

Recoil Wire Thread Inserts

Create **Strong
New Threads**



Recoil inserts and tooling systems for OEM applications

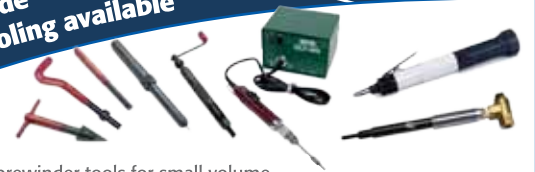
Recoil wire thread inserts are widely used by major manufacturers in a variety of markets: including automotive, electronics, aerospace, military, power generation and manufacturing equipment.

The benefits of using Recoil are:

- Provides a permanent and wear resistant thread stronger than the original thread.
- Ideally suited for use in light weight materials such as aluminium, magnesium and carbon fibre.
- Ex-stock availability on a huge variety of both standard and special products.
- Quick and simple installation process reduces maintenance costs, keeping application downtime to a minimum.

- Comprehensive technical support from our dedicated, multi-lingual European support team.
- Commitment to the highest quality products and operating systems: AS9100, ISO9001, QS9000, TS16949:2002 accreditation. SBAC TS 157 approval. Ford Q1 status. Boeing BACI12AE qualification.

We have a wide range of tooling available



From simple hand prewinder tools for small volume usage to pneumatic or electric tools for continual high production needs.

Locking Inserts



For extreme vibration conditions
Locking inserts retain bolts under the most severe conditions.

Strip Feed Inserts



For rapid installation
Inserts are retained in a plastic strip which is passed rapidly through a slot in the front end assembly nozzle, indexing them to the installation mandrel.

Tangless®



No tang to break off, retrieve or lose.
Reduces costs by significantly decreased installation and inspection time. Bi-directional design eliminates insert orientation requirement.

Size Chart

Metric				
Size	Standard Insert Part No.	Locking Insert Part No.	Installed Length D's	Installed Length mm
M5-0.8	05052	15052	1	5
M5-0.8	05053	15053	1.5	7.5
M5-0.8	05054	15054	2	10
M5-0.8	05055	15055	2.5	12.5
M5-0.8	05056	15056	3	15
M6-1	05062	15062	1	6
M6-1	05063	15063	1.5	9
M6-1	05064	15064	2	12
M6-1	05065	15065	2.5	15
M6-1	05066	15066	3	18
M7-1	05072	15072	1	7
M7-1	05073	15073	1.5	10.5
M7-1	05074	15074	2	14
M7-1	05075	15075	2.5	17.5
M7-1	05076	15076	3	21
M8-1.25	05082	15082	1	8
M8-1.25	05083	15083	1.5	12
M8-1.25	05084	15084	2	16
M8-1.25	05085	15085	2.5	20
M8-1.25	05086	15086	3	24
M9-1.25	05092	15092	1	9
M9-1.25	05093	15093	1.5	13.5
M9-1.25	05094	15094	2	18
M9-1.25	05095	15095	2.5	22.5
M9-1.25	05096	15096	3	27
M10-1.5	05102	15102	1	10
M10-1.5	05103	15103	1.5	15
M10-1.5	05104	15104	2	20
M10-1.5	05105	15105	2.5	25
M10-1.5	05106	15106	3	30
M12-1.75	05122	15122	1	12
M12-1.75	05123	15123	1.5	18
M12-1.75	05124	15124	2	24
M12-1.75	05125	15125	2.5	30
M12-1.75	05126	15126	3	36
M14.2	05142	15142	1	14
M14.2	05143	15143	1.5	21
M14.2	05144	15144	2	28
M14.2	05145	15145	2.5	35
M14.2	05146	15146	3	42
M18-2.5	05182	15182	1	18
M18-2.5	05183	15183	1.5	27
M18-2.5	05184	15184	2	36
M18-2.5	05185	15185	2.5	45
M18-2.5	05186	15186	3	54
M20-2.5	05202	15202	1	20
M20-2.5	05203	15203	1.5	30
M20-2.5	05204	15204	2	40
M20-2.5	05205	15205	2.5	50
M20-2.5	05206	15206	3	60
M22-2.5	05222	15222	1	22
M22-2.5	05223	15223	1.5	33
M22-2.5	05224	15224	2	44
M22-2.5	05225	15225	2.5	55
M22-2.5	05226	15226	3	66

UNC				
Size	Standard Insert Part No.	Locking Insert Part No.	Installed Length D's	Installed Length inch
8-32	03582	13582	1	0.164
8-32	03583	13583	1.5	0.246
8-32	03584	13584	2	0.328
8-32	03585	13585	2.5	0.41
8-32	03586	13586	3	0.492
10-24	03602	13602	1	0.19
10-24	03603	13603	1.5	0.285
10-24	03604	13604	2	0.38
10-24	03605	13605	2.5	0.475
10-24	03606	13606	3	0.57
12-24	03622	13622	1	0.216
12-24	03623	13623	1.5	0.324
12-24	03624	13624	2	0.432
12-24	03625	13625	2.5	0.54
12-24	03626	13626	3	0.648
1/4-20	03042	13042	1	0.25
1/4-20	03043	13043	1.5	0.375
1/4-20	03044	13044	2	0.5
1/4-20	03045	13045	2.5	0.625
1/4-20	03046	13046	3	0.75
5/16-18	03052	13052	1	0.312
5/16-18	03053	13053	1.5	0.468
5/16-18	03054	13054	2	0.624
5/16-18	03055	13055	2.5	0.78
5/16-18	03056	13056	3	0.936
3/8-16	03062	13062	1	0.375
3/8-16	03063	13063	1.5	0.563
3/8-16	03064	13064	2	0.75
3/8-16	03065	13065	2.5	0.938
3/8-16	03066	13066	3	1.125
7/16-14	03072	13072	1	0.438
7/16-14	03073	13073	1.5	0.657
7/16-14	03074	13074	2	0.876
7/16-14	03075	13075	2.5	1.095
7/16-14	03076	13076	3	1.314
1/2-13	03082	13082	1	0.438
1/2-13	03083	13083	1.5	0.657
1/2-13	03084	13084	2	0.876
1/2-13	03085	13085	2.5	1.095
1/2-13	03086	13086	3	1.314
9/16-12	03092	13092	1	0.562
9/16-12	03093	13093	1.5	0.843
9/16-12	03094	13094	2	1.124
9/16-12	03095	13095	2.5	1.405
9/16-12	03096	13096	3	1.686

UNF				
Size	Standard Insert Part No.	Locking Insert Part No.	Installed Length D's	Installed Length inch
8-36	04582	14582	1	0.164
8-36	04583	14583	1.5	0.246
8-36	04584	14584	2	0.328
8-36	04585	14585	2.5	0.41
8-36	04586	14586	3	0.492
10-32	04602	14602	1	0.19
10-32	04603	14603	1.5	0.285
10-32	04604	14604	2	0.38
10-32	04605	14605	2.5	0.475
10-32	04606	14606	3	0.57
12-28	04622	14622	1	0.216
12-28	04623	14623	1.5	0.324
12-28	04624	14624	2	0.432
12-28	04625	14625	2.5	0.54
12-28	04626	14626	3	0.648
1/4-28	04042	14042	1	0.25
1/4-28	04043	14043	1.5	0.375
1/4-28	04044	14044	2	0.5
1/4-28	04045	14045	2.5	0.625
1/4-28	04046	14046	3	0.75
5/16-24	04052	14052	1	0.312
5/16-24	04053	14053	1.5	0.468
5/16-24	04054	14054	2	0.624
5/16-24	04055	14055	2.5	0.78
5/16-24	04056	14056	3	0.936
3/8-24	04062	14062	1	0.375
3/8-24	04063	14063	1.5	0.563
3/8-24	04064	14064	2	0.75
3/8-24	04065	14065	2.5	0.938
3/8-24	04066	14066	3	1.125
7/16-20	04072	14072	1	0.438
7/16-20	04073	14073	1.5	0.657
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7/16-20	04076	14076	3	1.314
1/2-20	04082	14082	1	0.5
1/2-20	04083	14083	1.5	0.75
1/2-20	04084	14084	2	1
1/2-20	04085	14085	2.5	1.25
1/2-20	04086	14086	3	1.5
9/16-18	04092	14092	1	0.562
9/16-18	04093	14093	1.5	0.843
9/16-18	04094	14094	2	1.124
9/16-18	04095	14095	2.5	1.405
9/16-18	04096	14096	3	1.686

Only the most popular kit sizes from our range are shown:

- Metric sizes available - from M2-0.4 to M52-5
- BSW sizes available - from 1/8-40 to 1-8
- UNC sizes available - from 2-56 to 1 1/2-6
- BSF sizes available - from 3/16-32 to 1-10
- UNF sizes available - from 3-56 to 1 1/2-12

The range also includes BSC, BSP, NPT 8 TPI UN, BA and UNC left hand thread forms.
Most sizes available in free running, screw locking and Tangless® forms.



TS 504515-000
FM 80437

EMS 60542

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Alternatively call: **00 44 1952 290 011**

Email: info@afsrecoil.net

www.afsrecoil.net



Part of the Alcoa Fastening Systems Group



A wide range of wire thread inserts, tangless inserts, installation tooling & thread repair kits.



Extensive range of quarter-turn fasteners, tension latches, slam latches & the capability to make to your specific requirements.



Wide range of standard and application-specific nuts including self-locking, washer & flange nuts.



Lockbolts, structural blind fasteners, & associated tooling.



Non-structural rivets in a variety of materials & complimentary tooling.



Slotted nuts, bearing nuts & special nuts made specifically for your requirements.



The Recoil® Product Range



How a Recoil Insert Works

Recoil inserts are rolled from high quality stainless steel wire with a diamond shaped cross section, wound to the shape of a spring thread. Once the insert is installed into a tapped hole, it provides a permanent and wear resistant thread in the parent material designed to be stronger than the original thread.

The inserts are greater in diameter than the corresponding tapped hole and compress as they are installed. This allows maximum surface contact area with the tapped thread, safely and permanently anchoring the inserts into place.

The insert's compensatory action shares the load over the entire bolt and hole, increasing holding or pull out strength. With a Recoil insert in place, load and stress are more evenly distributed.



Typical thread problems:

- ✗ Poor flank contact between bolt & parent thread
- ✗ Unequal distribution of bolt load over engaged threads
- ✗ Failure of threaded components when loaded

Recoil solutions:

- ✓ Greatly improved flank contact
- ✓ Equally distributed load over all tapped threads
- ✓ Reduced stress concentration for greater load bearing

Where to use Recoil Inserts

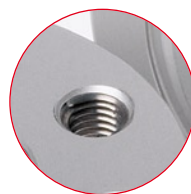
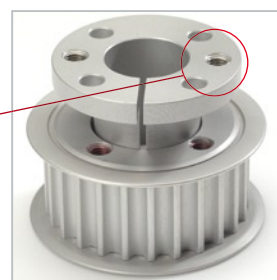
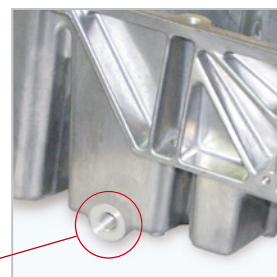
1 Original Equipment Manufacture

AFS offers innovative manufacturers the opportunity to design high quality products using lighter weight metals as well as standard materials.

Recoil inserts can be used in aluminium and magnesium alloys, carbon fibres and other materials to achieve stronger and more reliable threads than the parent material alone.

Recoil brand inserts are widely used by manufacturers in a variety of markets including the following:

- Automotive
- Electronic
- Aerospace
- Ship Building
- Defence
- Power Generation
- Transport
- Manufacturing Equipment

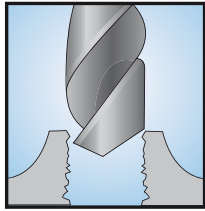


2 Repair

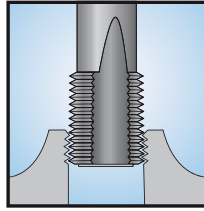
Wherever you encounter a damaged thread Recoil provides:

- The quickest and simplest method of thread repair.
- A quality thread with superior holding power.
- The most cost-effective method of repair.
- A new thread in the original size.
- A thread generally stronger than the original.

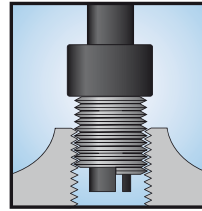
Installation Sequence



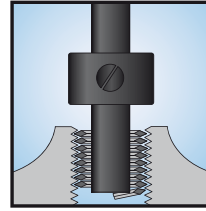
1 Drill the hole



2 Tap the hole



3 Install the insert



4 Break the tang

Materials & Coatings

Insert Materials

Recoil products are made in an extensive variety of the highest quality materials including:

- Stainless steel grade 304 (AS7245) austenitic corrosion resistant steel. For normal applications up to 425°C (800°F). Widely used throughout the Recoil range.
- Stainless steel grade 316 (AISI 316) austenitic corrosion resistant steel. For Marine applications up to 425°C (800°F).
- Phosphor bronze (DIN 17677 or BS2783 PB 102) (300°C). For electrical bonding joints or low permeability applications.
- Inconel X750 (AS7246) nickel alloy. For high temperature applications 425°C - 550°C (800°F - 1000°F) or where low permeability is required.
- Nimonic 90 (HR 503) for high temperature applications (650°C/1200°F).
- Nitronic 60 (UNS S21800) austenitic anti-galling alloy.
- Special purpose materials such as Inconel 625 and spring steel grade are also available to special order.

Further options are available on consultation with your Recoil team.



Coatings and Finishings

The Recoil team views the selection of coatings and lubricants as vital to the design process and integral to the long term security of every bolted joint.

The ideal finish or coating for each insert depends upon the optimum coefficient of friction and the required service conditions of the assembled parts. These include temperature, chemical influences, humidity, surface coating and dust.

Silver Plating

Primarily used to reduce the effects of screw thread seizure in high temperature applications.

Coloured Dye

Red, blue and green colour dyes are available for fast and secure visual inspection and identification. These organic resin based dyes do not affect the installation or function of the inserts and normally do not need to be removed.

Dry Film Lubricants

Used for mildly corrosive or high temperature applications, dry film lubricants are applied as a thin film (5µm-20µm) to grease-free metal surfaces.



Products

The Recoil system consists of precision inserts, quality high speed taps, and easy to use installation tools. The Recoil system is also available in convenient kit form for maintenance and repair applications.

Wire Thread Inserts

Recoil has a huge range of inserts available ex-stock for every thread form including METRIC, UNC, UNF, BSC, BSW, BSP, BSF, BA, and NPT.

There are three basic types of Recoil inserts available:

- **Standard inserts** which form a strong female thread
- **Locking inserts** with an additional locking function
- **Tangless* inserts** without an installation tang



Thread Repair Kits

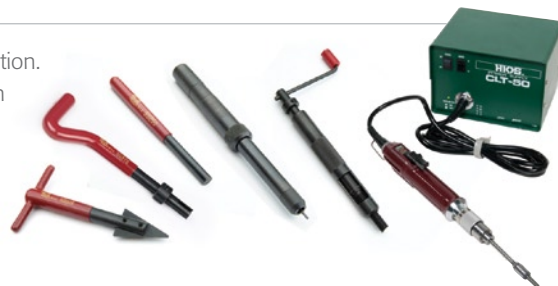
Recoil offer a full range of thread repair kits, covering the majority of sizes commonly used today. Recoil kits contain the necessary equipment to repair a damaged or stripped thread including an STI HSS tap, an installation tool, and precision stainless steel inserts. A variety of kits types are on offer to meet all of your thread repair needs.



Installation Tooling

A range of associated tooling is available to facilitate insert installation. These include manual, spring and pneumatic operated installation tools and tang break-off tools.

Alcoa Fastening Systems also offers a selection of work arms and power tooling, including high efficiency pneumatic and electric installation tools, for in-line production or repetitive maintenance situations.



Taps and Gauges

Recoil offers a wide range of high-quality STI HSS taps and gauges. Recoil Taps and Gauges are purpose built to enable a precision fit of each insert into a tapped hole. Their unique design enables quick and easy insert installation.



Complementary Products

Recoil also offers an alternative range of cost saving thread repair products where the use of wire thread inserts may not be appropriate.



*Tangless is a registered trademark of KATO & Advanex Inc.



Overview



The Recoil range of wire thread inserts and thread repair products are especially designed to enable you to produce strong threads in weaker materials and carry out fast and efficient repair of damaged threads.

Developed from decades of engineering experience, Recoil products carry a global reputation for delivering fast, reliable and cost effective means of thread strengthening and thread repair.

Alcoa Fastening Systems' (AFS) Recoil manufacturing operations are located in Australia, with sales and warehouse facilities strategically placed in North America, Asia and Europe.

Recoil's product line features an extensive collection of precision inserts, high quality taps, versatile tooling and thread repair kits as well as complementary thread repair products. So whatever your thread requirements may be, Recoil will provide you with the perfect solution.

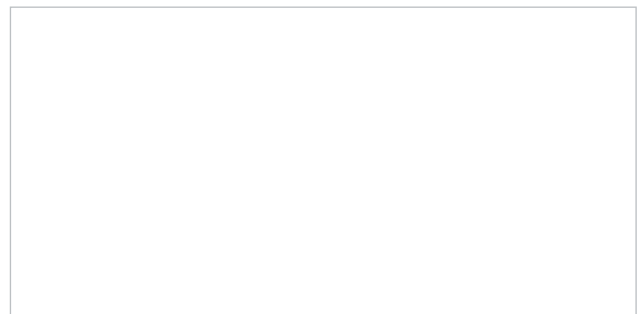
What We Offer:

- **The most extensive range** of wire thread inserts and thread repair products in a wide variety of sizes and thread forms.
- **Ex-stock availability** on a huge variety of both standard and special products.
- **Optimum installation efficiency** achieved by the latest high precision tooling and years of development experience.
- **Comprehensive technical support** from our dedicated, multi-lingual European support team.
- **Commitment to the highest quality** products and operating systems:

AS9100, ISO9001, QS9000, TS16949:2002 accreditation. SBAC TS 157 approval. Ford Q1 status. Boeing BACI12AE qualification.



 <p>Traditionally Innovative</p>		 <p>QUALITY THREAD INSERT SYSTEMS</p>			
 <p>Extensive range of quarter-turn fasteners, tension latches, slam latches & bespoke solutions.</p> <p>info@afscamloc.net</p> <p>Alcoa Fastening Systems ALCOA</p>	 <p>Non-structural blind rivets available in a variety of materials & complementary tooling.</p> <p>info@afsmarson.net</p> <p>Alcoa Fastening Systems ALCOA</p>	 <p>A wide range of wire thread inserts, thread repair kits, complementary products and installation tooling.</p> <p>info@afsrecoil.net</p> <p>Alcoa Fastening Systems ALCOA</p>	 <p>High performance lockbolts, structural blind fasteners and complementary tooling.</p> <p>info@huckfasteners.net</p> <p>Alcoa Fastening Systems ALCOA</p>	 <p>Specialised cold forging capabilities and a wide range of standard and special nuts.</p> <p>info@afssimmonds.net</p> <p>Alcoa Fastening Systems ALCOA</p>	 <p>Slotted nuts, bearing nuts & special nuts made specifically to your requirements.</p> <p>info@afssnep.net</p> <p>Alcoa Fastening Systems ALCOA</p>



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