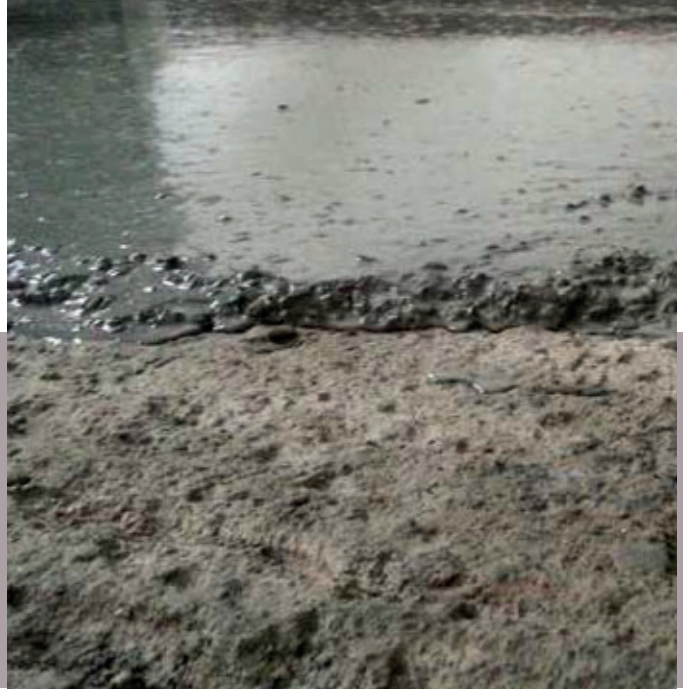
MICRO GOLD STEEL



CE EN 1504-3

CE EN 1504-6

Micro-concrete reinforced with metal fibers for structural reinforcement and seismic retrofit

Micro Gold Steel is a pre-mixed mortar reinforced with metal fibers developed for seismic retrofit and the further reinforcement of reinforced concrete structures even without the use of additional metal components. A highly ductile and lasting mortar, pourable, and strongly adhesive to any type of substrate is obtained with the addition of the proper amount of water.
It has a hardening behavior after the post-cracking phase, that is, it increases the resistance to residual tensile stresses, unlike traditional structural fiber reinforced mortars. This mechanical behavior, characterized by a very high capacity of energy absorption, enables the use of Micro Gold Steel for the seismic retrofit of different reinforced concrete structures adding limited thicknesses ranging from 15 to 45 mm.

- Resistant to freeze/thaw cycles
- Fire resistant
- Tensile strain-hardening behavior
- Easy to apply

THE PRODUCT:

MICRO GOLD STEEL

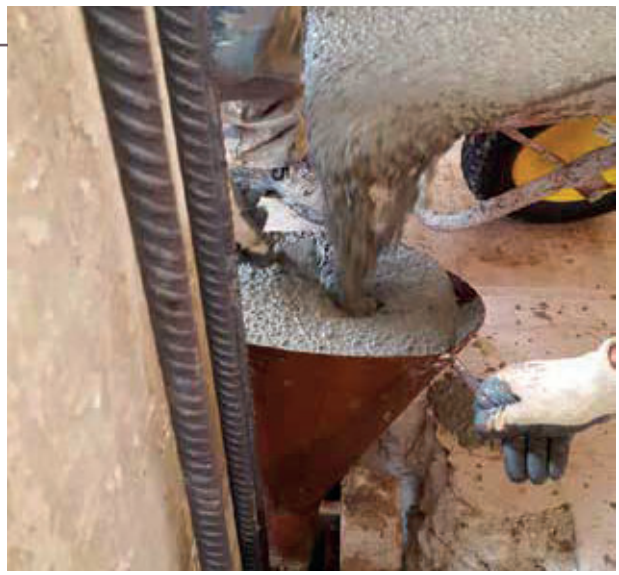
Bi-component micro cement reinforced with steel fibers.

Units of 103.5 Kg approx. composed of:
- **Part A** no. 4 bags of dry premix 25 kg/each
- **Part B** no. 1 box of steel fibers 3.5 Kg.

Complies with the EN 1504 standard
Micro Gold Steel meets the requirements defined in EN 1504-9 ("Products and systems for the protection and repair of concrete structures: Definitions, requirements, quality control and evaluation of conformity. General principles for the use of products and systems") and the minimum requirements of EN 1504-3 ("Structural and non-structural repair") and EN 1504-6 ("Anchoring steel reinforcement") for class R4 structural mortars.

PROPERTIES

- The presence of metal fibers in the cement matrix improves the mechanical characteristics;
- Extremely ductile and tenacity higher than that of traditional fiber-reinforced mortars;
- In the post-cracking phase, the three-dimensional contribution of the fibers increases the ability to absorb energy;
- High mechanical resistance to compression and bending;
- Ability to support loads even after the first cracking occurs;
- Easy and quick application and finishing;
- Resistance to freezing and thawing cycles.



TECHNICAL CHARACTERISTICS

MICRO CEMENT PROPERTIES	MICRO GOLD STEEL
Maximum diameter inert	1 mm
Water for 4 bags of dry premix (100 kg) +1 pack fibers (3.5 kg)	12 – 14 liters
Consistency of the mortar (EN 13395-1)	250 +/- 20 mm
Specific weight of fresh mortar (EN 1015-6)	2,30 ± 0,05 g/cc
Volume of fresh mortar per 100 kg of dry premix	about 50 liters
Restrained expansion 1 day	> 0,04%
Compression resistance at 1; 7; 28 days (EN 12190)	> 70; > 80; > 110 MPa
Tensile strength at 28 days (CNR 204/2006)	7 MPa
Elastic modulus at 28 days (EN 13412)	35 GPa
Bond strength to the smooth bar at 28 days RILEM-CEB-FIP-RC6-78	> 4 MPa
Bond strength to the improved adhesion bar at 28 days RILEM-CEB-FIP-RC6-78	> 25 MPa
Bond strength to concrete at 28 days (EN 1542)	≥ 2 MPa
Reaction to fire (EN 13501-1)	Euroclass A1

SPECIFICATIONS FOR THE SUPPLY	
Package	103.5 Kg Units: Part A no. 4 bags of dry premix mortar 25 kg/each + Part B no. 1 bag of fibers 3.5 Kg
Consumption	About 19,5 Kg/m^2/cm

FIELDS OF APPLICATION

- Application where good serviceability limit states and very high ultimate limit states are required;
- Thin jackets (15-45 mm) even without reinforcement on reinforced concrete structures, beams, joints, foundations, and walls;
- Thin load bearing outer layers (15-45 mm) on slabs made of: brick and cement, wood, beams, bricks, or corrugated sheets;
- Restoration of reinforced concrete beams, pillars;
- Refurbishing of bridge decks;
- Restoration of tunnel crowns;
- Restoration of special pavements (airport runways, etc.);
- Replacement of structural plaster with arc welded steel mesh.