 35 °C
Mixture's lifespan	60 min.
Packaging	25 kg polyethene paper bag
Storage	12 months in original packaging, intact and protected from moisture

## PERFORMANCE CHARACTERISTICS

**STRUTTURA TIXO - TX 259** meets the performance requirements specified by the European standard **EN 1504-3** for structural mortars of class **R4**, type **PCC** (EN 1504-1), with accreditation system 2+ (VVCP) certified 0925-CPR-ch n°3/2020.

Properties	Test method	Product performance	Minimum requirement according to EN 1504-3
Bulk density of the hardened product	EN 12190	2,0 kg/L	Not required
Bleeding	UNI 8998	Absent	Not required
Chloride ion content	EN 1015-17	≤ 0,05 %	≤ 0,05 %
Elastic modulus under compression	EN 13412	27 ± 2 GPa	≥ 20 GPa
Adhesion to concrete	EN 1542	> 2,0 MPa	≥ 2,0 MPa
Thermal compatibility - Freeze-thaw cycles with de-icing salts - after 50 cycles (measured as adhesion according to EN 1542)	EN 13687-1	> 2,0 MPa	≥ 2,0 MPa
Thermal compatibility - thunder-shower cycling (thermal shock) - after 30 cycles (measured as adhesion according to EN 1542)	EN 13687-2	> 2,0 MPa	≥ 2,0 MPa
Thermal compatibility - Dry thermal cycles - after 30 cycles (measured as adhesion according to EN 1542)	EN 13687-4	> 2,0 MPa	≥ 2,0 MPa
Capillary absorption	EN 13057	≤ 0,3 kg/(m <sup>2</sup> ·h <sup>0.5</sup> )	≤ 0,5 kg/(m <sup>2</sup> ·h <sup>0.5</sup> )
Water impermeability under pressure	EN 12390-8	< 3 mm	Not required
Thermal conductivity (λ) - tabulated value	EN 1745	1,17 W/m·K	Not required
Compressive strength at 1, 7, and 28 days	EN 12190	> 20 / 40 / 50 MPa	>45 a 28 gg
Flexural strength at 1, 7, and 28 days	EN 196-1	> 5 / 8 / 9 MPa	Not required
Exposure class	EN 206	X0-XC1-XC2-XC3-XC4-XD1-XD2-XD3-XS1-XS2-XS3-XF1-XF2-XF3-XF4-XA1	Not required
Resistance to accelerated carbonation	EN 13295	Test passed	Depth of carbonation below concrete according to UNI 1766

# STRUTTURA TIXO - TX 259

Properties	Test method	Product performance	Minimum requirement according to EN 1504-3
Reaction to fire	EN 1504-3	Classe A1	Euroclass
Pull out resistance of steel bars	RILEM-CEB-FIP-RC6-78	> 20 MPa	Not required
Crack resistance	0-Ring test	No cracks at 180 days	Not required

The above-mentioned performances refer to a consistency of 170-190 mm according to UNI 13395/1.

## METHOD OF USE

### PREPARATION OF THE SUBSTRATE

In restoration operations, ensure that the contact surfaces of the substrate are clean, cohesive, free from dust, oils, grease, and traces of paint. The application surface can be roughened by hydro-demolition, milling, or mechanical chipping. Surfaces prepared by sandblasting, hydro-sandblasting, or high-pressure water jetting (400 bar) are also suitable.

In particularly severe environmental exposure conditions, it might be necessary to remove concrete layers that are still structurally sound but carbonated or contaminated by chlorides, as they may no longer provide adequate protection to the reinforcement against corrosion.

Uncovered or superficial reinforcement bars shall be cleaned of any rusting by wire brushing or sandblasting, and treated with a suitable passivating agent with corrosion inhibitors INTEGRA FERRO - FR 718. Check that there is sufficient space between the reinforcement bars and the substrate for the passage of the mortar.

Before carrying out the application, make sure that the surfaces have been pressure-washed, thoroughly saturated, and free of stagnation or water film.

### MIXING

Do not start mixing the product if the ambient temperature or the support temperature is below 5 °C or above 35 °C. For small quantities, never less than full bags, mixing can be done using a mixer with a low-speed whisk.

For larger quantities, use a suitable concrete mixer or a plastering machine with a mixer (do not use continuous cycle plastering machines without previously mixing).

**STRUTTURA TIXO - TX 259** should be mixed with about 3.75 - 4.25 liters of clean water per 25 kg bag. If it's not possible to ensure the proper wet curing of the mortar for at least 24 hours, if necessary add **INTEGRA SPECIAL - SRA 513** water retaining agent to the mixing water to the extent of 0.5 % of the weight of mortar.

Mixing should continue for 4 - 5 minutes until achieving a homogeneous mixture, free of lumps, and sufficiently workable. Never exceed the maximum amount of water.

### APPLICATION

**STRUTTURA TIXO - TX 259** can be applied manually by a trowel using the rendering method or mechanically by spraying with suitable piston or screw plastering machines (do not use continuous cycle plastering machines without previous mixing). The application thickness ranges between 10 and 50 mm per layer. It is possible to apply the product in multiple layers, fresh on fresh after the first initial set, or roughen the surface if applying the second layer the following day, always on a saturated substrate.

### FINISHING

At the first setting, the mortar should be properly troweled to prevent the formation of microcracks, especially in dry and windy weather conditions.

### CURING

It is necessary to protect the **STRUTTURA TIXO - TX 259** mortar by using suitable curing agents, damp cloths, polyethylene sheets placed on the surface, or by spraying a fine mist of water on the surface at regular intervals during the first 24 - 48 hours after application. If it is not possible to ensure the proper wet curing of the mortar for at least 24 hours, especially under high-temperature conditions or strong ventilation, it is possible to add to the mixing water, in an amount of 0.5% by weight of the mortar, the water-retaining agent **INTEGRA SPECIAL - SRA 513**.

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## FINISHING

At the completion of the restoration process, you can apply the finishing plasters from the **STRUTTURA RASO FINO** line and/or the protective coatings from the **PROTECTION** line.

## SAFETY INSTRUCTIONS

During handling and application, wear protective clothing and gloves, goggles, and dust masks. In case of skin contact, wash with soap and water. If there's contact with the eyes, rinse with water and seek medical attention if irritation persists. For safety information, and for product use and storage, refer to the latest Safety Data Sheet.

## WARNINGS

- Do not apply at temperatures below +5 °C or above +35 °C.
- Avoid applying on frozen surfaces or those at risk of freezing within the next 24 hours.
- Do not rework the mixture if the product is hardening, as it may compromise its properties.
- Do not apply on gypsum, loose or crumbling substrates.
- Prevent excessive or rapid drying of the product, and refrain from application in strong winds or excessive sunlight.
- For thicknesses below 10 mm, use products from the **STRUTTURA RASO FINO** line.

## SPECIFICATION VOICE

**STRUCTURE TIXO - TX 259** is a structural cementitious mortar, **R4** class, thixotropic, polymer-modified, reinforced with synthetic fibers (PAN), for the restoration and repair of concrete structures, compliant with the performance requirements specified by the European standard **EN 1504-3 for R4** class mortars of type **PCC (EN 1504-1)**. The product must also meet the detailed requirements in the "PERFORMANCE CHARACTERISTICS" table. The mortar is characterized by high mechanical strength and adhesion to the substrate, resistance to atmospheric agents, suitable for repairing, reinforcing, or rebuilding elements of reinforced concrete and prestressed concrete structures in infrastructure, road, hydraulic, and railway works, as well as civil, industrial, and sports structures. It can be applied manually or with a plastering machine in thicknesses of 10 - 50 mm per layer, always ensuring a minimum cover over the reinforcement of at least 20 mm.

For further information regarding specification items, cost analysis, construction details, and maintenance plans, please contact the Technical Office of Fibre Net Spa

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