

Emhart Aftermarket Products

Heli-Coil

Did you know...

Indy and NASCAR racing teams use Heli-Coil inserts.

A Boeing 747 has 250,000 Heli-Coil inserts as original equipment

There are 250,000 Heli-Coil inserts in every space shuttle.

Why?

All the above use lightweight, exotic materials and need strong threads.

What does this mean to you?

Today's cars are also made of light materials, such as aluminum, and tapped hole damage is a common occurrence. Stripping during removal of seized bolts, cross-threading and wear from constant assembly and disassembly and corrosion can also cause thread damage. For these reasons companies like General Motors, Ford, Chrysler, Boeing, Pratt & Whitney, McDonnell-Douglas, NASA, Harley-Davidson, Caterpillar, Cummins, General Electric, Rolls-Royce, BMW, Porsche and many more, including the military, all use Heli-Coil inserts as original equipment in critical threaded areas of parts made of lightweight materials. They have found that the use of Heli-Coil inserts gives them a stronger and more reusable thread that resists the effects of corrosion.

The inserts offered in all of our Heli-Coil Thread Repair Kits are made of the same high quality stainless steel as the inserts used by these companies. The same technology that took us to the moon is available to fix the damaged threads on your car, truck, motorcycle, boat; anywhere they happen. This repair is better than the original thread. It is quick, easy, permanent and in almost all cases less expensive than replacing the part.

POP

POP Blind Rivets are available in a variety of sizes, types and materials combined with dome, countersunk or large-flange head styles. This makes POP blind rivets ideal for a wide range of riveting applications. They are the most popular rivets for automotive use. Also available from POP are Sheet Metal Inserts, a general purpose threaded insert with exceptionally strong torque-out and pull-out characteristics, POP Plastic Rivets, a one-piece, all-plastic expansion rivet, POP WELL-NUT Threaded Inserts, a flanged rubber bushing with brass threads molded into one end, and a variety of manual and power tools.

Drill-Out

Drill-Out is a drill bit and extractor in one. The drill bit is made from high quality tool steel that has been hardened and tempered giving it the ability to even drill into Grade 8 and stainless steel bolts. The extractor is made from hard, flexible die steel which allows it to bite into any bolt or stud without slipping or stripping.

Chase 'em Back™

The unique, patented hinge design of Chase 'em Back allows for the repair of damaged or corroded threads on most studs by attaching to the undamaged threads and working back through the damaged areas. Made from heat-treated steel, sets are available for the most common inch and metric thread sizes. Other sets include the 8-piece Sav-A-Stud Plus™ set for wheel stud repair and the 20-piece Spindle-Saver™ set for front wheel drive spindle repair.

HELI-COIL

POP

DRILL-OUT

CHASE 'EM BACK

The Heli-Coil Thread Repair System

Heli-Coil has the most effective and universally accepted method of thread repair. Heli-Coil inserts quickly and permanently restore **stripped, worn or damaged threads** to their original size and condition.

The inserts work in any part or material; **aluminum, magnesium, cast iron, bronze**, etc. The use of light weight (and soft) materials in fuel efficient cars means more thread damage...there is a Heli-Coil insert to repair virtually every application.

Damaged threads can be restored to better than new condition in spark plug ports, carburetor fuel inlets, transmission housings, oil drain plugs, exhaust and intake manifolds, head

bolt holes, brake calipers and more! The Heli-Coil system makes all other thread repair methods obsolete: welding, plugging, oversized fasteners and oversized drilling of mating parts. It's faster – you save time, increase your shop's repair capabilities and restore parts that otherwise would have to be scrapped.

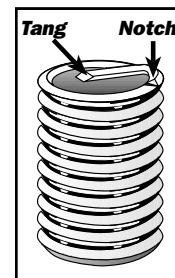


Heli-Coil repairs are available in the following standard thread series and size ranges: **Inch Coarse** (#8 thru 1-1/2), **Inch Fine** (#10 thru 1-1/2), **Metric Coarse** (M3 thru M20), **Metric Fine** (M8 thru M18), **Spark Plug** (10mm, 12mm, 14mm, 18mm & 7/8"), and **Pipe Thread** (1/8" thru 1").

In addition to the above, custom sizes are available for various repairs.

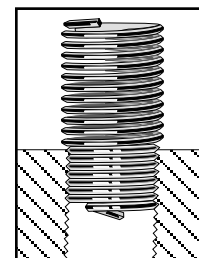
Heli-Coil Stainless Steel Inserts

Heli-Coil inserts are precision formed coils of extremely hard stainless steel (18-8) diamond shaped wire. When installed into a Heli-Coil tapped hole, the insert provides permanent conventional screw threads. The insert has a driving "tang" for installation which is notched for easy removal.



The Retention Principle

Heli-Coil inserts are larger in diameter before installation than the tapped hole. During installation, the inserting tool reduces the diameter of the leading coil so it can enter the tapped hole. After the installation, each high tensile stainless steel coil expands outward against the tapped hole to permanently anchor the insert.



Installation

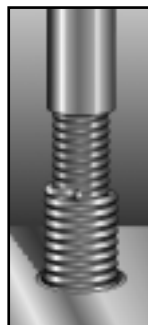
Drill

Drill out the damaged threads using the drill size specified on the kit or set. Drill to sufficient depth to accommodate the insert length and bolt or screw being used.



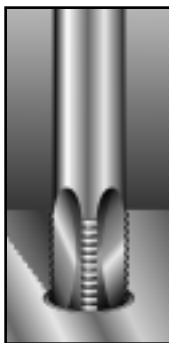
Install

Use the installation tool supplied in the kit or set. Just wind the insert into the hole until the top coil is 1/4 - 1/2 turn into the tapped thread. Now you're back to the original size and the original size fastener can be used.



Tap

Use the Heli-Coil tap supplied in the kit or set. Check the size on the shank to make sure you have the right one. Tap the hole to sufficient depth to accommodate the insert length and bolt or screw being used.

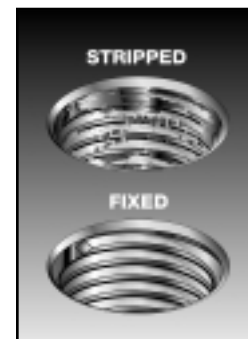


Tang Removal

The tang must be removed to allow full passage of the bolt or screw through the insert. Place square (unchamfered) end of a punch on the tang and strike sharply. For inserts over 1/2", M14 and up, and all spark plug sizes, use long nose pliers. Holding the tang with the pliers, bend it alternately in and out until it comes free. **Note:** For **Spark Plug** repairs, **NO** drilling is necessary. The Heli-Coil spark plug kit contains a piloted reamer tap. With this tap, the damaged threads are removed and new threads are cut in one continuous operation.

Stripped & Fixed

When threads become stripped, worn or damaged for any reason, the strength and reliability are greatly reduced. Potentially dangerous situations are eliminated when the damaged thread is repaired with Heli-Coil inserts. The Heli-Coil threaded insert provides stronger, more reliable threads than the original tapped hole and at the same time eliminates the possibility of thread wear, corrosion, galling, seizing and rust.



Inch Thread Repair Kits

Heli-Coil has complete coverage of inch thread repair sizes. Available from stock are Inch Coarse kits in sizes #8 through 1-1/2" and Inch Fine kits in

sizes #10 through 1-1/2". Kits up to 3/4" are packaged in durable placon or vinyl pouches, and kits 7/8" and larger are packaged in sturdy metal cases and

contain the proper size high speed steel drill. All kits contain a Heli-Coil tap, installation tool, a quantity of inserts and detailed instructions.

| INCH COARSE | | | | Kit Contents and Replacement Parts | | | | | DRILL SIZE |
|---|---------------------|----------------------|------------------------|---|-----------------------------------|------------------|---------------------------------|-----------------------------|-------------------|
| THREAD SIZE + LENGTH | KIT PART NO. | KIT PKG. TYPE | INSERTS PER KIT | TAP PART NO. | INSTALLATION TOOL PART NO. | TOOL TYPE | PACKAGED INSERT PART NO. | PACKAGED INSERT QTY. | |
| 8-32 x .246 | 5521-2 | A | 12 | 819-2 | 2288-2 | 2 | R1185-2 | 12 | 11/64 |
| 10-24 x .285 | 5521-3 | A | 12 | 819-3 | 2288-3 | 2 | R1185-3 | 12 | 13/64 |
| 12-24 x .324 | 5521-1 | A | 12 | 819-1 | 2288-1 | 2 | R1185-1 | 12 | 15/64 |
| 1/4-20 x .375* | 5521-4 | A | 12 | 819-4 | 5288-4 | 1 | R1185-4 | 12 | 17/64 |
| 5/16-18 x .469* | 5521-5 | A | 12 | 819-5 | 5288-5 | 1 | R1185-5 | 12 | 21/64 |
| 3/8-16 x .562* | 5521-6 | A | 12 | 819-6 | 5288-6 | 1 | R1185-6 | 12 | 25/64 |
| 7/16-14 x .656* | 5521-7 | A | 6 | 819-7 | 5288-7 | 1 | R1185-7 | 6 | 29/64 |
| 1/2-13 x .750* | 5521-8 | A | 6 | 819-8 | 5288-8 | 1 | R1185-8 | 6 | 17/32 |
| 9/16-12 x .844 | 5521-9 | B | 6 | 819-9 | 2288-9 | 2 | R1185-9 | 6 | 19/32 |
| 5/8-11 x .938 | 5521-10 | B | 6 | 819-10 | 5288-10 | 1 | R1185-10 | 6 | 21/32 |
| 3/4-10 x 1.125 | 5521-12 | B | 4 | 819-12 | 2288-12 | 2 | R1185-12 | 4 | 25/32 |
| THE FOLLOWING KITS COME COMPLETE WITH HIGH SPEED STEEL DRILL BIT FOR 1/2" CHUCK. | | | | | | | | | |
| 7/8-9 x 1.312 | 5521-14 | C | 6 | 8187-14 | 3724-14 | 2 | K1185-14 | 1 | 29/32 |
| 1-8 x 1.500 | 5521-16 | C | 6 | 8187-16 | 3724-16 | 2 | K1185-16 | 1 | 1-1/32 |
| 1-1/8-7 x 1.688 | 5521-18 | C | 5 | 8187-18 | 3724-18 | 2 | K1185-18 | 1 | 1-5/32 |
| 1-1/4-7 x 1.875 | 5521-20 | C | 4 | 8187-20 | 3724-20 | 2 | K1185-20 | 1 | 1-9/32 |
| 1-3/8-6 x 2.062 | 5521-22 | C | 4 | 8187-22 | 3724-22 | 2 | K1185-22 | 1 | 1-13/32 |
| 1-1/2-6 x 2.250 | 5521-24 | C | 4 | 8187-24 | 3724-24 | 2 | K1185-24 | 1 | 1-17/32 |

*Sizes included in Master Thread Repair Set - Part No. 5621



| INCH FINE | | | | Kit Contents and Replacement Parts | | | | | DRILL SIZE |
|---|---------------------|----------------------|------------------------|---|-----------------------------------|------------------|---------------------------------|-----------------------------|-------------------|
| THREAD SIZE + LENGTH | KIT PART NO. | KIT PKG. TYPE | INSERTS PER KIT | TAP PART NO. | INSTALLATION TOOL PART NO. | TOOL TYPE | PACKAGED INSERT PART NO. | PACKAGED INSERT QTY. | |
| 10-32 x .285** | 5528-3 | A | 12 | 821-3 | 2299-3 | 3 | R1191-3 | 12 | 13/64 |
| 1/4-28 x .375** | 5528-4 | A | 12 | 821-4 | 2299-4 | 3 | R1191-4 | 12 | 17/64 |
| 5/16-24 x .469** | 5528-5 | A | 12 | 821-5 | 6299-5 | 3 | R1191-5 | 12 | 21/64 |
| 3/8-24 x .562** | 5528-6 | A | 12 | 821-6 | 6299-6 | 3 | R1191-6 | 12 | 25/64 |
| 7/16-20 x .656** | 5528-7 | A | 6 | 821-7 | 6299-7 | 3 | R1191-7 | 6 | 29/64 |
| 1/2-20 x .750** | 5528-8 | A | 6 | 821-8 | 6299-8 | 3 | R1191-8 | 6 | 33/64 |
| 9/16-18 x .844 | 5528-9 | B | 6 | 821-9 | 2299-9 | 3 | R1191-9 | 6 | 37/64 |
| 5/8-18 x .938 | 5528-10 | B | 6 | 821-10 | 2299-10 | 3 | R1191-10 | 6 | 41/64 |
| 3/4-16 x 1.125 | 5528-12 | B | 4 | 821-12 | 2299-12 | 3 | R1191-12 | 4 | 49/64 |
| THE FOLLOWING KITS COME COMPLETE WITH HIGH SPEED STEEL DRILL BIT FOR 1/2" CHUCK. | | | | | | | | | |
| 7/8-14 x 1.312 | 5528-14 | C | 6 | 8193-14 | 535-14 | 4 | K1191-14 | 1 | 57/64 |
| 1-14 x 1.500 | 5528-16 | C | 6 | 8193-16 | 535-16 | 4 | K1191-16 | 1 | 1-1/64 |
| 1-12 x 1.500 | 5528-161 | C | 6 | 8193-161 | 535-161 | 4 | K1191-161 | 1 | 1-1/64 |
| 1-1/8-12 x 1.688 | 5528-18 | C | 5 | 8193-18 | 535-18 | 4 | K1191-18 | 1 | 1-5/32 |
| 1-1/4-12 x 1.875 | 5528-20 | C | 4 | 8193-20 | 535-20 | 4 | K1191-20 | 1 | 1-9/32 |
| 1-3/8-12 x 2.062 | 5528-22 | C | 4 | 8193-22 | 535-22 | 4 | K1191-22 | 1 | 1-13/32 |
| 1-1/2-12 x 2.250 | 5528-24 | C | 4 | 8193-24 | 535-24 | 4 | K1191-24 | 1 | 1-17/32 |

*Sizes included in Master Thread Repair Set - Part No. 5621

Packaged Inserts & Tooling



Heli-Coil inserts are packaged according to thread size for easy handling and display. The inserts are con-

tained in a sturdy, clear, plastic display box and marked with part number and thread size. The length of the inserts in inch and metric packages is 1-1/2 times the diameter of the bolt. This provides sufficient strength in most applications. Spark plug hole inserts are packaged in lengths corresponding to the various spark plug reaches. For shorter or longer lengths and volume applications, see page 13.

| Thread Size + Length | Packaged Insert Part No. | Insert Qty. |
|----------------------|--------------------------|-------------|
| INCH COARSE | | |
| 8-32x.246 | R1185-2 | 12 |
| 10-24x.285 | R1185-3 | 12 |
| 12-24x.324 | R1185-1 | 12 |
| 1/4-20x.375 | R1185-4 | 12 |
| 5/16-18x.469 | R1185-5 | 12 |
| 3/8-16x.562 | R1185-6 | 12 |
| 7/16-14x.656 | R1185-7 | 6 |
| 1/2-13x.750 | R1185-8 | 6 |
| 9/16-12x.844 | R1185-9 | 6 |
| 5/8-11x.938 | R1185-10 | 6 |
| 3/4-10x1.125 | R1185-12 | 4 |
| 7/8-9x1.312 | K1185-14 | 1 |
| 1-8x1.500 | K1185-16 | 1 |
| 1-1/8-7x1.688 | K1185-18 | 1 |
| 1-1/4-7x1.875 | K1185-20 | 1 |
| 1-3/8-6x2.062 | K1185-22 | 1 |
| 1-1/2-6x2.250 | K1185-24 | 1 |
| INCH FINE | | |
| 10-32x.285 | R1191-3 | 12 |
| 1/4-28x.375 | R1191-4 | 12 |
| 5/16-24x.469 | R1191-5 | 12 |
| 3/8-24x.562 | R1191-6 | 12 |
| 7/16-20x.656 | R1191-7 | 6 |
| 1/2-20x.750 | R1191-8 | 6 |
| 9/16-18x.844 | R1191-9 | 6 |
| 5/8-18x.938 | R1191-10 | 6 |
| 3/4-16x1.125 | R1191-12 | 4 |
| 7/8-14x1.312 | K1191-14 | 1 |
| 1-14x1.500 | K1191-16 | 1 |
| 1-12x1.500 | K1191-161 | 1 |
| 1-1/8-12x1.688 | K1191-18 | 1 |
| 1-1/4-12x1.875 | K1191-20 | 1 |
| 1-3/8-12x2.062 | K1191-22 | 1 |
| 1-1/2-12x2.250 | K1191-24 | 1 |

| Thread Size | Length | Packaged Insert Part No. | Insert Qty. |
|----------------------|--------|--------------------------|-------------|
| METRIC COARSE | | | |
| M3x0.5 | 4.5 | R1084-3 | 12 |
| M4x0.7 | 6.0 | R1084-4 | 12 |
| M5x0.8 | 7.5 | R1084-5 | 12 |
| M6x1 | 9.0 | R1084-6 | 12 |
| M7x1 | 10.5 | R1084-7 | 12 |
| M8x1.25 | 12.0 | R1084-8 | 12 |
| M9x1.25 | 13.5 | R1084-9 | 12 |
| M10x1.5 | 15.0 | R1084-10 | 12 |
| M12x1.75 | 18.0 | R1084-12 | 6 |
| M14x2 | 21.0 | R1084-14 | 6 |
| M16x2 | 24.0 | R1084-16 | 6 |
| M18x2.5 | 27.0 | R1084-18 | 6 |
| M20x2.5 | 30.0 | R1084-20 | 4 |

| Thread Size | Reach | Packaged Insert Part No. | Insert Qty. |
|--------------------|-------|--------------------------|-------------|
| METRIC FINE | | | |
| M8x1 | 8.0 | R4255-8-10 | 12 |
| M10x1 | 15.0 | R4255-10 | 12 |
| M10x1.25 | 15.0 | R4649-10 | 12 |
| M11x1 | 11.0 | R4255-11-10 | 6 |
| M11x1.25 | 16.5 | R4649-11 | 6 |
| M12x1.25 | 18.0 | R4649-12 | 6 |
| M12x1.5 | 18.0 | R3745-12 | 6 |
| M14x1.5 | 21.0 | R3745-14 | 6 |
| M16x1.5 | 24.0 | R3745-16 | 6 |

Spark Plug Sav-A-Thread Inserts

| Thread Size | Reach | Packaged Insert Part No. | Insert Qty. |
|-------------|--------|--------------------------|-------------|
| M14x1.25 | Short | R5326-14S | 1 |
| M14x1.25 | Normal | R5326-14N | 1 |
| M14x1.25 | Long | R5326-14L | 1 |

SAV-A-THREAD PRO SET

| | | | |
|----------|--------|-------------|---|
| M14x1.25 | Short | R5326-14S-6 | 6 |
| M14X1.25 | Normal | R5326-14N-6 | 6 |
| M14X1.25 | Long | R5326-14L-6 | 6 |

Spark Plug – Wire Inserts

| Thread Size | Reach | Packaged Insert Part No. | Insert Qty. |
|-------------|-----------|--------------------------|-------------|
| 10-1.0mm | 1/2" | R474-4 | 6 |
| 12-1.25mm | 1/2" | R482-1 | 6 |
| | 3/4" | R482-2 | 6 |
| 14-1.25mm | 3/8" | R512 | 6 |
| | 7/16" | R513 | 6 |
| 18-1.5mm | 1/2" | R513-13 | 6 |
| | 3/4" | R513-10 | 6 |
| | .472 | R513-20 | 6 |
| 7/8" | 1/2" | R514-6 | 6 |
| | 1/2"-5/8" | R518-12 | 5 |

There are two types of industrial installation tools available:

1. **Steel kit tools** for 1/4, 5/16, 3/8, 7/16, 1/2 and 5/8 coarse thread sizes which can be used for medium production quantities.
2. **Prewinder type** installation tools for higher production quantities.



Prewinder Type Tools

| Size | Part No. | Size | Part No. |
|--------------------|----------|------------------|----------|
| INCH COARSE | | INCH FINE | |
| 8-32 | 7551-2 | 10-32 | 7552-3 |
| 10-24 | 7551-3 | 1/4-28 | 7552-4 |
| 12-24 | 7551-1 | 5/16-24 | 7552-5 |
| 1/4-20 | 7551-4 | 3/8-24 | 7552-6 |
| 5/16-18 | 7551-5 | 7/16-20 | 7552-7 |
| 3/8-16 | 7551-6 | 1/2-20 | 7552-8 |
| 7/16-14 | 7551-7 | 9/16-18 | 535-9 |
| 1/2-13 | 7551-8 | 5/8-18 | 535-10 |
| 9/16-12* | 3724-9 | 3/4-16 | 535-12 |
| 5/8-11* | 3724-10 | | |
| 3/4-10* | 3724-12 | | |

| Size | Part No. | Size | Part No. |
|----------------------|----------|--------------------|----------|
| METRIC COARSE | | METRIC FINE | |
| M3x0.5 | 7751-3 | M8x1 | 7755-8 |
| M4x0.7 | 7751-4 | M10x1 | 7755-10 |
| M5x0.8 | 7751-5 | M10x1.25 | 7756-10 |
| M6x1 | 7751-6 | M12x1.25 | 7756-12 |
| M7x1 | 7751-7 | M12x1.5 | 7753-12 |
| M8x1.25 | 7751-8 | M14x1.5 | 7753-14 |
| M10x1.5 | 7751-10 | M16x1.5 | 7753-16 |
| M12x1.75 | 7751-12 | M18x1.5 | 7753-18 |
| M14x2 | 7751-14 | | |
| M16x2 | 7751-16 | | |
| M18x2.5 | 7751-18 | | |
| M20x2.5 | 7751-20 | | |

Note: These industrial tools do not require a prewinder to facilitate installation. They are "T"-Type threaded mandrel tools.

One Piece Steel Kit Tools

| Size | Part No. |
|---------|----------|
| 1/4-20 | 2288-4 |
| 5/16-18 | 2288-5 |
| 3/8-16 | 2288-6 |
| 7/16-14 | 2288-7 |
| 1/2-13 | 2288-8 |
| 5/8-11 | 2288-10 |