

HELIX[®]

8-52

MICRO REBAR

HELIX[®]

STEEL



The unique, twisted design of Helix[®] Micro Rebar[™] allows for efficient tensile stress re-distribution within the concrete prior to concrete cracking. The result is a significant increase in the concrete's strain capacity and pre-crack properties. Unlike rebar and other forms of reinforcement, Helix[®] Micro Rebar[™] provides proactive reinforcement which engages the concrete before large cracks form.

Applications:

- Structural Walls
- Structural Floors
- Foundations
- Paving
- Precast
- Rebar Replacement

Coating

None

Geometry

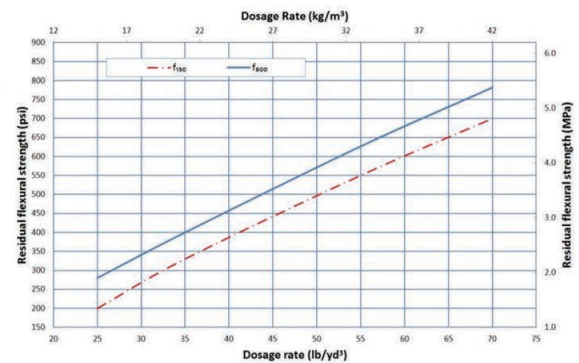
Length: 2.00 in (52 mm)
 Diameter: 0.03 in (0.80 mm)
 Number of Twists: 4
 2,400 pieces/lb (5,280 pieces/kg)

Properties

Tensile Strength: 246 ksi minimum
 (1700 N/mm² minimum)
 Material: Hard Drawn Steel Wire

Superior Beam Testing Results

Optimized for L/150 Beam Specs



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Dosing Instructions

Mixing should be done in accordance with ASTM C94 and the mixing instructions below. The dosages of Helix added to the mix should be noted on the batch documentation in accordance with Uniform Evaluation Service ER 279 Section 5.15. and verified using the procedure in ER 279 Appendix A.

Mixing Instructions

Ready Mix Plants (Dry) - TRUCK MIXER

To prevent Helix[®] Micro Rebar[™] from clumping (small cluster of Helix), follow the procedures below:

- Add all Helix to the truck drum. Typically this is done by hand, dumping the entire contents of the box into the drum while it is at idle speed. If available, this is done from a slump check stand.
- Drive the truck into plant.
- Once truck is in position under the chute, increase the drum to full charging speed and add a minimum of 50% of the batch water to the truck (50% to 80% is OK).
- Allow the Helix and water to mix for no less than 45 seconds while delaying the addition of the remaining materials.
NOTE: Once the water and Helix are in the drum and the drum is at charging speed, the drum speed shall NOT decrease until all batching is complete.
- Add aggregate, sand, cement and remaining water to truck and mix in normal matter (60 revolutions minimum).

Ready Mix Wet (Central Mix)

- For dosages below 15 lb/cyd (9kg/m³) follow dry procedures with 7 gallons (27 liters) of water in the drum.
- For higher dosage please use the Site Batching instructions below.

Site Batching Into Mix Trucks (Loaded Truck at Construction Site)

- Set the drum to charging speed.
- Sift Helix through a 2''x 2'' (50mm x 50mm) Mesh or use Helix Dosing Unit (contact Helix to order). The dosing unit breaks up clumps and ensures Helix goes into the truck at a controlled rate (about 1 box per minute). When Helix is added at this stage, it must enter the mixer clump free.
- When adding Helix, it may collect on any residual concrete on the interior surfaces of the hopper. Push the Helix into the drum avoiding clumps. Adding a slippery lining, such as PVC sheeting, to the hopper may help avoid these buildups.
- Mix at charging speed for 5 minutes (60 revolutions) after Helix is added.

Pan Mixer / Drum Mixer

- Set the mixer to the proper speed.
- Add Helix at a rate of 45-60 seconds per 45 lbs (20 kgs).
- Helix should be added with the aggregates.
- Mix at max speed for 5 minutes after Helix is added.

Specifications

ASTM A820 - Type 1

ASTM496

ASTM C1609

ASTM C78

Industry Specifications

Publically available project specs require performance in terms of residual bending stress in standard beam tests at various deflections. Helix is able to meet these specifications at reduced dosage rates. See below for examples.

Tunnel Project	Residual Strength Specification Psi (MPa)	Specified Dosage Rate lb/yd ³ (kg/m ³)	Helix 8-52 Dosage Rate lb/yd ³ (kg/m ³)
Euclid Creek	L/600 - 464 (3.2)	67 (40)	50 (30)
Blue Plains	L/600 - 435 (3.0)	67 (40)	50 (30)
Hartford	L/150 - 580 (4.0)	67 (40)	60 (36)
Doan Valley	L/600 - 520 (3.6)	60 (36)	50 (30)
Thimble Shoals	L/300 - 456 (3.1) & L/150 - 425 (2.9)		45 (27)
Dugway	L/600 - 464 (3.2)	67 (40)	50 (30)
Blacklick	L/600 - 158 (1.1)	25 (15)	20 (12)
Akron	L/600 - 500 (3.4)	50 (30)	50 (30)



2300 Washtenaw Ave, Suite 201, Ann Arbor, MI 48104

