

**FIBRE
NET**

composite engineering



STRUTTURA FLUIDO - FL 469

MONOCOMPONENT, SUPERFLUID, SHRINKAGE-COMPENSATED, AIR-EXPANDING STRUCTURAL MORTAR WITH SYNTHETIC AND INORGANIC FIBERS, FOR THE RESTORATION OF CONCRETE ELEMENTS.

COD. FL469-25
25 kg bag



STRUTTURA FLUIDO - FL 469 is a structural mortar designed for the restoration of degraded concrete in elements of infrastructure works, including roadways, railways, civil, industrial, and hydraulic structures.

With shrinkage compensation (during the hydration and setting phases, it undergoes a volume increase to counterbalance the subsequent final contraction due to the physiological shrinkage of cement-based materials), it combines high fluidity, absence of bleeding (the exudation of mixing water due to segregation), and the achievement of high mechanical strengths even with short curing times, providing excellent adhesion to metal elements and concrete.

Suitable for thickening and consolidating reinforced concrete and pre-stressed reinforced concrete structures of all types, for reinforced concrete pours, horizontal pours, or within formwork, for the restoration of degraded concrete thicknesses, or for increasing the cross-section of beams, columns, slabs, repairing industrial flooring, etc.

It is applied both by pouring and pumping using appropriate plastering machines, in thicknesses ranging from 10 mm to 50 mm.



STRUTTURA FLUIDO - FL 469

INSTRUCTIONS FOR USE

Average consumption	20 kg/m ² per each cm of applied thickness
Mixing water	13 - 15 % (3.25 - 3.75 liters per 25 kg bag)
Granulometry	≤ 3.0 mm (EN 12192-1)
Minimum thickness per layer	10 mm
Maximum thickness per layer	50 mm
Application temperature	+ 5 °C / + 35 °C
Pot life of the mixture	60 min
Packaging	25 kg paper-polyethylene bag
Storage	12 months in original packaging, intact, protected from moisture

PERFORMANCE CHARACTERISTICS

STRUTTURA FLUIDO - FL 469 meets the performance requirements set by the European standard **EN 1504-3** for structural mortars of class **R4**, type **CC**.

Properties	Value	Testing
Density of hardened product	2.25 kg/L	EN 12190
Chloride ion content	≤ 0,05 %	EN 1015-17
Bleeding	Absent	UNI 8998
Water restrained expansion	> 0.6 mm/m	UNI 8147 (Method A)
Expansion controlled in air	> 0.4 mm/m	UNI 8147 (Modified Method B)
Elastic modulus	> 27.1 GPa	EN 13412
Adhesion to concrete at 28 days	> 2.0 MPa	EN 1542
Thermal compatibility - Freeze-thaw cycles with de-icing salts - after 50 cycles (measured as adhesion according to EN 1542)	> 2.0 MPa	EN 13687-1
Thermal compatibility - Weather cycles (thermal shock) - after 30 cycles (measured as adhesion according to EN 1542)	> 2.0 MPa	EN 13687-2
Thermal compatibility - Dry thermal cycles - after 30 cycles (measured as adhesion according to EN 1542)	> 2.0 MPa	EN 13687-4
Capillary absorption	≤ 0.2 kg·m ⁻² ·h ^{-0.5}	EN 13057
Thermal conductivity (λ) - tabulated value	1.17 W/m·K	EN 1745
Compressive strength at 1, 7, and 28 days	> 25 / 55 / 65 MPa	EN 12190
Flexural strength at 1, 7, and 28 days	> 7.0 / 9.0 / 10.0 MPa	EN 196-1
Accelerated carbonation resistance	Test passed	EN 13295
Reaction to fire	Class A1	EN 1504-3
Pull-out resistance of steel bars	> 25.0 MPa	RILEM-CEB-FIP RC6-78
Water pressure resistance	< 3 mm	EN 12390-8
Crack resistance	No cracks at 180 days	0-Ring test

STRUTTURA FLUIDO - FL 469

METHOD OF USE

PREPARATION OF THE SUBSTRATE

During restoration operations, ensure that the contact surfaces of the substrate are clean, cohesive, free of debris, dust, oils, grease, and traces of paint. If the application surface is smooth, it must be roughened beforehand and effectively.

It is also always necessary to remove any rust present on exposed or protruding reinforcements using a wire brush or sandblasting. Treat the exposed rebar with **INTEGRA FERRO - FR 718** applied in two coats. Before application, the substrate surface must be cleaned and saturated with pressurized water.

Ensure the removal of any loose patches of the substrate that are detaching from the main body. A few hours before application, thoroughly wet the substrate by filling the formwork with water and removing it until the surface film disappears, immediately prior to starting the intervention.

MIXING

Do not begin mixing the product if the ambient temperature or substrate temperature is below 5 °C or above 35 °C. For small quantities, mixing can be done using a low-speed drill with mixing paddle. For larger quantities, use a pan mixer. **STRUTTURA FLUIDO - FL 469** must be mixed with approximately 3.25 - 3.75 liters of clean water for each 25 kg bag; mixing should continue for 4 - 5 minutes until a homogeneous, lump-free, and sufficiently fluid, + mixture is obtained. Never exceed the maximum amount of water.

It is recommended to add **INTEGRA SPECIAL - SRA 513**, a low-chloride curing liquid additive that reduces shrinkage and promotes proper curing of the mortar, to the mixing water at a rate of 1% of the mortar's weight.

APPLICATION

STRUTTURA FLUIDO - FL 469 can be applied either by pouring or pumping in thicknesses ranging from 10 to 50 mm. For thicknesses greater than 100 mm, contact the technical department of Fibre Net.

When casting within formwork, ensure that the formwork does not absorb water from the mortar (treat it with a suitable release agent). Verify the proper placement of reinforcements and formwork, ensuring they align with the geometry of the structure and the required concrete cover thickness. To prevent the formation of entrapped air bubbles, pouring from opposite sides is strongly discouraged.

In cases where application with thicknesses between 50 mm and 100 mm are required, particularly for large surface areas, it is recommended to add clean aggregate with a maximum diameter of 16 mm (gravel sizes 4—8 mm, 6-12 mm, 8-16 mm) at a ratio of 33% of the total dry mix.

Before applying **STRUTTURA FLUIDO - FL 469**, ensure that the substrate is perfectly clean, saturated with water, and free of any surface water film.

SMOOTHING

During application, the product can be smoothed using a leveling bar to ensure homogeneous distribution, particularly on large surfaces or when working with complex reinforcements.

CURING

After the product has set, ensure proper curing by protecting the surface with a damp cloth or a polyethylene sheet placed over the exposed surface during the first 24 hours. Alternatively, spray the surface with a fine mist of water at regular intervals during the first 24-48 hours after application.

SAFETY INSTRUCTIONS

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

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WARNINGS

Do not apply at temperatures below +5 °C or above +35 °C.
Do not apply on frozen substrates or surfaces exposed to freezing within 24 hours.
Do not apply on gypsum, inconsistent or crumbling substrates.
Do not remix the mixture if the product is in the process of hardening, as this may result in the loss of its characteristics.
Do not apply on large surfaces without providing separation joints.
Do not allow the product to dry excessively and/or too quickly, and avoid application in presence of strong winds or excessive direct sunlight.

SPECIFICATION VOICE

STRUTTURA FLUIDO - FL 469 – Pre-mixed, single-component, superfluid cementitious mortar with compensated shrinkage, high mechanical strength, and adhesion to the substrate. Fiber-reinforced with synthetic and inorganic fibers for the repair, rehabilitation, or thickening of elements in concrete, reinforced concrete, and prestressed concrete elements by casting. Complies with the performance requirements set by **EN 1504-3** for structural mortars of class **R4**, type **CC**. The product must also meet the requirements detailed in the "**PERFORMANCE CHARACTERISTICS**" table.

For further information on specifications, cost analysis, construction details, and maintenance plans, please contact the Technical Department of Fibre Net SpA.

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