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AEROSPACE

# Recoil® Wire Thread Inserts and Tooling





# Recoil® Wire Thread Insert Systems

## Designed and Manufactured for Quality and Reliability

Recoil® leads the way in wire thread insert systems, offering a broad product line of precision inserts, high quality taps, and thread repair kits, in addition to complementary STI taps and installation tooling. Recoil's range of quality wire thread inserts provide strong, permanent threads in metal and plastic applications, including such materials as aluminum, titanium, and magnesium alloys.

## The Recoil Product Line

The Recoil product line includes an extensive range of thread support products in a wide variety of sizes and thread forms, including Metric Coarse, Metric Fine, UNC, UNF, BSW, BSC, BA, BSP, and NPT. Sizes range from 2mm up to 100mm in virtually all thread forms. Special or custom sizes are available upon request.

Standard inserts are manufactured from 304 stainless steel. Other materials, such as 316 stainless, Inconel, Nitronic 60, and Phosphor Bronze are also available. Various platings and coatings can be applied upon request, including Dry Film Lubricant, Cadmium, Silver, Tin, and Zinc.

Installation efficiency is enhanced by Recoil's high-precision tooling. The highest levels of quality are assured and are certified to a wide range of standards, including NASM, DIN, MA, BS, AGS, and BACH2AE.





## The Recoil Advantage

For decades, Recoil inserts have proven to provide positive locking performance and long thread life in even the most vibration-intensive environments. Light weight and strong, Recoil inserts deliver superior holding power, improved flank contact, equal load distribution over all tapped threads, and greater load bearing capabilities. The high-quality materials used in these inserts provide long, reliable life in a wide range of applications.

In addition, Recoil inserts can reduce manufacturing costs by allowing the use of lighter original materials (aluminum and magnesium casts), while still maintaining thread strength.



## Common Uses / Typical Applications

Recoil threaded inserts can be used for a variety of applications, including automotive, aerospace systems, electronics, transportation products, medical instrumentation and equipment, power generation, telecommunications, military hardware and a variety of manufacturing equipment.





## Recoil® Free-Running & Thread-Locking Insert Systems

### Industry-Leader in Choice of Designs, Sizes and Materials

With a choice of free-running or screw-locking designs, Recoil® offers a broad range of wire thread insert systems to ensure the best match of product to the application. The standard Recoil free-running insert provides for easy installation of a female thread, delivering additional holding power. For particularly demanding or extreme high-vibration applications, Recoil offers a screw-locking design, which provides a superior locking function in the female thread.

### Designs and Options



#### Free-Running Inserts

Recoil's wire thread inserts provide strong new threads in weaker materials and can be used to quickly repair damaged threads.



#### Locking Inserts

Recoil's locking inserts combine the strength of the original free-running insert with a locking function to provide a long thread life in the most vibration-intensive environments.



#### Tangless®

Designed to reduce production costs by eliminating the time required to remove or retrieve the tang, Recoil Tangless® inserts are counted on for a wide range of OEM applications. For instrumentation, electronics, and aerospace equipment manufacturing, these efficient designs also provide peace-of-mind by eliminating the possibility of foreign objects (the tang) being left behind in the final assembled product.

Tangless is a registered trademark of Advanex



#### Strip Feed Option

A convenient strip feed option is available for both free-running and locking inserts, in both tanged and tangless designs.

### Tanged Insert Installation Sequence



1 Drill the hole



2 Tap the hole



3 Install the insert



4 Break the Tang



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## Materials

**304 Stainless Steel** Widely used throughout the Recoil product lines, Stainless Steel Grade 304 is an austenitic corrosion-resistant steel used in normal applications up to 800°F.

**316 Stainless Steel (Y)** Often used in highly corrosive applications, Recoil Grade 316 Stainless Steel inserts provide a high degree of reliable corrosion resistance. In freshwater, saltwater, even chlorine environments, these inserts are designed to deliver years of failure-proof threadholding performance.

**Inconel (X)** Inconel X-750 is an alloy material with excellent high heat-resistant and strength characteristics. Used in demanding applications like gas turbines and auto lambda sensor repairs, these inserts can withstand temperatures of 1000°F and can be certified to GE Power Generation standards. Inconel 625 material possesses very high corrosion resistance and is used in subsea platforms and other critical salt water and marine applications.

**Nitronic 60 (N)** Designed for applications where galling can be a problem, Recoil Nitronic 60 inserts' wear-resistant, anti-galling characteristics eliminate the need for additional lubrication. Based on these inserts' ability to reduce friction, they deliver more consistent clamping torque. In addition, Nitronic 60 inserts are suitable for use with stainless steel screws.

**Phosphor Bronze (P)** Designed for electrical applications, Recoil Phosphor Bronze inserts provide no outside interference of signals. This characteristic ensures their successful use in electrical bonding joints and related operations. These advanced inserts have been successfully employed in the manufacturing of a wide range of sensitive electrical equipment including circuit boards, telecommunications control boxes, and medical instrumentation and equipment.

## Finishes and Coatings

**Silver Plating (AG)** primarily used to reduce the effects of galling (seizure) of screw threads in high temperature service applications.

**Cadmium Plating (C)** used in mildly corrosive or marine environments. Cadmium plating is the preferred treatment for protection against pitting of the insert/ bolt materials and minimizing the risk of thread seizure.

**Dry Film Lubrications (D)** used for mildly corrosive or high temperature applications.

**Dye Coatings** screw-locking inserts are generally color-coded with red dye for identification purposes, but other color options are available for fast and secure visual inspection and identification.



# Recoil® Repair Kits

## Everything Included for Complete Thread Repair

Recoil's thread repair kits provide everything needed to reliably repair most threads commonly used today – easy-to-use STI tap, drill bit, installation tool, and inserts. In addition to offering the exact tools and inserts required to quickly and expertly repair threads, these kits feature the proven quality of Recoil professional tools and inserts.

Recoil's kits have been employed for decades worldwide, providing reliable thread repair for a broad range of industrial, automotive, aerospace, and general maintenance applications. To ensure that there is a Recoil kit that meets your specific repair requirements, Recoil offers an extensive selection of kits, including:

**Trade Series Kits** includes high-speed steel tap, drill bit, installation tool, and 5 -15 inserts, depending on size.

**Pro Series Kits** includes high-speed steel tap, drill bit, installation tool, and various lengths of inserts (4 - 12 inserts for each kit, depending on size).

**TI Kits** includes TiN-coated tap, drill bit, pre-winder installation tool, and various lengths of free-running and locking inserts (20 inserts/kit).

**Fix-A-Thred®** designed for automotive and other simple equipment repair. Includes carbon steel tap, installation tool, and various lengths of inserts (6 - 12 inserts for each kit, depending on size). A PlugSaver® kit, containing 3 solid inserts, and an Oxygen Sensor kit, are also available.



## Recoil® Tooling Options

### Matched to Your Manufacturing or Repair Requirements

Recoil offers a broad selection of tooling ensuring the right tool for the job. The advantage of the Recoil tooling is in its simplicity, versatility, and ease of use. Recoil manual installation tooling options include an installation tool, a semi-production pre-winder tool, as well as manual and spring-operated tang break-off tools.

Recoil powered tooling delivers consistent, high volume thread insert installation for a variety of applications. These powered installation tools can be used with either compressed air or stabilized low voltage power. Both tool types offer significant productivity for high volume insert use.

While tooling options range from simple hand tools to complete pneumatic installation systems, all Recoil tools feature the same quality, durability, and ease of use. Overall, the Recoil tooling line includes:

- Manual install tool with square drive for tapping operation
- Pre-winder installation tool
- Threaded mandrel-type installation tool
- Electric-powered installation tooling
- Pneumatic-powered installation tooling
- Battery-powered installation tooling
- Manual magnetic tang break tool
- Spring-loaded tang break tool
- Pneumatic tang break tool
- Extraction tool
- Selection of STI gauges

Electric Tool



Battery Power Tool



Pre-Winder HandTool



Pneumatic Power Tool



Pneumatic Tang Break Tool





# Howmet Fastening Systems

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