

## **Non-Metallic Clip Nuts will not scratch or corrode.**

**November 27, 2007** -Employing floating metal nut housed in composite clip, Torlon® Composite Clip Nuts withstand torque loads in excess of 100 lb-in. and are used to secure flooring, fairings, and interior trim. Nuts will not scratch structure's primer or plating during installation and/or removal and are not susceptible to corrosion. Able to be injection molded, Torlon® polymer material provides strength competitive with metal, passes FAA flammability tests, and is unaffected by aviation fluids.

Original Press release

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### **MM Composite Clip Nuts: The Ultimate Performance Fastener At The Lowest Possible Cost**

Traditional Metal Clip Nuts revolutionized the aerospace industry many years ago. Clip Nuts made it possible to eliminate the tooling and labor costs inherent with fasteners that require riveting, clinching or staking. They are currently used in such applications as securing flooring, fairings, interior trim or any application where spacing of sheets due to clip thickness is not objectionable. Clip Nuts simply slide on and snap into place. When there's a need to replace a damaged nut, the Clip Nut is simple to slide off and replace. High rework costs associated with removal of riveted, clinched or staked nuts was made a thing of the past. Until now, the Metal Clip Nut revolution was "as good as it gets".

Unfortunately, as with many revolutions, the Metal Clip Nut created an entirely new problem. Metal Clip Nuts severely scratch the surface of most any structure where they are installed. Further, by the very nature of the clip being metal, it is susceptible to attack from both environmental and galvanic corrosions. Most metal structures, as well as the Metal Clips themselves, must be heavily coated with anticorrosion primers and/or platings in an effort to limit the severity of the corrosion that is inherent to their use. Sadly, nothing seems to protect Metal from the disastrous effects of corrosion that is virtually unstoppable. Until now, the only solution has been the futile application of these primers and the laborious and costly replacement procedures of corroded metal structure.

MARKETING MASTERS has changed all that. Imagine a nonmetallic Clip Nut that weighs a fraction of its metal counterpart, but yields a level of strength that can match that of the metal alternative and absolutely, positively, will not scratch or corrode.

Introducing TORLON COMPOSITE CLIP NUTS from Marketing Masters, Inc. -a series of lightweight, nonmetallic Clip Nuts used to secure flooring, fairings, interior trim or any application where tradition Metal Clip Nuts were previously used. These days, MM's new Torlon clip-nuts are used on nearly every new commercial aircraft, be it Boeing or Airbus.

Eliminates Corrosion MM Composite Clip Nuts will not scratch a structure's primer or plating during clip installation and/or removal and are not susceptible to corrosion. The result is the complete elimination of corrosion, whether it's caused by galvanic reaction or environmental conditions. Additionally, MM Composite Clip Nuts will not chafe or nick the structures edges during screw installation. This will significantly reduce the many hours of labor and costly replacement procedures associated with corroded metal structure.

Outstanding Durability and Performance MM Composite Clip Nuts exhibit outstanding strength AND durability. Unlike other unsuccessful attempts and concepts, MM Composite Clip Nuts employ the use of a floating metal nut, housed in a composite clip. This maintains the same thread strength found in traditional Metal Clip Nuts, while maintaining .032" radial float of the metal nut; a feature usually reserved for more expensive, exotic Metal Clip Nuts.

Another significant achievement in strength is the ability to withstand extremely high torque loads. The MM Composite Clip Nuts will withstand torque loads in excess of 100-inch pounds. This is nearly double the design requirement of 60-inch pounds common to all traditional Metal Clip Nuts.

Molded from High-Strength Torlon The material used to manufacture MM Composite Clip Nuts is an innovative high-strength engineering polymer called Polyamide-imide, more commonly know as Torlon®, from Amoco Chemicals Co. Used over a wide range of industries -aerospace, electronics, business equipment, transportation, process and heavy equipment -injection molded Torlon parts meet a wide variety of design challenges, from components in the space shuttle, to parts in the engine of a world-class race car, to a myriad of other applications.

Torlon resin is not just another plastic, but a unique chemical combination that out-performs all but the most exotic composites and polymers, and best of all, Torlon resin can be injection molded. Torlon is the only polymer that provides this combination of properties: strength competitive with metal across an extraordinary temperature range; toughness and modulus far greater than most polymers; passes FAA flammability tests and is unaffected by aviation fluids such as MEK, Tric 1,1,1, and Skydrol hydraulic fluid.

Complete Size Selection MM Composite Clip Nuts are available in various length and thread size combinations to fit a wide range of edge distance and panel thickness requirements. This offers you enormous design flexibility over a variety of different applications. What's more, our Composite Clip Nuts are easier to install than "old style" Metal Clip Nuts and we have several approvals and specifications that may aid you in selecting the appropriate fastener for your use.

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