



Concrete Solutions Datasheet

STEEL FIBER CONCRETE

With CEMEX you can be assured of getting the best range of concrete solutions, specifically designed to demanding specifications for various end uses.

Steel Fiber Concrete utilizes steel fibers designed to provide improved performance under intense loading conditions.

This fiber system provides superior resistance to cracking in hardened state concrete, as well as improved resistance to damage from heavy impact and dynamic loading.



Applications:

- Heavy duty flooring applications—internal & external.
- Elevated composite metal decks, bridge decks, mass foundations.
- Jointless industrial floors.
- Civil engineering applications.
- Overlays, patch repair.
- Walls.
- Conventional rebar replacement.

Issues and Solutions

Hardened state advantages

Characteristics	Values
<ul style="list-style-type: none"> • Increases flexural toughness / residual strength. • Provides post-crack performance. • Increases impact and abrasion resistance. 	<ul style="list-style-type: none"> • Increases load bearing capacity. • Potential reduction of concrete slab depth. • Concrete retains load carrying capability after cracking has occurred.

Characteristics and Value (continued)

Working Improvements

Characteristics	Value to customer
<ul style="list-style-type: none"> No requirement for crack control steel mesh. Concrete placement and crack control in ONE operation. Cost effective alternative to conventional rebar reinforcement. Ease of placing and finishing. 	<ul style="list-style-type: none"> No need to purchase and store additional material. No delays to fast track schedule. Easier positioning of control joints. Reduced site labor for on-site handling of reinforcement steel. No secondary steel mesh is required. Potential for reduced project cost.

NOTES:

- Effective control joints and proper curing is essential for all concrete slabs.
- Extended joint designs available.

Final Concrete Performance

Characteristics	Value to customer
<ul style="list-style-type: none"> Effective control joints. Increased residual strengths. Three dimensional reinforcement. Improved impact resistance and containment. 	<ul style="list-style-type: none"> Enhanced durability. Improved flexural properties. Increased resistance to spalling at higher temperatures. Reduced project cost. Improved long term performance for owner.

Cost benefit analysis

- Cost savings in reinforcement steel.
- Faster construction.
- Potential elimination of rebar, chairs.
- Labor cost reduction.

Health and Safety

Contact with concrete may cause irritation, dermatitis or severe alkali burns. There is serious risk of damage to the eyes. Wear suitable waterproof protective clothing, gloves and eye/face protection. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. After contact with skin, wash immediately with plenty of clean water. Keep out of reach of children.

FAQ's

Q. Can fiber be used in structural concrete?

A. Yes, Steel fibers will enhance hardened state properties of structural concrete. Additionally, they are often used to replace supplemental structural reinforcement with proper design and project engineer approval.

Q. Is it more cost-effective to use steel fiber instead WWF?

A. Generally, Yes, However, savings will be greater when heavier types of crack control steel are being replaced. There is also savings in handling and an increase in the site productivity, as the steel is placed with the concrete.

Q. Are any special finishing techniques required?

A. No, the concrete can be compacted and finished normally. Trowelling embeds the fiber into the concrete surface.

Q. Can concrete with fiber be pumped?

A. Yes, in most cases, but some mix design adjustments may be necessary depending on the fiber dosage requirements.

Q. Are control joint necessary?

A. Yes, control joints are necessary. However when using steel fiber reinforcement there is an opportunity to use "Jointless Floor" techniques. (Actual joint spacing dependent on fiber dosage).

Q. What is the dosage rate for steel fibers?

A. Fiber dosage rate will vary by application. Contact your CEMEX Sales Representative for assistance.

Q. Can synthetic fibers be used in combination with steel fibers?

A. Yes, this will provide reduced potential for plastic shrinkage cracking.