

High Performance Synthetic Fiber Reinforcement For Concrete Application

Description

F Macro is a three - dimensional macro synthetic reinforcement fiber that eliminates the need for steel. F Macro is chemically inert, does not corrode like steel mesh or steel fiber. F Macro fibers are lightweight and will save time and labor costs. F macro fibers, made of 100% virgin copolymer/polypropylene consisting of twisted - bundles of monofilament fiber.



Application area

Mainly used in concrete applications for residual flexural strength and ductility such as;

Slab On Grade

Composite Steel Deck

Toppings

Overlays

Concrete Pavements

Bridge Decks

Shotcrete

Precast Products

anywhere that steel reinforcement reduction or replacement is the objective and cut the costs down.

Composition	100% Virgin Copolymer/Polypropylene
Geometric Shape	Macro synthetic fiber with twisted bundle
Standard	EN 14889-2 Type II, ASTM C1116 Type III, ASTM D7508, ICC AC383
Length	54 mm (min tolerance ± 2%)
Equivalent diameter	0.48-0.50 mm (min tolerance ± 5%)
Aspect Ratio	112
Color	Grey
Specific weight	0.91 grams / cm ³
Elastic modulus	7.2 - 8.5 GPa
Tensile Strength	560 - 650 MPa
Fiber Filament Amount	200.000+ / kg
Corrosion	Non-corrosive
Water absorption	N/A
Chemical resistance	Excellent alkali/acid resistance
Magnetism	Non-magnetic
Melting point	165°C
Ignition point	> 360°C

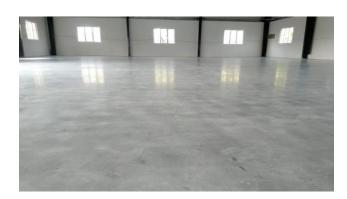
*Provides ductility, high energy absorption and flexural toughness.

Dosing

Depending on the project requirements, recommended dosages vary between 2 kg/m³ and 4½ kg/m³. Homogeneous mixture is obtained by addition of F Macro fiber to the aggregate band at the concrete batching plant or by mixing in a high-speed concrete mixer for at least 5 minutes in the field.

^{*}Provides long term durability without risk of corrosion.







Technical Specifications

- Multidimensional distribution within concrete increases reliability by surrounding the aggregate.
- Significantly reduces application times compared to traditional steel mesh.
- Significantly saves labor costs in large-scale projects.
- Increased shatter, impact and abrasion resistance.
- Prevents shrinkage cracks and eliminates thermal expansion and contraction impacts.
- Supports concrete structure exposed to extreme levels of freeze/thaw.
- Supports the flexural structure of concrete exposed to acid and salty environments.
- Increases ductility and improves energy absorption capacity.
- Eliminates the need for steel mesh and steel fibers by giving structural flexural strength to concrete.

Recommended way to use

Addition

F Macro Fiber is packaged in mixer-ready bags that can be added directly into the concrete mixing system. The fiber should be added during or after batching of the other ingredients – not as the first mix ingredient.

Mixing

When possible, add fibers to a rotating drum. Once all fibers have been added to the batch, mix four to five minutes at standard mixing speed. Road-revolution speed should not be counted as part of the required fiber mixing time.

Slump

Fibers will reduce the visual slump measured by the slump-cone test but has a lesser effect on flow-ability and workability.

To regain any loss of workability or slump, the use of appropriate admixtures is recommended – avoid the addition of water.

Pumping

If the fiber reinforced concrete is to be pumped, it is HIGHLY recommended that the grate on the hopper of the pump truck be a round-bar grate. The use of a vibrator attached directly to the grate is also recommended to aid in movement of the concrete through the grate.