

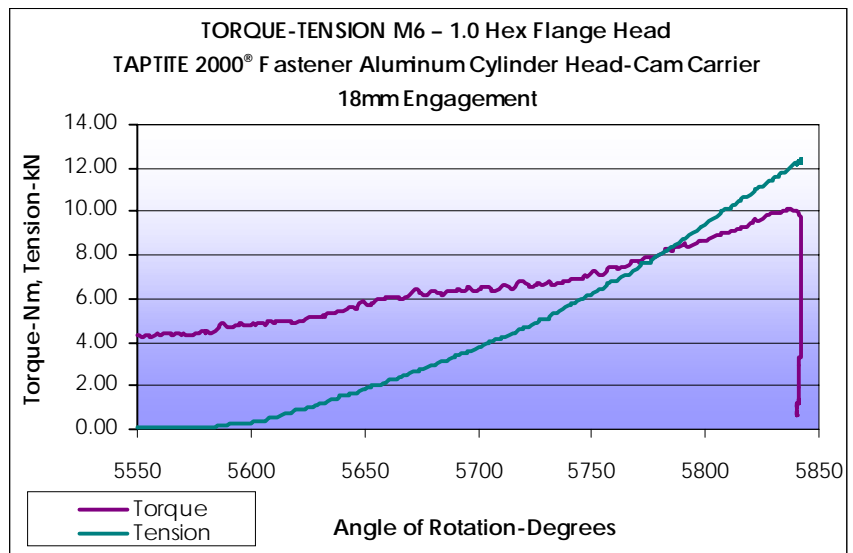


**“FOOD FOR THOUGHT”
TORQUE/TENSION**

It is often questioned as to how one can estimate a torque/tension relationship in a manner that might be suitable for achieving an effective clamp load. If it is possible to provide an estimate of the potential axial mating thread strength, (as per the previous article of the Register), it should be possible to estimate the TORQUE that needs to be applied to the screw or bolt to achieve the required TENSION.

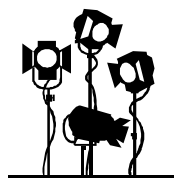
In truth, there are so many variables that can effect the relationship between applied torque and induced tension that it is always better to undertake specific application analysis in order to give a reasonable estimate of the relationship between these factors.

Published fomula is often referenced as a means for estimating relationships between APPLIED TORQUE and INDUCED TENSION for a system that uses the standard ROUND cross section nut and bolt construction. (cont. on page 3)



REMINC STAFF

- Art Bancroft - Chairman / CEO
- Ralph Barton - President
- Laurie Mandly - Executive Vice President
- Ken Gomes - Vice President
- John Reynolds - Project Manager
- Dennis Boyer - Project Engineer
- Bill Teixeira - Project Engineer
- Suzanne Lilly - Special Projects Engineer
- Beth Rondeau - Director of Financial Admin.
- Muriel Boyd - Administrative Assistant



**SPOTLIGHT ON
TIM EGAN**



Tim joined our sister company CONTI in the fall of 1998 after a six month initiation period at REMINC. He replaced Alan Pritchard, who retired after 12 years of providing excellent support to our licensee base, as Director, Market Development at CONTI. CONTI now looks towards Tim to continue the same outstanding licensee support and assistance by utilizing the global marketing skills he has developed throughout his career.



PRESIDENT'S PERSPECTIVE

"MANAGING CHANGE"

We often hear the saying "The only constant in life is change". Therefore, the real question to ponder is, "How should we manage inevitable change?", as change can often be associated with improvement and opportunity.

In the fastener industry we regularly encounter many types of change. New applications, new materials, new finishes, government guidelines, new design and manufacturing engineers, design for assembly mandates, and changing customer needs, to name a few. Too often we encounter resistance to change in an organization because making any change may require additional time, effort and expense, resources that are scarce in our competitive environment. Yet sometimes we experience a positive reaction to change and this type of response usually has its rewards.

Working with new application opportunities and materials may necessitate utilizing inventive fastener designs or the modification of existing products. Working with new engineers can often result in acceptance of suggestions that have been rejected in the past. And changing customer requirements usually drive us to offer better, lower-cost solutions.

The broad range of REMINC proprietary fastener products may offer simple solutions to problems encountered when you react to a changed condition. Should one of our standard offerings not suffice, we can work with you to design variations or develop new products to suit your particular application needs. We are here to support your efforts to adapt to change and we encourage you to avail yourselves of our services.

In my view we should all welcome change, manage it intelligently, convert challenges to solutions, and accept it as another opportunity from which to succeed and profit.



REMINC Responds! **FIELDING THE QUESTIONS**

Q. *What RPM is required to drive TAPTITE 2000® "SP"™ fasteners?*

A. The same drive requirements you use for equivalent size machine screws can be used on TAPTITE 2000® screws. Whatever the RPM and torque capabilities are for equivalent machine screws will also be good for the TAPTITE 2000® screws.

Q. *What axial force is required to drive the TAPTITE 2000® "SP"™ fasteners?*

A. In the automotive world, for example, Ford has no requirement on axial end-load to initiate thread-forming. Yet, GM does have a specification, which states that for an M8 size thread rolling screw, no more than 90N end-load should be required to initiate thread-forming. As an example, an M8 TAPTITE 2000® fastener will initiate thread-forming with only 10-40 Newtons (depending on hole size and screw finish), which is completely acceptable in today's assembly environment.

Q. *How repeatable is the tension when using TAPTITE 2000® "SP"™ fasteners?*

A. TAPTITE 2000® "SP"™ fasteners, under equal conditions, will provide tension repeatability similar to that of machine screws.

Q. *What volume of material (depth) is displaced when installing TAPTITE 2000® "SP"™ screws?*

A. The hole size chosen determines the amount of volume displacement when using TAPTITE 2000® "SP"™ screws. In a typical application, in an aluminum die-casting, the amount of radial engagement of the thread is approximately 75%. In other words, the depth of the internal thread would be approximately 75% of the full thread depth.

Q. *Can TAPTITE 2000® screws be installed into a hole that was previously drilled and tapped?*

A. A TAPTITE 2000® screw can be installed in a hole that was drilled and then threaded using a standard tap.



“FOOD FOR THOUGHT”

TORQUE/TENSION

(cont. from Page 1)



The formula applies equally to TRILOBULAR™ thread-forming screw technology as it applies to the standard nut and bolt technology. The formula referenced is:

$$W = T/kD$$

Where,

- W = tension or induced tensile load (kN)
- T = applied torque (Nm)
- D = screw or bolt nominal diameter (mm)
- k = torque factor

The TORQUE FACTOR (k) being a constant that is introduced to allow the formula to give a reasonable TORQUE/TENSION relationship for a *specified set of conditions*.

Variations in the assembly environment conditions will result in a need to adjust the value of “k”. Attempts to offer guidelines as to the magnitude change of the “k” value that might occur due to a change in one or more of the components of an assembly will be misleading. Even with concise application engineering studies being undertaken, the accuracy of estimated TORQUE/TENSION relationships can be no better than +/- 25%.

What is more important in an assembly that is subjected to dynamic loads, is the ability of the mating threads to retain the induced bolt tension over the maximum period of time. Avoidance of “joint relaxation” is a major factor in the selection of component parts.

TRILOBULAR™, cost effective, high performance thread-forming screws have (for more than 40 years) provided a means of exceeding other known systems in their ability to withstand joint relaxation problems associated with dynamic assembly loading. TRILOBULAR™ thread-forming screws therefore retain a greater percentage of the tension induced when compared to round cross-section nut/bolts.

To learn more about the system benefits of TRILOBULAR™ technology fastener products, please consult the REM INC engineering staff.



TRILOBULAR™ SCRAMBLE

- | | | | |
|-------------|--------------------|--------------|--------------------|
| 1. DLAO | _ _ _ _
2 | 7. ESSCRE | _ _ _ _ _ _
6 |
| 2. TTATPIE | _ _ _ _ _ _
5 | 8. REQ TUO | _ _ _ _ _ _
4 |
| 3. ATESTFI | _ _ _ _ _ _
9 | 9. APMCL | _ _ _ _ _
1 |
| 4. LESDUROH | _ _ _ _ _ _ _
7 | 10. ETHNGL | _ _ _ _ _ _
10 |
| 5. RWCSE | _ _ _ _ _
11 | 11. RDEMIETA | _ _ _ _ _ _ _
8 |
| 6. IGTNODOP | _ _ _ _ _ _ _
3 | | |

Who is always there for assistance? _ _ _ _ _ & _ _ _ _ _
1 2 3 4 5 6 7 8 9 10 11

REMINC Training / Brochure Request Form

Please Check:

Name: _____

Company: _____

Address: _____

Telephone: _____

Fax: _____

E-mail: _____

- Contact me regarding a training visit
- REMINC General Products Catalog
- TAPTITE 2000® Products Application Guide
- TAPTITE 2000® Product Brochure
- REMFORM® Product Brochure
- REMFORM® "F" Product Brochure
- TRU-START™ Product Brochure
- FASTITE® Product Brochure
- "54 Ways TAPTITE 2000® Fasteners Lower the Cost of Assembly" Request Form

Mail this form to REMINC at 25 Enterprise Center, Middletown, RI 02842 USA or fax it to fax #: (401) 841-5008

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1958 - 2002
Celebrating 44 Years
Lowering the Cost of
Assembly

