



**Research Engineering &
Manufacturing Inc.**



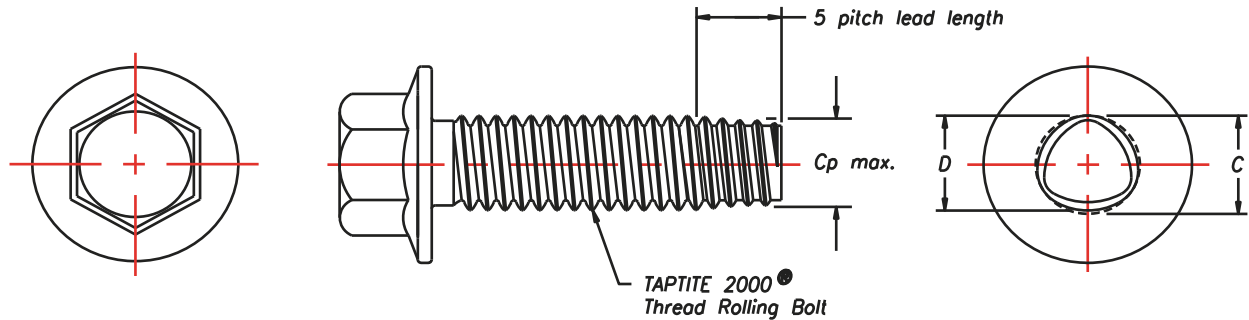
E&E Manufacturing Company

The “Joint” Solution



**“In-Place” Cost Reduction
Eliminate Weld Nuts
Class 10 Performance
Prevailing Torque - Resists Loosening
Proven Technology**

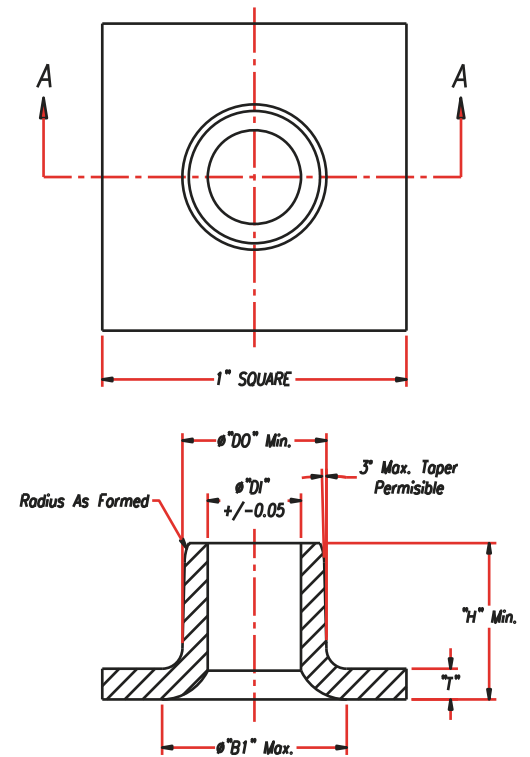
TAPTITE 2000® THREAD FORMING FASTENER



| SIZE | PITCH | LIMITS | C | D | Cp Max |
|------|-------|--------|-------|-------|--------|
| MR6 | 1.00 | Max | 6.03 | 5.93 | 5.38 |
| | | Min | 5.90 | 5.78 | |
| MR7 | 1.00 | Max | 7.03 | 6.93 | 6.38 |
| | | Min | 6.90 | 6.80 | |
| MR8 | 1.25 | Max | 8.03 | 7.91 | 7.23 |
| | | Min | 7.87 | 7.71 | |
| MR10 | 1.50 | Max | 10.03 | 9.88 | 9.08 |
| | | Min | 9.85 | 9.66 | |
| MR12 | 1.75 | Max | 12.04 | 11.87 | 10.92 |
| | | Min | 11.83 | 11.61 | |

E & E EXTRUDED NUT

| Size | Dim | Thickness (T) ±0.25 | | | | | |
|----------|-----|---------------------|------|------|------|------|------|
| | | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |
| M6-1.0 | H | 8.0 | 8.4 | 9.0 | 9.5 | 10.5 | --- |
| | Di | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 | --- |
| | Do | 8.0 | 9.0 | 9.9 | 10.5 | 11.7 | --- |
| | B1 | 12.0 | 12.0 | 12.5 | 12.5 | 12.5 | --- |
| M8-1.25 | H | 11.5 | 12.5 | 13.0 | 13.5 | 14.5 | --- |
| | Di | 7.4 | 7.4 | 7.4 | 7.4 | 7.4 | --- |
| | Do | 10.0 | 11.0 | 11.9 | 12.8 | 13.7 | --- |
| | B1 | 15.0 | 15.0 | 15.0 | 17.0 | 18.0 | --- |
| M10-1.5 | H | --- | 13.5 | 14.0 | 15.0 | 15.5 | 16.0 |
| | Di | --- | 9.2 | 9.2 | 9.2 | 9.2 | 9.2 |
| | Do | --- | 12.5 | 13.5 | 14.6 | 15.5 | 16.4 |
| | B1 | --- | 17.0 | 18.0 | 19.0 | 20.0 | 20.0 |
| M12-1.75 | H | --- | 14.5 | 15.0 | 15.5 | 16.0 | 16.5 |
| | Di | --- | 11.1 | 11.1 | 11.1 | 11.1 | 11.1 |
| | Do | --- | 14.5 | 15.3 | 16.2 | 17.0 | 17.9 |
| | B1 | --- | 18.0 | 19.0 | 21.0 | 22.0 | 23.0 |



Section A-A

Dimensions provided are for guidelines purposes. Variations may be allowed for engineering purposes or required for manufacturing purposes based on part configuration and materials (For example: HSLA, low carbon, high carbon steel or aluminum and location of extrusions on part).

PERFORMANCE DATA

TAPTITE 2000® Fasteners into E & E Extruded Nuts

FASTENER SIZE: M8 x 1.25 **Material Thickness**
2.0 +/- 0.25
Hole Size: 7.40mm **Engagement Length:** 12mm

| | Thread Forming Torque (Nm) | Ultimate Torque (Nm) | Tension @ 30Nm Seating Torque (kN) |
|------------------------------------|----------------------------|----------------------|------------------------------------|
| Average (15 Samples) | 12.8 | 40.9 | 24.3 |
| Average Fail To Drive Ratio | 3.2 : 1 | | |
| Avg. Fail To Drive Diff. | 28.1 | | |

FASTENER SIZE: M10 x 1.50 **Material Thickness**
3.0 +/- 0.25
Hole Size: 9.20mm **Engagement Length:** 12mm

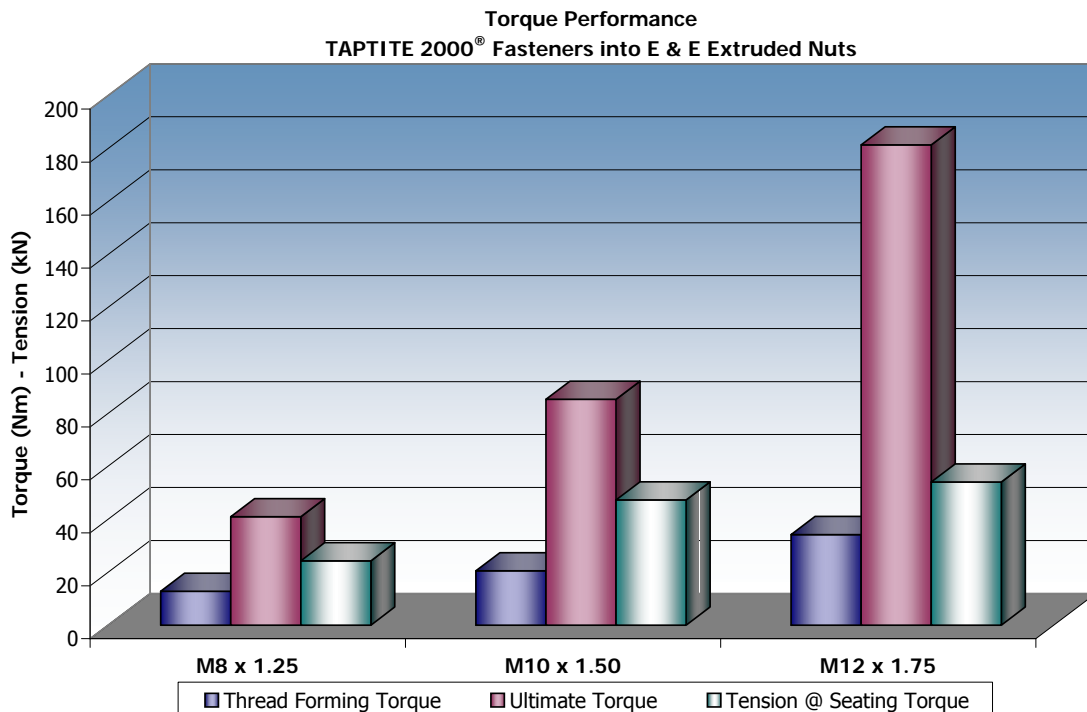
| | Thread Forming Torque (Nm) | Ultimate Torque (Nm) | Tension @ 62Nm Seating Torque (kN) |
|------------------------------------|----------------------------|----------------------|------------------------------------|
| Average (15 Samples) | 20.5 | 85.3 | 47.3 |
| Average Fail To Drive Ratio | 4.2 : 1 | | |
| Avg. Fail To Drive Diff. | 64.8 | | |

FASTENER SIZE: M12 x 1.75 **Material Thickness**
3.0 +/- 0.25
Hole Size: 11.1mm **Engagement Length:** 14mm

| | Thread Forming Torque (Nm) | Ultimate Torque (Nm) | Tension @ 95Nm Seating Torque (kN) |
|------------------------------------|----------------------------|----------------------|------------------------------------|
| Average (15 Samples) | 34.2 | 181.4 | 54.0 |
| Average Fail To Drive Ratio | 5.3 : 1 | | |
| Avg. Fail To Drive Diff. | 147.2 | | |

NOTE:

1. Heat Treatment: CORFLEX®-T' heat treatment (induction hardened points). Property Class 10.9 equivalent.
2. Finish: Zinc, black dichromate and Gleitmo wax.
3. Head Style: Hex Flange Head
4. Nut Material: 050 HSLA Steel



E&E Manufacturing Company

Stampings and Fasteners



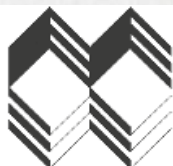
E & E Manufacturing, Inc. is a world class leader in metal joining technology. It meets the needs of its world class automotive customers by manufacturing heavy gage fasteners, progressive die metal stampings, and high value added assemblies.

E & E Manufacturing, Inc. provides their customers with application specific solutions offering the best value and quality through innovations in designs & process and the lowest "In-Place" cost.



KEY COMPETENCIES

- Metal joining and fastening technology.
- Product design capability.
- Design/build heavy duty gage stamped fastener tooling.
- Design & build of secondary equipment.
- Product management from launch through production.
- Rapid & responsive customer service.
- Short manufacturing lead time.



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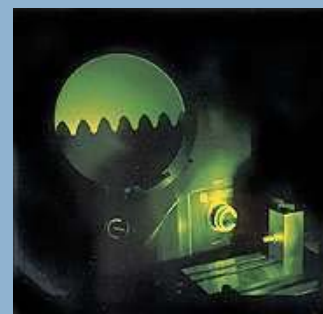
Research Engineering & Manufacturing Inc.

The originator of the TRILOBULAR™ Family of Fasteners



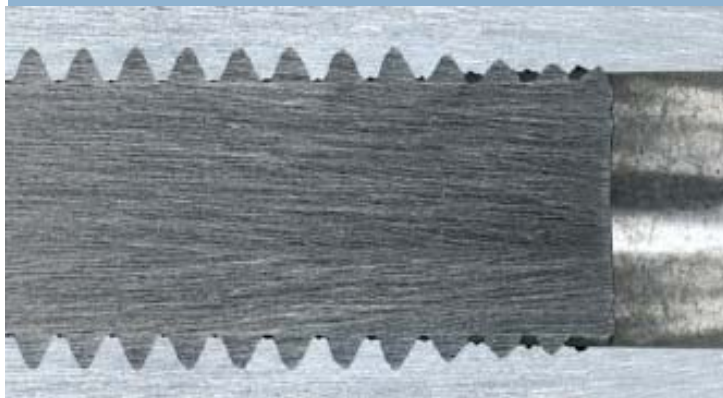
REMINC has successfully marketed TAPTITE® fastener technology internationally for 48 year by training leading fastener producers worldwide and providing technical & marketing support and innovative fastener design.

TAPTITE 2000® fasteners incorporate an innovative new thread design - the Radius Profile™ Thread, resulting in excellent mechanical assembly, and ergonomic characteristics surpassed by no other technology.



ADVANTAGES OF TAPTITE 2000® FASTENERS

- "Ergonomically" friendly and "Assembly" friendly.
- Superior vibration resistance.
- Excellent axial alignment.
- Low end load.
- High strip-to-drive ratio.
- High prevailing torque.
- Excellent torque-tension relationship.



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