

Tough crete

STEEL FIBRE

Add toughness to concrete



Toughcrete & Toughcrete+ steel fibre is cold drawn steel wire fibre crafted from high quality, low carbon steel for applications in cement concrete. It evenly disperses in concrete mixture to provide improved mechanical properties of concrete such as flexural strength, shear strength, fatigue endurance, impact resistance and ductility. **Toughcrete** is a reliable, cost effective concrete reinforcement that is designed for ease of mixing, placing and finishing.

Features & Benefits of Toughcrete & Toughcrete+

- Compliance with ASTM A820 ■ **Toughcrete** available in 'Hooked end', 'Round crimp', and 'Flat crimped' forms; and **Toughcrete+** available in 'Hooked end' form
- Manufactured in different diameters, lengths and aspect ratio to suit specific applications in SFRC
- Provides uniform, multi-directional concrete reinforcement
- Improves flexural strength, shear strength, fatigue endurance, impact resistance and ductility of concrete
- Provides contraction joint stability and crack width control
- No special equipment required for mixing, placing or finishing
- Requires less labor to incorporate in concrete applications than conventional reinforcement
- Offers greater control over project scheduling
- Compatible with all types of cements and admixtures
- **Toughcrete+** specially designed to eliminate balling effect during mixing
- Backed by a team of specialists to ensure optimum product performance and cost efficiency.



Toughcrete



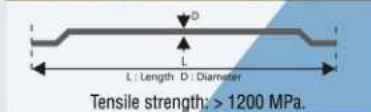
Toughcrete+



Specifications:

Toughcrete

Diameter (mm)	Length (mm)	Aspect Ratio
0.50	30,35	60,70
0.55	30,35	55,65
0.60	30,35	50,60
0.65	30,35	45,55
0.75	60	80



Toughcrete+

Diameter (mm)	Length (mm)	Aspect Ratio
0.50	25,30,35,50	50,60,70,100
0.55	25,30,35,50	45,50,60,85
0.60	30,35,50,60	40,50,70,85
0.65	40,50,60	50,60,75
0.75	50,60	50,60



Applications of Toughcrete & Toughcrete+

- High performance concrete for residential, commercial, industrial as well as infrastructure projects
- Sprayed concrete (Shotcreting) for tunnels, mines, irrigation canals as well as for repair works
- Commercial and Industrial floors
- Bridges, Culverts and Hydrodynamic structures
- Highways & Airport pavements
- Bus and truck terminal pavements
- Parking bays and driveways in residential and commercial premises
- Heavy equipment foundations
- Precast concrete products
- Seismic resistant and blast proof structures.

For optimum results of **Toughcrete & Toughcrete+** kindly read the hand-out- 'Get the best out of **Toughcrete & Toughcrete+**' on Usage; Dosage; Packaging and Safety Precautions provided by us separately



PRECISION DRAWELL PVT. LTD.

"KESHAV" Block 6, 10th Bridge, Kamptee Road, Nagpur-44 004

Tel: +91-712-2649372/71/70 Fax: +91-712-2651928

Email: sales@precisiondrawell.com

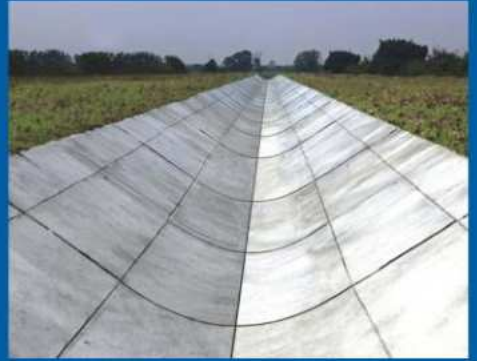
Website: www.precisiondrawell.com

Authorized Representative/Dealer

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SHOTCRETING



Shotcreting has been in wide use across the world for a long time due of its inherent advantage in terms of cost and convenience over conventional methods in some of the applications. SFRC (Steel Fibre Reinforced Concrete) has been the most favored material in these applications due to its inherent characteristics of improving properties of concrete on several fronts.

Addition of **Toughcrete** or **Toughcrete+** to concrete for shotcreting helps in improving its properties not only in the plastic stage but also in the hardened form.

Benefits of Toughcrete & Toughcrete+ in Shotcreting

- Improved ductility of concrete
- Improved energy absorption capacity
- Improved impact resistance
- Improved crack control
- Improved toughness
- Improved tensile strength
- Better flexibility in executing complicated construction work in difficult-to-reach areas
- Full reinforcement of concrete surface
- Better overall performance of concrete
- Suitable for both wet and dry type shotcreting

Commercial advantages of Toughcrete & Toughcrete+ in Shotcreting

- Elimination of costly and cumbersome form work
- Most economical way of construction for complicated architectural designs
- Faster and less labor oriented way of construction.



Toughcrete



Toughcrete+

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**Tough
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GLUED STEEL FIBRE
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Applications of Toughcrete & Toughcrete+ in Shotcreting

- Tunnel & underground chamber lining
- Stabilization in mine construction
- Stabilization of trenches and slopes
- Protective lining
- Repair and restoration of old structures
- Sealing work
- Architectural and landscaping applications
- Wearing course
- Oil storage caverns

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FLOORING & PAVING



SFRC (Steel Fibre Reinforced Concrete) has a distinct advantage over plain or reinforced concrete in “slab-on-grade”, i.e. industrial floorings, concrete pavements, ground slabs, etc. where the loads are both static and dynamic. Under dynamic loading, plain concrete slabs crack quite easily losing their capacity to carry loads. These cracks further enlarge with passage of time and need costly repairs. SFRC slabs on the other hand work on the principle of load redistribution.

Addition of **Toughcrete** or **Toughcrete+** to concrete significantly improves the post-cracking strength of SFRC slabs. This is because of the crack controlling mechanism provided by **Toughcrete/Toughcrete+**, by transmitting some of the tensile stresses across the crack and also resisting growth of the cracks.

Reinforced concrete slabs, though fare better than plain concrete slabs, have disadvantage of the costly, labourious, time consuming and at times- hazardous process of installation of reinforcement mesh. Hence, SFRC slabs are the best, most scientific and longer lasting solution for all types of floorings and pavements.

Benefits of ToughCrete & ToughCrete+ in Flooring & Paving

- Improved crack resistance
- High energy absorption
- High impact resistance
- High fatigue resistance
- Increased shear resistance
- Increased flexural strength
- Better corrosion resistance
- Full reinforcement of the slab
- Better overall performance of the slab



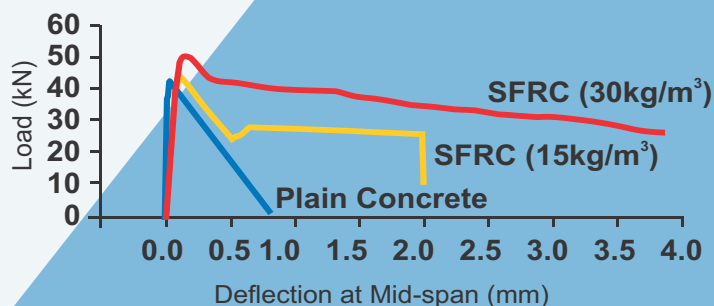
Toughcrete



Toughcrete+



Load-deflection responses for simply supported beams



Commercial advantages of ToughCrete in Flooring & Paving

- Reduction of slab thickness upto 25% compared to plain concrete hence saving of concrete
- No hassles of installation of reinforcement hence saving of time and labour
- Direct saving in cost compared to the cost of steel for reinforcement
- Faster concrete pouring, especially with laser screed equipment
- Greater speed of spreading concrete hence saving of labour
- Longer service life of slabs, hence lower life cycle cost.

Applications of ToughCrete & ToughCrete+ in Flooring & Paving

- Floorings of warehouses
- Floorings of container yards and stockyards
- Floorings of all kinds of factories
- Floorings of parking areas and driveways of residential as well as commercial buildings
- Airport runways and taxiways
- Pavements of highways and city roads
- Arterial roads in rural areas
- Foot paths in cities

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