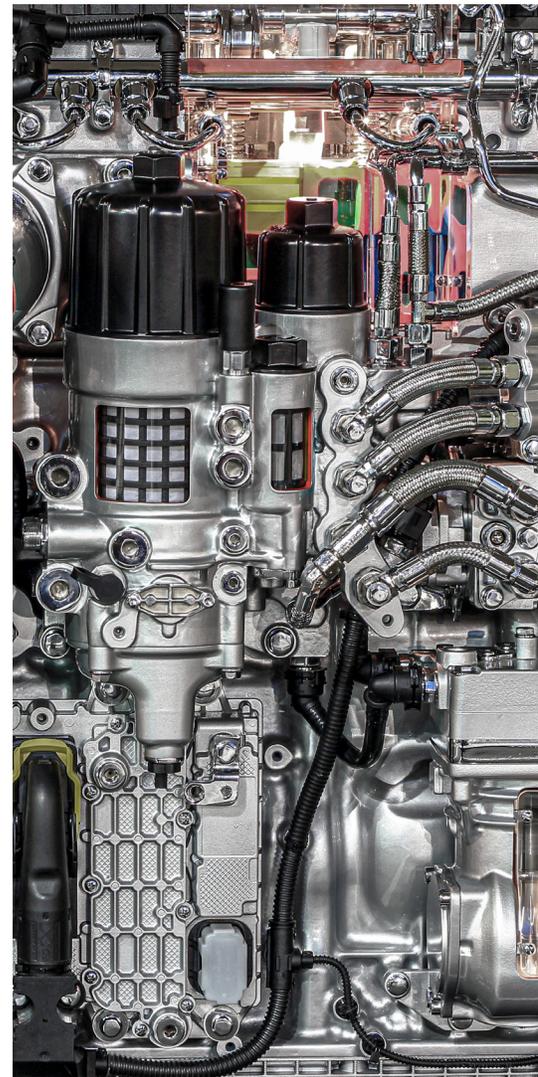




HOWMET
AEROSPACE

Industrial Fastening Systems





STRENGTH & RELIABILITY ACROSS THE GLOBE

Behind every Howmet Fastening Systems brand is a powerful commitment to providing you the strongest, most reliable fastening solution available, regardless of industry. Our uncompromising approach to engineering, manufacturing quality, and breadth and depth of products is unmatched; resulting in a range of structurally superior fasteners and ergonomically designed installation tooling.

In addition, Howmet Fastening Systems makes the process easy. Our knowledgeable sales and engineering support staff is available to consult with you to help discover the products that best meet your needs and application requirements.

Howmet Fastening Systems stands behind every product and system we provide; you can be sure we'll be there for you today and tomorrow.

Head

Pin

Breakneck
groove

Four Industry-Leading Brands. One High Standard of Quality.

Lockbolts, Structural Blind Fasteners and Tooling





PAGE 4

Precision engineered, designed and manufactured for superior performance, Huck® products include lockbolts, structural blind rivets, hydraulic and pneumatic installation tools, and hydraulic power rigs.

Rivets, Rivet Nuts and Installation Tools





PAGE 10

With a wide range of products for specific applications, the Marson® system includes structural blind rivets, non-structural blind rivets and rivet nuts, hand tools, and pneumatic installation tools.

Wire Thread Inserts and Tooling





PAGE 15

One of the world's most trusted brands of thread inserts, thread repair kits, installation tooling, taps and gauges.

Keysert® and Keenserts® Commercial-Grade and Mil-Spec Solid Thread Inserts





PAGE 18

Keyserts® are solid, one-piece, key-locking inserts used to repair damaged threads or for use in original equipment.

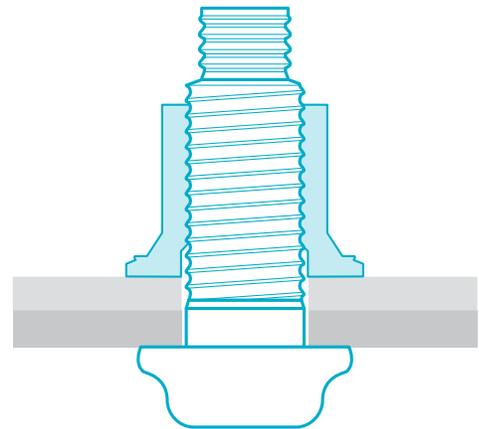
Huck® | HuckBolts, Blind Fasteners, and Tooling

HuckBolts®

It's the proven reliable, vibration-resistant locking performance that has made the Huck® brand famous.

You'll find it in every HuckBolt®. Delivering uniform, consistent clamp load and high shear and tensile strength, HuckBolts are ideal for applications ranging from general manufacturing to high-vibration environments such as HVAC, trailer and container assembly, rotating equipment, shopping carts, railroad and transit cars, geodesic structures, and many others.

In addition to superior fastening performance regardless of which lockbolt type you require, HuckBolts have been proven to reduce labor and installation costs, along with rework and warranty expenses. Stronger, easier to install, and more durable than welding, adhesives, or conventional threaded fastening systems, HuckBolts have been the professionals' choice for decades.



HuckBolts feature an exclusive locking groove design that ensures a tight, permanent fit.



A Strong Family of Fasteners

Engineered for a wide range of applications, HuckBolts deliver superior joining strength, shear, and tensile strength for an unmatched fastening solution.



BobTail®

Huck's swaged-on fastener with no break-off pintail. Corrosion resistant and installs with lightweight ergonomic tooling.



C50L®

Superior vibration resistance and durability for heavy-duty applications.



C6L®/C120L/C150L

The classic 6-groove locking fastener ideal for a wide range of applications. Available in grades, 2, 5, and 8.



Hucktainer®

Panel fastener that installs with consistent pressure, reducing crushing or cracking.



Magna-Grip®

Vibration-resistant, reliable grade 2 fasteners offering high, uniform, installed values with a wide grip range.

Huck® | HuckBolts, Blind Fasteners, and Tooling

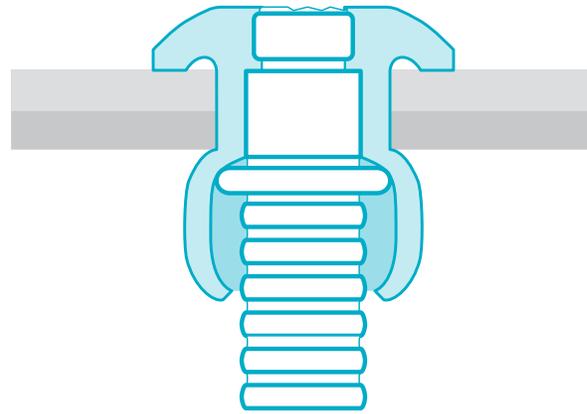
Huck® Structural Blind Rivets

When high performance and holding power are critical

Huck Structural Blind Rivets are Howmet's answer to loosening and vibration challenges. And it's the reason they are the world's strongest, most reliable, most consistent blind fastening solution available.

In fatigue tests, Huck Structural Blind Rivets outlast alternative forms of fastening. Engineered with a unique locking design, many of these fasteners create an internal lock during installation that virtually eliminates pin push-out by mechanically locking the pin to the sleeve. Each locks permanently into place with little effort. Simple, visual inspections ensure joint integrity.

In applications where vibration resistance, reliability, and strong hold are critical, no fastening system is more dependable than Huck.



Huck Structural Blind Rivets expand or bulb on the blind side of the hole pulling the materials together and breaking the pintail flush with rivet head

Sheet-Line Bulb Comparison

Even in minimum-grip applications, Huck fasteners outperform the competition. They're engineered to form a bulb directly on the sheet line, precisely where it's needed, to prevent pull-through.



Auto-Bulb®
Bulb forms directly on sheet line.



The Competition
Bulb forms irregularly above sheet line resulting in lower installed values.

A Strong Family of Fasteners

When only one side of the joint material is accessible, performance-engineered Huck blind fasteners are the smart choice



Magna-Lok®

Hole-filling fastener with excellent gap pull-out and moisture resistance. Solid circle lock creates internal lock that virtually eliminates pin push-out.



Magna-Bulb®

Unique bulbing fastener with high shear strength offers a broader bearing surface for high pull-out strength in thin materials and/or oversized holes



HuckLok®

Wide 1/4" grip range, double-locking action clamps assembly from both sides for maximum joint integrity.



Auto-Bulb®

Features a tapered lead-in point for automated, high-speed assemblies. Forms a bulb directly on the sheet line, preventing pull-through. Available in stainless steel.



Magna-Tite®

Has water-resistant sealant for oversize holes and repairs. Large blind-side footprint for use in thin or low-strength materials.



BOM®

Blind, Oversize, Mechanically locked fasteners. Unique push-and-pull installation design for ultimate locking strength from blind-side install.



FloorTight®

Self-countersinking design for consistent installations in plywood and plymetal vehicle floor applications.

Huck® | HuckBolts, Blind Fasteners, and Tooling

Huck® Tools

The industry's best installation tooling

Designed to offer the highest levels of ergonomics, productivity, and long life, the Huck line of installation tooling reflects the same level of innovation and quality as its advanced fasteners. Whether it's a Huck hydraulic tool employed in high-volume installation of large diameter HuckBolts, or a smaller pneudraulic model used to install blind rivets and small diameter HuckBolts, you can count on these tools to deliver the industry's best value.



High Volume

A wide selection of tooling options

Huck offers a broad selection of hydraulic and pneudraulic tools, and a new battery-powered tool, in addition to Powerig® hydraulic power sources. Huck hydraulic installation tools are available to install a wide range of fasteners, from structural blind rivets to the largest HuckBolts. The Huck line of pneudraulic tools,

designed for use in repair work or in lower volume production applications, can effectively pull fasteners ranging from 3/32" blind rivets to 3/8" HuckBolts. The new lightweight, easy to use BV4500-118 Huck Range Force battery-powered tool can install most Huck blind rivets and HuckBolts up to 1/4" in diameter.



Powerful



Portable



Versatile



Ergonomic

Huck Powerig® Power Sources

Combining advanced design and quality manufacturing, Huck Powerigs® offer both best-in-class performance and long product life. Whether for mobile or factory use, there is a Huck Powerig® hydraulic power source for the job. Choose from electric- or gasoline-powered portable units or larger rigs that can individually power up to three tools.



940

The Model 940 Powerig® is a portable unit sized for moderate production and repair applications. This model features rugged construction for durability in the field, and the choice of 115 or 220 Volt AC power. The Model 940 includes a handle for easy transport, simple adjustable hydraulic outputs, and quick-connect couplers for connecting installation tool hoses.

SPECIFICATIONS

Width: 1.5 in.

Length: 12.5

Height: 18 in.

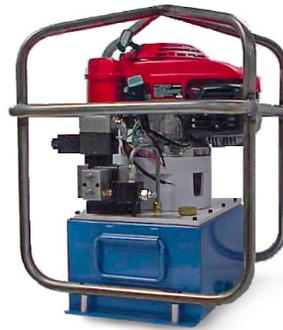
Weight: 74.5 lbs. operational, 66 lbs. w/o hydraulic fluid

Power: electric, 115 or 220 volts, single phase

Flow Rate: 70 cu. in./min. @ 5,000 psi

Reservoir Capacity: 1.5 gal

Options: 220V, 60/50 hertz single phase, 250VDC, direct current



913F

The Huck Model 913F Powerig® is a portable, gasoline-powered, hydraulic power source designed to operate all Huck hydraulic installation equipment in applications where an air or electric power source is not available. This Powerig® hydraulic unit includes a roll cage for protection and to facilitate moving the unit to various work stations. The unit weighs approximately 175 pounds (78.7 kg) when filled with hydraulic fluid.

SPECIFICATIONS

Width: 21 in.

Length: 24 in.

Height: 27 in.

Weight: 122 lbs. w/o hydraulic fluid

Power: gasoline, Honda 5.5hp, 4 cycle, single cylinder air-cooled engine, point condenser ignition with 3 amp charging coil

Flow Rate: Pull 5800 psi, Max 8400 psi, Return 2800 psi, Max 6000 psi

Reservoir Capacity: 5 gallons



918/918-5

The Model 918 and the 918-5 Powerigs® are the largest hydraulic units offered by Huck. Sized for high production applications, the Model 918 can operate up to two tools independently. The Model 918-5 can power up to three tools. These electrically powered models also deliver sufficient power to operate the tools up to 100 feet away. A 22-gallon reservoir stores hydraulic fluid, with a filter-strainer in the suction line to assure clean, filtered fluid.

SPECIFICATIONS

Width: 25 in.

Length: 44 in.

Height: 30 in.

Weight: 780 lbs. operational, 585 lbs. w/o hydraulic fluid

Power: electric, 220 or 440 volts 3 phase

Flow Rate: 2.0 gpm per tool station

Reservoir Capacity: 22 gal

Marson® | Blind Rivets, Rivet Nuts, and Tooling

Marson® Blind Rivets



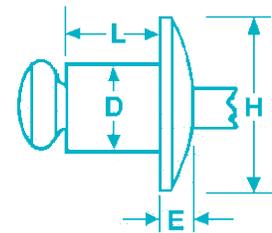
Versatile, strong, easy to install

With nine speciality rivets and three distinct head styles, the Marson® line of blind rivets accommodates almost any application where rivets are used to join two or more pieces of material of varying thicknesses.

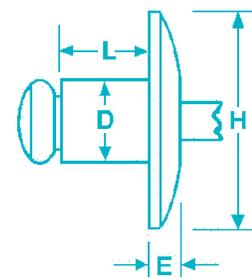
Available in a wide array of materials and grip ranges, Marson blind rivets are the fastener of choice for a broad range of general consumer and industrial applications. Products include standard open-end rivets, as well as speciality rivets, including closed-end, multi-grip and plastic rivets.

Benefits of Marson blind rivets include high grip strength with no surface distortion or marred surfaces, low-profile heads, high shear and tensile strength, corrosion resistance, and resistance to tampering and vibration.

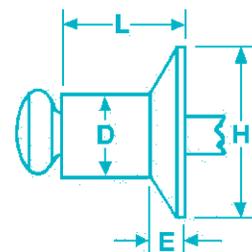
In addition, Howmet Fastening Systems can paint colors to match, as well as anodize or plate to your specifications. Strength. Performance. Variety of styles and grip ranges. All reasons why Marson is one of the most recognized and trusted brand names in fasteners, worldwide.



Buttonhead



Large Flange



Countersunk

Marson Rivets are available in a variety of head styles, each engineered to work in specific applications.

Marson® Blind Rivets

Rivet Styles	Features/Benefits	Materials
OPEN END 	<ul style="list-style-type: none"> • Simple to install • 3/32" to 1/4" diameters 	Steel/steel, Aluminum/aluminum Aluminum/steel, Stainless/stainless, Stainless/steel, Copper/brass, Copper/steel
CLOSED END 	<ul style="list-style-type: none"> • Moisture-resistant • High shear and tensile strength • 1/8" to 1/4" diameters 	Aluminum/steel, Aluminum/aluminum, Stainless/stainless
MULTI-GRIP 	<ul style="list-style-type: none"> • Extended grip range capacity • Reduces inventory (fewer sizes required) • Use as a standard open end rivet • 1/8" to 3/16" diameters 	Aluminum/steel, Steel/steel
TRI-BULB 	<ul style="list-style-type: none"> • Large blind-side footprint • Multi-grip capability • Oversized hole tolerant • Great for soft or brittle materials • 5/32" to 3/16" diameters 	Aluminum/aluminum
Q-LOK 	<ul style="list-style-type: none"> • High shear and tensile strength • Vibration resistant • Mandrel breaks flush with mid-grip range • Moisture-resistant due to tight seal • 3/16" diameter 	Steel/steel
KLIK-LOCK® 	<ul style="list-style-type: none"> • High shear and tensile strength • Vibration resistant • Weather-resistant joint • 3/16" and 1/4" diameters 	Steel/steel, Aluminum/aluminum, Stainless/stainless
T-RIVETS 	<ul style="list-style-type: none"> • High clamp up • High shear strength • Large blind-side footprint • 1/4" diameter 	Aluminum/steel
SPECIAL APPLICATION RIVETS 	<ul style="list-style-type: none"> • For fastening decorative materials on boats and motor vehicles • For installation of non-critical components 	Stainless/steel, Aluminum/aluminum
PLASTIC 	<ul style="list-style-type: none"> • Precision-molded, all-nylon • Secure lock prevents pull-out • Multi-material joining 	Nylon body, Delrin 500 Mandrel

Head Styles	Features/Benefits
BUTTONHEAD 	<ul style="list-style-type: none"> • Low profile head diameter provides high bearing surface for nearly all applications • Open-end buttonhead rivets offer the broadest selection of sizes available
LARGE FLANGE 	<ul style="list-style-type: none"> • For fastening soft and brittle facing materials and oversize facing holes • Works with soft materials, increased flange diameter protects the integrity of the application
COUNTERSUNK 	<ul style="list-style-type: none"> • 120° countersunk rivets for flush appearance applications

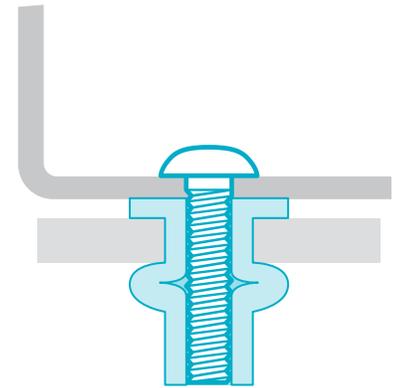
Marson® Rivet Nuts

Styles	Features / Benefits	Materials Available
MRN Series 	Rivet Nut, Flathead Flange (thick wall) for applications that require heavy push out loads (recommend spin-pull tool)	Steel, Aluminum
MPN Series 	Poly-Nut Rivet Nut has very small flange, lowest profile for near countersink applications	Steel, Aluminum
MTS Series 	Thread-Sert has small flange, 360 degree swaging action in the hole and no maximum grip range	Steel, Aluminum
MLR Series 	Large Flange Ribbed Rivet Nut provides increased turn-out resistance versus conventional rivet nut and large flange for improved push out performance	Steel, Aluminum
MLC Series 	Large Flange Ribbed Rivet Nut with Closed End for thread seal	Steel, Aluminum
MSR Series 	Small Flange low profile Ribbed Rivet Nut for virtually flush install with increased turn-out resistance versus conventional low profile Poly-Nut	Steel, Aluminum
MSC Series 	Small Flange low profile Ribbed Rivet Nut with Closed End for thread seal	Steel, Aluminum
MHN Series 	Large Flange Half Hex Rivet Nut for hex hole to provide exceptional turn-out resistance	Steel
MQN Series 	Quad-Leg Rivet Nut used for light duty thin or soft / brittle material – will accommodate slightly oversized hole with large back side footprint	Steel
MXN Series 	Large Flange Cross Bulb Rivet Nut large grip range with pre-bulb and 4 slots cut to provide large blindside footprint for greater pull out strength in thin sheet metal and plastics	Steel
MET Series 	External Thread Stud Rivet Nut allows for component mounting and mate nut	Steel
MNN Series 	Neoprene Insert with pre-molded brass nut for quick fastening in vibration and moisture resistant applications	Neoprene

Marson® Rivet Nuts



Marson Rivet Nuts deliver low cost, permanent thread placement in thin material while providing at least six full thread turns per application install. Easy installation can be completed by one operator with minimum training. Blindside access is not required when installing Marson Rivet Nuts. Ideal for painted surfaces, Marson Rivet Nuts help increase production and reduce rework by eliminating the surface damage that can occur with other fastening methods. Rivet Nuts can be used to fasten multiple sheets as well as single sheets.



Tooling



Rivet Tools & Kits

Marson provides professional-grade rivet installation tooling, both manual and pneumatic models. Each is designed for maximum ease of use, high performance, and reliability.

Rivet Nut Tools & Kits

Marson Rivet Nut Installation Tools and speciality kits provide the operator with the ability to install any size rivet nut or threaded insert with ease. Installation of Marson Rivet Nuts can be completed by one operator with a minimum level of training.

Marson® | Blind Rivets, Rivet Nuts, and Tooling

ValueRivet® Rivets and Tooling



Open End Blind Rivets

- For blind fastening where there is no access to opposite side of work
- Simple to install
- Wide variety of head styles and lengths available from 3/32" to 1/4" diameters



Multi-Grip Rivets

- Extended grip range capacity
- Reduces inventory (fewer sizes required)
- Use as a standard open end rivet
- 1/8" to 3/16" diameters



VHR-1/M79000

HAND-OPERATED RIVET TOOL

- Sets 3/32"-5/32" dia. rivets in all alloys; 3/16" in steel
- Durable, all-steel construction
- Service wrench and locking tab included



VHR-1X/M79002

HAND-OPERATED RIVET TOOL

- Sets 3/32"-5/32" dia. rivets in all alloys; 3/16" in steel
- Extended nosepiece reach of 1-3/4"
- Durable, all-steel construction
- Service wrench and locking tab included



VHR-2/M79032

HAND-OPERATED LEVER TOOL

- Sets 5/32"-1/4" dia. rivets in all materials
- Can also set T-Rivet/Klik-Split™, Klik-Lock®, Magna-Lok®, Magna-Bulb®, Hemlock®, Tigerbolt®, Ultra-Grip®, Monobolt®, Interlock® and Q-Lok® fasteners



V-2/M79014

AIR-HYDRAULIC TOOL

- Sets 1/8"-3/16" dia. rivets in all materials
- Pulling force: 1,870 lbs; Stroke: .551"
- Recommended airline pressure: 85-95 lbs. Psi. Weight: 3.2 lbs.



V-3/M79050

AIR-HYDRAULIC TOOL

- Sets 1/8"-3/16" dia. rivets in all materials
- Pulling force: 1,983 lbs.; Stroke: .551"
- Recommended airline pressure: 85-95 lbs. Psi. Weight: 3.2 lbs.



V-4/M79060

AIR-HYDRAULIC TOOL

- Sets 3/32"-1/4" dia rivets in all materials
- Pulling force: 3,055 lbs.; Stroke: .562"
- Recommended airline pressure: 85-95 lbs. Psi. Weight: 4.2 lbs.



Quality Driven

- Full technical support
- Level I, II, or III PPAPs
- Material certifications available
- Surpasses IFI standards
- Complete offering of rivets and select rivet nuts
- Stocked in choice of bulk or packaged
- Custom designs available
- Wide range of setting tools – both manual and pneumatic



Value Driven

- Technical support available
- PPAPs not available
- No material certifications available
- Conforms to IFI standards
- Limited material and size offering
- Various packaging options available
- Low cost tools available

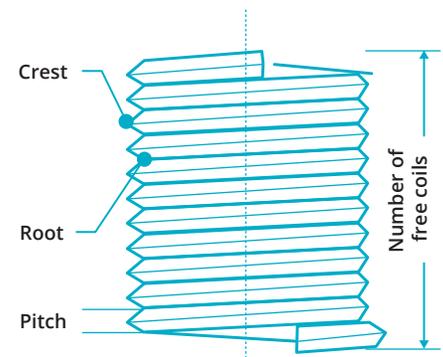
Recoil® Wire Thread Insert Systems

Our patented design means easier, quicker installation



The Recoil system consists of precision inserts, quality high speed taps, and easy-to-use installation tools which are used for repairing damaged screw threads or creating strong new threads. Recoil helically wound screw-thread inserts are generally manufactured from Type 304 (18-8) stainless steel wire cold rolled into a diamond shaped cross section. Recoil inserts can be supplied in other materials such as Inconel X750, Inconel 625, Nimonic 90, Nitronic 60, Phosphor Bronze and Type 316 stainless steel.

Recoil inserts are available in either standard free running form or screw lock type which provides an internal locking feature. Inserts are manufactured for every thread form including UNC, UNF, BSC, BSW, BSF, BA, BSP, NPT and ISO Metric thread sizes. Inserts are available in 5 different standard lengths. 1D, 1.5D, 2D, 2.5D and 3D. Special lengths are available on request.



Free-Running Inserts

The standard Recoil free-running insert provides for easy installation of a female thread, delivering the necessary holding power for most applications. Various sizes available.



Screw-Locking

For particularly demanding or extreme high-vibration applications, Recoil offers a screw-locking design, which provides a superior locking function in the female thread. Various sizes available.



Tangless® Designs

Ideal for a wide range of OEM applications, Recoil Tangless inserts provide peace-of-mind by eliminating the possibility of foreign objects (the tang) being left behind in the final assembled product. Various sizes available.

Thread Repair Kits

Everything included for complete thread repair

recoil's thread repair kits include easy-to-use STI tap, drill bit, installation tool, and inserts for repairing most commonly used threads today. 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.



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).



Trade Series Kits

Includes high-speed steel tap, drill bit, installation tool, and 5 - 15 inserts, 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).

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.

Manual Tools



Manual install tool with square drive for tapping operation



Pre-winder installation tool



Threaded mandrel-type installation tool



Manual magnetic tang break tool



Spring-loaded tang break tool



Extraction tool

Power Tools



REC-10

REC-10K with air motor includes small and large adaptors to fit Recoil Front End Assemblies (FEA) from M2.5 to M16 or #2-56 - 5/8", and an adaptor to suit 1/4" hex drive mandrels. The air regulator, lubricator and gauge help clean the air and govern the amount of lubricant for the air motor.



REC-12

The Electric Driver is designed for low or high volume production environment and used for Recoil Tanged and Tangless® bulk or strip feed products.



REC-20

A lightweight, portable battery powered driver for small production and hard-to-reach tapped hole applications. Operates either vertically or horizontally in two speeds. Use for Recoil Tanged and Tangless® insert sizes M2 - M6" or #2-56 - 1/4".

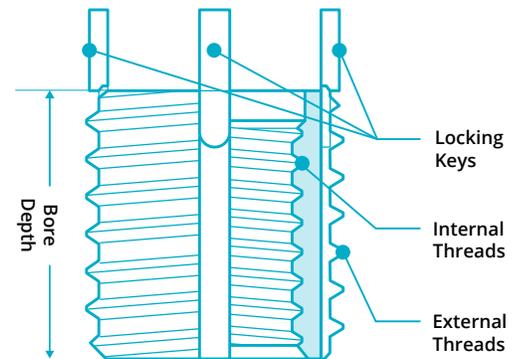
Keysert® and Keensert® Thread Repair Inserts



Designed to repair damaged threads or for use in original equipment, Keysert® and Keenserts® solid thread inserts are engineered with a key-locking feature that prevents rotation from torsion or vibration.

Commercial grade Keysert inserts are manufactured in carbon and stainless steel. They are offered in both inch and metric series as individual inserts or in range kits to fit your needs in Thinwall, Heavy Duty, Extra Heavy Duty and Solid styles.

Keenserts are Mil-spec inserts made of stainless steel that are rigorously tested to exceed specifications, plus offer complete traceability.



Carbon and Stainless Steel Bulk Keyserts

- ✓ Ideal for Repairing damaged threads.
- ✓ Available in Thin Wall and Heavy Duty depending on application



Solid Keyserts

- ✓ Ideal for relocating holes that have been drilled or tapped in the wrong place
- ✓ Plugging holes or filling in holes that are too big



Extra Heavy Duty Keyserts

- ✓ Ideal for when extra strength / torque out is required
- ✓ Parent material has sufficient space for a heavier wall
- ✓ Larger hole needs to be reduced to a smaller size

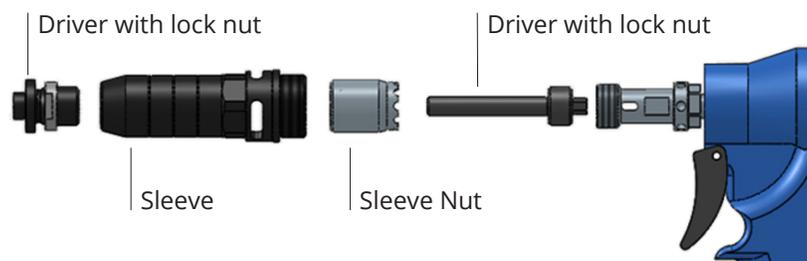
Pneumatic Keenserts Tooling

The hydropneumatic Power Tool **3352PTC-1** is designed to install metric Keenserts from sizes M5 to M12, and the slightly bigger **3352PTC-2** has a larger stroke to install M5 to M24 sized Keenserts. A specific nosepiece is required for each size and must be ordered separately.



The nosepieces are a modular 3 piece design meaning next to the nosepiece set each component is available as an individual part. The customer can transform a nosepiece for a regular Keenserts into a heavy type nose piece by just buying and replacing one part.

Due to the countersink with imperial Keenserts these nosepieces cannot install locking-type Keenserts.



The Power Tools 3352PTC-1 and 3352PTC-2 come without nosepieces. These have to be ordered separately according to the users needs.



**HOWMET
AEROSPACE**

Howmet Fastening Systems

Industrial Division Brands



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