

X-Mix Steel Fiber – End Hook

Product Description

X-Mix Steel Fiber End Hook is a low-carbon steel fiber designed for internal concrete reinforcement, offering an effective alternative to traditional steel reinforcement. Each fiber measures 50 mm in length and features hooked ends, enhancing its anchorage within the concrete matrix. Manufactured from cold-drawn steel wire, the fibers are supplied magnetically aligned in 20 kg cardboard boxes, ensuring improved uniformity and dispersion throughout the concrete mix. X-Mix Steel Fiber End Hook provides a high tensile strength of 1100 MPa ($\pm 10\%$).

Advantages

X-Mix Steel Fiber End Hook is evenly distributed throughout the concrete, providing reinforcement across all sections of the structure. Steel fibers enhance the surface performance of concrete floors and help prevent surface cracking caused by hydration shrinkage. X-Mix Steel Fiber End Hook can replace traditional steel reinforcement such as wire mesh and rebar. In flooring applications, it significantly reduces installation time and costs by eliminating the need for conventional reinforcement placement.

Product Properties

Consistency	Liquid
Length	50 mm ($\pm 10\%$)
Diameter:	0.75 mm ($\pm 10\%$)
Tensile strength:	1100 MPa ($\pm 10\%$)
Aspect ratio (l/d):	67

Shelf Life

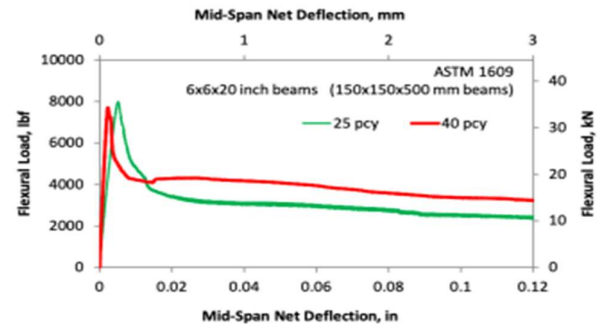
X-Mix Steel Fiber End Hook has a minimum shelf life of 3 years in original, unopened package under shaded area. Must be protected from direct sunlight and frost.

PERFORMANCE

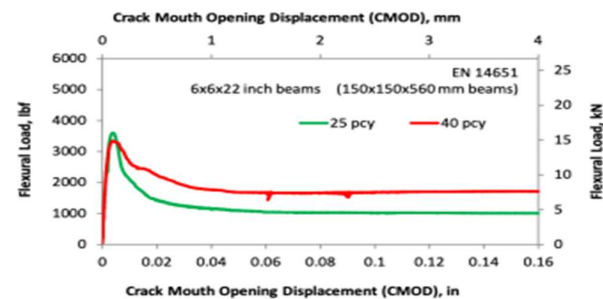
Fiber-reinforced concrete (FRC) is characterized by standard test methods such as ASTM C1399, C1609, and C1550 or RILEM TC162 (EN14651). The flexural residual strength of FRC is measured using these beam tests and is used for design purposes with proper conversion factors.

Typical test results for ASTM C1609 (FRC beam) and C1550 (FRC round panel) are shown for **X-Mix Steel Fiber End Hook** tested at different dosage rates. These test results could vary with mix design and curing conditions.

For additional or specific test results in concrete, please contact NCC X-Calibur.



ASTM C1609	A_g	f_c	f_s	f_{e_2}	R_{e_2}				
Dosage	lbf-in	N-m	psi	MPa	psi	MPa	psi	MPa	%
25 lb/yd ³ (15 kg/m ³)	383	43.2	667	4.6	205	1.4	266	1.8	40
40 lb/yd ³ (24 kg/m ³)	469	53.0	644	.46	270	1.9	325	2.2	51



EN14651	$f'_{c,1}$	LOP	$f_{R,1}$	$f_{R,2}$	$f_{R,3}$	$f_{R,4}$				
Dosage	psi	MPa	psi	MPa	psi	MPa	psi	MPa	psi	MPa
25 lb/yd ³ (15 kg/m ³)	563	3.9	285	2.0	206	1.4	201	1.4	200	1.4
40 lb/yd ³ (24 kg/m ³)	553	3.8	446	3.1	331	2.3	331	2.3	337	2.3

Compatibility

The inclusion of **X-Mix Steel Fiber End Hook** at the specified dosage may reduce the measured slump of the concrete. However, additional water should *not* be added to compensate for this effect. Instead, to maintain desired workability, the use of water-reducing or superplasticizing admixtures—such as the **X-Mix** or **Xtreme** product lines from **NCC X-Calibur**—is recommended.

Other admixtures should be added separately from the fibers to avoid interaction during mixing. When used correctly in a well-designed concrete mix with adequate workability, X-Mix Steel Fiber End Hook does not negatively impact the compressive or flexural strength of concrete or shotcrete.

Dispensing

X-Mix Steel Fiber End Hook can be added to the concrete mix at any stage prior to placement, though it is generally recommended to introduce the fibers during batching at the ready-mix concrete plant. To ensure full dispersion and uniform distribution, the concrete should be mixed at maximum speed for a minimum of four (4) to five (5) minutes, depending on the type of mixer used.

Technical support

NCC X-Calibur offers comprehensive technical advisory services for on-site assistance, providing expert advice on the selection of admixtures, conducting evaluation trials, and selecting and setting up dispensing equipment. Their team can supply detailed technical data and guidance for the optimal use of admixtures and other products with both fresh and hardened concrete. This ensures that concrete structures achieve the desired performance and longevity, especially in challenging and corrosive environments.

Limitations

The use of steel fibers may result in a perceived reduction in the measured slump of concrete. If needed, this effect can be compensated by incorporating a suitable water-reducing admixture.

Fibers should **not** be added to concrete with zero slump. Ensure a minimum slump of **3 inches (80 mm)** before introducing any fiber material.

Fibers can also be added in loose form through aggregate charging systems.

Authorized Technical Specialist

Please note that only NCC X-Calibur Authorized Technical Specialists (ATSSOs) are permitted to change any of the information in this data sheet or to provide written recommendations concerning the use of this product.

Visit www.ncc.com.eg for a full list of NCC X-Calibur ATSSOs.

Datasheet Validity

NCC X-Calibur makes modifications to its product datasheets on a continuous basis. Please check the datasheet update section on www.ncc.com.eg to ensure you have the latest version.

Warranties

NCC X-Calibur supplies products that comply with the properties shown on the current datasheets. In the unlikely event that products supplied are proved not to comply with these properties, then we will replace the non-compliant product or refund the purchase price.

NCC X-Calibur does not warrant or guarantee the installation of the products as it does not have control over the installation or end use of the products. Any suspected defects must be reported to X-Calibur in writing within five working days of being detected.

NCC X-Calibur Construction Chemistry Inc. **makes no warranty as to merchantability or fitness for a particular purpose and this warranty is in lieu of all other warranties express or implied.**

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