the FASTENER 4

presented by CROSSROAD® DISTRIBUTOR SOURCE

powercoil®

Product Overview: High-quality wire thread inserts, STI taps, drills, and installation tools for repairing or creating strong internal threads.

Available Products: Repair kits, STI taps, installation tools, and bulk inserts in free-running and screw-locking styles.

Thread Forms: Unified, Metric, BSW, BSF, BSC, BSP, BA, NPT, Spark Plug, 8-UN.

Materials & Coatings: Inserts available in 304 stainless steel and other materials, with various coatings.

Standards: Available to MS/NASM and MA standards.

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Q1: For inspection purposes, how does one accurately measure the insert diameter and length of a wire thread insert before installation?

A: The installed diameter and length of a wire insert can only be measured in its free state by first measuring the free coil diameter and then counting the number of coils from the notch of the tang to the top of the insert. *Remember, 'Compress, Elongate & Pitch Apart'.* The free coil diameter and the number of coils per a specific size insert can be found in the manufacturer's literature, or generally on their website. Note that wire inserts come in five lengths, each a multiple of the diameter (i.e., 1.0, 1.5, 2.0, 2.5 & 3.0 X diameter) — and that length is the installed length of the insert.

Q2: Can a user use a standard drill and tap combination with wire thread or key-locking inserts?

A: The answer is no for both inserts. Wire thread inserts require the use of screw thread insert or STI. Drill size recommendations will be shown in the manufacturer's literature, typically, on their website. For key-locking inserts, standard taps may be used but the drill and tap combination is not standard. A slightly larger drill size must be used so that the keys of the insert can be driven into the parent material.

Q3: What are wire thread screw-lock inserts and why are they dyed red?

A: Screw-lock inserts are used in applications where there may be vibration, allowing the mating fastener (screw) to loosen. The screw-lock insert "locks" the mating fastener into place where a certain amount of torque is required to release the fastener. This eliminates the need for a lock washer. Screw-lock inserts are dyed red for identification purposes only. Please note that metric screw-lock inserts may not be dyed red per applicable standards.

Q4: Why use a wire thread insert instead of a key-locking insert?

A: Cost is a major factor. Additionally, using a wire thread insert allows for a thread to be repaired maintaining the integrity of the original assembly, meaning that no additional material is removed from the parent material. When using a key-locking insert, additional material must be drilled out of the parent material to allow for the external threads of the key-locking insert's outer wall. In cases where boss is critical, only a wire insert can be used.

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Bonus Q: Which system creates a stronger thread assembly, wire thread or key-locking inserts?

A: There are varying schools of thought on this question, but many suggest that wire thread inserts have less pull-out and torque-out strength than key-locking inserts. Key-locking inserts are locked in place within the parent material by their locking keys, whereas wire thread inserts are locked in place by friction. However, each one has merits depending on the application and weight considerations.

Ultimately, it is typically the parent material or bolt in the assembly that will fail before the insert. There are many assembly strength tables available, which measure the shear strength of the parent material against the bolt material minimum ultimate tensile strength. For critical applications, manufacturers will suggest testing to determine the maximum torque that can be put on an assembly before failure.

Wire Thread Insert Manufacturing Processes

- Round wire is rolled into a diamond shaped cross-section
- The diamond shaped wire is then fed into an automated coiling machine where the insert is coiled, ang notch cut and insert cut to length
- Inserts are then washed and dried
- Packaged and labeled with part number, size and lot number
- Paperwork flows through all the processes, then is recorded onto the MRP system to insure lot integrity.

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Insert Part Number		3520-8.00X1.5D
Insert Thread Form		Metric Coarse
Nominal Thread Size		M8 X 1.25
Insert Length Q (installed)	D	1.5D
Insert Length Q (installed)	mm	12.00
Insert Material		304 Stainless Steel
Insert Coating/Plating		-
Military Standard	#	
National Aerospace Standard	#	
Federal Stock	#	
National Stock / NATO	#	

Optimum thread performance with Wire Thread Inserts is achieved when the inserts are installed 1/2 to 1 pitch below the surface of the tapped hole. This means that the actual length of an installed insert is equal to dimension Q less 1/2 to 1 pitch. Dimensions S and T allow for tap end clearance of intermediate taps. When using Bottoming and Spiral Flute Taps these dimensions maybe reduced by an amount equal to 2 thread pitches. Any countersink depths must be added to these dimensions.

COMPATIBLE POWERCOIL INSTALLATION AND REMOVAL TOOLS	
TOOL TYPE	Part #
Hand Installation Tool	3500-HIT11
Tang Break Tool	3500-TB12
Removal Tool	3500-RT2
Machine Installation Tool	3520-8.00MIT
Mandrel Installation Tool	-
Captive Prewinder Tool	3520-8.00HIP
Non-Captive Prewinder Tool	-
Spring Loaded tang Break Tool	3500-STB9
Pneumatic Front end assembly (FEA)	3520-8.00MIP
FEA Mandrel	3520-8.00MIPM
FEA Nozzle	3520-8.00MIPN
Pneumatic Tool	3500-MIP2

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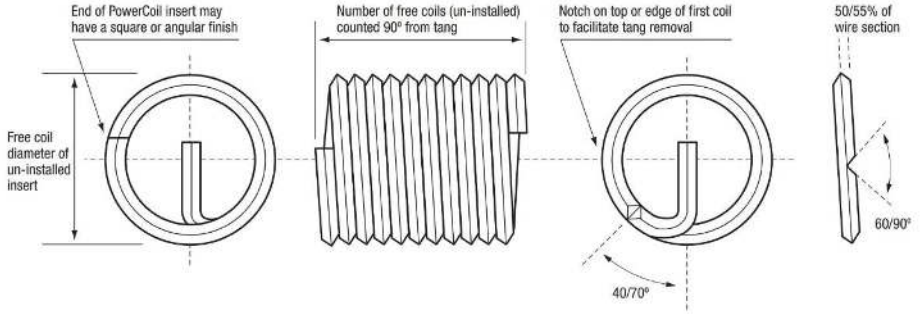
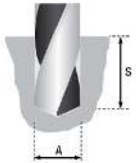
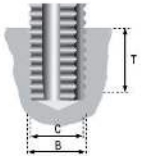


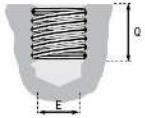
DRILLED HOLE DIMENSIONS INTERMEDIATE/PLUG TAP		
Drill Size	mm	8.30
Drill Part Number		2007-8.30
Drill Size inch	inch	21/64
Drill Part Number inch		2006-21/64
A Minor Diameter minimum	mm	8.271
A Minor Diameter maximum	mm	8.483
S Drilling Depth minimum	mm	17.63

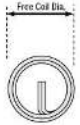


TAPPED HOLE DIMENSIONS			
Tap Size	STI		M8 X 1.25
Tap Size	-		-
B Major Diameter		mm	9.524
C Pitch Diameter MIN		mm	8.812
C Pitch Diameter MAX	5H	mm	8.886
C Pitch Diameter MAX	6H	mm	8.912
T Tapping Depth MIN		mm	16.38
Power Coil Tap Part Number	STI	Taper	3520-8.00T
Power Coil Tap Part Number	STI	Intermediate	3520-8.00I
Power Coil Tap Part Number	STI	Bottoming	3520-8.00B
Power Coil Tap Part Number	STI	SpiralPoint	3520-8.00SP
Power Coil Tap Part Number	STI	SpiralFlute	3520-8.00SF



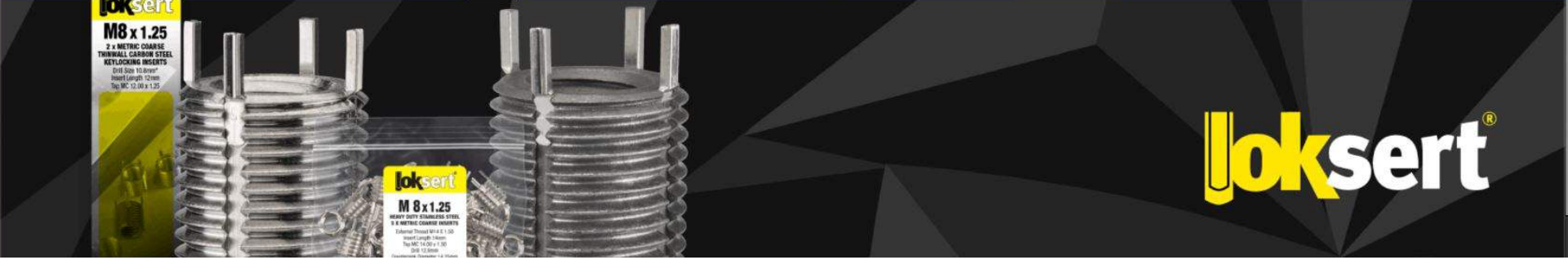
INSERT SPECIFICATIONS		
E Fitted Minor Diameter	mm	6.647
Q Nominal Length Installed	mm	12.00
Free Coil Diameter minimum	mm	9.53
Free Coil Diameter maximum	mm	10.35
Free Coils minimum	#	7.10
Free Coils maximum	#	7.80





IMPORTANT The success of any drilling and tapping operation is dependant upon many factors -type of material being cut, cutting speed, coolant, equipment being used - and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and PowerCoil would strongly suggest that independent testing be performed for specific and critical applications.
When using wire thread inserts it is important that the drilling and tapping diameters and lengths shown are adhered to.
The figures outlined in these tables encompass effective free coil tolerances for most globally recognized standards and manufacturers, including those of reduced diameter wire thread inserts.

Number of Free Coils – the number of coils on an un-installed insert counted along the insert length 90° from the tang.



Purpose: Quickly repair stripped, damaged, or worn threads; create stronger threads for original equipment.

Features:

- Easy installation/removal—no special tools required.
- Solid, one-piece construction for high pullout strength.
- Keys provide a mechanical lock against rotation.

Styles:
Miniature, Thinwall, Heavy Duty, Extra Heavy Duty, Solid.

Standards:
Meets MS/NAS standards.

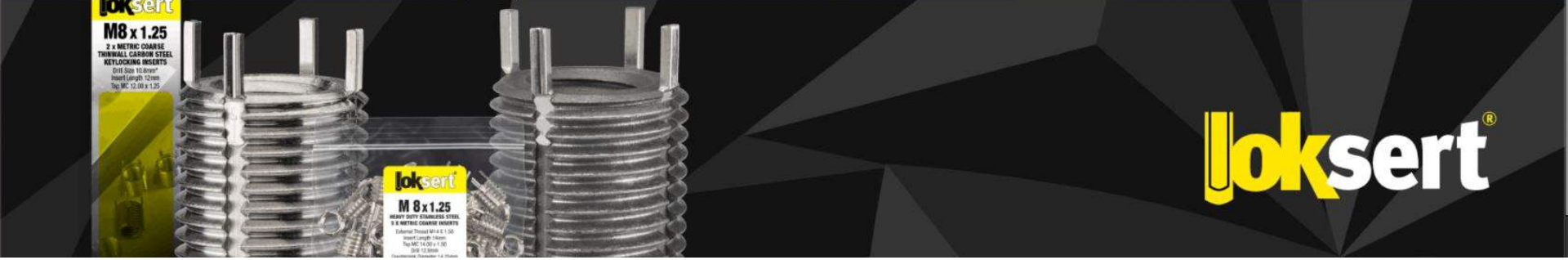
Thread Forms:

- Unified
- Metric
- Internal locking inserts available.

Materials:

- Type 303 stainless steel
- C1215 carbon steel
- 4140
- A286

Installation: Uses a standard tap and slightly larger tapping drill (sizes available in specifications and product packaging).



Q1: How do Loksert inserts work?

A: Once installed, the keys are driven into the parent material providing a positive mechanical lock against rotation.

Q2: How many keys are there in Loksert inserts?

A: For internal diameters up to 1/4″ & M6, there are two keys per insert. Larger sizes have 4 keys.

Q3: Are self-locking inserts available?

A: Yes, Loksert inserts with an internal locking feature are available. The self-locking feature prevents the mating fastener from backing out of the hole in vibration prone assemblies.

Q4: Do Loksert inserts come in different lengths?

A: No, there is a single standard length for all Loksert inserts. That data can be found in the manufacturer's literature or on their website.

Loksert Manufacturing Processes

- Rolling round wire for external threads
- The rolled wire is then fed into CNC machine for:
  - Cutting to length
  - Internal Threading
  - Counterbore (when required)
- Keyway Broaching (what a science)
- Inserts are then washed
- Passivation (stainless)
- Keys (aka kees) are then installed both robotically and semi-automatic
- Inserts are then re-rolled to insure that burrs are removed
- Paperwork flows through all the processes, then is recorded onto the MRP system to insure lot integrity.

loksert®

IMPORTANT The success of any drilling and tapping operation is dependant upon many factors -type of material being cut, cutting speed, coolant, equipment being used - and it is not possible to give specific drill sizes for each material. Drill sizes shown are recommendations only and Bordo International would strongly suggest that independent testing be performed for specific and critical applications.

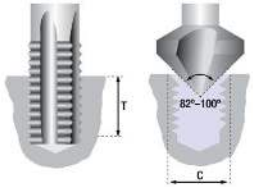
Insert Part Number		3720-8.00HD
Military Specification		-
Reference Number		KNHM 8X1.25
Insert Type		Heavy Duty
Internal Thread Form		Metric Coarse
Internal Thread Size		M8 X 1.25
External Thread Size		M14 X 1.5
Nominal Length Q	mm	14.00
Insert Material		Stainless Steel - 303 CRES
Insert Finish		Passivated
Insert Coating		-

Loksert solid keylocking inserts are an easily installed thread assembly that are ideal for replacing damaged or worn threads in virtually any material - ferrous, non-ferrous and non-metallic.
They are constructed from high quality carbon steel or extremely hard wearing stainless steel. One piece Loksert inserts are supplied with the dove-tailed locking keys pre-assembled. The pre-positioned keys automatically position the insert at the correct depth below the surface of the parent material. Lokserts are suitable for repairing and creating threads in a wide range of applications including forgings and castings and are especially suited to situations that experience heavy wear and vibration - such as mining, construction and earthmoving equipment.

COMPATIBLE LOKSERT INSTALLATION AND REMOVAL TOOLS	
TOOL TYPE	Part #
Hand Installation tool - Miniature	-
Hand Installation tool - Thin Wall	-
Hand Installation tool - Heavy Duty	3600-8.00HT
Hand Installation tool - Universal (TW & HD)	3600-312T
Hand Installation tool - Extra Heavy Duty	-
Hand Installation tool - Solid	-
Pneumatic Front End Assembly (FEA)	3720-8.00HDMIP
Pneumatic Tool	3700-MIP1

DRILLED HOLE DIMENSIONS INTERMEDIATE/PLUG TAP		
A Tapping Drill Size	mm	12.80
A Tapping Drill Size	inch	-
Tapping Drill Part Number		3620-12.8

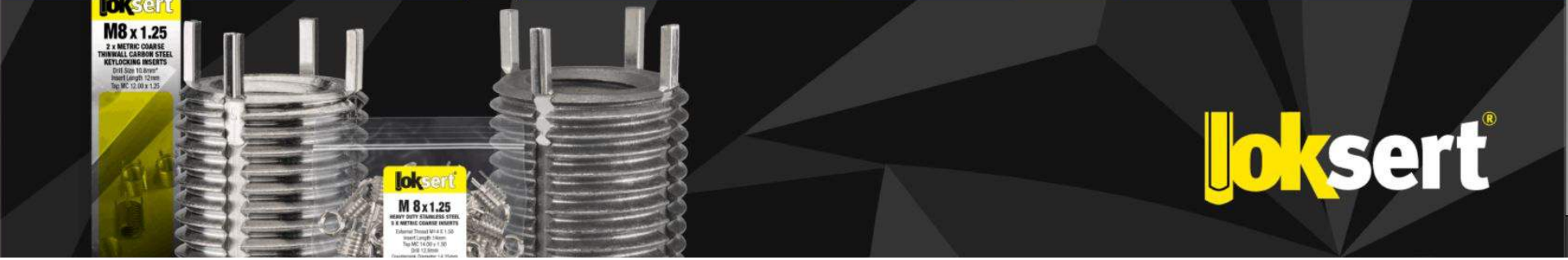
TAPPED HOLE DIMENSIONS		
Tap Size		M14 X 1.5
Tap Tolerance		6H
T Tapping Depth minimum	mm	16.50
T Tapping Depth minimum	inch	-
Loksert Tap Part Number	Intermediate	3621-14.00I
C Countersink Width minimum	mm	14.25
C Countersink Width minimum	inch	-



INSERT SPECIFICATIONS		
Internal Thread		M8 X 1.25
Internal Thread Tolerance		5H
External Thread		M14 X 1.5
External Thread Tolerance		4h
Q Nominal Length	mm	14.00
Locking Keys	#	4

INSERT REMOVAL SPECIFICATIONS		
R1 Drill Size	mm	11.50
R1 Drill Size	inch	-
R2 Drill Depth minimum	mm	4.75
R2 Drill Depth minimum	inch	-

For detailed removal instructions please visit powercoil.com.au


loksert
M8 x 1.25
2 x METRIC COARSE
THINWALL CARBON STEEL
KEYLOCKING INSERTS
loksert
M 8 x 1.25
loksert®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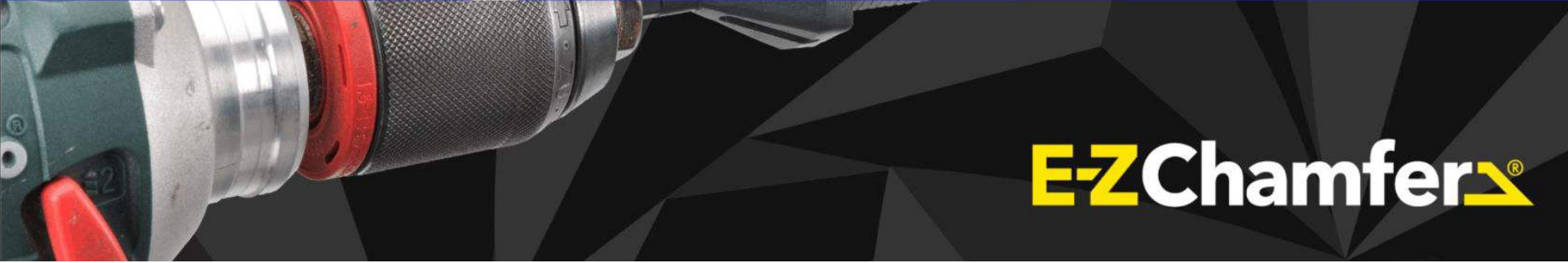
REMOVAL

Purpose: Creates perfect chamfers for starting nuts on bolts, button dies on rods, or leading edges on dowels.

Features:

- Efficiently removes burrs and ridges from bolts, pipe, threaded rod, bar, and dowels.
- Suitable for use on metals (mild/hardened steels, stainless steel, copper, brass), timber, fiberglass, and plastics.
- Prevents sparks and burns, operates at low RPMs to prevent overheating.
- Shears threads and burrs to create a smooth chamfer.

Innovations: Patented M2-HSS Chamfer Tool design—World first!



Q1: What is E-Z Chamfer?

A: E-Z Chamfer is a cylindrical tool with 5 cutting blades made of M2-HHS steel designed to create a perfect chamfer on many materials. The tool has a ¼" hex shank so it works easily with battery operating drills. When used on metal, threads and burrs are sheared off creating the chamfer for starting a nut or threaded die.

Q2: What do you need to be mindful of when using E-Z Chamfer?

A: Use at low speed – Maximum 800RPM. Guidelines: Start E-Z Chamfer square to the workpiece. A circular motion may improve performance on large diameter workpieces.

Remember Speeds & Feeds. E-Z Chamfer works by shearing a small amount of material every revolution. Slow drill speed with medium pressure will yield the best results in most materials. Hard materials will require high feed pressure. In most applications it is only necessary to chamfer the first 1 to 3 threads. **Wear eye protection**.

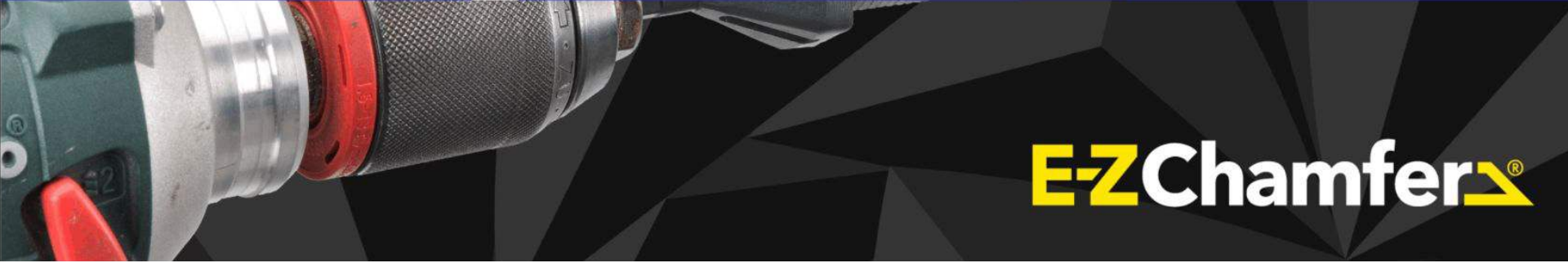
Q3: On what materials can E-Z Chamfer be used?

A: The tool can be used on ferrous and non-Ferrous metals, including hardened steels, timber, fiberglass, and plastics. As for steel, E-Z Chamfer can be used on the following materials:

Mild Steel – U.S Grade 2, Metric Grade 4.8
Hard Steel – U.S Grade 5, Metric Grade 8.8
Very Hard Steel – U.S. Grade 8, Metric Grade 10.9
Stainless Steel – 300 Series
Super Hard Steel – U.S. Grade ASTM-A574, Metric Grade 12.9

Q4: On what diameters does E-Z Chamfer work?

A: 2210-822 - 5/16-⅞ inch | 8-22 mm | ¼ inch shank
2210-1838 - 23/32-1.½ inch | 18-38 mm | ⅜ inch shank
2210-224 – 2-56-1 inch | 2-24 mm | ¼ inch shank (to be called Bell Chamfer)



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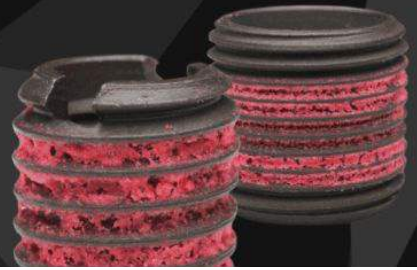


bondsert®

Purpose: Provides stronger fastener assemblies in soft materials like aluminum, magnesium, and cast iron.

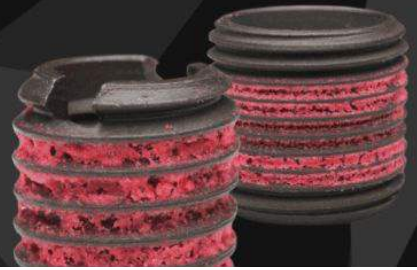
- Ideal for repairing stripped threads or creating stronger threads in original equipment.

Installation:

- External threads are manufactured to standard size/pitch for use with standard drills and taps.
- Can be installed with a screwdriver, bolt/jam nut, or power drive tool.

Features:

- **Vibration Resistant**: Loctite™ 204 adhesive sets quickly, making inserts fastener-ready within 5 minutes.
- **Sealing Capability**: Seals against liquids and gases up to 6,000 psi when fully cured after 72 hours.



bondsert®

Q1: What is Bondsert®?

A: Bondsert® is an internally and externally threaded fastener with Loctite™ 204 adhesive applied to the external threads. They are interchangeable with E-Z Lok® thread inserts for metal.

Q2: What are the applications for Bondsert®?

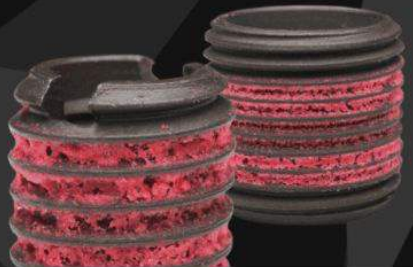
A: Bondsert® provides a stronger fastener assembly in soft materials such as aluminum, magnesium and even cast iron. They can be used for repairing stripped threads, and for use in creating stronger threads in original equipment. They are available in both thin wall and heavy wall styles, and in both C12L14 carbon steel and 303 stainless steel.

Q3: How is Bondsert® installed?

A: Bondsert® external threads are manufactured with standard size and pitch to permit the use of standard drills and taps. They can be installed with a screwdriver, bolt/jam nut or power drive tools.

Q4: Is Bondsert® a better solution when compared to wire thread inserts or key-locking inserts?

A: Not really. Wire thread inserts are a lighter and less expensive solution. Key-locking inserts are an overall heavyweight solution. All have styles which are vibration resistant. With Bondsert®, within minutes of installation the Loctite™ 204 adhesive begins to set and within 5 minutes is fastener ready and will not back out. A key advantage of Bondsert® is that the Loctite™ 204 adhesive seals against liquids and gases up to 6,000 psi when fully cured after 72 hours.



bondsert®

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Presents

bondsert®

bondsert™

Insert Part Number		3320-8.00TWM
Reference Number		450-8
Internal Thread Form		Metric Coarse
Internal Thread Size		M8-1.25
Internal Thread Class		6H
External Thread Size		M12-1.75
External Thread Class		6g
Drill Size	mm	10.4
Tap Size		M12-1.75
Installation Tool		3300-4

Bondsert inserts have external threads of standard size and pitch so no special drills, taps or installation tools are required. Bondsert inserts will not back out or vibrate loose after installation. Immediately upon installation, micro-encapsulated adhesive will begin to set, and a mating fastener can be installed within minutes. The adhesive also seals against liquids and gases to pressures of 6,000psi, and bonds to most metals. To remove an insert, a standard screw extractor can be used, and removal is just a matter of defeating the resistance to torque-out of the thread locking adhesive.

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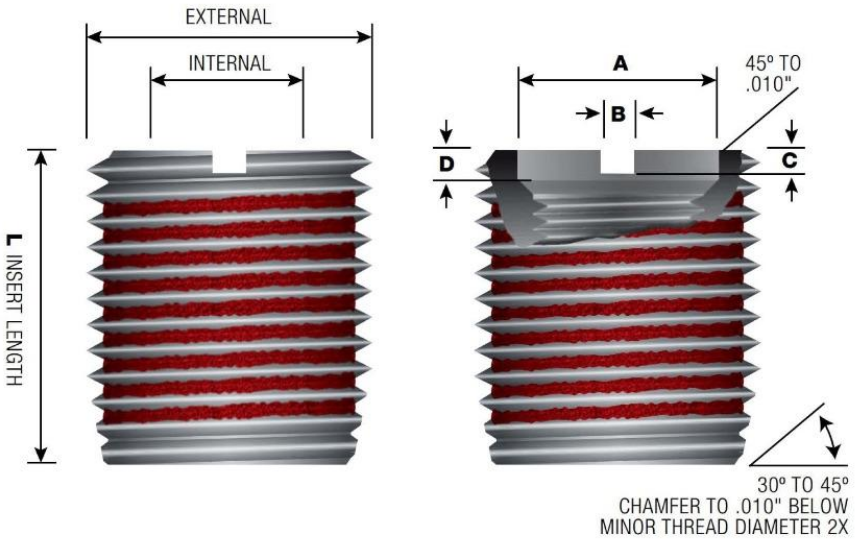


INSERT DIMENSIONAL CHARACTERISTICS		
L Insert Length	mm	12.5
A	mm	8.3312
B	mm	1.8288
C	mm	1.8288
D	mm	2.032
Minimum Full Thread Depth	mm	14.5

Tolerances +/- 0.010"

INSERT MATERIAL CHARACTERISTICS		
Brinell Hardness	HB	163
Tensile Strength	Mpa	539.859708

pro THREAD

Purpose: Thread repair kits for automotive aftermarket and DIY use

Kit Options: Available in box and clamshell styles, each containing necessary tools and inserts

Quality Components: High-quality carbon steel tap for reliable performance in multiple-hole applications

Product Range:

- Metric (M5-M16 coarse, M5-M12 fine)
- UNC (#6 - 3/4") and UNF (#10 - 3/4") threads

Specialized Option: ProThread PlugFix® for spark plug repair

- Includes solid inserts for taper and gasket seat spark plugs, with 3 insert lengths for various spark plug reaches


pro
THREAD
pro
THREAD
UNC1/4-20
THREAD REPAIR KIT
pro
THREAD


Presents
pro
THREAD

AFIXX ALLIANCE

Product Line:

- Blind, closed-end, multi-grip, and structural rivets
- Rivet nuts, hand tools, and air tooling

Rivet Nuts:

- Commercial grade, available in aluminum and steel.
- Thread sizes from 6-32 to 3/8".

Rivet Features:

- Diameters from 3/32” to 1/4” in aluminum, steel, and stainless steel.
- Available in bulk, packaged, or visual hang-sell box quantities.

Q1: What does the Grip Range mean in a Blind Rivet application?

A: The grip range is the thickness of the material being riveted.

Q2: How do you measure a Blind Rivet?

A: A Blind Rivet is measured by the diameter of the rivet body and the length from the top of the rivet body to the top of the flange. In a Countersunk Blind Rivet, you would measure from the top of the rivet to the bottom of the flange. You also can use a Rivet Gage that we provide for free!

Q3: What are the common head styles of a Blind Rivet?

A: The most common head styles are Dome Head, Countersunk and Large Flange.

Q4: What are the various materials used in Blind Rivets?

A: The most common materials are Aluminum/Aluminum, Aluminum/Steel, Steel/Steel, Stainless Steel/Steel, and Stainless Steel/Stainless Steel.

AFIXX ALLIANCE®

Bonus Q: What does the part number mean when ordering a Blind Rivet?

A: There is an industry standard for the sizes of Blind Rivets with a corresponding number.

Example ABS44. The ABS designates the type of head style and material. The first letter is the rivet body material (A= Aluminum, S=Steel, F=Stainless). The second letter is the type of rivet (B=Dome Head, C=Countersunk). The third letter is the mandrel material (S=Steel). If you need a Large Flange Blind Rivet, there would be an “L” at the end of the part number (ABS44L).

The number indicates the size. The first number is the diameter of the rivet in 32nds of an inch. The second number refers to the maximum grip length in 16ths of an inch. A 44 rivet is 4/32” (1/8”) diameter with a max grip of 4/16” (1/4”).

SEE YOUR SOLUTION.

9900-SM1 - Spiral Extractors 5 Piece Set

Set Includes: 5 chrome alloy spiral screw extractors (Coarse-pitched, tapered threads)

Purpose: For removing broken bolts, studs, and screws from medium to hard metals

Usage Instructions:

- Choose extractor approx. 2/3 the diameter of the broken fixing
- Use a center punch to mark the center before drilling
- Select a suitable drill bit (HSS or HSS-Co5), ideally left-hand drill to avoid tightening
- Set drill to reverse, drill a pilot hole, then tap the extractor into the hole
- Turn extractor anti-clockwise with a tap wrench or spanner to remove broken piece

Safety: Avoid lateral loads to prevent breakage; wear eye and hearing protection

9900-SM2 - Spiral Extractors 10 Piece Set, includes Left Hand Stub Drills

Set Includes: 5 chrome alloy spiral screw extractors + 5 HSS-Co5 (cobalt) left-hand stub drills

Purpose: For removing broken bolts, studs, and screws from medium to hard metals

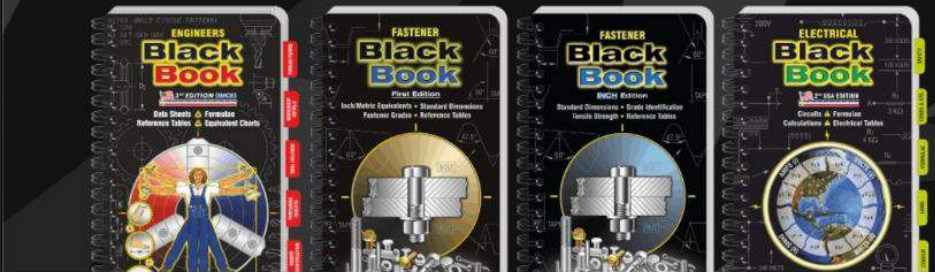
Key Features:

- Coarse-pitched, tapered screw threads for optimal extraction
- Left-hand drill bits help prevent tightening during drilling

Usage Instructions:

- Select an extractor approx. 2/3 the diameter of the broken fixing
- Mark center with a punch before drilling
- Use suitable left-hand drill bit (set to reverse) to create pilot hole
- Tap extractor lightly into hole, turn anti-clockwise with tap wrench or spanner
- Extractor will unwind damaged piece out of hole

Safety: Avoid lateral loads; wear eye and hearing protection



Black Book
SERIES

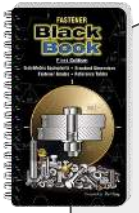
The Black Book® Series

- **Purpose**: Technical resource books for fastener professionals, end-users, and students
- **Features**:
  - Covers engineering materials beyond just fasteners
  - User-friendly wire-bound, color-coded, well-indexed format
  - Content from various sources, compiled for easy access

Engineers Black Book (3rd Edition)

- **Comprehensive Content**: Updated from earlier editions with 60 new pages (234 pages total)
- **New Additions**: Reamers, drill bits, taper pins, T-slot sizing, cutting tapers, keyways, adhesives, GD&T, more
- **Key Features**:
  - 28x Self-Adhesive Index Tabs
  - Rubberized cover for better grip
  - Full INCH & METRIC tool holder identification
  - Available in pocket-size and large format

Black Book SERIES



Fastener Black Book®

- **Editions**:
  - 1st Edition: Lean towards Metric fasteners
  - **INCH Supplement**: Additional INCH fastener content
- **Content Highlights**:
  - ANSI, ISO & DIN Specifications
  - Fastener Plating & Finishes, Tightening Torques, Thread Types
  - Includes metal Thread Pitch Identification Guide

Electrical Black Book (2nd USA Edition)

- **Focus**: NEC 2017-compliant electrical resources, with 246 pages
- **Key Topics**:
  - National Electric Code Tables, Safety
  - Lighting, Circuits, Cables, Conduit, LEDs, Fiber-Optics
  - Data & Telephone Cabling, Transformers, Motors
- **Special Note**: Not a substitute for the NEC, but includes reprinted tables from NFPA70-2011 with permission