



INTRODUCING *HELIX MICRO-REBAR*®

What is Helix Micro-Rebar?

Helix Micro-Rebar is an alternative steel product for reinforcing concrete.

Helix Micro-Rebar consists of short, twisted, steel wires of polygonal cross-section that are added to concrete during mixing stage. The shape and the twist maximise both the frictional and mechanical bonds between the rebar and a cement based matrix. The twist drives the failure mechanism from frictional pull-out to a torsional (or untwisting) mode.



Figure 1: Helix Micro-Rebar



Figure 2: Adding Helix Micro Rebar to concrete mix

Helix Micro-Rebar is made from a minimum 50% recycled steel. Concrete construction with this reinforcement product consumes less steel than with traditional steel bar and mesh.

In the US, *Helix Micro-Rebar* is applied to better meet seismic conditions and heavy loads. Cracks in the concrete tend to be minimal and small and should not develop into large deep cracks. And because *Helix* is spread as a fine matrix throughout the concrete mix, cracks in concrete do not expose major steel reinforcements.

Helix Micro-Rebar is electroplated with zinc and has been tested to resist corrosion three times longer than standard bar and mesh reinforcement that has no coating.

Where can *Helix Micro-Rebar* be used?

Helix Micro-Rebar can be used anywhere you would normally find traditional bar and mesh reinforced concrete construction. Structural elements such as floor slabs, footings, columns, piers, beams and wall panels are all suited. *Helix Micro-Rebar* can also be used for any below ground construction including but not limited to basements, underground garages and water tanks.

Benefits of replacing traditional steel reinforcement with *Helix Micro-Rebar*:

- Streamlined logistics and time savings on site - eliminates placement of traditional steel reinforcements (including ligatures, chairs and ties). *Helix* is delivered on site in your concrete mix.
- Almost eliminates site waste - *Helix* is incorporated through your concrete mix so there is no over-supply of bar or mesh.
- Improved worker safety - reduces tripping hazards and cuts from exposed reinforcing steel.
- Improved crack resistance - cracks are reduced and, when they do appear, they are fine and short.
- Cost savings – approx. 20%.

Another benefit of *Helix Micro-Rebar* is that it eliminates the complexity and difficulty of bending bar and mesh to suit curved concrete constructions. You are not limited to standard shapes and sizes. For instance, you could form up a rainwater tank that could act as a retaining wall in any shape to work with your landscape plans.



How does *Helix Micro-Rebar* comply with Australian Standards and Codes?

Classified as a Twisted Steel Micro Rebar (TSMR), it is not specifically named in any building code or standard. However it can be deemed compliant as an 'alternative' or 'deemed to satisfy' solution under the National Construction Code.

Helix is the only discontinuous reinforcement system that has a certified design manual and software to allow engineers to design homes on a first-principles basis, insofar as it applies to design of conventional concrete reinforcement. The *Helix* design manual and software treats each project individually with the loads and soil conditions that are relevant to that site. The company *Helix* works with a number of engineers in Australia including *Structerre* who do a clear majority of their residential work here.

[Click here if you would like to read more about Helix-Rebar, article written for the HIA in 2016](#)

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