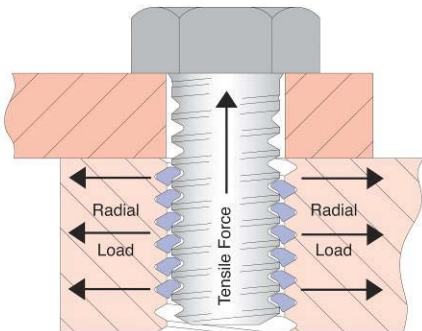

PRESS RELEASE

FTPublicity Client: **CROSS MANUFACTURING (SPIRALOCK®)**

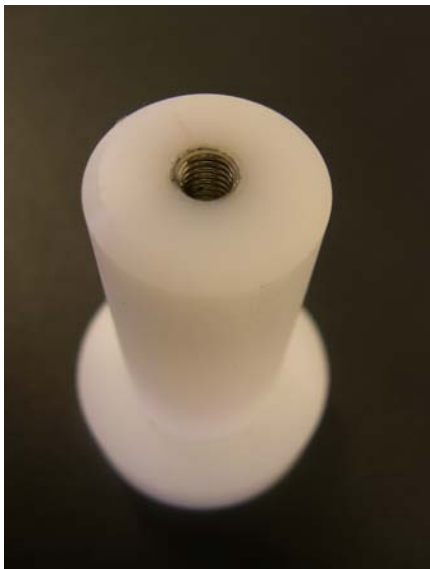
PR PROJECTS LIST NO. 2009.103.S

30th December 2009



Caption:

Diagram showing the relationship between Tensile Force (Pull-out) and Radial Load with the Spirallock® insert manufactured by Cross.



Caption:

Cross's Spirallock® insert in test sample.

Pull-out tests confirm thread locking insert performance in plastics

The on-going results of pull-out tests by Cross Manufacturing have re-enforced the excellent performance potential of the Spirallock® wire thread locking insert manufactured by Cross when used with plastic materials. The test results will enable Cross to advise end-users on recommended insert lengths when used with plastics and other weak materials.

Over a period of five years, Cross has investigated the locking properties under vibration of their Spirallock® wire thread insert in a range of metal alloys including aluminium, magnesium, steel and titanium. All of the tests proved successful, especially when compared with other commercially available bolt head and thread locking devices. The insert also offers the benefits of a free-running performance with durable, re-usable locking ability.

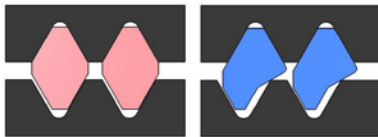
Following on from these tests, further vibration testing in plastic materials proved equally successful, even in low strength Sustarin C and PET materials, opening up many new application opportunities for the inserts. At the time it was announced that "the secret appears to be in the 30 degree angle of the ramp on the Spirallock® thread. The tensile force caused by the tightening of the bolt is partially carried as a radial load in the thread insert. The effect only occurs when the Spirallock® profile is on the wire thread insert. Using the Spirallock® profile on the plastic itself is ineffective".

Cont/.....



Caption:

Pull-out resulting from preload value applied to an insert that is too short.



Caption:

Comparison of standard thread form (left) with Spirallock® thread form (right)

However, subsequent initial pull-out testing confirmed that using the same length of insert in plastic as in metals would not enable recommended preloads to be applied to the insert. In plastics, if the insert is too short, it will put out at preload values less than required for successful locking performance.

A unique feature of the Spirallock® insert manufactured by Cross is its ability to spread the tensile load along the entire length of the thread, rather than concentrating it in the top few turns. Original thinking therefore assumed that increasing the thread length for a given preload would reduce the load on each thread turn and therefore reduce the thread locking performance of the insert. The pull-out tests have confounded this theory, indicating the presence of a significant additional resistance to pull-out, thought to be a powerful radial force that additionally anchors the bolt and insert assembly into the parent material. The required pull-out force is therefore greatly increased.

As a result, Cross is now able to recommend thread insert lengths to customers for their specific requirements in plastic materials to ensure effective thread locking and resistance to vibration. In practise this often means up to three-times longer than that used in strong metals. The company believes that the proven properties of the insert should prove attractive to many industries where the use of plastics is increasing, including automobiles and boat building.

END

Spirallock® is a registered trademark of Spirallock Corporation