



### **BELMIX™ - HE STEEL FIBERS**

BELMIX™ - HE steel fibers are designed specifically for the reinforcement of concrete. **BELMIX™ - HE** is a cold drawn hooked end steel fiber, to provide optimum anchorage within the concrete. **BELMIX™ - HE** steel fibers are specifically designed to meet or exceed the defined performance requirements.

### **FEATURES & BENEFITS**

- Provides uniform multi-directional concrete reinforcement
- Increases crack resistance, ductility, energy absorption or toughness of concrete
- Improves impact resistance, fatigue endurance and shear strength of concrete
- High tensile strength fiber bridging joints and cracks to provide tighter aggregate interlock resulting in increased load-carrying capacity
- Provides increased ultimate load-bearing capacity which allows possible reduction of concrete section
- Requires less labor to incorporate into concrete than conventional reinforcement
- Offers economical concrete reinforcement solutions with greater project scheduling accuracy
- Ideally suited for hand or vibratory screeds, laser screeds and all conventional finishing Equipment

### **PRIMARY APPLICATIONS**

- Industrial slabs-on-ground
- Precast
- Joint less floors

### **COMPLIANCE**

- Conforms to ASTM A820 /A 820M - 04, Type 1 cold drawn wire
- Conform to ASTM C 1116/C 1116M, Type I fiber reinforced concrete



### **CHEMICAL AND PHYSICAL PROPERTIES**

Fiber Length	50mm	Tensile Strength	1,100 Mpa
Diameter	1 mm	Anchorage	Hooked Ends
Aspect Ratio	50	Material	Bright Carbon Steel Wire



## PRODUCT USE

**MIXING:** **BELMIX™-HE**, steel fibers can be added during or after the batching of the concrete. Such devices as conveyor belts and dispensers may be used to add fibers to the mixer at the ready mix plant. After the addition of the fibers, the concrete should be mixed for a sufficient time (batch plant: minimum 5 minutes or 70 revolutions) at full mixing speed to ensure uniform distribution of the fibers throughout the concrete mix.

**PLACING:** **BELMIX™-HE** steel fibers can be pumped or placed using conventional equipment.

**FINISHING:** **BELMIX™-HE** reinforced concrete can be finished by normal finishing techniques.

**APPLICATION RATE:** The standard application rate for **BELMIX™ - HE™-HE** fibers is a minimum (15-20 kg/m<sup>3</sup>). **BELMIX™-HE** Fiber technical staff can offer advice on dosage requirements once performance requirements have been established by the project designer/engineer.

## COMPATIBILITY

**BELMIX™ - HE** fibers are compatible with all concrete admixtures and performance enhancing chemicals.

## SAFETY

It is recommended that gloves and eye protection be used when handling or adding **BELMIX™-HE** steel fibers to concrete. Full Safety Data Sheets are available on request.

## PACKAGING

**BELMIX™ - HE** fibers are available in 20 kg (44 lb) paper bags.

## TECHNICAL SERVICES

Trained **BELMIX™ - HE** Fiber specialists are available worldwide to assist and advice in specifications and field service. **BELMIX™ - HE** Fiber representatives do not engage in the practice of engineering or supervision of projects and are available solely for service and support of our customers.

## REFERENCE DOCUMENTS

- ACI 304 Guide for Measuring, Mixing, Transporting and Placing Concrete
- ACI 544-3R Guide for Specifying, Proportioning, Mixing, Placing and Finishing Steel Fiber Reinforced Concrete.
- ASTM 820 Standard Specifications for Steel Fibers for Fiber- Reinforced Concrete.
- ASTM C 94/C 94 M Standard Specifications for Ready-Mixed Concrete.
- ASTM C1116/C1116M Standard Specification for Fiber- Reinforced Concrete and Shotcrete
- ASTM C1436 Standard Specification for Materials for Shotcrete
- ASTM C 1550 Standard Test Method for Flexural Toughness of Fiber Reinforced Concrete (Using Centrally Loaded Round Panel)
- ASTM C 1609 /C 1609M Standard Test Method for Flexural Performance of Fiber-Reinforced Concrete (Using Beam With Third-Point Loading)
- European Standard EN 14889-2: 2006 Fibres for Concrete

## SPECIFICATION CLAUSE

Fibers for concrete shall be **BELMIX™ - HE** steel fibers conforming to ASTM A 820 Type I and manufactured specifically for the reinforcement of concrete.

Or

Fibers for concrete shall be **BELMIX™ - HE** steel fibers conforming to EN 14889-1: 2006 and manufactured specifically for the reinforcement of concrete.

Unless otherwise stated, **BELMIX™ - HE** steel fibers shall be mixed at the batch plant, at the recommended rate of 15-20 (kgs/m<sup>3</sup>), and mixed for sufficient time (minimum 5 minutes) to

Ensure uniform distribution of the fibers throughout the concrete mix. Fibrous concrete reinforcement shall be manufactured by **JAYASREE TECHNO SOLUTIONS**