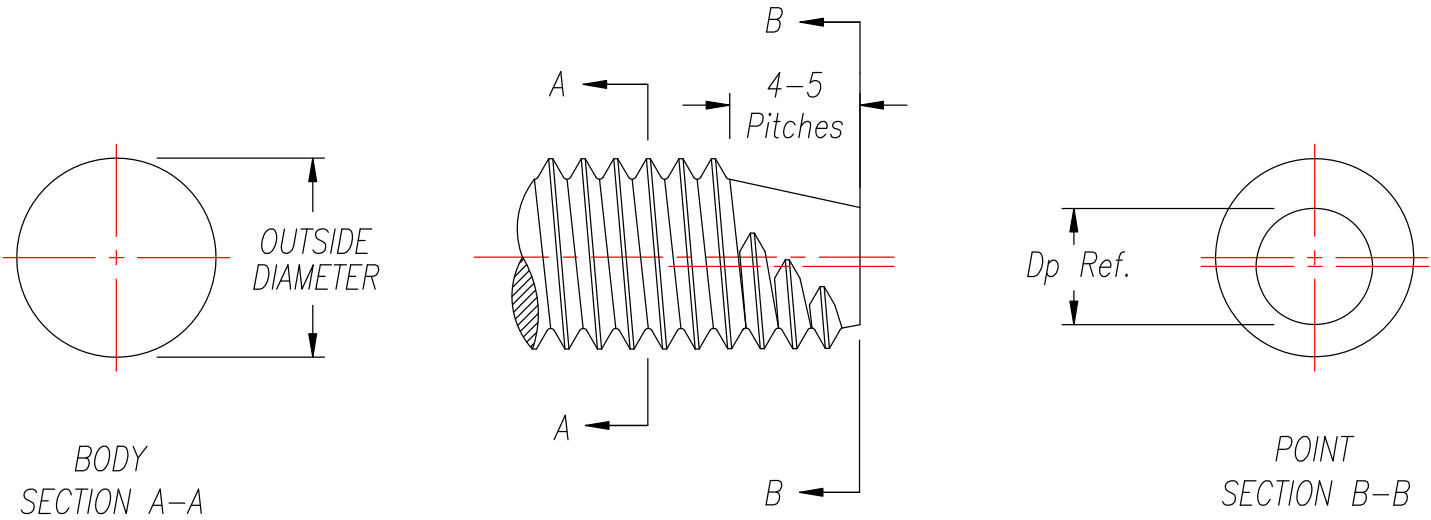


TRU-START® FASTENERS

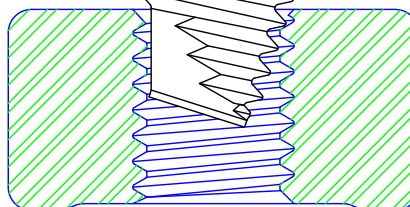
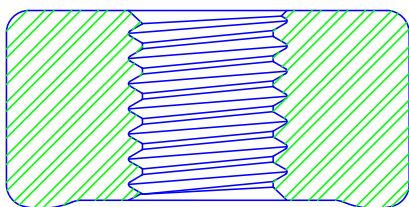
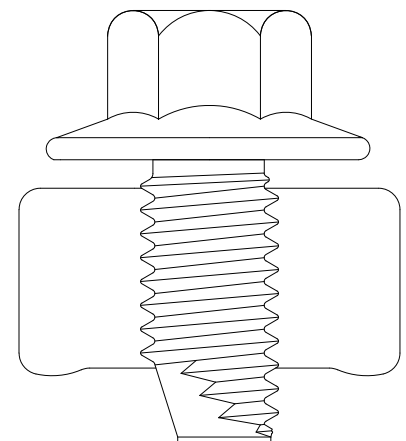
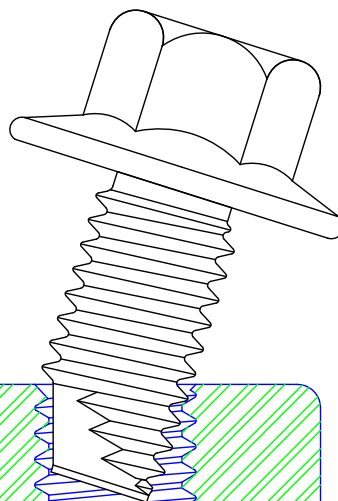
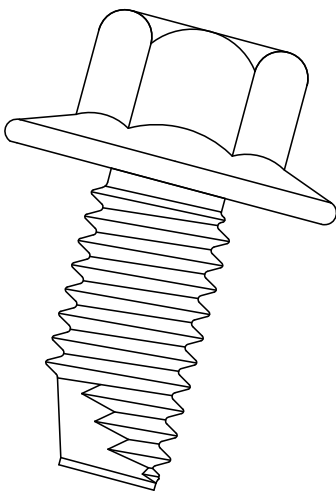
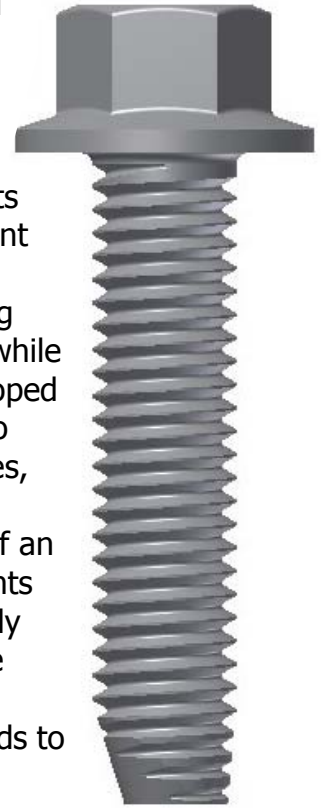
Cross Threading Resistance



Leaders in Lowering the Cost of Assembly

TRU-START® FASTENERS

Cross threading - it occurs every day in many factories as products are assembled with threaded fasteners. At some sites it is so common that for the more troublesome applications, special repair screws of the same pitch, but one size larger in diameter are stocked for replacement purposes. The rework and repair costs can be huge, but are often accepted as standard operating procedure. Now, there is a fastener designed to prevent cross threading and its associated costs - **The TRU-START® fastener**. The unique TRU-START® point design not only prevents cross threading in tapped holes, but also locates and aligns the fastener when entering a tapped hole. The absence of threads along one side of the fastener prevents the fastener from engaging the nut threads while the fastener is at an angle. The orientation and angle of the point were developed in relationship to the fastener's thread helix angle. All these features add up to cost savings, because cross threading, even in a small percentage of assemblies, can be very expensive. Cross threading can damage or destroy an assembly causing unnecessary down time, expensive repairs, and/or the complete loss of an expensive component. An even higher cost can result from cross threaded joints that are not detected at assembly, because cross threading is not always readily apparent during assembly. Often the joint appears satisfactory and offers little evidence that the joint formed is incapable of withstanding its intended design loads. TRU-START® fasteners were developed in response to end-user demands to reduce costs by preventing cross threaded joints.



TRU-START® FASTENERS

APPLICATIONS

Primary applications for TRU-START® fasteners are when:

1. Cross threading is likely to occur:

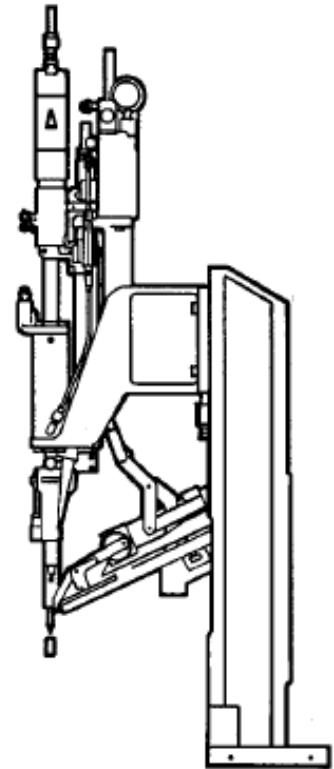
- Limited visibility—difficult or restricted access
- Soft metal nut members
- Fine pitch fasteners
- Mis-aligned components

2. Cross threading is hard to detect:

- Automated assemblies
- Soft metal nut members
- Small diameter fasteners
- Low torque applications
- High speed power driven fasteners

3. Cross threading causes costly repair:

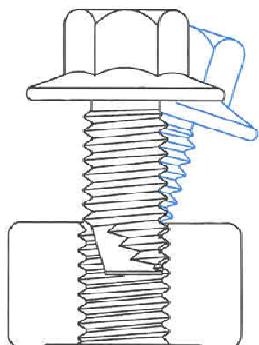
- Expensive castings
- Complex assemblies
- Automotive bodies and engine blocks
- Any fastener installed in the final assembly stages
- Expensive downtime



TRU-START® fasteners are ideal for automated and robotic assemblies. They **eliminate** downtime and damage from cross threaded assemblies. TRU-START® fasteners defend against faulty assemblies, even in unsupervised situations.

AVAILABILITY

The TRU-START® point style places little restriction on the configuration that you can specify for a TRU-START® part. TRU-START® fasteners can be manufactured with virtually any head, drive, or shoulder style. Metric and inch sizes are both available. Any finish can be specified.



OFF ANGLE CAPABILITY

Off angle driving is typically what causes cross threaded assemblies. While few applications are intentionally designed for off angle driving, due to limited visibility, awkward access or operator fatigue, off angle driving conditions actually occur in many cases. TRU-START® fasteners are self-aligning and pick up the nut thread correctly when introduced to threaded nuts at an angle.

REMINC/CONTI

Research Engineering & Manufacturing Inc. (REMINC) and Conti Fasteners AG (CONTI) have successfully marketed TAPTITE® fastener technology internationally since 1961. Their success has been accomplished by licensing and training leading fastener producers worldwide.

The technical program in the United States is under the direction of REMINC, located in Middletown, Rhode Island and in other countries under the direction of CONTI, situated in Baar, Switzerland.

Although REMINC and CONTI are separate corporations and operate independently, each is dependent on the other for certain functional activities.

AVAILABILITY

Currently there are 68 qualified producers located in 20 countries utilizing the Technical Know-How, Patents, Trademarks, and Engineering and Marketing services of REMINC/CONTI. These producers delivered a volume in excess of 17,000,000,000 pieces of TRILOBULAR® fasteners in 2000, comprising a mix of products.

The proprietary products available in the program are marketed and sold, not as fastener items, but rather as **COST REDUCTIONS TO END-USERS OF ASSEMBLED PRODUCTS.**

The proprietary fasteners offered to the assemblers are the means to an end, i.e. used to generate cost reductions while at the same time providing reliably tightened joints.

ORDERING/SUPPLY

When ordering from qualified TRILOBULAR® fastener producers, be sure in all cases to specify the TAPTITE 2000® brand name, thread size, nominal length, head and point style, strength grade if CORFLEX®-'N' or CORFLEX®-'I' is involved, any other special features required, finish, and of course, quantity.

DISCLAIMER CLAUSE

The values shown in this brochure are for guidance only. They are not meant to be used for design criteria. Their use and reliance thereon for any purpose by anyone is entirely voluntary and at the sole risk of the user. REMINC/CONTI are not responsible for any loss, claim, or damage resulting from their use. Consult our application engineers or the application engineering department of one of our many qualified producers for your specific application data.

TECHNICAL ASSISTANCE

This brochure contains basic information needed to achieve the cost-savings potential of TAPTITE 2000® fasteners.

To obtain further assistance and a list of qualified producers, visit our website at www.taptite.net or contact REMINC for North America and CONTI for all other countries.

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SERVICES

A summary of the capabilities of REMINC/CONTI in support of manufacturers:

Technical Support

- New Product Development
- Research and Development Reports
- Technical Manuals
- Technical Reports
- Technical Information Updates
- Engineering Consultation
- Computer Aided Design and Analysis
- Engineering Training
- Tooling Design and Procurement
- Manufacturing Guidance
- Manufacturing Cost Reduction
- Metallurgical Analysis
- End-User Application Guidance
- Technical Training Seminars

MARKETING SUPPORT

- Application Definition
- Application Reports
- Performance Documentation
- Sales Seminars
- Audio/Video Materials Graphics
- Customer Product Brochures
- Technical Liaison
- Joint Customer Visits
- Cooperative Studies
- Trademark and Patent Use

In addition to the above stated detail, REMINC/CONTI are positioned to provide:

- Contract Testing
- Contract Engineering
- Consultation Activities
- Contract Joint Analysis
- Fastener Engineering Training

