

# HTM® Twist

## Twisted Bundle Monofilament Macro Synthetic Fiber

### Product Description

PIONEER®HTM®Twist is a macro synthetic fiber complying with ASTM C1116, Type III. It features a twisted monofilament design made from 100% virgin polypropylene. The geometry, strength, and high modulus are specifically engineered, PIONEER®HTM®Twist provides a uniform three-dimensional reinforcement system for concrete mixtures. It can replace traditional steel mesh and steel fibers, reducing both plastic and hardened stage cracking in concrete while enhancing fatigue resistance and flexural toughness. The very heavy-duty twisted-bundle design of PIONEER® HTM® Twist improves load transfer and performance after cracking, offering a higher level of reinforcement replacement compared to standard macro synthetic fibers.

### Uses

PIONEER®HTM®Twist offers a safe and straightforward alternative to wire mesh and rebar for various ready-mix and precast projects. It is recommended for use in the following concrete structures:

- Pavements
- All types of slab-on-ground
- Extending joints
- Composite metal deck
- Mass concrete
- Bridge decks

- Sidewalks
- Overlays
- Precast
- Prefabricated septic tanks
- Sewage holding tanks
- Topping Slab
- Shotcrete
- Parking Lot
- Tilt-Wall

## Product Advantages

As a structural reinforcement material for concrete and shotcrete, PIONEER®HTM® Twist can replace welded wire reinforcement, steel fibers, and lightweight rebar. It is easier to use and safer, with the following key features:

- The very heavy-duty twisted-bundle design increases load-transfer and post-crack performance.
- Heavy-duty twisted design enhances load transfer and performance after cracking
- Provides a higher level of reinforcement replacement compared to standard macro synthetic fibers.
- Easy to mix and fast to disperse will not corrode.
- Cost-effective, three-dimensional reinforcement alternative to secondary wire mesh or rebar, and steel fibers.
- Can be utilized to reduce rebar or wire mesh.
- Increased safety on job site; remove lifting of reinforcement, bending to tie, and tripping hazard.
- Cuts construction time by eliminating the need for cutting, placing, tying, and securing, and removes concerns about proper placement.

- Increases safety by removing the handling of steel fibers, welded wire, and rebar.
- Improves concrete's ductility, flexural toughness, and durability.
- Inhibits plastic shrinkage and settlement cracking. Provides superior crack control
- Enhances impact resistance, crack resistance, and wear performance of concrete.
- Barely visible on the surface obtaining highly aesthetic concrete.
- Ease of pumping, passes easily through pump grates. Reduced wear on pumps and hoses.
- Reduces rebound in shotcrete and improves cohesion.
- Reducing embodied carbon through the replacement of convention steel reinforcement with synthetic structural fibers.
- Increased durability due to high chemical resistance and corrosion free.

### Compliance and Certification

- ASTM C1116 / C1116M, Fiber-Reinforced Concrete Standards, Type III Synthetic Fiber Reinforced Concrete
- ASTM D7508 / D7508M, Standard Specification for Polyolefin Cut Fiber for Concrete
- ANSI/SDI C-2017, Composite Steel Floor Deck Slabs (Section 2.4.B.15.a.3)
- UL and ULC Classified: CBXQ.R13667 and CBXQ7.R13667
- CSA B66-16, Design, materials and manufacturing requirements for prefabricated septic tanks and sewage holding tanks

### Physical Properties

- Color: Gray
- Specific Gravity: 0.91
- Material: 100% virgin polypropylene
- Fiber Type: Twisted Bundle Monofilament Fiber
- Absorption: None

- Melting point: 320°F (160°C)
- Modulus of elasticity: 700-1000 ksi (5-7 GPa)
- Tensile strength: 65-96 ksi (450-660 MPa)
- Nominal Length: 1.26, 1.55, 1.99in. (32, 40, 50mm)
- Nominal Equivalent Diameter: 0.012, 0.017, 0.023, 0.027 in. (0.30, 0.43, 0.59, 0.69 mm)
- Alkali, acid & salt resistance: High
- Electrical and Thermal Conductivity: Low

## Addition Rates

The dosage of PIONEER®HTM®Twist varies depending on the application type and performance requirements of your project. The standard recommended dosage is 3–7.5 lbs./yd<sup>3</sup> (1.8–4.45 kg/m<sup>3</sup>) of concrete. For precise dosage based on your specific application and project needs, please contact your PIONEER® representative for technical support.

## Length

PIONEER® HTM®Twist is available in various diameters and lengths to suit your needs, with standard diameters of 0.48 mm, and standard lengths of 19 mm, 38 mm. We also offer custom sizes for PIONEER®HTM®Twist fibers based on your specific requirements. Contact a PIONEER® fiber expert for professional advice tailored to your project needs.

## Packaging

PIONEER®HTM®Twist are available in a variety of packaging options, For custom packaging, please reach out to a PIONEER® sales representative.

## Design and conversion services

PIONEER®HTM®Twist meets international design methods and standards from organizations such as DBV, RILEM, CNR, ACI, ITAtech, and the UK Concrete Society. PIONEER® fiber experts can guide you through the design process, help you easily calculate the dosage rates for PIONEER®HTM®Twist as a replacement for rebar in terms of temperature and shrinkage, and provide technical support for on-site applications.

PIONEER® fiber experts will assist you through every step of the process. By completing the form below, you'll receive a detailed report to help you with project design and fiber selection. We guarantee that all your information will be kept confidential.