

# KATO<sup>®</sup>

**FASTENING SYSTEMS, INC.**

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**THE ORIGINAL INVENTOR & MANUFACTURER OF THE  
BI-DIRECTIONAL TANGLESS<sup>®</sup> SCREW THREAD INSERT**

**[WWW.KATOFASTENING.COM](http://WWW.KATOFASTENING.COM)**

**K**ATO Fastening Systems, Inc. (KATO) has been manufacturing and globally supplying CoilThread inserts since the early 1970's. In the mid 1980's KATO revolutionized the helical coil screw thread insert market with the introduction of CoilThread II: Tangless® inserts. Tangless CoilThread inserts and Tools were so unique they were awarded dozens of patents worldwide.

Over the years KATO has expanded and broadened Tangless Products to include a wide range of unified and metric thread sizes (more than any other company). KATO Tangless Tools are the highest quality installation and removal tools in the industry, and KATO offers more tooling options (manual, electric and pneumatic) than any other company. For example, the KATO Prewinder Electric tool is the fastest semi-automatic installation system for CoilThread inserts (Tangless or tanged) on the market.

## CoilThread System

STI Taps, STI Gages, CoilThread inserts, and CoilThread Tools; KATO provides everything you need to get the job done!



Prewinder  
Electric Tool  
(KPE Series)  
page 67.

# Don't settle for anything less than the original... KATO Tangless Inserts!

KATO has established a network of global manufacturing and distribution facilities. The KATO global manufacturing network provides customers access to a wide range of products and capabilities; high performance hinges and specialty engineered components. KATO has the know-how, flexibility, and innovation to meet your changing needs.

## Quality

KATO maintains a Quality Management System in compliance with AS9100 Rev D with ISO 9001:2015.



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# CoilThread Inserts

**CoilThread Inserts** (Tangless or tanged) are economical, helically-coiled fastening devices providing permanent, wear-resistant screw threads which exceed the strength of most parent materials. CoilThread inserts are made of cold-rolled stainless steel wire (AS7245), work-hardened to a tensile strength above 200,000 psi, and a hardness of Rc 43-50. The finished surface (32 microinches) is exceedingly smooth, virtually eliminating friction-induced thread erosion.



*CoilThread Inserts provide design and manufacturing flexibility.*

## Why use KATO CoilThread inserts?

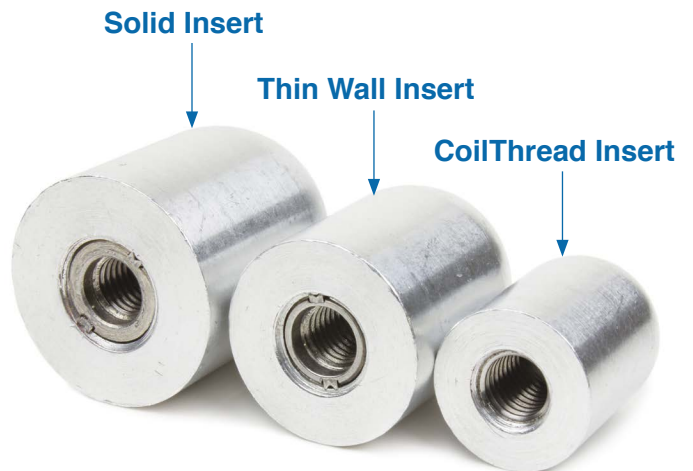
KATO CoilThread inserts protect tapped threads against failures due to stripping, seizing, corrosion and wear. They save time and money because of their low initial cost and permit flexibility of installation when using KATO tools detailed in the tooling section of this catalog (page 56).

CoilThread inserts have the smallest required boss diameter of any internal threaded insert of the same nominal thread size. The diamond shaped helically coiled wire design allows the inserts to engage the threads in the parent material and at the same time accept a male fastener. Consequently, they do not need a thick wall structure to support the internal threads.

The resilient characteristics of each coil in a CoilThread insert allows it to adjust independently to secure the maximum surface contact with individual threads in the parent material. As a result, loads are distributed more evenly than solid threads. Stress and fatigue concentrations are reduced to maximize thread strength and increase the reliability and life of the fastening system.

When installed into STI tapped holes (per NASM33537 for unified; MA1567 for metric), CoilThread inserts provide a finished thread meeting the requirement of FED-STD-H28.

**Assembled CoilThread inserts will also accommodate UNJ (MIL-S-7742 and AS8879) male threaded fasteners.**



**Boss Diameter (Wall Thickness) Requirements**



## Tangless vs Tanged

**KATO Tangless CoilThread inserts are identical in form, fit, and function to the conventional tanged inserts. In fact, Tangless CoilThread inserts are identical to tanged inserts in every way except for their method of installation and removal, and they have the exact same procurement specification (NASM8846 for unified sizes and MA1565 for metric sizes).**

### Tangless CoilThread



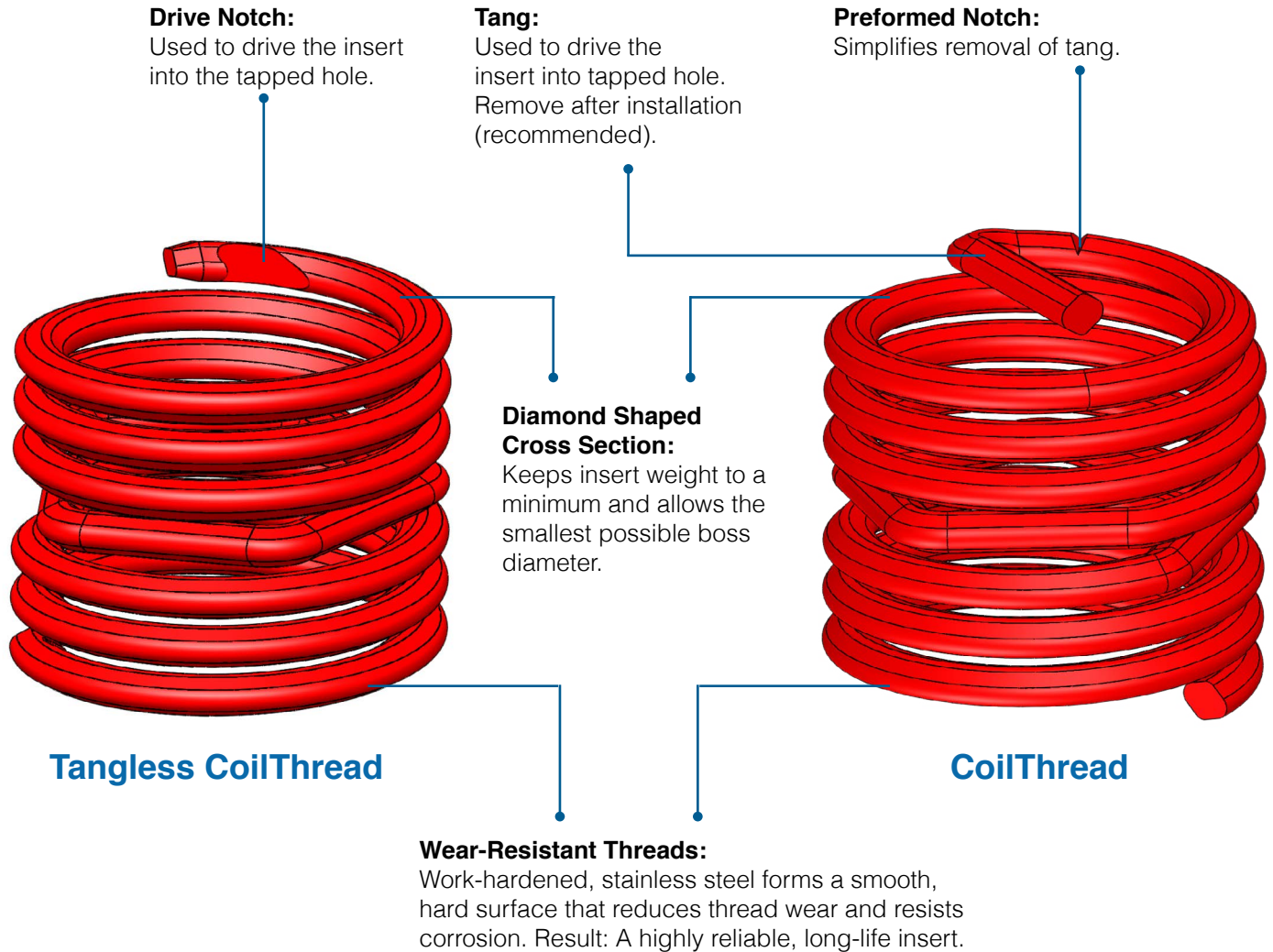
### CoilThread



- FOD-Free Design: No tangs to break off, retrieve or lose.
  - Approved for use on military programs by NASM8846, NAS1130, and NA0276.
  - Cost Reduction: Significantly decreases installation and inspection time (savings of \$0.15-\$0.50 per hole based on customer studies).
  - Bi-Directional design eliminates insert orientation requirements.
  - Quick, non-destructive removal prevents damage to the parent material and the insert.
- Lower pricing than competitive inserts.
  - Complete range of unified and metric sizes, locking and non-locking, bulk and strip-feed.
  - Meets or exceeds all applicable military, aerospace, and commercial standards.

# Design & Features

The stainless steel used in CoilThread inserts resists corrosion under normal environmental conditions. Galvanic action within the thread assembly is reduced, further adding to the life of the fastening assembly. CoilThread inserts can be used within temperatures from -320° F to +800° F.



## CoilThread Inserts Provide Design and Manufacturing Flexibility:

Design opportunities are provided by the structure of these inserts. Because of the continuous helically-coiled design, they don't need a thick wall structure to support the internal and external threads: the diamond-shaped coil is the thread! The insert can be installed in reduced-size bosses, or flanges, and within constricted areas, thus saving space and weight while providing high strength. A boss radius equal to the nominal bolt diameter is usually sufficient (see page 12).

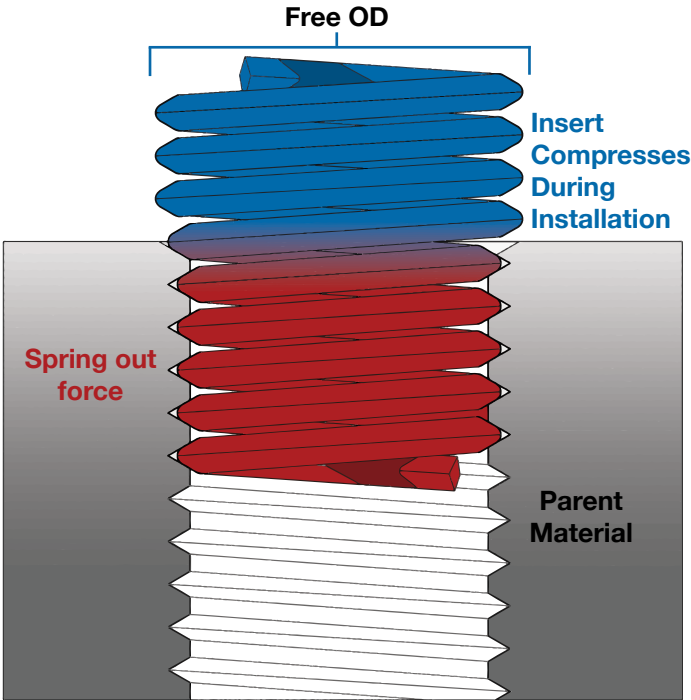
KATO CoilThread tools provide a choice of installation methods best suited to specific production techniques. Convenient hand tools can be supplied for small runs, repairs, and prototyping. High-speed electric or air-powered tools may be selected for rapid, low-cost installation.

CoilThread inserts are available in Bulk and on Strip-Feed Reels, providing flexibility for any production setup.



### High Tension Anchor:

The high tensile coils of CoilThread inserts undergo a diameter reduction during installation. The outward spring-like force of the coils “locks” the insert into place. Each coil can flex independently to contact the greatest amount of parent material thread surface. Both static and dynamic load bearing capabilities are improved.

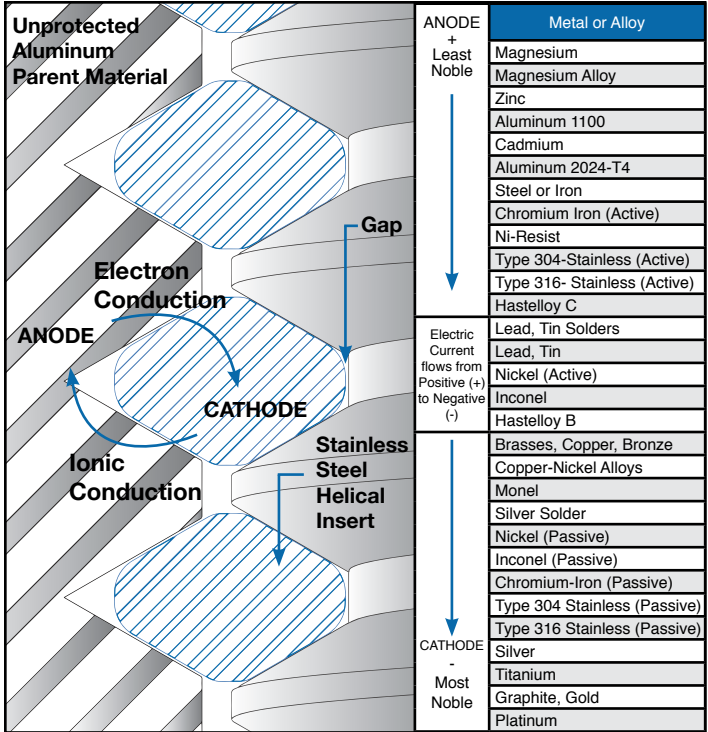


### Corrosion Protection:

Corrosion is the deterioration of metal due to a reaction with its environment. The products of corrosion vary widely from flaky red rust of iron to the relatively benign oxide over aluminum. In general, corrosion should be avoided or minimized where possible.

There are many types of corrosion, but a particular type called galvanic corrosion is very important for inserts and fasteners to avoid. Galvanic corrosion occurs when dissimilar metals are in contact in the presence of an electrolytic solution. All metals exhibit different degrees of “activity,” or “nobility,” and can be arranged in a galvanic series of increasing activity. Gold and platinum are the most noble while zinc and magnesium are the most active. The most common electrolytic solution encountered is ordinary water. Seawater, or salt spray, is more damaging because of high concentrations of dissolved salts.

The best way to prevent galvanic corrosion is to use similar potential metals and eliminate the electrolyte conductor. Standard CoilThread inserts are non-passivated stainless steel. This minimizes the possibility of galvanic corrosion occurring when they are installed in aluminum or magnesium parent materials.



Some additional precautions for reducing galvanic corrosion are:

1. Isolate the fasteners from the electrolyte. This can be done through gasketing or sealing.
2. Specify a dry film lubricant such as molybdenum disulfide on the inserts. This provides a secondary barrier against corrosion.
3. Specify cadmium plated inserts. The cadmium plating provides a sacrificial barrier against corrosion. In addition, the cadmium plating has lubricating properties which minimize galling when stainless steel screws are used.
4. Apply corrosion inhibiting pastes, or compounds, to the screw. These include zinc chromate primer (TT-P-1757) and strontium chromate primer (MIL-PRF-23377). Please Note: Pastes applied to helically coiled screw thread inserts can become trapped between the wire and the tapped hole, and cause loss of proper tolerance. It is therefore recommended to apply the paste only to the screw, or bolt, not the insert. If zinc chromate primer is applied to the tapped hole it should be thinned and applied sparingly. The insert should be installed while the primer is still wet.
5. Where practical, or where it will not interfere with the completed assembly, the external joint should be coated with a suitable paint.

# Insert Selection

KATO CoilThread inserts are available in five nominal lengths (1D, 1.5D, 2D, 2.5D, & 3D). The nominal length is a calculated value and cannot be measured in the free state; it is the actual installed length plus 1/2 a pitch. The nominal length is a multiple of the thread size, or of the insert nominal diameter (D).

It is important to select the correct insert length in order to balance the bolt tensile strength against the shear strength of the parent material. The five insert lengths are shown in the table below.

Select the insert length which will produce a thread system strong enough to fracture the bolt before it will strip or damage either the parent material or the insert.

## Recommended Nominal Insert Lengths Based on Parent Material Versus Bolt Material Strengths

### Unified Sizes

| Shear Strength of Parent Material (ksi) | Bolt Material Minimum Ultimate Tensile Strength (ksi) |     |     |     |     |     |     |     |     |
|---|---|-----|-----|-----|-----|-----|-----|-----|-----|
|   | 54  | 75  | 96  | 108 | 125 | 132 | 160 | 180 | 220 |
| 10                                      | 2   | 2.5 | 3   | 3   | --- | --- | --- | --- | --- |
| 15                                      | 1.5   | 1.5 | 2   | 2.5 | 2.5 | 3   | 3   | --- | --- |
| 20                                      | 1   | 1.5 | 1.5 | 2   | 2   | 2   | 2.5 | 3   | 3   |
| 25                                      | 1   | 1   | 1.5 | 1.5 | 1.5 | 2   | 2   | 2.5 | 2.5 |
| 30                                      | 1   | 1   | 1   | 1.5 | 1.5 | 1.5 | 2   | 2   | 2.5 |
| 40                                      | 1   | 1   | 1   | 1   | 1   | 1.5 | 1.5 | 1.5 | 2   |
| 50                                      | 1   | 1   | 1   | 1   | 1   | 1   | 1   | 1.5 | 1.5 |

### Metric Sizes

| Shear Strength of Parent Material (MPa) | Bolt Material Minimum Ultimate Tensile Strength (MPa) |     |     |     |     |      |      |      |  |
|---|---|-----|-----|-----|-----|------|------|------|--|
|   | 300   | 400 | 500 | 600 | 800 | 1000 | 1200 | 1400 |  |
| 70                                      | 1.5   | 2   | 2.5 | 2.5 | --- | ---  | ---  | ---  |  |
| 100                                     | 1   | 1.5 | 1.5 | 2   | 2.5 | 3    | ---  | ---  |  |
| 150                                     | 1   | 1   | 1.5 | 1.5 | 2   | 2    | 2.5  | 3    |  |
| 200                                     | 1   | 1   | 1   | 1   | 1.5 | 1.5  | 2    | 2.5  |  |
| 250                                     | 1   | 1   | 1   | 1   | 1   | 1.5  | 1.5  | 2    |  |
| 300                                     | 1   | 1   | 1   | 1   | 1   | 1.5  | 1.5  | 1.5  |  |
| 350                                     | 1   | 1   | 1   | 1   | 1   | 1    | 1.5  | 1.5  |  |

**Example:** If the parent material shear strength is 10 ksi and the bolt tensile strength is 54 ksi, the correct insert nominal length is 2D (2 diameters).

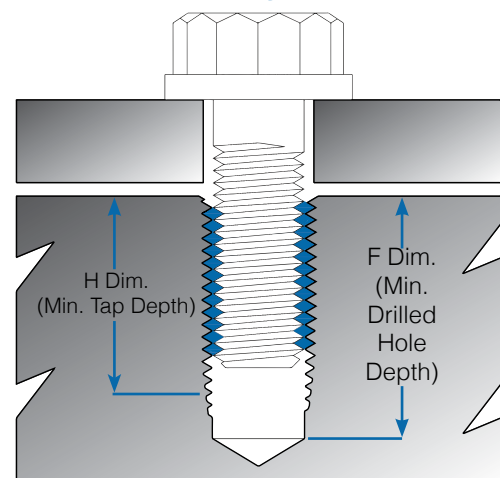
**Example:** If the parent material shear strength is 70 MPa and the bolt strength is 300 MPa, the correct insert nominal length is 1.5D (1-1/2 diameters).

Standard, readily available bolts and screws that require no special hardware are used with CoilThread inserts. The bolt must engage the entire length of the insert to achieve maximum assembly strength. To ensure against partial engagement, KATO strongly recommends the tang always be removed. This will also guarantee that the locking coil(s) will be engaged by the full threads of the bolt (when screw locking inserts are used). If design parameters prevent the tang from being removed, KATO recommends using Tangless CoilThread inserts.

### Notes:

1. Bolt tensile strengths are specified minimums. When choosing an insert length, consideration should be given to the maximum tensile strength allowed by the bolt drawing or procurement specification.
2. Service temperatures can cause significant variations in strength values; therefore, compensation should be allowed.
3. The importance of shear values should be kept in mind because the parent material is subject to shearing stresses near the major diameter of the tapped STI threads.
4. When the strength values fall between two values in the table above, use the next lower material shear value, or the next higher bolt tensile strength value.
5. To achieve maximum strength, bolt length and thread length as well as full tapped thread depth must be sufficient to assure full thread engagement over the entire length of the insert.

### Bolt Projection



# Military, Aerospace & Commercial Standards

KATO CoilThread (Tangleless and tanged) inserts are precision engineered and have been put through rigorous torque, tension, and vibration tests as well as comprehensive dimensional inspections and metallurgical analysis in attaining their MIL-Spec qualifications. CoilThread inserts have been thoroughly tested by an independent testing laboratory and are certified to conform to NASM8846.

In addition, CoilThread inserts and tools are in conformance with the following military, aerospace, and commercial standards and specifications:

## Unified Thread Sizes

| Standards & Specification | Title/Description   |
|---------------------------|---|
| A-A-59158                 | Tools For Inserting and Extracting Helical Coil Wire Screw Thread Inserts                           |
| AS7245                    | Insert, Screw Thread, Helical Coil, CRES, Procurement Specification                                 |
| AS7246                    | Insert, Screw Thread, Helical Coil, Corrosion and Heat Resistant Alloy (Inconel), Procurement Spec. |
| NAS1130                   | Insert, Screw Thread, Helical Coil, Tangleless  |
| NASM122076-122275         | Insert, Screw Thread, Helical Coil, Free Running, Coarse Thread                                     |
| NASM124651-124850         | Insert, Screw Thread, Helical Coil, Free Running, Fine Thread                                       |
| NASM21209                 | Insert, Screw Thread, Helical Coil, Self-Locking, Coarse and Fine Thread                            |
| NASM33537                 | Insert, Screw Thread, Helical Coil, Inch Series, Coarse and Fine Thread, Standard Assembly Dims.    |
| NASM8846                  | Insert, Screw Thread, Helical Coil, Unified Series, Procurement Specification                       |

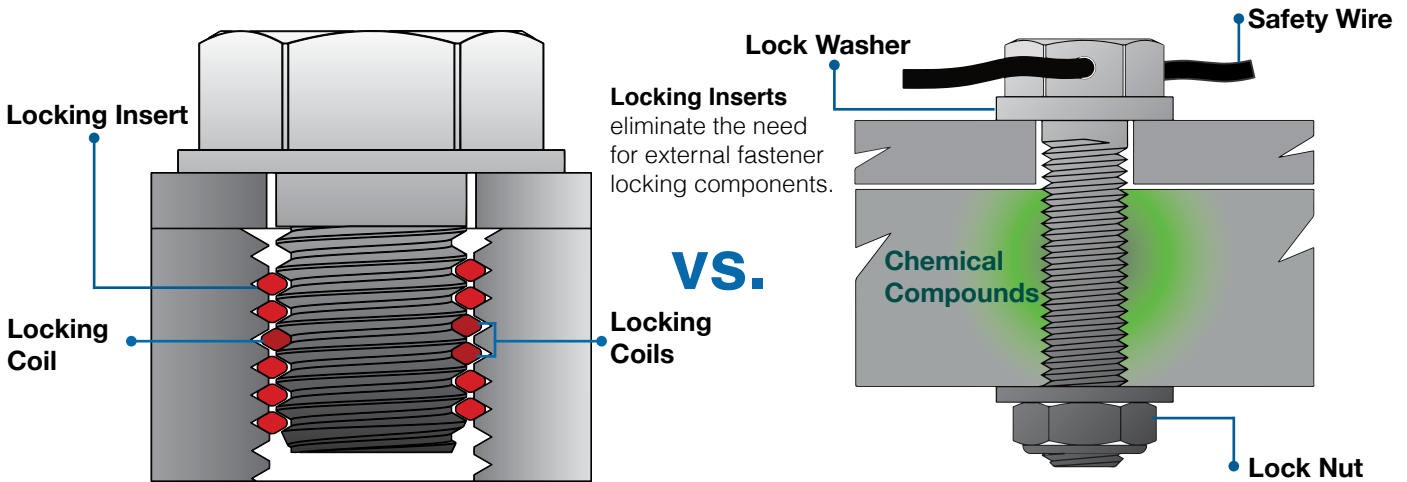
## Metric Thread Sizes

| Standards & Specification | Title/Description   |
|---------------------------|---|
| NA0276                    | Insert, Screw Thread, Helical Coil, Free Running and Self-Locking, Metric, Tangleless |
| MA1565                    | Insert, Screw Thread, Helical Coil, Metric Series, Procurement Specification          |
| MA1567                    | Insert, Screw Thread, Helical Coil, Metric Series, Standard Assembly Dims.            |
| MA3279                    | Insert, Screw Thread, Helical Coil, Free Running, Metric Series, Uncoated             |
| MA3280                    | Insert, Screw Thread, Helical Coil, Free Running, Metric Series, Dry Film Lubricated  |
| MA3281                    | Insert, Screw Thread, Helical Coil, Free Running, Metric Series, Cadmium Plated       |
| MA3329                    | Insert, Screw Thread, Helical Coil, Self-Locking, Metric Series, Uncoated             |
| MA3330                    | Insert, Screw Thread, Helical Coil, Self-Locking, Metric Series, Dry Film Lubricated  |
| MA3331                    | Insert, Screw Thread, Helical Coil, Self-Locking, Metric Series, Cadmium Plated       |

## Platings/Coatings

| Standards & Specification | Title/Description  |
|---------------------------|--|
| AMS-QQ-P-416              | Plating, Cadmium (Electrodeposited)  |
| AMS2410                   | Plating, Silver, Nickel Strike, High Bake  |
| AMS2411                   | Plating, Silver for High Temperature Applications                                  |
| AMS2412                   | Plating, Silver, Copper Strike, Low Bake   |
| AMS-C-26074               | Plating, Electroless Nickel  |
| AMS2700                   | Passivation of CRES  |
| AS5272                    | Lubricant, Solid Film, Heat Cured, Corrosion Inhibiting, Procurement Specification |

# CoilThread Screw Locking Inserts



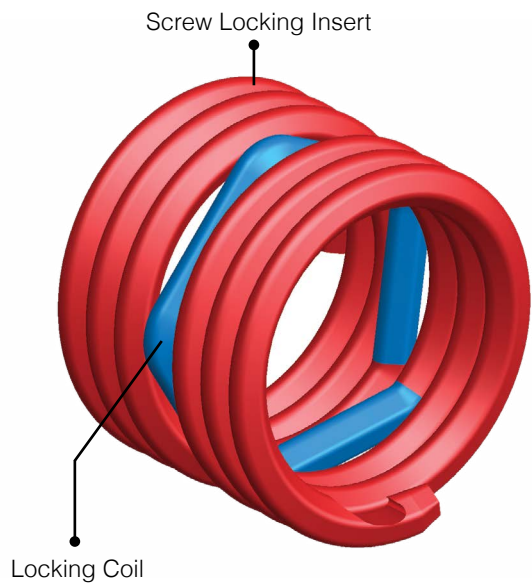
KATO screw locking inserts exert a prevailing torque on male threaded fasteners to prevent loosening due to vibration or impact. Locking inserts eliminate the need for costly and less desirable locking mechanisms. They are excellent in adjusting screw applications by preventing the male fastener from creeping.

## How Locking Inserts Work:

One, or more, of the coils in the insert have a series of straight segments. Upon entry of the bolt these straight segments are flexed outwardly, creating pressure on the bolt. This pressure is applied between the flanks of the bolt thread so that contact area is maximized and unit pressure is minimized. It is often possible to realize cycle life far in excess of specification requirements (15 cycles).

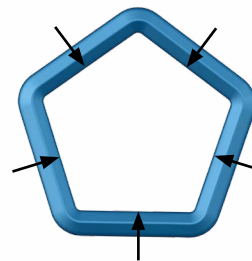
## Location of Locking Coils:

- **For Tanged inserts 1, 1.5, and 2 diameter lengths:** The center of the locking coil(s) equals 1/2 the number of free coils.
- **For Tanged inserts 2.5 and 3 diameter lengths:** The locking coil is located the same distance from the tang as 2 diameter length inserts.
- **For Tangless inserts the center of the locking coil equals 1/2 the number of free coils.**



## Locking Torques:

Locking inserts conform to NAS1130 (unified Tangless), NA0276 (metric Tangless), NASM21209 (unified tanged), MA3329 (metric tanged), and produce locking torques in accordance with NASM8846 (unified) and MA1565 (metric) when used with heat treated cadmium-plated bolts. When using unplated heat treated or stainless steel bolts, an anti-seize compound, e.g. molybdenum disulfide, must be used in order to minimize galling and assure maximum cycle life. Wear life of the male fastener can also be improved by specifying dry film lubricant or cadmium plating. The use of 300 series stainless steel bolts should be avoided when using locking inserts. Use A286 aircraft quality screws or equivalent (Rc 36-43).



Locking coil segments exert prevailing torque between the thread flanks of the screw, or bolt, to resist loosening.

# CoilThread Screw Locking Inserts

| Thread Size               | Maximum Locking Torque | Minimum Breakaway Torque |
|---------------------------|------------------------|--------------------------|
| <b>Unified Coarse</b>     |                        |                          |
| 1 (.073)-64               | 15 ozf-in              | 2 ozf-in                 |
| 2 (.086)-56               | 20 ozf-in              | 3 ozf-in                 |
| 3 (.099)-48               | 32 ozf-in              | 7 ozf-in                 |
| 4 (.112)-40               | 48 ozf-in              | 10 ozf-in                |
| 5 (.125)-40               | 75 ozf-in              | 13 ozf-in                |
| 6 (.138)-32               | 6 lbf-in               | 1 lbf-in                 |
| 8 (.164)-32               | 9 lbf-in               | 1.5 lbf-in               |
| 10 (.190)-24              | 13 lbf-in              | 2 lbf-in                 |
| 12 (.216)-24 <sup>1</sup> | 24 lbf-in              | 3 lbf-in                 |
| 1/4 (.250)-20             | 30 lbf-in              | 4.5 lbf-in               |
| 5/16 (.3125)-18           | 60 lbf-in              | 7.5 lbf-in               |
| 3/8 (.3750)-16            | 80 lbf-in              | 12 lbf-in                |
| 7/16 (.4375)-14           | 100 lbf-in             | 16.5 lbf-in              |
| 1/2 (.5000)-13            | 150 lbf-in             | 24 lbf-in                |
| 9/16 (.5625)-12           | 200 lbf-in             | 30 lbf-in                |
| 5/8 (.6250)-11            | 300 lbf-in             | 40 lbf-in                |
| 3/4 (.7500)-10            | 400 lbf-in             | 60 lbf-in                |
| 7/8 (.8750)-9             | 600 lbf-in             | 82 lbf-in                |
| 1 (1.0000)-8              | 800 lbf-in             | 110 lbf-in               |
| 1-1/8 (1.1250)-7          | 900 lbf-in             | 137 lbf-in               |
| 1-1/4 (1.2500)-7          | 1000 lbf-in            | 165 lbf-in               |
| 1-3/8 (1.3750)-6          | 1150 lbf-in            | 185 lbf-in               |
| 1-1/2 (1.5000)-6          | 1350 lbf-in            | 210 lbf-in               |
| <b>Unified Fine</b>       |                        |                          |
| 0 (.060)-80 <sup>4</sup>  | ---                    | ---                      |
| 3 (.099)-56               | 32 ozf-in              | 7 ozf-in                 |
| 4 (.112)-48               | 48 ozf-in              | 10 ozf-in                |
| 6 (.138)-40               | 6 lbf-in               | 1 lbf-in                 |
| 8 (.164)-36               | 9 lbf-in               | 1.5 lbf-in               |
| 10 (.190)-32              | 13 lbf-in              | 2 lbf-in                 |
| 1/4 (.250)-28             | 30 lbf-in              | 3.5 lbf-in               |
| 5/16 (.3125)-24           | 60 lbf-in              | 6.5 lbf-in               |
| 3/8 (.3750)-24            | 80 lbf-in              | 9.5 lbf-in               |
| 7/16 (.4375)-20           | 100 lbf-in             | 14 lbf-in                |
| 1/2 (.5000)-20            | 150 lbf-in             | 18 lbf-in                |
| 9/16 (.5625)-18           | 200 lbf-in             | 24 lbf-in                |
| 5/8 (.6250)-18            | 300 lbf-in             | 32 lbf-in                |
| 3/4 (.7500)-16            | 400 lbf-in             | 50 lbf-in                |
| 7/8 (.8750)-14            | 600 lbf-in             | 70 lbf-in                |
| 1 (1.0000)-12             | 800 lbf-in             | 90 lbf-in                |
| 1-1/8 (1.1250)-12         | 900 lbf-in             | 117 lbf-in               |
| 1-1/4 (1.2500)-12         | 1000 lbf-in            | 143 lbf-in               |
| 1-3/8 (1.3750)-12         | 1150 lbf-in            | 165 lbf-in               |
| 1-1/2 (1.5000)-12         | 1350 lbf-in            | 190 lbf-in               |

| Thread Size          | Maximum Locking Torque | Minimum Breakaway Torque |
|----------------------|------------------------|--------------------------|
| <b>Metric Coarse</b> |                        |                          |
| M2X0.4               | 0.12 N.m               | 0.003 N.m                |
| M2.2X0.45            | 0.14 N.m               | 0.02 N.m                 |
| M2.5X0.45            | 0.22 N.m               | 0.06 N.m                 |
| M3X0.5               | 0.44 N.m               | 0.1 N.m                  |
| M3.5X0.6             | 0.68 N.m               | 0.12 N.m                 |
| M4X0.7               | 0.9 N.m                | 0.16 N.m                 |
| M5X0.8               | 1.6 N.m                | 0.3 N.m                  |
| M6X1                 | 3 N.m                  | 0.4 N.m                  |
| M7X1                 | 4.4 N.m                | 0.6 N.m                  |
| M8X1.25              | 6 N.m                  | 0.8 N.m                  |
| M10X1.5              | 10 N.m                 | 1.4 N.m                  |
| M12X1.75             | 15 N.m                 | 2.2 N.m                  |
| M14X2                | 23 N.m                 | 3 N.m                    |
| M16X2                | 32 N.m                 | 4.2 N.m                  |
| M18X2.5              | 42 N.m                 | 5.5 N.m                  |
| M20X2.5              | 54 N.m                 | 7 N.m                    |
| M22X2.5              | 70 N.m                 | 9 N.m                    |
| M24X3                | 80 N.m                 | 11 N.m                   |
| M27X3                | 95 N.m                 | 12 N.m                   |
| <b>Metric Fine</b>   |                        |                          |
| M8X1                 | 6 N.m                  | 0.8 N.m                  |
| M10X1                | 10 N.m                 | 1.4 N.m                  |
| M10X1.25             | 10 N.m                 | 1.4 N.m                  |
| M12X1.25             | 15 N.m                 | 2.2 N.m                  |
| M12X1.5              | 15 N.m                 | 2.2 N.m                  |
| M14X1.5              | 23 N.m                 | 3 N.m                    |
| M16X1.5              | 32 N.m                 | 4.2 N.m                  |
| M18X1.5              | 42 N.m                 | 5.5 N.m                  |
| M20X1.5              | 54 N.m                 | 7 N.m                    |
| M22X1.5              | 70 N.m                 | 9 N.m                    |
| M18X2                | 42 N.m                 | 5.5 N.m                  |
| M20X2                | 54 N.m                 | 7 N.m                    |
| M22X2                | 70 N.m                 | 9 N.m                    |
| M24X2                | 80 N.m                 | 11 N.m                   |
| M27X2                | 95 N.m                 | 12 N.m                   |
| M30X2                | 110 N.m                | 14 N.m                   |
| M33X2                | 125 N.m                | 16 N.m                   |
| M36X2                | 140 N.m                | 18 N.m                   |
| M39X2                | 150 N.m                | 20 N.m                   |
| M36X3                | 140 N.m                | 18 N.m                   |
| M39X3                | 150 N.m                | 20 N.m                   |

- 12-24 is not specified in the NASM8846.
- Unified Locking CoilThread inserts (Tangless and tanged) produce locking torques in accordance with NASM8846 when installed into 3B STI threads, and tested with heat treated cadmium-plated bolts.
- Metric Locking CoilThread inserts (Tangless and tanged) produce locking torques in accordance with MA1565 when installed into 4H STI threads, and tested with heat treated cadmium-plated bolts.
- Check with KATO for availability.

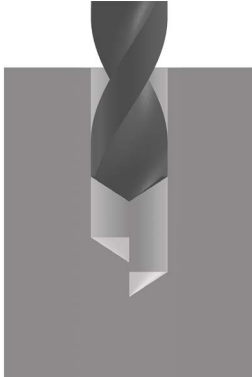
| To Convert From | To     | Multiply by |
|-----------------|--------|-------------|
| N.m             | ozf-in | 141.6119    |
| N.m             | lbf-in | 8.850748    |
| ozf-in          | N.m    | 0.0070615   |
| lbf-in          | N.m    | 0.1129848   |

# Installation Procedure

CoilThread inserts are designed to be installed into pre-cut STI (ScrewThread Insert) threads. The installed insert will provide a finished thread meeting the requirements of FED-STD-H28. Example: An 8-32 insert installed into an 8-32 STI 3B thread will create a standard 8-32 UNC 3B thread profile.

A proper STI thread is paramount to creating a precise finished thread profile. KATO recommends the following procedure to ensure the best installation and function of a CoilThread insert.

## Drill: (step 1)



Drilled hole dimensions are tabulated on pages 14-17.

The minor diameters tabulated conform to NASM33537 and MA1567, and must be met after tapping, and after any supplemental treatment (anodize, chem-film, etc.)

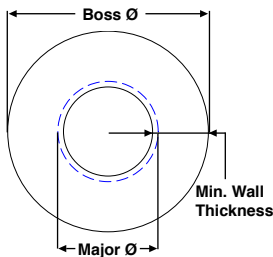
The drill sizes shown are recommendations only, based on expected material behavior for increased tap life in harder materials. Actual individual conditions may require varied drill sizes in order to produce the correct minor diameter after tapping. For example, compensation must be made in tolerances for plating.

The minimum drilled hole depth is designed to allow for:

1. The use of standard countersink as tabulated on pages 14-17.
2. The use of a standard STI plug or bottoming tap for maximum tool life.
3. The use of standard installation set-down of 3/4 to 1-1/2 pitch below the work surface.

The “F” dimension minimum (pages 14-17) is based on installed insert length, plus set down, plus tap chamfer length, plus chip clearance.

For plug taps with a nominal diameter of 5/16” and M8 or smaller, the “F” dimension minimum allows for a male center on the tap equal in length to the nominal tap diameter divided by 2.



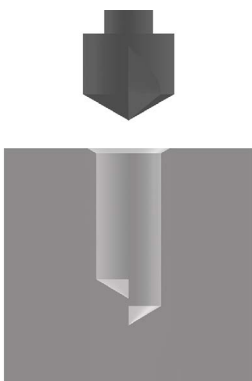
### Minimum Material Thickness:

The nominal insert length is the minimum through hole length (material thickness) without counter-sinking and with the insert located 1/4 pitch below the top surface. With normal countersink and set-down, the minimum through hole material thickness equals the “H” dimension (the minimum full thread depth), shown tabulated on pages 14-17.

### Boss Diameter:

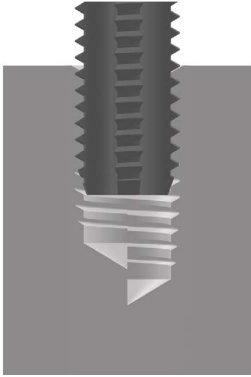
The recommended boss diameter is two times the STI tap major diameter max. For most materials, a minimum wall thickness equal to the nominal bolt diameter may be used when measured from the centerline of the hole (min boss diameter equals two times nominal thread size).

## Countersink: (step 2)



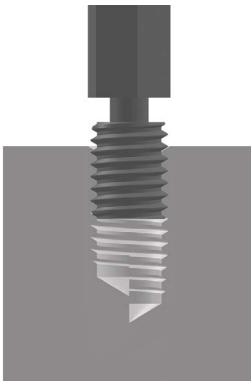
Before tapping, it is good practice to countersink  $120^{\circ} \pm 5^{\circ}$  to “M” diameter (pages 14-17) in order to prevent a feather edge at the start of the hole. The  $60^{\circ}$  per side countersink angle is used because it is the same as the angle of the tapped thread, insert cross-section, and inserting tool prewinder tip. This combination provides for smooth and rapid production installations.

The “F” and “H” values (pages 14-17) are calculated with a countersink depth of 1/2 pitch.



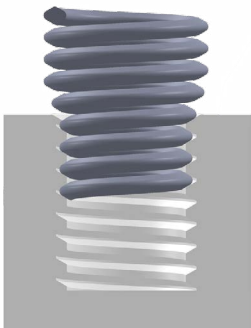
## Tap: (step 3)

Tap using CoilThread STI Thread cutting taps (page 41). The pitch diameter limits shown tabulated on pages 15 & 17 conform to NASM33537 and/or MA1567 respectively, and must be met in order to assure proper thread fit after installation of the CoilThread insert.



## Gage: (step 4)

CoilThread STI Plug Gages (page 51) are used to check the major and pitch diameters of the STI tapped holes. Gaging the tapped hole prior to insert installation is critical to ensure the accuracy of the finished thread. If the tapped hole gages correctly, the installed CoilThread insert will be within the thread tolerance. No further gaging is necessary. If gaging is attempted after the CoilThread is installed the Go thread plug gage may not enter freely; however, the insert will seat itself when the bolt or screw is installed and tightened (reference NASM33537 and MA1567). In fact, it is impossible to gage an installed locking insert.



## Install: (step 5)

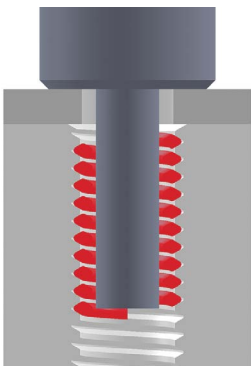
Follow the instructions accompanying the KATO installation tool for proper insert installation. Insert installation depth is dependent on the presence of a countersink (3/4 to 1-1/2 turns below the surface with a countersink and 1/4 to 1/2 turns below the surface without a countersink).

**1. Tangless CoilThread insert installation is now complete.**

2. Tanged inserts require removal and retrieval of the tang, continue to step 2



**To eliminate the tang break-off process, and to ensure a FOD-Free assembly consider switching to KATO Tangless CoilThread inserts, there are no tangs to break-off, retrieve or lose!**



## Tang Break-Off: (step 6)

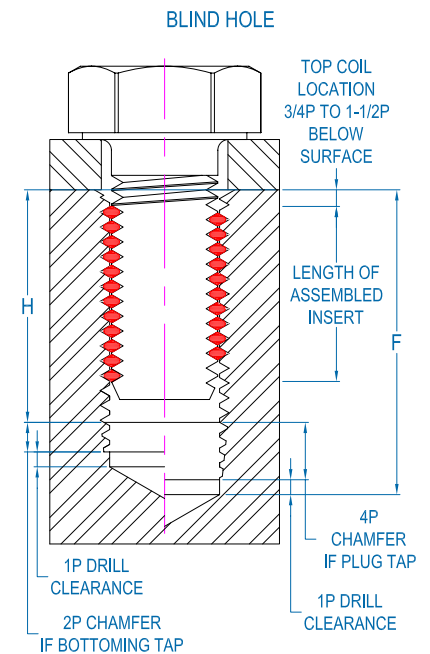
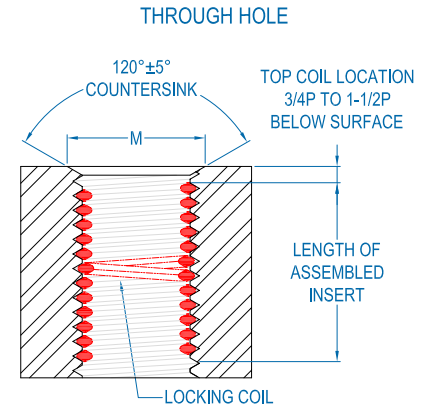
KATO recommends the tang always be removed to ensure that the full threads of the bolt fully engage the locking coils (when using locking inserts). To achieve maximum assembly strength the bolt must engage the entire insert length. Use the KATO Tang Break-off Tool (page 83) to ensure accurate and clean tang break off. In blind holes it may be necessary to remove the broken tang from the bottom of the hole (recommended).

# Drilling Dimensions - Unified Sizes

| Thread Size                    | Minor Diameter (After Tapping) |              |              | Suggested Drill Size <sup>1</sup> |                  | F Dimension <sup>2</sup><br>Minimum Drilling Depth for Taps |       |       |       |       |                |       |       |       |       |
|--------------------------------|--------------------------------|--------------|--------------|-----------------------------------|------------------|---|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
|                                | Min All Classes                | Max Class 3B | Max Class 2B | Aluminum                          | Steel            | Plug Taps   |       |       |       |       | Bottoming Taps |       |       |       |       |
|                                |                                |              |              |                                   |                  | 1   | 1.5   | 2     | 2.5   | 3     | 1              | 1.5   | 2     | 2.5   | 3     |
| Unified Coarse                 |                                |              |              |                                   |                  |   |       |       |       |       |                |       |       |       |       |
| 1 (.073)-64                    | 0.0764                         | 0.0823       | 0.0823       | #47 (.0785)                       | #46 (.0810)      | 0.203   | 0.240 | 0.276 | 0.313 | 0.349 | 0.136          | 0.172 | 0.209 | 0.245 | 0.282 |
| 2 (.086)-56                    | 0.0899                         | 0.0961       | 0.0961       | 3/32 (.0938)                      | #41 (.0960)      | 0.236   | 0.279 | 0.322 | 0.365 | 0.408 | 0.157          | 0.200 | 0.243 | 0.286 | 0.329 |
| 3 (.099)-48                    | 0.1036                         | 0.1104       | 0.1104       | #36 (.1065)                       | 7/64 (.1094)     | 0.273   | 0.323 | 0.372 | 0.422 | 0.471 | 0.182          | 0.232 | 0.281 | 0.331 | 0.380 |
| 4 (.112)-40                    | 0.1175                         | 0.1252       | 0.1252       | #31 (.1200)                       | #31 (.1200)      | 0.318   | 0.374 | 0.430 | 0.486 | 0.542 | 0.212          | 0.268 | 0.324 | 0.380 | 0.436 |
| 5 (.125)-40                    | 0.1305                         | 0.1373       | 0.1373       | 3.4mm (.1339)                     | #29 (.1360)      | 0.338   | 0.400 | 0.462 | 0.525 | 0.588 | 0.225          | 0.288 | 0.350 | 0.412 | 0.475 |
| 6 (.138)-32                    | 0.1448                         | 0.1527       | 0.1527       | #26 (.1470)                       | #25 (.1495)      | 0.394   | 0.464 | 0.532 | 0.602 | 0.670 | 0.263          | 0.332 | 0.401 | 0.470 | 0.539 |
| 8 (.164)-32                    | 0.1708                         | 0.1781       | 0.1781       | #17 (.1730)                       | #16 (.1770)      | 0.434   | 0.516 | 0.598 | 0.680 | 0.762 | 0.289          | 0.371 | 0.453 | 0.535 | 0.617 |
| 10 (.190)-24                   | 0.1990                         | 0.2080       | 0.2087       | 13/64 (.2031)                     | #5 (.2055)       | 0.535   | 0.630 | 0.725 | 0.820 | 0.915 | 0.357          | 0.452 | 0.547 | 0.642 | 0.737 |
| 12 (.216)-24                   | 0.2250                         | 0.2340       | 0.2347       | #1 (.2280)                        | #1 (.2280)       | 0.574   | 0.682 | 0.790 | 0.898 | 1.006 | 0.383          | 0.491 | 0.599 | 0.707 | 0.815 |
| 1/4 (.250)-20                  | 0.2608                         | 0.2704       | 0.2723       | H (.2660)                         | H (.2660)        | 0.675   | 0.800 | 0.925 | 1.050 | 1.175 | 0.450          | 0.575 | 0.700 | 0.825 | 0.950 |
| 5/16 (.3125)-18                | 0.3245                         | 0.3342       | 0.3372       | Q (.3320)                         | Q (.3320)        | 0.801   | 0.957 | 1.113 | 1.269 | 1.425 | 0.534          | 0.690 | 0.846 | 1.002 | 1.158 |
| 3/8 (.3750)-16                 | 0.3885                         | 0.3987       | 0.4026       | X (.3970)                         | X (.3970)        | 0.750   | 0.938 | 1.125 | 1.312 | 1.500 | 0.625          | 0.812 | 1.000 | 1.188 | 1.375 |
| 7/16 (.4375)-14                | 0.4530                         | 0.4639       | 0.4688       | 29/64 (.4531)                     | 29/64 (.4531)    | 0.867   | 1.086 | 1.305 | 1.524 | 1.743 | 0.724          | 0.943 | 1.162 | 1.381 | 1.600 |
| 1/2 (.5000)-13 <sup>1</sup>    | 0.5166                         | 0.5273       | 0.5335       | 33/64 (.5156)                     | 17/32 (.5312)    | 0.962   | 1.212 | 1.462 | 1.712 | 1.962 | 0.808          | 1.058 | 1.308 | 1.558 | 1.808 |
| 9/16 (.5625)-12 <sup>1</sup>   | 0.5806                         | 0.5918       | 0.5986       | 37/64 (.5781)                     | 19/32 (.5938)    | 1.062   | 1.343 | 1.624 | 1.905 | 2.186 | 0.895          | 1.176 | 1.457 | 1.738 | 2.019 |
| 5/8 (.6250)-11                 | 0.6447                         | 0.6564       | 0.6641       | 21/32 (.6562)                     | 21/32 (.6562)    | 1.170   | 1.483 | 1.795 | 2.108 | 2.420 | 0.989          | 1.301 | 1.614 | 1.926 | 2.239 |
| 3/4 (.7500)-10                 | 0.7716                         | 0.7838       | 0.7926       | 25/32 (.7812)                     | 25/32 (.7812)    | 1.350   | 1.725 | 2.100 | 2.475 | 2.850 | 1.150          | 1.525 | 1.900 | 2.275 | 2.650 |
| 7/8 (.8750)-9                  | 0.8990                         | 0.9119       | 0.9218       | 29/32 (.9062)                     | 29/32 (.9062)    | 1.542   | 1.979 | 2.417 | 2.854 | 3.292 | 1.319          | 1.757 | 2.194 | 2.632 | 3.069 |
| 1 (1.0000)-8                   | 1.0271                         | 1.0421       | 1.0521       | 1-1/32 (1.0312)                   | 1-1/32 (1.0312)  | 1.750   | 2.250 | 2.750 | 3.250 | 3.750 | 1.500          | 2.000 | 2.500 | 3.000 | 3.500 |
| 1-1/8 (1.1250)-7               | 1.1559                         | 1.1730       | 1.1834       | 1-11/64 (1.1719)                  | 1-11/64 (1.1719) | 1.982   | 2.545 | 3.107 | 3.670 | 4.232 | 1.696          | 2.259 | 2.821 | 3.384 | 3.946 |
| 1-1/4 (1.2500)-7               | 1.2809                         | 1.2980       | 1.3084       | 1-19/64 (1.2969)                  | 1-19/64 (1.2969) | 2.107   | 2.732 | 3.357 | 3.982 | 4.607 | 1.821          | 2.446 | 3.071 | 3.696 | 4.321 |
| 1-3/8 (1.3750)-6               | 1.4110                         | 1.4310       | 1.4416       | 1-27/64 (1.4219)                  | 1-27/64 (1.4219) | 2.375   | 3.062 | 3.750 | 4.437 | 5.125 | 2.042          | 2.729 | 3.417 | 4.104 | 4.792 |
| 1-1/2 (1.5000)-6               | 1.5360                         | 1.5560       | 1.5665       | 1-35/64 (1.5469)                  | 1-35/64 (1.5469) | 2.500   | 3.250 | 4.000 | 4.750 | 5.500 | 2.167          | 2.917 | 3.667 | 4.417 | 5.167 |
| Unified Fine                   |                                |              |              |                                   |                  |   |       |       |       |       |                |       |       |       |       |
| 0 (.060)-80                    | 0.0628                         | 0.0665       | 0.0665       | #52 (.0635)                       | #52 (.0635)      | 0.165   | 0.195 | 0.225 | ---   | ---   | 0.110          | 0.140 | 0.170 | ---   | ---   |
| 3 (.099)-56                    | 0.1029                         | 0.1086       | 0.1086       | #37 (.1040)                       | #36 (.1065)      | 0.256   | 0.305 | 0.355 | 0.404 | 0.454 | 0.170          | 0.220 | 0.269 | 0.319 | 0.368 |
| 4 (.112)-48                    | 0.1166                         | 0.1229       | 0.1229       | 3mm (.1181)                       | #31 (.1200)      | 0.293   | 0.349 | 0.405 | 0.461 | 0.517 | 0.195          | 0.251 | 0.307 | 0.363 | 0.419 |
| 6 (.138)-40                    | 0.1435                         | 0.1503       | 0.1503       | #26 (.1470)                       | #25 (.1495)      | 0.357   | 0.426 | 0.495 | 0.564 | 0.633 | 0.238          | 0.307 | 0.376 | 0.445 | 0.514 |
| 8 (.164)-36                    | 0.1701                         | 0.1771       | 0.1771       | #17 (.1730)                       | #16 (.1770)      | 0.413   | 0.495 | 0.577 | 0.659 | 0.741 | 0.275          | 0.357 | 0.439 | 0.521 | 0.603 |
| 10 (.190)-32                   | 0.1968                         | 0.2041       | 0.2041       | #7 (.2010)                        | 13/64 (.2031)    | 0.472   | 0.568 | 0.662 | 0.758 | 0.852 | 0.315          | 0.410 | 0.505 | 0.600 | 0.695 |
| 1/4 (.250)-28                  | 0.2577                         | 0.2646       | 0.2661       | G (.2610)                         | 6.7mm (.2638)    | 0.589   | 0.714 | 0.839 | 0.964 | 1.089 | 0.393          | 0.518 | 0.643 | 0.768 | 0.893 |
| 5/16 (.3125)-24                | 0.3215                         | 0.3288       | 0.3312       | 21/64 (.3281)                     | 21/64 (.3281)    | 0.718   | 0.874 | 1.030 | 1.186 | 1.342 | 0.479          | 0.635 | 0.791 | 0.947 | 1.103 |
| 3/8 (.3750)-24                 | 0.3840                         | 0.3910       | 0.3937       | 25/64 (.3906)                     | 25/64 (.3906)    | 0.625   | 0.812 | 1.000 | 1.187 | 1.375 | 0.542          | 0.729 | 0.917 | 1.104 | 1.292 |
| 7/16 (.4375)-20                | 0.4483                         | 0.4561       | 0.4598       | 29/64 (.4531)                     | 29/64 (.4531)    | 0.738   | 0.957 | 1.176 | 1.395 | 1.614 | 0.638          | 0.857 | 1.076 | 1.295 | 1.514 |
| 1/2 (.5000)-20                 | 0.5108                         | 0.5186       | 0.5223       | 33/64 (.5156)                     | 33/64 (.5156)    | 0.800   | 1.050 | 1.300 | 1.550 | 1.800 | 0.700          | 0.950 | 1.200 | 1.450 | 1.700 |
| 9/16 (.5625)-18                | 0.5745                         | 0.5826       | 0.5872       | 37/64 (.5781)                     | 37/64 (.5781)    | 0.895   | 1.176 | 1.457 | 1.738 | 2.019 | 0.784          | 1.065 | 1.346 | 1.627 | 1.908 |
| 5/8 (.6250)-18                 | 0.6370                         | 0.6451       | 0.6497       | 41/64 (.6406)                     | 41/64 (.6406)    | 0.958   | 1.271 | 1.583 | 1.896 | 2.208 | 0.847          | 1.160 | 1.472 | 1.785 | 2.097 |
| 3/4 (.7500)-16                 | 0.7635                         | 0.7720       | 0.7776       | 49/64 (.7656)                     | 49/64 (.7656)    | 1.125   | 1.500 | 1.875 | 2.250 | 2.625 | 1.000          | 1.375 | 1.750 | 2.125 | 2.500 |
| 7/8 (.8750)-14                 | 0.8905                         | 0.8994       | 0.9063       | 57/64 (.8906)                     | 57/64 (.8906)    | 1.304   | 1.741 | 2.179 | 2.616 | 3.054 | 1.161          | 1.598 | 2.036 | 2.473 | 2.911 |
| 1 (1.0000)-12                  | 1.0181                         | 1.0281       | 1.0361       | 1-1/64 (1.0156)                   | 1-1/32 (1.0312)  | 1.500   | 2.000 | 2.500 | 3.000 | 3.500 | 1.333          | 1.833 | 2.333 | 2.833 | 3.333 |
| 1-1/8 (1.1250)-12 <sup>1</sup> | 1.1431                         | 1.1531       | 1.1611       | 1-9/64 (1.1406)                   | 1-5/32 (1.1562)  | 1.625   | 2.187 | 2.750 | 3.312 | 3.875 | 1.458          | 2.021 | 2.583 | 3.146 | 3.708 |
| 1-1/4 (1.2500)-12 <sup>1</sup> | 1.2681                         | 1.2781       | 1.2861       | 1-17/64 (1.2656)                  | 1-9/32 (1.2812)  | 1.750   | 2.375 | 3.000 | 3.625 | 4.250 | 1.583          | 2.208 | 2.833 | 3.458 | 4.083 |
| 1-3/8 (1.3750)-12 <sup>1</sup> | 1.3931                         | 1.4031       | 1.4111       | 1-25/64 (1.3906)                  | 1-13/32 (1.4062) | 1.875   | 2.562 | 3.250 | 3.937 | 4.625 | 1.708          | 2.396 | 3.083 | 3.771 | 4.458 |
| 1-1/2 (1.5000)-12 <sup>1</sup> | 1.5181                         | 1.5281       | 1.5361       | 1-33/64 (1.5156)                  | 1-17/32 (1.5312) | 2.000   | 2.750 | 3.500 | 4.250 | 5.000 | 1.833          | 2.583 | 3.333 | 4.083 | 4.833 |

# Tapped Hole Dimensions - Unified Sizes

| Thread Size                    | Countersink M Diameter (120° ± 5° included angle) |      | Pitch Diameter |              |              | H Dimension Minimum Tapping Depth |      |      |      |      | Tap Major Dia. Max | Thread Pitch "P" |
|--------------------------------|---|------|----------------|--------------|--------------|-----------------------------------|------|------|------|------|--------------------|------------------|
|                                |   |      | Min All Class  | Class Max 3B | Class Max 2B | 1                                 | 1.5  | 2    | 2.5  | 3    |                    |                  |
|                                | Min   | Max  |                |              |              |                                   |      |      |      |      |                    |                  |
| Unified Coarse                 |   |      |                |              |              |                                   |      |      |      |      |                    |                  |
| 1 (.073)-64                    | 0.085   | 0.10 | 0.0832         | 0.0843       | 0.0850       | 0.09                              | 0.13 | 0.16 | 0.20 | 0.24 | 0.0958             | 0.01563          |
| 2 (.086)-56                    | 0.09  | 0.11 | 0.0976         | 0.0989       | 0.0996       | 0.10                              | 0.15 | 0.19 | 0.23 | 0.28 | 0.1117             | 0.01786          |
| 3 (.099)-48                    | 0.11  | 0.14 | 0.1126         | 0.1140       | 0.1148       | 0.12                              | 0.17 | 0.22 | 0.27 | 0.32 | 0.1289             | 0.02083          |
| 4 (.112)-40                    | 0.14  | 0.17 | 0.1283         | 0.1299       | 0.1308       | 0.14                              | 0.19 | 0.25 | 0.31 | 0.36 | 0.1473             | 0.02500          |
| 5 (.125)-40                    | 0.16  | 0.19 | 0.1413         | 0.1430       | 0.1438       | 0.15                              | 0.21 | 0.28 | 0.34 | 0.40 | 0.1603             | 0.02500          |
| 6 (.138)-32                    | 0.18  | 0.21 | 0.1583         | 0.1601       | 0.1611       | 0.17                              | 0.24 | 0.31 | 0.38 | 0.45 | 0.1817             | 0.03125          |
| 8 (.164)-32                    | 0.20  | 0.23 | 0.1843         | 0.1862       | 0.1872       | 0.20                              | 0.28 | 0.36 | 0.44 | 0.52 | 0.2077             | 0.03125          |
| 10 (.190)-24                   | 0.24  | 0.27 | 0.2170         | 0.2192       | 0.2203       | 0.23                              | 0.33 | 0.42 | 0.52 | 0.61 | 0.2475             | 0.04167          |
| 12 (.216)-24                   | 0.26  | 0.29 | 0.2430         | 0.2453       | 0.2464       | 0.26                              | 0.37 | 0.47 | 0.58 | 0.69 | 0.2735             | 0.04167          |
| 1/4 (.250)-20                  | 0.31  | 0.34 | 0.2825         | 0.2851       | 0.2864       | 0.30                              | 0.43 | 0.55 | 0.68 | 0.80 | 0.3187             | 0.05000          |
| 5/16 (.3125)-18                | 0.38  | 0.41 | 0.3486         | 0.3515       | 0.3529       | 0.37                              | 0.53 | 0.68 | 0.84 | 0.99 | 0.3884             | 0.05556          |
| 3/8 (.3750)-16                 | 0.45  | 0.48 | 0.4156         | 0.4189       | 0.4203       | 0.44                              | 0.63 | 0.81 | 1.00 | 1.19 | 0.4602             | 0.06250          |
| 7/16 (.4375)-14                | 0.52  | 0.55 | 0.4839         | 0.4875       | 0.4890       | 0.51                              | 0.73 | 0.95 | 1.17 | 1.38 | 0.5343             | 0.07143          |
| 1/2 (.5000)-13 <sup>1</sup>    | 0.59  | 0.62 | 0.5499         | 0.5537       | 0.5554       | 0.58                              | 0.83 | 1.08 | 1.33 | 1.58 | 0.6042             | 0.07692          |
| 9/16 (.5625)-12 <sup>1</sup>   | 0.66  | 0.69 | 0.6167         | 0.6208       | 0.6225       | 0.65                              | 0.93 | 1.21 | 1.49 | 1.77 | 0.6751             | 0.08333          |
| 5/8 (.6250)-11                 | 0.73  | 0.76 | 0.6841         | 0.6885       | 0.6903       | 0.72                              | 1.03 | 1.34 | 1.65 | 1.97 | 0.7477             | 0.09091          |
| 3/4 (.7500)-10                 | 0.87  | 0.90 | 0.8149         | 0.8196       | 0.8216       | 0.85                              | 1.23 | 1.60 | 1.98 | 2.35 | 0.8850             | 0.10000          |
| 7/8 (.8750)-9                  | 1.00  | 1.03 | 0.9471         | 0.9522       | 0.9543       | 0.99                              | 1.42 | 1.86 | 2.30 | 2.74 | 1.0247             | 0.11111          |
| 1 (1.0000)-8                   | 1.14  | 1.17 | 1.0812         | 1.0898       | 1.0898       | 1.13                              | 1.63 | 2.13 | 2.63 | 3.13 | 1.1681             | 0.12500          |
| 1-1/8 (1.1250)-7               | 1.29  | 1.32 | 1.2178         | 1.2239       | 1.2262       | 1.27                              | 1.83 | 2.39 | 2.96 | 3.52 | 1.3171             | 0.14286          |
| 1-1/4 (1.2500)-7               | 1.41  | 1.44 | 1.3428         | 1.3490       | 1.3514       | 1.39                              | 2.02 | 2.64 | 3.27 | 3.89 | 1.4421             | 0.14286          |
| 1-3/8 (1.3750)-6               | 1.56  | 1.59 | 1.4832         | 1.4900       | 1.4926       | 1.54                              | 2.23 | 2.92 | 3.60 | 4.29 | 1.5982             | 0.16667          |
| 1-1/2 (1.5000)-6               | 1.69  | 1.72 | 1.6082         | 1.6151       | 1.6177       | 1.67                              | 2.42 | 3.17 | 3.92 | 4.67 | 1.7232             | 0.16667          |
| Unified Fine                   |   |      |                |              |              |                                   |      |      |      |      |                    |                  |
| 0 (.060)-80                    | 0.08  | 0.11 | 0.0681         | 0.0691       | 0.0697       | 0.07                              | 0.10 | 0.13 | ---  | ---  | ---                | 0.01250          |
| 3 (.099)-56                    | 0.11  | 0.14 | 0.1106         | 0.1119       | 0.1126       | 0.12                              | 0.17 | 0.22 | 0.27 | 0.31 | 0.1247             | 0.01786          |
| 4 (.112)-48                    | 0.13  | 0.16 | 0.1256         | 0.1271       | 0.1279       | 0.13                              | 0.19 | 0.24 | 0.30 | 0.36 | 0.1419             | 0.02083          |
| 6 (.138)-40                    | 0.17  | 0.20 | 0.1543         | 0.1560       | 0.1569       | 0.16                              | 0.23 | 0.30 | 0.37 | 0.44 | 0.1733             | 0.02500          |
| 8 (.164)-36                    | 0.20  | 0.23 | 0.1821         | 0.1840       | 0.1849       | 0.19                              | 0.27 | 0.36 | 0.44 | 0.52 | 0.2032             | 0.02778          |
| 10 (.190)-32                   | 0.23  | 0.26 | 0.2103         | 0.2123       | 0.2133       | 0.22                              | 0.32 | 0.41 | 0.51 | 0.60 | 0.2337             | 0.03125          |
| 1/4 (.250)-28                  | 0.29  | 0.32 | 0.2732         | 0.2754       | 0.2765       | 0.29                              | 0.41 | 0.54 | 0.66 | 0.79 | 0.2995             | 0.03571          |
| 5/16 (.3125)-24                | 0.36  | 0.39 | 0.3395         | 0.3421       | 0.3433       | 0.35                              | 0.51 | 0.67 | 0.82 | 0.98 | 0.3700             | 0.04167          |
| 3/8 (.3750)-24                 | 0.42  | 0.45 | 0.4020         | 0.4047       | 0.4059       | 0.42                              | 0.60 | 0.79 | 0.98 | 1.17 | 0.4325             | 0.04167          |
| 7/16 (.4375)-20                | 0.50  | 0.53 | 0.4700         | 0.4731       | 0.4744       | 0.49                              | 0.71 | 0.93 | 1.14 | 1.36 | 0.5062             | 0.05000          |
| 1/2 (.5000)-20                 | 0.56  | 0.59 | 0.5325         | 0.5357       | 0.5371       | 0.55                              | 0.80 | 1.05 | 1.30 | 1.55 | 0.5687             | 0.05000          |
| 9/16 (.5625)-18                | 0.63  | 0.66 | 0.5986         | 0.6020       | 0.6035       | 0.62                              | 0.90 | 1.18 | 1.46 | 1.74 | 0.6384             | 0.05556          |
| 5/8 (.6250)-18                 | 0.69  | 0.72 | 0.6611         | 0.6646       | 0.6661       | 0.68                              | 0.99 | 1.31 | 1.62 | 1.93 | 0.7009             | 0.05556          |
| 3/4 (.7500)-16                 | 0.82  | 0.85 | 0.7906         | 0.7945       | 0.7961       | 0.81                              | 1.19 | 1.56 | 1.94 | 2.31 | 0.8352             | 0.06250          |
| 7/8 (.8750)-14                 | 0.96  | 0.99 | 0.9214         | 0.9257       | 0.9274       | 0.95                              | 1.38 | 1.82 | 2.26 | 2.70 | 0.9718             | 0.07143          |
| 1 (1.0000)-12                  | 1.10  | 1.13 | 1.0542         | 1.0589       | 1.0608       | 1.08                              | 1.58 | 2.08 | 2.58 | 3.08 | 1.1126             | 0.08333          |
| 1-1/8 (1.1250)-12 <sup>1</sup> | 1.22  | 1.25 | 1.1792         | 1.1841       | 1.1860       | 1.21                              | 1.77 | 2.33 | 2.90 | 3.46 | 1.2376             | 0.08333          |
| 1-1/4 (1.2500)-12 <sup>1</sup> | 1.35  | 1.38 | 1.3042         | 1.3092       | 1.3112       | 1.33                              | 1.96 | 2.58 | 3.21 | 3.83 | 1.3626             | 0.08333          |
| 1-3/8 (1.3750)-12 <sup>1</sup> | 1.47  | 1.50 | 1.4292         | 1.4343       | 1.4364       | 1.46                              | 2.15 | 2.83 | 3.52 | 4.21 | 1.4876             | 0.08333          |
| 1-1/2 (1.5000)-12 <sup>1</sup> | 1.60  | 1.63 | 1.5542         | 1.5595       | 1.5615       | 1.58                              | 2.33 | 3.08 | 3.83 | 4.58 | 1.6126             | 0.08333          |



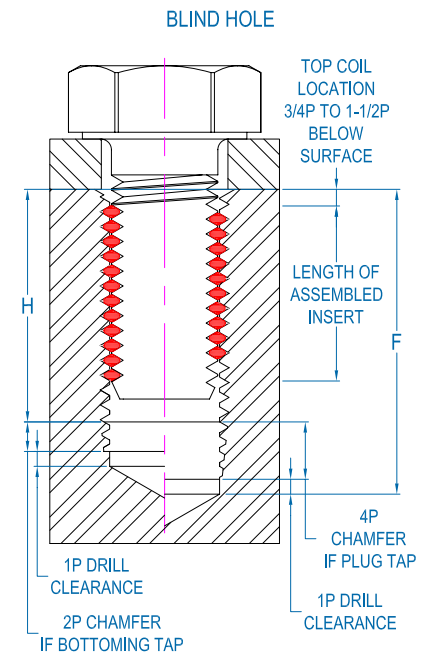
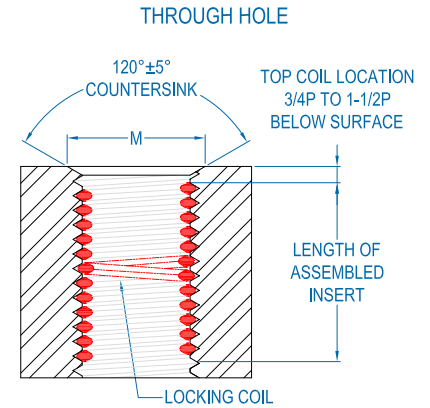
1. Standard size drills are suggested even though these sizes vary slightly from the minor diameter specifications in NASM33537.
2. For plug taps with a nominal diameter of 5/16" or smaller, F minimum allows for a male center on the tap equal in length to the nominal tap diameter divided by 2.
3. All dimensions are in inches.

# Drilling Dimensions - Metric Sizes

| Thread Size           | Minor Diameter (After Tapping) |        | Suggested Drill Size <sup>1</sup> |       | F Dimension <sup>2</sup><br>Minimum Drilling Depth for Taps |       |       |        |        |                |       |       |        |        |
|-----------------------|--------------------------------|--------|-----------------------------------|-------|---|-------|-------|--------|--------|----------------|-------|-------|--------|--------|
|                       | Min                            | Max    | Aluminum                          | Steel | Plug Taps   |       |       |        |        | Bottoming Taps |       |       |        |        |
|                       |                                |        |                                   |       | 1   | 1.5   | 2     | 2.5    | 3      | 1              | 1.5   | 2     | 2.5    | 3      |
| <b>Metric Coarse</b>  |                                |        |                                   |       |   |       |       |        |        |                |       |       |        |        |
| M2X0.4                | 2.087                          | 2.199  | 2.10                              | 2.10  | 5.40  | 6.40  | 7.40  | 8.40   | 9.40   | 3.60           | 4.60  | 5.60  | 6.60   | 7.60   |
| M2.2X0.45             | 2.297                          | 2.422  | 2.30                              | 2.35  | 6.00  | 7.10  | 8.20  | 9.30   | 10.40  | 4.00           | 5.10  | 6.20  | 7.30   | 8.40   |
| M2.5X0.45             | 2.597                          | 2.722  | 2.70                              | 2.70  | 6.45  | 7.70  | 8.95  | 10.20  | 11.45  | 4.30           | 5.55  | 6.80  | 8.05   | 9.30   |
| M3X0.5                | 3.108                          | 3.248  | 3.15                              | 3.20  | 7.50  | 9.00  | 10.50 | 12.00  | 13.50  | 5.00           | 6.50  | 8.00  | 9.50   | 11.00  |
| M3.5X0.6              | 3.630                          | 3.790  | 3.70                              | 3.70  | 8.85  | 10.60 | 12.35 | 14.10  | 15.85  | 5.90           | 7.65  | 9.40  | 11.15  | 12.90  |
| M4X0.7                | 4.152                          | 4.332  | 4.20                              | 4.25  | 10.20   | 12.20 | 14.20 | 16.20  | 18.20  | 6.80           | 8.80  | 10.80 | 12.80  | 14.80  |
| M5X0.8                | 5.174                          | 5.374  | 5.20                              | 5.30  | 12.30   | 14.80 | 17.30 | 19.80  | 22.30  | 8.20           | 10.70 | 13.20 | 15.70  | 18.20  |
| M6X1                  | 6.217                          | 6.407  | 6.25                              | 6.30  | 15.00   | 18.00 | 21.00 | 24.00  | 27.00  | 10.00          | 13.00 | 16.00 | 19.00  | 22.00  |
| M7X1                  | 7.217                          | 7.407  | 7.25                              | 7.30  | 16.50   | 20.00 | 23.50 | 27.00  | 30.50  | 11.00          | 14.50 | 18.00 | 21.50  | 25.00  |
| M8X1.25               | 8.271                          | 8.483  | 8.30                              | 8.40  | 19.50   | 23.50 | 27.50 | 31.50  | 35.50  | 13.00          | 17.00 | 21.00 | 25.00  | 29.00  |
| M10X1.5               | 10.324                         | 10.560 | 10.50                             | 10.50 | 19.00   | 24.00 | 29.00 | 34.00  | 39.00  | 16.00          | 21.00 | 26.00 | 31.00  | 36.00  |
| M12X1.75 <sup>1</sup> | 12.379                         | 12.644 | 12.50                             | 12.50 | 22.50   | 28.50 | 34.50 | 40.50  | 46.50  | 19.00          | 25.00 | 31.00 | 37.00  | 43.00  |
| M14X2                 | 14.433                         | 14.733 | 14.50                             | 14.50 | 26.00   | 33.00 | 40.00 | 47.00  | 54.00  | 22.00          | 29.00 | 36.00 | 43.00  | 50.00  |
| M16X2                 | 16.433                         | 16.733 | 16.50                             | 16.50 | 28.00   | 36.00 | 44.00 | 52.00  | 60.00  | 24.00          | 32.00 | 40.00 | 48.00  | 56.00  |
| M18X2.5               | 18.541                         | 18.896 | 18.75                             | 18.75 | 33.00   | 42.00 | 51.00 | 60.00  | 69.00  | 28.00          | 37.00 | 46.00 | 55.00  | 64.00  |
| M20X2.5               | 20.541                         | 20.896 | 20.75                             | 20.75 | 35.00   | 45.00 | 55.00 | 65.00  | 75.00  | 30.00          | 40.00 | 50.00 | 60.00  | 70.00  |
| M22X2.5               | 22.541                         | 22.896 | 22.75                             | 22.75 | 37.00   | 48.00 | 59.00 | 70.00  | 81.00  | 32.00          | 43.00 | 54.00 | 65.00  | 76.00  |
| M24X3                 | 24.649                         | 25.049 | 24.75                             | 24.75 | 42.00   | 54.00 | 66.00 | 78.00  | 90.00  | 36.00          | 48.00 | 60.00 | 72.00  | 84.00  |
| M27X3                 | 27.649                         | 28.049 | 27.75                             | 27.75 | 45.00   | 58.50 | 72.00 | 85.50  | 99.00  | 39.00          | 52.50 | 66.00 | 79.50  | 93.00  |
| <b>Metric Fine</b>    |                                |        |                                   |       |   |       |       |        |        |                |       |       |        |        |
| M8X1                  | 8.217                          | 8.407  | 8.25                              | 8.30  | 18.00   | 22.00 | 26.00 | 30.00  | 34.00  | 12.00          | 16.00 | 20.00 | 24.00  | 28.00  |
| M10X1                 | 10.217                         | 10.407 | 10.25                             | 10.25 | 16.00   | 21.00 | 26.00 | 31.00  | 36.00  | 14.00          | 19.00 | 24.00 | 29.00  | 34.00  |
| M10X1.25 <sup>1</sup> | 10.271                         | 10.483 | 10.25                             | 10.25 | 17.50   | 22.50 | 27.50 | 32.50  | 37.50  | 15.00          | 20.00 | 25.00 | 30.00  | 35.00  |
| M12X1.25 <sup>1</sup> | 12.271                         | 12.483 | 12.25                             | 12.25 | 19.50   | 25.50 | 31.50 | 37.50  | 43.50  | 17.00          | 23.00 | 29.00 | 35.00  | 41.00  |
| M12X1.5 <sup>1</sup>  | 12.324                         | 12.560 | 12.25                             | 12.50 | 21.00   | 27.00 | 33.00 | 39.00  | 45.00  | 18.00          | 24.00 | 30.00 | 36.00  | 42.00  |
| M14X1.5 <sup>1</sup>  | 14.324                         | 14.560 | 14.25                             | 14.50 | 23.00   | 30.00 | 37.00 | 44.00  | 51.00  | 20.00          | 27.00 | 34.00 | 41.00  | 48.00  |
| M16X1.5 <sup>1</sup>  | 16.324                         | 16.560 | 16.25                             | 16.50 | 25.00   | 33.00 | 41.00 | 49.00  | 57.00  | 22.00          | 30.00 | 38.00 | 46.00  | 54.00  |
| M18X1.5 <sup>1</sup>  | 18.324                         | 18.560 | 18.25                             | 18.50 | 27.00   | 36.00 | 45.00 | 54.00  | 63.00  | 24.00          | 33.00 | 42.00 | 51.00  | 60.00  |
| M20X1.5 <sup>1</sup>  | 20.324                         | 20.560 | 20.25                             | 20.50 | 29.00   | 39.00 | 49.00 | 59.00  | 69.00  | 26.00          | 36.00 | 46.00 | 56.00  | 66.00  |
| M22X1.5 <sup>1</sup>  | 22.324                         | 22.560 | 22.25                             | 22.50 | 31.00   | 42.00 | 53.00 | 64.00  | 75.00  | 28.00          | 39.00 | 50.00 | 61.00  | 72.00  |
| M18X2                 | 18.433                         | 18.733 | 18.50                             | 18.50 | 30.00   | 39.00 | 48.00 | 57.00  | 66.00  | 26.00          | 35.00 | 44.00 | 53.00  | 62.00  |
| M20X2                 | 20.433                         | 20.733 | 20.50                             | 20.50 | 32.00   | 42.00 | 52.00 | 62.00  | 72.00  | 28.00          | 38.00 | 48.00 | 58.00  | 68.00  |
| M22X2                 | 22.433                         | 22.733 | 22.50                             | 22.50 | 34.00   | 45.00 | 56.00 | 67.00  | 78.00  | 30.00          | 41.00 | 52.00 | 63.00  | 74.00  |
| M24X2                 | 24.433                         | 24.733 | 24.50                             | 24.50 | 36.00   | 48.00 | 60.00 | 72.00  | 84.00  | 32.00          | 44.00 | 56.00 | 68.00  | 80.00  |
| M27X2                 | 27.433                         | 27.733 | 27.50                             | 27.50 | 39.00   | 52.50 | 66.00 | 79.50  | 93.00  | 35.00          | 48.50 | 62.00 | 75.50  | 89.00  |
| M30X2                 | 30.433                         | 30.733 | 30.50                             | 30.50 | 42.00   | 57.00 | 72.00 | 87.00  | 102.00 | 38.00          | 53.00 | 68.00 | 83.00  | 98.00  |
| M33X2                 | 33.433                         | 33.733 | 33.50                             | 33.50 | 45.00   | 61.50 | 78.00 | 94.50  | 111.00 | 41.00          | 57.50 | 74.00 | 90.50  | 107.00 |
| M39X2                 | 39.433                         | 39.733 | 39.50                             | 39.50 | 51.00   | 70.50 | 90.00 | 109.00 | 129.00 | 47.00          | 66.50 | 86.00 | 105.50 | 125.00 |
| M36X3                 | 36.649                         | 37.049 | 37.00                             | 37.00 | 54.00   | 72.00 | 90.00 | 108.00 | 126.00 | 48.00          | 66.00 | 84.00 | 102.00 | 120.00 |
| M39X3                 | 39.649                         | 40.049 | 40.00                             | 40.00 | 57.00   | 76.50 | 96.00 | 115.50 | 135.00 | 51.00          | 70.50 | 90.00 | 109.50 | 129.00 |

# Tapped Hole Dimensions - Metric Sizes

| Thread Size           | Countersink M Diameter (120°±5° included angle) |       | Pitch Diameter  |              |              | H Dimension Minimum Tapping Depth |      |      |       |       | Tap Major Dia. Max |
|-----------------------|---|-------|-----------------|--------------|--------------|-----------------------------------|------|------|-------|-------|--------------------|
|                       |   |       | Min All Classes | Max Class 4H | Max Class 5H | 1                                 | 1.5  | 2    | 2.5   | 3     |                    |
|                       | Min   | Max   |                 |              |              |                                   |      |      |       |       |                    |
| Metric Coarse         |   |       |                 |              |              |                                   |      |      |       |       |                    |
| M2X0.4                | 2.30  | 2.70  | 2.260           | 2.295        | 2.310        | 2.4                               | 3.4  | 4.4  | 5.4   | 6.4   | 2.581              |
| M2.2X0.45             | 2.60  | 3.00  | 2.492           | 2.532        | 2.547        | 2.7                               | 3.8  | 4.9  | 6.0   | 7.1   | 2.845              |
| M2.5X0.45             | 2.90  | 3.40  | 2.792           | 2.832        | 2.847        | 3.0                               | 4.2  | 5.5  | 6.7   | 8.0   | 3.147              |
| M3X0.5                | 3.40  | 4.00  | 3.325           | 3.367        | 3.384        | 3.5                               | 5.0  | 6.5  | 8.0   | 9.5   | 3.716              |
| M3.5X0.6              | 4.10  | 4.70  | 3.890           | 3.940        | 3.959        | 4.1                               | 5.9  | 7.6  | 9.4   | 11.1  | 4.354              |
| M4X0.7                | 4.70  | 5.30  | 4.455           | 4.509        | 4.529        | 4.7                               | 6.7  | 8.7  | 10.7  | 12.7  | 5.006              |
| M5X0.8                | 5.80  | 6.40  | 5.520           | 5.577        | 5.597        | 5.8                               | 8.3  | 10.8 | 13.3  | 15.8  | 6.142              |
| M6X1                  | 7.10  | 7.70  | 6.650           | 6.719        | 6.742        | 7.0                               | 10.0 | 13.0 | 16.0  | 19.0  | 7.422              |
| M7X1                  | 8.10  | 8.70  | 7.650           | 7.719        | 7.742        | 8.0                               | 11.5 | 15.0 | 18.5  | 22.0  | 8.423              |
| M8X1.25               | 9.50  | 10.10 | 8.812           | 8.886        | 8.911        | 9.3                               | 13.3 | 17.3 | 21.3  | 25.3  | 9.787              |
| M10X1.5               | 11.80   | 12.40 | 10.974          | 11.061       | 11.089       | 11.5                              | 16.5 | 21.5 | 26.5  | 31.5  | 12.131             |
| M12X1.75 <sup>1</sup> | 14.20   | 14.80 | 13.137          | 13.236       | 13.271       | 13.8                              | 19.8 | 25.8 | 31.8  | 37.8  | 14.478             |
| M14X2                 | 16.50   | 17.10 | 15.299          | 15.406       | 15.444       | 16.0                              | 23.0 | 30.0 | 37.0  | 44.0  | 16.822             |
| M16X2                 | 18.50   | 19.10 | 17.299          | 17.406       | 17.444       | 18.0                              | 26.0 | 34.0 | 42.0  | 50.0  | 18.821             |
| M18X2.5               | 21.20   | 21.80 | 19.624          | 19.738       | 19.778       | 20.5                              | 29.5 | 38.5 | 47.5  | 56.5  | 21.514             |
| M20X2.5               | 23.20   | 23.80 | 21.624          | 21.738       | 21.778       | 22.5                              | 32.5 | 42.5 | 52.5  | 62.5  | 23.513             |
| M22X2.5               | 25.20   | 25.80 | 23.624          | 23.738       | 23.778       | 24.5                              | 35.5 | 46.5 | 57.5  | 68.5  | 25.512             |
| M24X3                 | 27.90   | 28.50 | 25.948          | 26.093       | 26.135       | 27.0                              | 39.0 | 51.0 | 63.0  | 75.0  | 28.237             |
| M27X3                 | 30.90   | 31.50 | 28.948          | 29.093       | 29.135       | 30.0                              | 43.5 | 57.0 | 70.5  | 84.0  | 31.238             |
| Metric Fine           |   |       |                 |              |              |                                   |      |      |       |       |                    |
| M8X1                  | 9.10  | 9.70  | 8.650           | 8.719        | 8.742        | 9.0                               | 13.0 | 17.0 | 21.0  | 25.0  | 9.423              |
| M10X1                 | 11.10   | 11.70 | 10.650          | 10.719       | 10.742       | 11.0                              | 16.0 | 21.0 | 26.0  | 31.0  | 11.422             |
| M10X1.25 <sup>1</sup> | 11.50   | 12.10 | 10.812          | 10.886       | 10.911       | 11.3                              | 16.3 | 21.3 | 26.3  | 31.3  | 11.788             |
| M12X1.25 <sup>1</sup> | 13.50   | 14.10 | 12.812          | 12.898       | 12.926       | 13.3                              | 19.3 | 25.3 | 31.3  | 37.3  | 13.787             |
| M12X1.5 <sup>1</sup>  | 13.80   | 14.40 | 12.974          | 13.067       | 13.099       | 13.5                              | 19.5 | 25.5 | 31.5  | 37.5  | 14.133             |
| M14X1.5 <sup>1</sup>  | 15.80   | 16.40 | 14.974          | 15.067       | 15.099       | 15.5                              | 22.5 | 29.5 | 36.5  | 43.5  | 16.131             |
| M16X1.5 <sup>1</sup>  | 17.80   | 18.40 | 16.974          | 17.067       | 17.099       | 17.5                              | 25.5 | 33.5 | 41.5  | 49.5  | 18.131             |
| M18X1.5 <sup>1</sup>  | 19.80   | 20.40 | 18.974          | 19.067       | 19.099       | 19.5                              | 28.5 | 37.5 | 46.5  | 55.5  | 20.132             |
| M20X1.5 <sup>1</sup>  | 21.80   | 22.40 | 20.974          | 21.067       | 21.099       | 21.5                              | 31.5 | 41.5 | 51.5  | 61.5  | 22.131             |
| M22X1.5 <sup>1</sup>  | 23.80   | 24.40 | 22.974          | 23.067       | 23.099       | 23.5                              | 34.5 | 45.5 | 56.5  | 67.5  | 24.130             |
| M18X2                 | 20.50   | 21.10 | 19.299          | 19.406       | 19.444       | 20.0                              | 29.0 | 38.0 | 47.0  | 56.0  | 20.823             |
| M20X2                 | 22.50   | 23.10 | 21.299          | 21.406       | 21.444       | 22.0                              | 32.0 | 42.0 | 52.0  | 62.0  | 22.822             |
| M22X2                 | 24.50   | 25.10 | 23.299          | 23.406       | 23.444       | 24.0                              | 35.0 | 46.0 | 57.0  | 68.0  | 24.823             |
| M24X2                 | 26.50   | 27.10 | 25.299          | 25.414       | 25.454       | 26.0                              | 38.0 | 50.0 | 62.0  | 74.0  | 26.820             |
| M27X2                 | 29.50   | 30.10 | 28.299          | 28.414       | 28.455       | 29.0                              | 42.5 | 56.0 | 69.5  | 83.0  | 29.822             |
| M30X2                 | 32.50   | 33.10 | 31.299          | 31.414       | 31.454       | 32.0                              | 47.0 | 62.0 | 77.0  | 92.0  | 32.822             |
| M33X2                 | 35.50   | 36.10 | 34.299          | 34.414       | 34.454       | 35.0                              | 51.5 | 68.0 | 84.5  | 101.0 | 35.822             |
| M39X2                 | 41.50   | 42.10 | 40.299          | 40.414       | 40.454       | 41.0                              | 60.5 | 80.0 | 99.5  | 119.0 | 41.821             |
| M36X3                 | 39.90   | 40.50 | 37.948          | 38.093       | 38.135       | 39.0                              | 57.0 | 75.0 | 93.0  | 111.0 | 40.236             |
| M39X3                 | 42.90   | 43.50 | 40.948          | 41.093       | 41.135       | 42.0                              | 61.5 | 81.0 | 100.5 | 120.0 | 43.236             |



1. Standard size drills are suggested even though some sizes vary slightly from the minor diameter specifications in MA1567.
2. For plug taps with a nominal diameter of M8 or smaller, F minimum allows for a male center on the tap equal in length to the nominal tap diameter divided by 2.
3. All dimensions are in millimeters.

# CoilThread Inserts - Materials and Coatings

## 304 Stainless Steel (standard)



- Satisfies most application requirements for strength, corrosion resistance and temperature capability.
- Covered by specification AS7245.
- **Color:** Silver

## Phosphor Bronze



- Ideal for salt water applications and has superior corrosion resistance.
- Covered by specification AMS7247.
- **Color:** Bronze

## Inconel X-750



- For higher temperature capability and reliability applications.
- Environments up to 1,000° F.
- Covered by specification AS7246.
- **Color:** Blue

## Nitronic 60®



- Specifically engineered to minimize galling and fretting when used with stainless steel screws.
- Excellent high temperature performance.
- Alloy number UNS S21800.
- **Color:** Silver

# Platings and Coatings

## Dry Film Lubricant



- Applied to limit galling between the insert and the fastener, and improves installation.
- Good corrosion protection.
- In accordance with AS5272.
- **Color:** Dark Gray

## Silver



- Increases lubricity at higher temperatures.
- In accordance with AMS2410, AMS2411, or AMS2412.
- **Color:** Cloudy White

## Electroless Nickel



- Provides wear resistance and corrosion protection.
- In accordance with AMS-C-26074.
- **Color:** Silver

## Xylan



- Excellent galvanic corrosion protection.
- Provides lubrication for improved installation.
- Eliminates the need for zinc primers.
- **Color:** Black

## Cadmium



- Superior corrosion protection.
- Decrease the coefficient of friction between the insert and the bolt to minimize galling.
- In accordance with AMS-QQ-P-416.
- **Color:** Olive Drab to Dark Brown Chromate (Locking Inserts)
- **Color:** Gold to Yellow Chromate (Non-Locking Inserts)

## Passivation



- **Not** actually a plating/coating, rather a chemical cleaning.
- In accordance with AMS2700.
- **Color:** Silver

## Color Identifier



- For Identification only (printer's ink).
- **Color:** Green
- **Color:** Blue

# CoilThread Inserts - Part Number System

The CoilThread insert part numbering system was designed to make identifying and ordering KATO inserts quick and easy. Each letter and number is used to clearly identify the insert type, style, size, material, length, and finish.

The KATO insert part number includes up to 7 segments. The example below is a Tangless screw locking CoilThread insert, 6-32 thread size, made from 304 stainless steel, 1.5D nominal length, with optional dry film lubricant finish, and supplied on a strip-feed reel (ideal for power installation).

**Insert Type:**

- **Blank** - Tanged Insert
- **2** - CoilThread II Tangless Insert

**Size Designation:**  
See pages 20-21

**Nominal Length:**  
See pages 20-21

**Packaging:**

- **Blank** - For Bulk
- **SF** - Strip-Feed Reel

**2 TLC - 06 C - 0207 W SF**

**Insert Style:**

- **TLC** - Thread, Locking, Coarse
- **TLF** - Thread, Locking, Fine
- **TLM** - Thread, Locking, Metric
- **TNC** - Thread, Non-Locking, Coarse
- **TNF** - Thread, Non-Locking, Fine
- **TNM** - Thread, Non-Locking, Metric

**Material:**

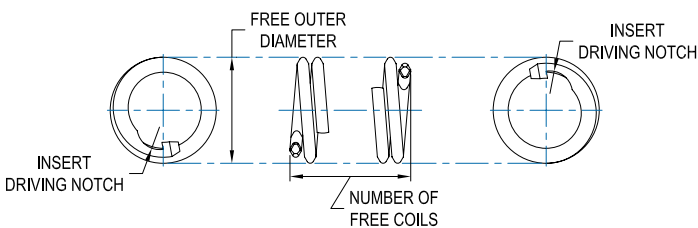
- **B** - Phosphor Bronze
- **C** - CRES Steel (304 Stainless Steel)
- **N** - Nitronic 60
- **M** - Nimonic 90
- **T** - Inconel X

**Finish:**

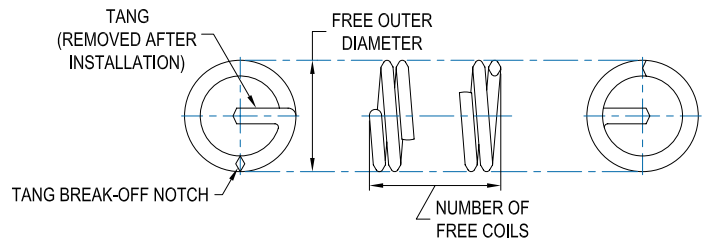
- **Blank** - No Finish
- **W** - Dry Film Lubricant
- **Y** - Cadmium
- **V** - Silver Plating
- **A** - Passivation
- **B** - Blue Dye
- **G** - Green Dye
- **P** - Xylan

## Tangless CoilThread

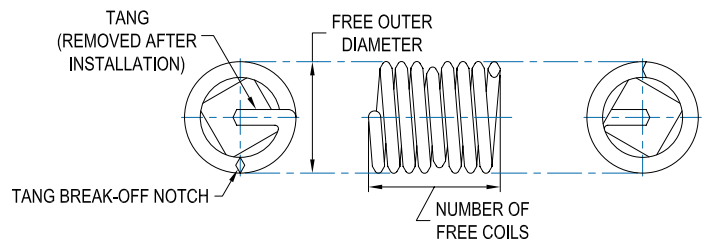
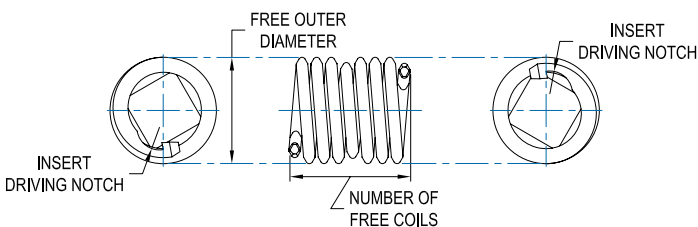
### Non-Locking Insert



## CoilThread



### Locking Insert



## Notes:

1. All non-plated KATO Locking CoilThread inserts (Tangless and tanged) are dyed red for identification in accordance with NAS1130, NA0276, and NASM21209. The red dye is printer's ink and may be removed with a cleaning solution.
2. Dry Film Lubricant and/or the Cadmium plating are called out in NAS1130, NASM21209, NA0276, MA3280, MA3281, MA3330, and MA3331. Any other coatings or platings will deviate from these specifications.

# CoilThread Inserts - Dimensions

| Thread Size           | Size Designation | Nominal Length <sup>1</sup>    |       |       |       |       | Free Outer Diameter |       | Number of Free Coils <sup>2</sup> |        |        |        |        |
|-----------------------|------------------|--------------------------------|-------|-------|-------|-------|---------------------|-------|-----------------------------------|--------|--------|--------|--------|
|                       |                  | Length of Insert (in Diameter) |       |       |       |       | Min.                | Max.  | Nominal Length (Diameter)         |        |        |        |        |
|                       |                  | 1                              | 1.5   | 2     | 2.5   | 3     |                     |       | 1                                 | 1.5    | 2      | 2.5    | 3      |
| <b>Unified Coarse</b> |                  |                                |       |       |       |       |                     |       |                                   |        |        |        |        |
| 1 (.073)-64           | 01               | 0.073                          | 0.110 | 0.146 | 0.182 | 0.219 | 0.095               | 0.103 | 2-3/4                             | 4-7/8  | 6-7/8  | 8-7/8  | 10-7/8 |
| 2 (.086)-56           | 02               | 0.086                          | 0.129 | 0.172 | 0.215 | 0.258 | 0.110               | 0.119 | 3                                 | 5-1/4  | 7-3/8  | 9-5/8  | 11-7/8 |
| 3 (.099)-48           | 03               | 0.099                          | 0.148 | 0.198 | 0.248 | 0.297 | 0.128               | 0.139 | 2-7/8                             | 5      | 7-1/4  | 9-3/8  | 11-1/2 |
| 4 (.112)-40           | 04               | 0.112                          | 0.168 | 0.224 | 0.280 | 0.336 | 0.144               | 0.159 | 2-3/4                             | 4-3/4  | 6-3/4  | 8-7/8  | 10-7/8 |
| 5 (.125)-40           | 05               | 0.125                          | 0.188 | 0.250 | 0.312 | 0.375 | 0.158               | 0.173 | 3-1/4                             | 5-1/2  | 7-3/4  | 10     | 12-1/4 |
| 6 (.138)-32           | 06               | 0.138                          | 0.207 | 0.276 | 0.345 | 0.414 | 0.178               | 0.193 | 2-3/4                             | 4-3/4  | 6-7/8  | 8-7/8  | 10-7/8 |
| 8 (.164)-32           | 2                | 0.164                          | 0.246 | 0.328 | 0.410 | 0.492 | 0.205               | 0.220 | 3-1/2                             | 6      | 8-3/8  | 10-3/4 | 13-1/4 |
| 10 (.190)-24          | 3                | 0.190                          | 0.285 | 0.380 | 0.475 | 0.570 | 0.244               | 0.259 | 2-7/8                             | 5      | 7-1/8  | 9-1/4  | 11-3/8 |
| 12 (.216)-24          | 1                | 0.216                          | 0.324 | 0.432 | 0.540 | 0.648 | 0.270               | 0.285 | 3-1/2                             | 6      | 8-3/8  | 10-5/8 | 13-1/8 |
| 1/4 (.250)-20         | 4                | 0.250                          | 0.375 | 0.500 | 0.625 | 0.750 | 0.310               | 0.330 | 3-3/8                             | 5-3/4  | 8      | 10-3/8 | 12-3/4 |
| 5/16 (.3125)-18       | 5                | 0.312                          | 0.469 | 0.625 | 0.781 | 0.938 | 0.380               | 0.400 | 4                                 | 6-5/8  | 9-1/4  | 11-7/8 | 14-5/8 |
| 3/8 (.3750)-16        | 6                | 0.375                          | 0.562 | 0.750 | 0.938 | 1.125 | 0.452               | 0.472 | 4-3/8                             | 7-1/4  | 10     | 12-7/8 | 15-3/4 |
| 7/16 (.4375)-14       | 7                | 0.438                          | 0.656 | 0.875 | 1.094 | 1.312 | 0.526               | 0.551 | 4-1/2                             | 7-3/8  | 10-1/4 | 13-1/8 | 16-1/8 |
| 1/2 (.5000)-13        | 8                | 0.500                          | 0.750 | 1.000 | 1.250 | 1.500 | 0.597               | 0.622 | 4-7/8                             | 7-7/8  | 11     | 14-1/8 | 17-1/8 |
| 9/16 (.5625)-12       | 9                | 0.562                          | 0.844 | 1.125 | 1.406 | 1.688 | 0.669               | 0.694 | 5-1/8                             | 8-1/4  | 11-1/2 | 14-3/4 | 17-7/8 |
| 5/8 (.6250)-11        | 10               | 0.625                          | 0.938 | 1.250 | 1.562 | 1.875 | 0.742               | 0.767 | 5-1/4                             | 8-1/2  | 11-3/4 | 15     | 18-3/8 |
| 3/4 (.750)-10         | 12               | 0.750                          | 1.125 | 1.500 | 1.875 | 2.250 | 0.881               | 0.906 | 5-7/8                             | 9-3/8  | 13     | 16-1/2 | 20-1/8 |
| 7/8 (.8750)-9         | 14               | 0.875                          | 1.312 | 1.750 | 2.188 | 2.625 | 1.022               | 1.052 | 6-1/4                             | 10     | 13-3/4 | 17-1/2 | 21-1/4 |
| 1 (1.0000)-8          | 16               | 1.000                          | 1.500 | 2.000 | 2.500 | 3.000 | 1.166               | 1.196 | 6-3/8                             | 10-1/8 | 14     | 17-3/4 | 21-5/8 |
| 1-1/8 (1.1250)-7      | 18               | 1.125                          | 1.688 | 2.250 | 2.812 | 3.375 | 1.315               | 1.355 | 6-1/8                             | 9-7/8  | 13-5/8 | 17-1/2 | 21-1/4 |
| 1-1/4 (1.2500)-7      | 20               | 1.250                          | 1.875 | 2.500 | 3.125 | 3.750 | 1.443               | 1.483 | 7                                 | 11-1/4 | 15-3/8 | 19-1/2 | 23-3/4 |
| 1-3/8 (1.3750)-6      | 22               | 1.375                          | 2.062 | 2.750 | 3.438 | 4.125 | 1.598               | 1.643 | 6-1/2                             | 10-1/2 | 14-3/8 | 18-3/8 | 22-1/4 |
| 1-1/2 (1.5000)-6      | 24               | 1.500                          | 2.250 | 3.000 | 3.750 | 4.500 | 1.727               | 1.772 | 7-1/4                             | 11-1/2 | 15-7/8 | 20-1/8 | 24-1/2 |
| <b>Unified Fine</b>   |                  |                                |       |       |       |       |                     |       |                                   |        |        |        |        |
| 0 (.060)-80           | 00               | 0.060                          | 0.090 | 0.120 | ---   | ---   | ---                 | ---   | 3                                 | 5-1/2  | 7-3/8  | ---    | ---    |
| 3 (.099)-56           | 03               | 0.099                          | 0.148 | 0.198 | 0.248 | 0.297 | 0.131               | 0.146 | 3-3/8                             | 5-5/8  | 8      | 10-3/8 | 12-5/8 |
| 4 (.112)-48           | 04               | 0.112                          | 0.168 | 0.224 | 0.280 | 0.336 | 0.147               | 0.162 | 3-3/8                             | 5-5/8  | 7-7/8  | 10-1/4 | 12-1/2 |
| 6 (.138)-40           | 06               | 0.138                          | 0.207 | 0.276 | 0.345 | 0.414 | 0.173               | 0.193 | 3-1/2                             | 6      | 8-3/8  | 10-3/4 | 13-1/4 |
| 8 (.164)-36           | 2                | 0.164                          | 0.246 | 0.328 | 0.410 | 0.492 | 0.204               | 0.224 | 3-7/8                             | 6-1/2  | 9-1/8  | 11-5/8 | 14-1/4 |
| 10 (.190)-32          | 3                | 0.190                          | 0.285 | 0.380 | 0.475 | 0.570 | 0.236               | 0.256 | 4-1/8                             | 6-7/8  | 9-1/2  | 12-1/4 | 14-7/8 |
| 1/4 (.250)-28         | 4                | 0.250                          | 0.375 | 0.500 | 0.625 | 0.750 | 0.306               | 0.326 | 5                                 | 8-1/4  | 11-3/8 | 14-1/2 | 17-5/8 |
| 5/16 (.3125)-24       | 5                | 0.312                          | 0.469 | 0.625 | 0.781 | 0.938 | 0.380               | 0.400 | 5-1/2                             | 8-7/8  | 12-1/4 | 15-5/8 | 19     |
| 3/8 (.3750)-24        | 6                | 0.375                          | 0.562 | 0.750 | 0.938 | 1.125 | 0.448               | 0.468 | 6-7/8                             | 11     | 15     | 19-1/8 | 23-1/8 |
| 7/16 (.4375)-20       | 7                | 0.438                          | 0.656 | 0.875 | 1.094 | 1.312 | 0.524               | 0.549 | 6-5/8                             | 10-5/8 | 14-5/8 | 18-1/2 | 22-1/2 |
| 1/2 (.5000)-20        | 8                | 0.500                          | 0.750 | 1.000 | 1.250 | 1.500 | 0.592               | 0.617 | 7-7/8                             | 12-3/8 | 16-7/8 | 21-3/8 | 25-7/8 |
| 9/16 (.5625)-18       | 9                | 0.562                          | 0.844 | 1.125 | 1.406 | 1.688 | 0.666               | 0.691 | 8                                 | 12-1/2 | 17-1/8 | 21-3/4 | 26-1/4 |
| 5/8 (.6250)-18        | 10               | 0.625                          | 0.938 | 1.250 | 1.562 | 1.875 | 0.733               | 0.758 | 9                                 | 14-1/8 | 19-1/4 | 24-1/4 | 29-3/8 |
| 3/4 (.750)-16         | 12               | 0.750                          | 1.125 | 1.500 | 1.875 | 2.250 | 0.876               | 0.901 | 9-3/4                             | 15-1/8 | 20-5/8 | 26     | 31-1/2 |
| 7/8 (.8750)-14        | 14               | 0.875                          | 1.312 | 1.750 | 2.188 | 2.625 | 1.021               | 1.051 | 9-7/8                             | 15-1/2 | 21-1/8 | 26-5/8 | 32-1/4 |
| 1 (1.0000)-12         | 16               | 1.000                          | 1.500 | 2.000 | 2.500 | 3.000 | 1.169               | 1.199 | 9-5/8                             | 15     | 20-1/2 | 26     | 31-1/2 |
| 1-1/8 (1.1250)-12     | 18               | 1.125                          | 1.688 | 2.250 | 2.812 | 3.375 | 1.304               | 1.334 | 11-1/8                            | 17-1/4 | 23-3/8 | 29-1/2 | 35-3/4 |
| 1-1/4 (1.2500)-12     | 20               | 1.250                          | 1.875 | 2.500 | 3.125 | 3.750 | 1.439               | 1.469 | 12-1/2                            | 19-3/8 | 26-1/4 | 33     | 39-7/8 |
| 1-3/8 (1.3750)-12     | 22               | 1.375                          | 2.062 | 2.750 | 3.438 | 4.125 | 1.575               | 1.610 | 13-3/4                            | 21-3/8 | 28-7/8 | 36-1/2 | 44     |
| 1-1/2 (1.5000)-12     | 24               | 1.500                          | 2.250 | 3.000 | 3.750 | 4.500 | 1.710               | 1.745 | 15-1/4                            | 23-1/2 | 31-5/8 | 39-7/8 | 48-1/8 |

1. Nominal length is a calculated number and cannot be measured in the free state. It is the actual installed length plus 1/2 pitch.

2. The number of free coils is the total number of revolutions, and has a tolerance of ±1/4 coil. For Tangless inserts, the number of coils is counted from notch to notch. For tangented inserts, the number of coils is counted 90° from the tang.

# CoilThread Inserts - Dimensions

| Thread Size & Designation | Nominal Length <sup>1</sup>    |      |      |      |       | Free Outer Diameter |       | Number of Free Coils <sup>2</sup> |        |        |        |        |
|---------------------------|--------------------------------|------|------|------|-------|---------------------|-------|-----------------------------------|--------|--------|--------|--------|
|                           | Length of Insert (in Diameter) |      |      |      |       |                     |       | Nominal Length (Diameter)         |        |        |        |        |
|                           | 1                              | 1.5  | 2    | 2.5  | 3     | Min.                | Max.  | 1                                 | 1.5    | 2      | 2.5    | 3      |
| <b>Metric Coarse</b>      |                                |      |      |      |       |                     |       |                                   |        |        |        |        |
| M2X0.4                    | 2.0                            | 3.0  | 4.0  | 5.0  | 6.0   | 2.50                | 2.70  | 3-1/4                             | 5-1/2  | 7-3/4  | 10-1/8 | 12-3/8 |
| M2.2X0.45                 | 2.2                            | 3.3  | 4.4  | 5.5  | 6.6   | 2.80                | 3.00  | 3-1/8                             | 5-3/8  | 7-5/8  | 9-7/8  | 12-1/8 |
| M2.5X0.45                 | 2.5                            | 3.8  | 5.0  | 6.3  | 7.5   | 3.20                | 3.70  | 3-3/8                             | 5-3/4  | 8-1/8  | 10-1/2 | 12-3/4 |
| M3X0.5                    | 3.0                            | 4.5  | 6.0  | 7.5  | 9.0   | 3.80                | 4.35  | 3-3/4                             | 6-3/8  | 8-7/8  | 11-3/8 | 13-7/8 |
| M3.5X0.6                  | 3.5                            | 5.3  | 7.0  | 8.8  | 10.5  | 4.40                | 4.95  | 3-3/4                             | 6-3/8  | 8-3/4  | 11-3/8 | 13-3/4 |
| M4X0.7                    | 4.0                            | 6.0  | 8.0  | 10.0 | 12.0  | 5.05                | 5.60  | 3-5/8                             | 6-1/8  | 8-5/8  | 11-1/8 | 13-5/8 |
| M5X0.8                    | 5.0                            | 7.5  | 10.0 | 12.5 | 15.0  | 6.20                | 6.80  | 4-1/8                             | 6-7/8  | 9-5/8  | 12-3/8 | 15-1/8 |
| M6X1                      | 6.0                            | 9.0  | 12.0 | 15.0 | 18.0  | 7.40                | 7.95  | 4                                 | 6-3/4  | 9-1/2  | 12-1/8 | 14-7/8 |
| M7X1                      | 7.0                            | 10.5 | 14.0 | 17.5 | 21.0  | 8.65                | 9.20  | 4-7/8                             | 8      | 11-1/8 | 14-1/8 | 17-1/4 |
| M8X1.25                   | 8.0                            | 12.0 | 16.0 | 20.0 | 24.0  | 9.80                | 10.35 | 4-1/2                             | 7-3/8  | 10-1/4 | 13-1/4 | 16-1/8 |
| M10X1.5                   | 10.0                           | 15.0 | 20.0 | 25.0 | 30.0  | 11.95               | 12.50 | 4-7/8                             | 8      | 11-1/8 | 14-1/4 | 17-3/8 |
| M12X1.75                  | 12.0                           | 18.0 | 24.0 | 30.0 | 36.0  | 14.30               | 15.00 | 5                                 | 8-1/4  | 11-1/2 | 14-5/8 | 17-7/8 |
| M14X2                     | 14.0                           | 21.0 | 28.0 | 35.0 | 42.0  | 16.65               | 17.35 | 5-1/8                             | 8-1/2  | 11-3/4 | 15     | 18-3/8 |
| M16X2                     | 16.0                           | 24.0 | 32.0 | 40.0 | 48.0  | 18.90               | 19.60 | 6-1/8                             | 9-3/4  | 13-1/2 | 17-1/4 | 21     |
| M18X2.5                   | 18.0                           | 27.0 | 36.0 | 45.0 | 54.0  | 21.30               | 22.00 | 5-3/8                             | 8-7/8  | 12-1/4 | 15-5/8 | 19     |
| M20X2.5                   | 20.0                           | 30.0 | 40.0 | 50.0 | 60.0  | 23.55               | 24.40 | 6-1/8                             | 9-7/8  | 13-5/8 | 17-3/8 | 21-1/8 |
| M22X2.5                   | 22.0                           | 33.0 | 44.0 | 55.0 | 66.0  | 25.90               | 26.90 | 6-3/4                             | 10-7/8 | 14-7/8 | 19     | 23-1/8 |
| M24X3                     | 24.0                           | 36.0 | 48.0 | 60.0 | 72.0  | 28.00               | 29.00 | 6-1/8                             | 10     | 13-3/4 | 17-1/2 | 21-3/8 |
| M27X3                     | 27.0                           | 40.5 | 54.0 | 67.5 | 81.0  | 31.40               | 32.40 | 7                                 | 11-1/4 | 15-1/2 | 19-3/4 | 24     |
| <b>Metric Fine</b>        |                                |      |      |      |       |                     |       |                                   |        |        |        |        |
| M8X1                      | 8.0                            | 12.0 | 16.0 | 20.0 | 24.0  | 9.70                | 10.25 | 5-7/8                             | 9-3/8  | 13     | 16-1/2 | 20-1/8 |
| M10X1                     | 10.0                           | 15.0 | 20.0 | 25.0 | 30.0  | 11.95               | 12.50 | 7-5/8                             | 12     | 16-1/2 | 21     | 25-1/2 |
| M10X1.25                  | 10.0                           | 15.0 | 20.0 | 25.0 | 30.0  | 12.10               | 12.65 | 5-7/8                             | 9-1/2  | 13-1/8 | 16-3/4 | 20-3/8 |
| M12X1.25                  | 12.0                           | 18.0 | 24.0 | 30.0 | 36.0  | 14.30               | 15.00 | 7-1/4                             | 11-5/8 | 15-7/8 | 20-1/4 | 24-1/2 |
| M12X1.5                   | 12.0                           | 18.0 | 24.0 | 30.0 | 36.0  | 14.25               | 14.95 | 6                                 | 9-5/8  | 13-3/8 | 17     | 20-3/4 |
| M14X1.5                   | 14.0                           | 21.0 | 28.0 | 35.0 | 42.0  | 16.55               | 17.25 | 7-1/8                             | 11-3/8 | 15-5/8 | 20     | 24-1/4 |
| M16X1.5                   | 16.0                           | 24.0 | 32.0 | 40.0 | 48.0  | 18.90               | 19.60 | 8-1/4                             | 13-1/8 | 18     | 22-3/4 | 27-5/8 |
| M18X1.5                   | 18.0                           | 27.0 | 36.0 | 45.0 | 54.0  | 21.05               | 21.75 | 9-1/2                             | 15     | 20-3/8 | 25-7/8 | 31-3/8 |
| M20X1.5                   | 20.0                           | 30.0 | 40.0 | 50.0 | 60.0  | 23.15               | 24.00 | 10-3/4                            | 16-7/8 | 22-7/8 | 28-7/8 | 35     |
| M22X1.5                   | 22.0                           | 33.0 | 44.0 | 55.0 | 66.0  | 25.55               | 26.45 | 11-7/8                            | 18-1/2 | 25-1/8 | 31-5/8 | 38-1/4 |
| M18X2                     | 18.0                           | 27.0 | 36.0 | 45.0 | 54.0  | 21.15               | 21.85 | 7                                 | 11-1/8 | 15-3/8 | 19-1/2 | 23-5/8 |
| M20X2                     | 20.0                           | 30.0 | 40.0 | 50.0 | 60.0  | 23.20               | 24.05 | 7-7/8                             | 12-1/2 | 17-1/4 | 21-7/8 | 26-1/2 |
| M22X2                     | 22.0                           | 33.0 | 44.0 | 55.0 | 66.0  | 25.60               | 26.50 | 8-3/4                             | 13-3/4 | 18-7/8 | 23-7/8 | 29     |
| M24X2                     | 24.0                           | 36.0 | 48.0 | 60.0 | 72.0  | 28.10               | 29.10 | 9-1/2                             | 15     | 20-3/8 | 25-7/8 | 31-3/4 |
| M27X2                     | 27.0                           | 40.5 | 54.0 | 67.5 | 81.0  | 31.30               | 32.30 | 10-7/8                            | 17     | 23-1/4 | 29-3/8 | 35-1/2 |
| M30X2                     | 30.0                           | 45.0 | 60.0 | 75.0 | 90.0  | 34.50               | 35.70 | 12-1/4                            | 19-1/8 | 25-7/8 | 32-3/4 | 39-1/2 |
| M33X2                     | 33.0                           | 49.5 | 66.0 | 82.5 | 99.0  | 37.80               | 39.20 | 13-5/8                            | 21-1/8 | 28-5/8 | 36     | 43-1/2 |
| M39X2                     | 39.0                           | 58.5 | 78.0 | 97.5 | 117.0 | 44.30               | 45.70 | 16-3/8                            | 25-1/4 | 34-1/8 | 43     | 51-7/8 |
| M36X3                     | 36.0                           | 54.0 | 72.0 | 90.0 | 108.0 | 41.30               | 42.70 | 9-3/4                             | 15-1/4 | 20-7/8 | 26-1/2 | 32     |
| M39X3                     | 39.0                           | 58.5 | 78.0 | 97.5 | 117.0 | 44.40               | 45.80 | 10-3/4                            | 16-3/4 | 22-3/4 | 28-7/8 | 34-7/8 |

3. All dimensions for unified sizes are in inches.

4. All dimensions for metric sizes are in millimeters.

# CoilThread Part Numbers & Cross References

## Unified Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |              |               |
|-------------|--------------------------|----------------|---------------|----------------|--------------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No.    | Heli-Coil No. |
| 1-64        | 1                        | 2TLC-01C-0073  | ---           | ---            | ---          | ---           |
|             | 1.5                      | 2TLC-01C-0110  | ---           | ---            | ---          | ---           |
|             | 2                        | 2TLC-01C-0146  | ---           | ---            | ---          | ---           |
|             | 2.5                      | ---            | ---           | ---            | ---          | ---           |
|             | 3                        | ---            | ---           | ---            | ---          | ---           |
| 2-56        | 1                        | 2TLC-02C-0086  | NAS1130-02L10 | TLC-02C-0086   | MS21209C0210 | 3585-02CN086  |
|             | 1.5                      | 2TLC-02C-0129  | NAS1130-02L15 | TLC-02C-0129   | MS21209C0215 | 3585-02CN129  |
|             | 2                        | 2TLC-02C-0172  | NAS1130-02L20 | TLC-02C-0172   | MS21209C0220 | 3585-02CN172  |
|             | 2.5                      | 2TLC-02C-0215  | NAS1130-02L25 | TLC-02C-0215   | MS21209C0225 | 3585-02CN215  |
|             | 3                        | 2TLC-02C-0258  | NAS1130-02L30 | TLC-02C-0258   | MS21209C0230 | 3585-02CN258  |
| 3-48        | 1                        | ---            | ---           | TLC-03C-0099   | MS21209C0310 | 3585-03CN099  |
|             | 1.5                      | ---            | ---           | TLC-03C-0148   | MS21209C0315 | 3585-03CN148  |
|             | 2                        | ---            | ---           | TLC-03C-0198   | MS21209C0320 | 3585-03CN198  |
|             | 2.5                      | ---            | ---           | TLC-03C-0248   | MS21209C0325 | 3585-03CN248  |
|             | 3                        | ---            | ---           | TLC-03C-0297   | MS21209C0330 | 3585-03CN297  |
| 4-40        | 1                        | 2TLC-04C-0112  | NAS1130-04L10 | TLC-04C-0112   | MS21209C0410 | 3585-04CN112  |
|             | 1.5                      | 2TLC-04C-0168  | NAS1130-04L15 | TLC-04C-0168   | MS21209C0415 | 3585-04CN168  |
|             | 2                        | 2TLC-04C-0224  | NAS1130-04L20 | TLC-04C-0224   | MS21209C0420 | 3585-04CN224  |
|             | 2.5                      | 2TLC-04C-0280  | NAS1130-04L25 | TLC-04C-0280   | MS21209C0425 | 3585-04CN280  |
|             | 3                        | 2TLC-04C-0336  | NAS1130-04L30 | TLC-04C-0336   | MS21209C0430 | 3585-04CN336  |
| 5-40        | 1                        | ---            | ---           | TLC-05C-0125   | MS21209C0510 | 3585-05CN125  |
|             | 1.5                      | ---            | ---           | TLC-05C-0188   | MS21209C0515 | 3585-05CN188  |
|             | 2                        | ---            | ---           | TLC-05C-0250   | MS21209C0520 | 3585-05CN250  |
|             | 2.5                      | ---            | ---           | TLC-05C-0312   | MS21209C0525 | 3585-05CN312  |
|             | 3                        | ---            | ---           | TLC-05C-0375   | MS21209C0530 | 3585-05CN375  |
| 6-32        | 1                        | 2TLC-06C-0138  | NAS1130-06L10 | TLC-06C-0138   | MS21209C0610 | 3585-06CN138  |
|             | 1.5                      | 2TLC-06C-0207  | NAS1130-06L15 | TLC-06C-0207   | MS21209C0615 | 3585-06CN207  |
|             | 2                        | 2TLC-06C-0276  | NAS1130-06L20 | TLC-06C-0276   | MS21209C0620 | 3585-06CN276  |
|             | 2.5                      | 2TLC-06C-0345  | NAS1130-06L25 | TLC-06C-0345   | MS21209C0625 | 3585-06CN345  |
|             | 3                        | 2TLC-06C-0414  | NAS1130-06L30 | TLC-06C-0414   | MS21209C0630 | 3585-06CN414  |
| 8-32        | 1                        | 2TLC-2C-0164   | NAS1130-08L10 | TLC-2C-0164    | MS21209C0810 | 3585-2CN164   |
|             | 1.5                      | 2TLC-2C-0246   | NAS1130-08L15 | TLC-2C-0246    | MS21209C0815 | 3585-2CN246   |
|             | 2                        | 2TLC-2C-0328   | NAS1130-08L20 | TLC-2C-0328    | MS21209C0820 | 3585-2CN328   |
|             | 2.5                      | 2TLC-2C-0410   | NAS1130-08L25 | TLC-2C-0410    | MS21209C0825 | 3585-2CN410   |
|             | 3                        | 2TLC-2C-0492   | NAS1130-08L30 | TLC-2C-0492    | MS21209C0830 | 3585-2CN492   |
| 10-24       | 1                        | 2TLC-3C-0190   | NAS1130-3CL10 | TLC-3C-0190    | MS21209C1-10 | 3585-3CN190   |
|             | 1.5                      | 2TLC-3C-0285   | NAS1130-3CL15 | TLC-3C-0285    | MS21209C1-15 | 3585-3CN285   |
|             | 2                        | 2TLC-3C-0380   | NAS1130-3CL20 | TLC-3C-0380    | MS21209C1-20 | 3585-3CN380   |
|             | 2.5                      | 2TLC-3C-0475   | NAS1130-3CL25 | TLC-3C-0475    | MS21209C1-25 | 3585-3CN475   |
|             | 3                        | 2TLC-3C-0570   | NAS1130-3CL30 | TLC-3C-0570    | MS21209C1-30 | 3585-3CN570   |
| 12-24       | 1                        | ---            | ---           | TLC-1C-0216    | MS21209C2-10 | 3585-1CN216   |
|             | 1.5                      | ---            | ---           | TLC-1C-0324    | MS21209C2-15 | 3585-1CN324   |
|             | 2                        | ---            | ---           | TLC-1C-0432    | MS21209C2-20 | 3585-1CN432   |
|             | 2.5                      | ---            | ---           | TLC-1C-0540    | MS21209C2-25 | 3585-1CN540   |
|             | 3                        | ---            | ---           | TLC-1C-0648    | MS21209C2-30 | 3585-1CN648   |
| 1/4-20      | 1                        | 2TLC-4C-0250   | NAS1130-4L10  | TLC-4C-0250    | MS21209C4-10 | 3585-4CN250   |
|             | 1.5                      | 2TLC-4C-0375   | NAS1130-4L15  | TLC-4C-0375    | MS21209C4-15 | 3585-4CN375   |
|             | 2                        | 2TLC-4C-0500   | NAS1130-4L20  | TLC-4C-0500    | MS21209C4-20 | 3585-4CN500   |
|             | 2.5                      | 2TLC-4C-0625   | NAS1130-4L25  | TLC-4C-0625    | MS21209C4-25 | 3585-4CN625   |
|             | 3                        | 2TLC-4C-0750   | NAS1130-4L30  | TLC-4C-0750    | MS21209C4-30 | 3585-4CN750   |

# CoilThread Part Numbers & Cross References

## Unified Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |              |               |
|-------------|--------------------------|----------------|---------------|----------------|--------------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No.    | Heli-Coil No. |
| 5/16-18     | 1                        | 2TLC-5C-0312   | NAS1130-5CL10 | TLC-5C-0312    | MS21209C5-10 | 3585-5CN312   |
|             | 1.5                      | 2TLC-5C-0469   | NAS1130-5CL15 | TLC-5C-0469    | MS21209C5-15 | 3585-5CN469   |
|             | 2                        | 2TLC-5C-0625   | NAS1130-5CL20 | TLC-5C-0625    | MS21209C5-20 | 3585-5CN625   |
|             | 2.5                      | 2TLC-5C-0781   | NAS1130-5CL25 | TLC-5C-0781    | MS21209C5-25 | 3585-5CN781   |
|             | 3                        | 2TLC-5C-0938   | NAS1130-5CL30 | TLC-5C-0938    | MS21209C5-30 | 3585-5CN938   |
| 3/8-16      | 1                        | 2TLC-6C-0375   | NAS1130-6CL10 | TLC-6C-0375    | MS21209C6-10 | 3585-6CN375   |
|             | 1.5                      | 2TLC-6C-0562   | NAS1130-6CL15 | TLC-6C-0562    | MS21209C6-15 | 3585-6CN562   |
|             | 2                        | 2TLC-6C-0750   | NAS1130-6CL20 | TLC-6C-0750    | MS21209C6-20 | 3585-6CN750   |
|             | 2.5                      | 2TLC-6C-0938   | NAS1130-6CL25 | TLC-6C-0938    | MS21209C6-25 | 3585-6CN938   |
|             | 3                        | ---            | ---           | TLC-6C-1125    | MS21209C6-30 | 3585-6CN1125  |
| 7/16-14     | 1                        | ---            | ---           | TLC-7C-0438    | MS21209C7-10 | 3585-7CN438   |
|             | 1.5                      | ---            | ---           | TLC-7C-0656    | MS21209C7-15 | 3585-7CN656   |
|             | 2                        | ---            | ---           | TLC-7C-0875    | MS21209C7-20 | 3585-7CN875   |
|             | 2.5                      | ---            | ---           | TLC-7C-1094    | MS21209C7-25 | 3585-7CN1094  |
|             | 3                        | ---            | ---           | TLC-7C-1312    | MS21209C7-30 | 3585-7CN1312  |
| 1/2-13      | 1                        | ---            | ---           | TLC-8C-0500    | MS21209C8-10 | 3585-8CN500   |
|             | 1.5                      | ---            | ---           | TLC-8C-0750    | MS21209C8-15 | 3585-8CN750   |
|             | 2                        | ---            | ---           | TLC-8C-1000    | MS21209C8-20 | 3585-8CN1000  |
|             | 2.5                      | ---            | ---           | TLC-8C-1250    | MS21209C8-25 | 3585-8CN1250  |
|             | 3                        | ---            | ---           | TLC-8C-1500    | MS21209C8-30 | 3585-8CN1500  |
| 9/16-12     | 1                        | ---            | ---           | TLC-9C-0562    | MS21209C9-10 | 3585-9CN562   |
|             | 1.5                      | ---            | ---           | TLC-9C-0844    | MS21209C9-15 | 3585-9CN844   |
|             | 2                        | ---            | ---           | TLC-9C-1125    | MS21209C9-20 | 3585-9CN1125  |
|             | 2.5                      | ---            | ---           | TLC-9C-1406    | MS21209C9-25 | 3585-9CN1406  |
|             | 3                        | ---            | ---           | TLC-9C-1688    | MS21209C9-30 | 3585-9CN1688  |
| 5/8-11      | 1                        | ---            | ---           | TLC-10C-0625   | MS21209C1010 | 3585-10CN625  |
|             | 1.5                      | ---            | ---           | TLC-10C-0938   | MS21209C1015 | 3585-10CN938  |
|             | 2                        | ---            | ---           | TLC-10C-1250   | MS21209C1020 | 3585-10CN1250 |
|             | 2.5                      | ---            | ---           | TLC-10C-1562   | MS21209C1025 | 3585-10CN1562 |
|             | 3                        | ---            | ---           | TLC-10C-1875   | MS21209C1030 | 3585-10CN1875 |
| 3/4-10      | 1                        | ---            | ---           | TLC-12C-0750   | MS21209C1210 | 3585-12CN750  |
|             | 1.5                      | ---            | ---           | TLC-12C-1125   | MS21209C1215 | 3585-12CN1125 |
|             | 2                        | ---            | ---           | TLC-12C-1500   | MS21209C1220 | 3585-12CN1500 |
|             | 2.5                      | ---            | ---           | TLC-12C-1875   | MS21209C1225 | 3585-12CN1875 |
|             | 3                        | ---            | ---           | TLC-12C-2250   | MS21209C1230 | 3585-12CN2250 |
| 7/8-9       | 1                        | ---            | ---           | TLC-14C-0875   | MS21209C1410 | 3585-14CN875  |
|             | 1.5                      | ---            | ---           | TLC-14C-1312   | MS21209C1415 | 3585-14CN1312 |
|             | 2                        | ---            | ---           | TLC-14C-1750   | MS21209C1420 | 3585-14CN1750 |
|             | 2.5                      | ---            | ---           | TLC-14C-2188   | MS21209C1425 | 3585-14CN2188 |
|             | 3                        | ---            | ---           | TLC-14C-2625   | MS21209C1430 | 3585-14CN2625 |
| 1-8         | 1                        | ---            | ---           | TLC-16C-1000   | MS21209C1610 | 3585-16CN1000 |
|             | 1.5                      | ---            | ---           | TLC-16C-1500   | MS21209C1615 | 3585-16CN1500 |
|             | 2                        | ---            | ---           | TLC-16C-2000   | MS21209C1620 | 3585-16CN2000 |
|             | 2.5                      | ---            | ---           | TLC-16C-2500   | MS21209C1625 | 3585-16CN2500 |
|             | 3                        | ---            | ---           | TLC-16C-3000   | MS21209C1630 | 3585-16CN3000 |

# CoilThread Part Numbers & Cross References

## Unified Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |              |               |
|-------------|--------------------------|----------------|------------|----------------|--------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.    | Heli-Coil No. |
| 1-1/8-7     | 1                        | ---            | ---        | TLC-18C-1125   | MS21209C1810 | 3585-18CN1125 |
|             | 1.5                      | ---            | ---        | TLC-18C-1688   | MS21209C1815 | 3585-18CN1688 |
|             | 2                        | ---            | ---        | TLC-18C-2250   | MS21209C1820 | 3585-18CN2250 |
|             | 2.5                      | ---            | ---        | TLC-18C-2812   | MS21209C1825 | 3585-18CN2812 |
|             | 3                        | ---            | ---        | TLC-18C-3375   | MS21209C1830 | 3585-18CN3375 |
| 1-1/4-7     | 1                        | ---            | ---        | TLC-20C-1250   | MS21209C2010 | 3585-20CN1250 |
|             | 1.5                      | ---            | ---        | TLC-20C-1875   | MS21209C2015 | 3585-20CN1875 |
|             | 2                        | ---            | ---        | TLC-20C-2500   | MS21209C2020 | 3585-20CN2500 |
|             | 2.5                      | ---            | ---        | TLC-20C-3125   | MS21209C2025 | 3585-20CN3125 |
|             | 3                        | ---            | ---        | TLC-20C-3750   | MS21209C2030 | 3585-20CN3750 |
| 1-3/8-6     | 1                        | ---            | ---        | TLC-22C-1375   | MS21209C2210 | 3585-22CN1375 |
|             | 1.5                      | ---            | ---        | TLC-22C-2062   | MS21209C2215 | 3585-22CN2062 |
|             | 2                        | ---            | ---        | TLC-22C-2750   | MS21209C2220 | 3585-22CN2750 |
|             | 2.5                      | ---            | ---        | TLC-22C-3438   | MS21209C2225 | 3585-22CN3438 |
|             | 3                        | ---            | ---        | TLC-22C-4125   | MS21209C2230 | 3585-22CN4125 |
| 1-1/2-6     | 1                        | ---            | ---        | TLC-24C-1500   | MS21209C2410 | 3585-24CN1500 |
|             | 1.5                      | ---            | ---        | TLC-24C-2250   | MS21209C2415 | 3585-24CN2250 |
|             | 2                        | ---            | ---        | TLC-24C-3000   | MS21209C2420 | 3585-24CN3000 |
|             | 2.5                      | ---            | ---        | TLC-24C-3750   | MS21209C2425 | 3585-24CN3750 |
|             | 3                        | ---            | ---        | TLC-24C-4500   | MS21209C2430 | 3585-24CN4500 |

## Unified Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |              |               |
|-------------|--------------------------|----------------|------------|----------------|--------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.    | Heli-Coil No. |
| 3-56        | 1                        | ---            | ---        | TLF-03C-0099   | MS21209F0310 | 3591-03CN099  |
|             | 1.5                      | ---            | ---        | TLF-03C-0148   | MS21209F0315 | 3591-03CN148  |
|             | 2                        | ---            | ---        | TLF-03C-0198   | MS21209F0320 | 3591-03CN198  |
|             | 2.5                      | ---            | ---        | TLF-03C-0248   | MS21209F0325 | 3591-03CN248  |
|             | 3                        | ---            | ---        | TLF-03C-0297   | MS21209F0330 | 3591-03CN297  |
| 4-48        | 1                        | ---            | ---        | TLF-04C-0112   | MS21209F0410 | 3591-04CN112  |
|             | 1.5                      | ---            | ---        | TLF-04C-0168   | MS21209F0415 | 3591-04CN168  |
|             | 2                        | ---            | ---        | TLF-04C-0224   | MS21209F0420 | 3591-04CN224  |
|             | 2.5                      | ---            | ---        | TLF-04C-0280   | MS21209F0425 | 3591-04CN280  |
|             | 3                        | ---            | ---        | TLF-04C-0336   | MS21209F0430 | 3591-04CN336  |
| 6-40        | 1                        | ---            | ---        | TLF-06C-0138   | MS21209F0610 | 3591-06CN138  |
|             | 1.5                      | ---            | ---        | TLF-06C-0207   | MS21209F0615 | 3591-06CN207  |
|             | 2                        | ---            | ---        | TLF-06C-0276   | MS21209F0620 | 3591-06CN276  |
|             | 2.5                      | ---            | ---        | TLF-06C-0345   | MS21209F0625 | 3591-06CN345  |
|             | 3                        | ---            | ---        | TLF-06C-0414   | MS21209F0630 | 3591-06CN414  |
| 8-36        | 1                        | ---            | ---        | TLF-2C-0164    | MS21209F0810 | 3591-2CN164   |
|             | 1.5                      | ---            | ---        | TLF-2C-0246    | MS21209F0815 | 3591-2CN246   |
|             | 2                        | ---            | ---        | TLF-2C-0328    | MS21209F0820 | 3591-2CN328   |
|             | 2.5                      | ---            | ---        | TLF-2C-0410    | MS21209F0825 | 3591-2CN410   |
|             | 3                        | ---            | ---        | TLF-2C-0492    | MS21209F0830 | 3591-2CN492   |

# CoilThread Part Numbers & Cross References

## Unified Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |              |               |
|-------------|--------------------------|----------------|---------------|----------------|--------------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No.    | Heli-Coil No. |
| 10-32       | 1                        | 2TLF-3C-0190   | NAS1130-3L10  | TLF-3C-0190    | MS21209F1-10 | 3591-3CN190   |
|             | 1.5                      | 2TLF-3C-0285   | NAS1130-3L15  | TLF-3C-0285    | MS21209F1-15 | 3591-3CN285   |
|             | 2                        | 2TLF-3C-0380   | NAS1130-3L20  | TLF-3C-0380    | MS21209F1-20 | 3591-3CN380   |
|             | 2.5                      | 2TLF-3C-0475   | NAS1130-3L25  | TLF-3C-0475    | MS21209F1-25 | 3591-3CN475   |
|             | 3                        | 2TLF-3C-0570   | NAS1130-3L30  | TLF-3C-0570    | MS21209F1-30 | 3591-3CN570   |
| 1/4-28      | 1                        | 2TLF-4C-0250   | NAS1130-4FL10 | TLF-4C-0250    | MS21209F4-10 | 3591-4CN250   |
|             | 1.5                      | 2TLF-4C-0375   | NAS1130-4FL15 | TLF-4C-0375    | MS21209F4-15 | 3591-4CN375   |
|             | 2                        | 2TLF-4C-0500   | NAS1130-4FL20 | TLF-4C-0500    | MS21209F4-20 | 3591-4CN500   |
|             | 2.5                      | 2TLF-4C-0625   | NAS1130-4FL25 | TLF-4C-0625    | MS21209F4-25 | 3591-4CN625   |
|             | 3                        | 2TLF-4C-0750   | NAS1130-4FL30 | TLF-4C-0750    | MS21209F4-30 | 3591-4CN750   |
| 5/16-24     | 1                        | 2TLF-5C-0312   | NAS1130-5FL10 | TLF-5C-0312    | MS21209F5-10 | 3591-5CN312   |
|             | 1.5                      | 2TLF-5C-0469   | NAS1130-5FL15 | TLF-5C-0469    | MS21209F5-15 | 3591-5CN469   |
|             | 2                        | 2TLF-5C-0625   | NAS1130-5FL20 | TLF-5C-0625    | MS21209F5-20 | 3591-5CN625   |
|             | 2.5                      | 2TLF-5C-0781   | NAS1130-5FL25 | TLF-5C-0781    | MS21209F5-25 | 3591-5CN781   |
|             | 3                        | ---            | ---           | TLF-5C-0938    | MS21209F5-30 | 3591-5CN938   |
| 3/8-24      | 1                        | 2TLF-6C-0375   | NAS1130-6FL10 | TLF-6C-0375    | MS21209F6-10 | 3591-6CN375   |
|             | 1.5                      | 2TLF-6C-0562   | NAS1130-6FL15 | TLF-6C-0562    | MS21209F6-15 | 3591-6CN562   |
|             | 2                        | 2TLF-6C-0750   | NAS1130-6FL20 | TLF-6C-0750    | MS21209F6-20 | 3591-6CN750   |
|             | 2.5                      | ---            | ---           | TLF-6C-0938    | MS21209F6-25 | 3591-6CN938   |
|             | 3                        | ---            | ---           | TLF-6C-1125    | MS21209F6-30 | 3591-6CN1125  |
| 7/16-20     | 1                        | 2TLF-7C-0438   | ---           | TLF-7C-0438    | MS21209F7-10 | 3591-7CN438   |
|             | 1.5                      | 2TLF-7C-0656   | ---           | TLF-7C-0656    | MS21209F7-15 | 3591-7CN656   |
|             | 2                        | 2TLF-7C-0875   | ---           | TLF-7C-0875    | MS21209F7-20 | 3591-7CN875   |
|             | 2.5                      | ---            | ---           | TLF-7C-1094    | MS21209F7-25 | 3591-7CN1094  |
|             | 3                        | ---            | ---           | TLF-7C-1312    | MS21209F7-30 | 3591-7CN1312  |
| 1/2-20      | 1                        | 2TLF-8C-0500   | ---           | TLF-8C-0500    | MS21209F8-10 | 3591-8CN500   |
|             | 1.5                      | 2TLF-8C-0750   | ---           | TLF-8C-0750    | MS21209F8-15 | 3591-8CN750   |
|             | 2                        | 2TLF-8C-1000   | ---           | TLF-8C-1000    | MS21209F8-20 | 3591-8CN1000  |
|             | 2.5                      | ---            | ---           | TLF-8C-1250    | MS21209F8-25 | 3591-8CN1250  |
|             | 3                        | ---            | ---           | TLF-8C-1500    | MS21209F8-30 | 3591-8CN1500  |
| 9/16-18     | 1                        | ---            | ---           | TLF-9C-0562    | MS21209F9-10 | 3591-9CN562   |
|             | 1.5                      | ---            | ---           | TLF-9C-0844    | MS21209F9-15 | 3591-9CN844   |
|             | 2                        | ---            | ---           | TLF-9C-1125    | MS21209F9-20 | 3591-9CN1125  |
|             | 2.5                      | ---            | ---           | TLF-9C-1406    | MS21209F9-25 | 3591-9CN1406  |
|             | 3                        | ---            | ---           | TLF-9C-1688    | MS21209F9-30 | 3591-9CN1688  |
| 5/8-18      | 1                        | ---            | ---           | TLF-10C-0625   | MS21209F1010 | 3591-10CN625  |
|             | 1.5                      | ---            | ---           | TLF-10C-0938   | MS21209F1015 | 3591-10CN938  |
|             | 2                        | ---            | ---           | TLF-10C-1250   | MS21209F1020 | 3591-10CN1250 |
|             | 2.5                      | ---            | ---           | TLF-10C-1562   | MS21209F1025 | 3591-10CN1562 |
|             | 3                        | ---            | ---           | TLF-10C-1875   | MS21209F1030 | 3591-10CN1875 |
| 3/4-16      | 1                        | ---            | ---           | TLF-12C-0750   | MS21209F1210 | 3591-12CN750  |
|             | 1.5                      | ---            | ---           | TLF-12C-1125   | MS21209F1215 | 3591-12CN1125 |
|             | 2                        | ---            | ---           | TLF-12C-1500   | MS21209F1220 | 3591-12CN1500 |
|             | 2.5                      | ---            | ---           | TLF-12C-1875   | MS21209F1225 | 3591-12CN1875 |
|             | 3                        | ---            | ---           | TLF-12C-2250   | MS21209F1230 | 3591-12CN2250 |

# CoilThread Part Numbers & Cross References

## Unified Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |              |                |
|-------------|--------------------------|----------------|------------|----------------|--------------|----------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.    | Heli-Coil No.  |
| 7/8-14      | 1                        | ---            | ---        | TLF-14C-0875   | MS21209F1410 | 3591-14CN875   |
|             | 1.5                      | ---            | ---        | TLF-14C-1312   | MS21209F1415 | 3591-14CN1312  |
|             | 2                        | ---            | ---        | TLF-14C-1750   | MS21209F1420 | 3591-14CN1750  |
|             | 2.5                      | ---            | ---        | TLF-14C-2188   | MS21209F1425 | 3591-14CN2188  |
|             | 3                        | ---            | ---        | TLF-14C-2625   | MS21209F1430 | 3591-14CN2625  |
| 1-12        | 1                        | ---            | ---        | TLF-16C-1000   | MS21209F1610 | 3591-161CN1000 |
|             | 1.5                      | ---            | ---        | TLF-16C-1500   | MS21209F1615 | 3591-161CN1500 |
|             | 2                        | ---            | ---        | TLF-16C-2000   | MS21209F1620 | 3591-161CN2000 |
|             | 2.5                      | ---            | ---        | TLF-16C-2500   | MS21209F1625 | 3591-161CN2500 |
|             | 3                        | ---            | ---        | TLF-16C-3000   | MS21209F1630 | 3591-161CN3000 |
| 1-1/8-12    | 1                        | ---            | ---        | TLF-18C-1125   | MS21209F1810 | 3591-18CN1125  |
|             | 1.5                      | ---            | ---        | TLF-18C-1688   | MS21209F1815 | 3591-18CN1688  |
|             | 2                        | ---            | ---        | TLF-18C-2250   | MS21209F1820 | 3591-18CN2250  |
|             | 2.5                      | ---            | ---        | TLF-18C-2812   | MS21209F1825 | 3591-18CN2812  |
|             | 3                        | ---            | ---        | TLF-18C-3375   | MS21209F1830 | 3591-18CN3375  |
| 1-1/4-12    | 1                        | ---            | ---        | TLF-20C-1250   | MS21209F2010 | 3591-20CN1250  |
|             | 1.5                      | ---            | ---        | TLF-20C-1875   | MS21209F2015 | 3591-20CN1875  |
|             | 2                        | ---            | ---        | TLF-20C-2500   | MS21209F2020 | 3591-20CN2500  |
|             | 2.5                      | ---            | ---        | TLF-20C-3125   | MS21209F2025 | 3591-20CN3125  |
|             | 3                        | ---            | ---        | TLF-20C-3750   | MS21209F2030 | 3591-20CN3750  |
| 1-3/8-12    | 1                        | ---            | ---        | TLF-22C-1375   | MS21209F2210 | 3591-22CN1375  |
|             | 1.5                      | ---            | ---        | TLF-22C-2062   | MS21209F2215 | 3591-22CN2062  |
|             | 2                        | ---            | ---        | TLF-22C-2750   | MS21209F2220 | 3591-22CN2750  |
|             | 2.5                      | ---            | ---        | TLF-22C-3438   | MS21209F2225 | 3591-22CN3438  |
|             | 3                        | ---            | ---        | TLF-22C-4125   | MS21209F2230 | 3591-22CN4125  |
| 1-1/2-12    | 1                        | ---            | ---        | TLF-24C-1500   | MS21209F2410 | 3591-24CN1500  |
|             | 1.5                      | ---            | ---        | TLF-24C-2250   | MS21209F2415 | 3591-24CN2250  |
|             | 2                        | ---            | ---        | TLF-24C-3000   | MS21209F2420 | 3591-24CN3000  |
|             | 2.5                      | ---            | ---        | TLF-24C-3750   | MS21209F2425 | 3591-24CN3750  |
|             | 3                        | ---            | ---        | TLF-24C-4500   | MS21209F2430 | 3591-24CN4500  |

## Metric Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged           |                         |               |
|-------------|--------------------------|----------------|------------|------------------|-------------------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No.   | MA/MS No.               | Heli-Coil No. |
| M2X0.4      | 1                        | 2TLM-2X.4C-2   | ---        | ---              | MA3329-140 <sup>1</sup> | ---           |
|             | 1.5                      | 2TLM-2X.4C-3   | ---        | ---              | MA3329-190 <sup>1</sup> | ---           |
|             | 2                        | 2TLM-2X.4C-4   | ---        | ---              | MA3329-240 <sup>1</sup> | ---           |
|             | 2.5                      | ---            | ---        | ---              | MA3329-290              | ---           |
|             | 3                        | ---            | ---        | ---              | MA3329-340              | ---           |
| M2.2X0.45   | 1                        | ---            | ---        | TLM-2.2X.45C-2.2 | MA3329-100              | 4184-2.2CN022 |
|             | 1.5                      | ---            | ---        | TLM-2.2X.45C-3.3 | MA3329-150              | 4184-2.2CN033 |
|             | 2                        | ---            | ---        | TLM-2.2X.45C-4.4 | MA3329-200              | 4184-2.2CN044 |
|             | 2.5                      | ---            | ---        | TLM-2.2X.45C-5.5 | MA3329-250              | 4184-2.2CN055 |
|             | 3                        | ---            | ---        | TLM-2.2X.45C-6.6 | MA3329-300              | 4184-2.2CN066 |

1. M2X0.4 Tangless **only**, MA equivalent.

# CoilThread Part Numbers & Cross References

## Metric Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless          |              | Tanged           |            |               |
|-------------|--------------------------|-------------------|--------------|------------------|------------|---------------|
|             |                          | CoilThread No.    | NA/NAS No.   | CoilThread No.   | MA/MS No.  | Heli-Coil No. |
| M2.5X0.45   | 1                        | 2TLM-2.5X.45C-2.5 | NA0276M2AL10 | TLM-2.5X.45C-2.5 | MA3329-101 | 4184-2.5CN025 |
|             | 1.5                      | 2TLM-2.5X.45C-3.8 | NA0276M2AL15 | TLM-2.5X.45C-3.8 | MA3329-151 | 4184-2.5CN038 |
|             | 2                        | 2TLM-2.5X.45C-5   | NA0276M2AL20 | TLM-2.5X.45C-5   | MA3329-201 | 4184-2.5CN050 |
|             | 2.5                      | 2TLM-2.5X.45C-6.3 | NA0276M2AL25 | TLM-2.5X.45C-6.3 | MA3329-251 | 4184-2.5CN063 |
|             | 3                        | 2TLM-2.5X.45C-7.5 | NA0276M2AL30 | TLM-2.5X.45C-7.5 | MA3329-301 | 4184-2.5CN075 |
| M3X0.5      | 1                        | 2TLM-3X.5C-3      | NA0276M3L10  | TLM-3X.5C-3      | MA3329-102 | 4184-3CN030   |
|             | 1.5                      | 2TLM-3X.5C-4.5    | NA0276M3L15  | TLM-3X.5C-4.5    | MA3329-152 | 4184-3CN045   |
|             | 2                        | 2TLM-3X.5C-6      | NA0276M3L20  | TLM-3X.5C-6      | MA3329-202 | 4184-3CN060   |
|             | 2.5                      | 2TLM-3X.5C-7.5    | NA0276M3L25  | TLM-3X.5C-7.5    | MA3329-252 | 4184-3CN075   |
|             | 3                        | 2TLM-3X.5C-9      | NA0276M3L30  | TLM-3X.5C-9      | MA3329-302 | 4184-3CN090   |
| M3.5X0.6    | 1                        | ---               | ---          | TLM-3.5X.6C-3.5  | MA3329-103 | 4184-3.5CN035 |
|             | 1.5                      | ---               | ---          | TLM-3.5X.6C-5.3  | MA3329-153 | 4184-3.5CN053 |
|             | 2                        | ---               | ---          | TLM-3.5X.6C-7    | MA3329-203 | 4184-3.5CN070 |
|             | 2.5                      | ---               | ---          | TLM-3.5X.6C-8.8  | MA3329-253 | 4184-3.5CN088 |
|             | 3                        | ---               | ---          | TLM-3.5X.6C-10.5 | MA3329-303 | 4184-3.5CN105 |
| M4X0.7      | 1                        | 2TLM-4X.7C-4      | NA0276M4L10  | TLM-4X.7C-4      | MA3339-104 | 4184-4CN040   |
|             | 1.5                      | 2TLM-4X.7C-6      | NA0276M4L15  | TLM-4X.7C-6      | MA3329-154 | 4184-4CN060   |
|             | 2                        | 2TLM-4X.7C-8      | NA0276M4L20  | TLM-4X.7C-8      | MA3329-204 | 4184-4CN080   |
|             | 2.5                      | 2TLM-4X.7C-10     | NA0276M4L25  | TLM-4X.7C-10     | MA3329-254 | 4184-4CN100   |
|             | 3                        | 2TLM-4X.7C-12     | NA0276M4L30  | TLM-4X.7C-12     | MA3329-304 | 4184-4CN120   |
| M5X0.8      | 1                        | 2TLM-5X.8C-5      | NA0276M5L10  | TLM-5X.8C-5      | MA3329-105 | 4184-5CN050   |
|             | 1.5                      | 2TLM-5X.8C-7.5    | NA0276M5L15  | TLM-5X.8C-7.5    | MA3329-155 | 4184-5CN075   |
|             | 2                        | 2TLM-5X.8C-10     | NA0276M5L20  | TLM-5X.8C-10     | MA3329-205 | 4184-5CN100   |
|             | 2.5                      | 2TLM-5X.8C-12.5   | NA0276M5L25  | TLM-5X.8C-12.5   | MA3329-255 | 4184-5CN125   |
|             | 3                        | 2TLM-5X.8C-15     | NA0276M5L30  | TLM-5X.8C-15     | MA3329-305 | 4184-5CN150   |
| M6X1        | 1                        | 2TLM-6X1C-6       | NA0276M6L10  | TLM-6X1C-6       | MA3329-106 | 4184-6CN060   |
|             | 1.5                      | 2TLM-6X1C-9       | NA0276M6L15  | TLM-6X1C-9       | MA3329-156 | 4184-6CN090   |
|             | 2                        | 2TLM-6X1C-12      | NA0276M6L20  | TLM-6X1C-12      | MA3329-206 | 4184-6CN120   |
|             | 2.5                      | 2TLM-6X1C-15      | NA0276M6L25  | TLM-6X1C-15      | MA3329-256 | 4184-6CN150   |
|             | 3                        | 2TLM-6X1C-18      | NA0276M6L30  | TLM-6X1C-18      | MA3329-306 | 4184-6CN180   |
| M7X1        | 1                        | ---               | ---          | TLM-7X1C-7       | MA3329-107 | 4184-7CN070   |
|             | 1.5                      | ---               | ---          | TLM-7X1C-10.5    | MA3329-157 | 4184-7CN105   |
|             | 2                        | ---               | ---          | TLM-7X1C-14      | MA3329-207 | 4184-7CN140   |
|             | 2.5                      | ---               | ---          | TLM-7X1C-17.5    | MA3329-257 | 4184-7CN175   |
|             | 3                        | ---               | ---          | TLM-7X1C-21      | MA3329-307 | 4184-7CN210   |
| M8X1.25     | 1                        | 2TLM-8X1.25C-8    | NA0276M8L10  | TLM-8X1.25C-8    | MA3329-109 | 4184-8CN080   |
|             | 1.5                      | 2TLM-8X1.25C-12   | NA0276M8L15  | TLM-8X1.25C-12   | MA3329-159 | 4184-8CN120   |
|             | 2                        | 2TLM-8X1.25C-16   | NA0276M8L20  | TLM-8X1.25C-16   | MA3329-209 | 4184-8CN160   |
|             | 2.5                      | 2TLM-8X1.25C-20   | NA0276M8L25  | TLM-8X1.25C-20   | MA3329-259 | 4184-8CN200   |
|             | 3                        | 2TLM-8X1.25C-24   | NA0276M8L30  | TLM-8X1.25C-24   | MA3329-309 | 4184-8CN240   |
| M10X1.5     | 1                        | 2TLM-10X1.5C-10   | NA0276M10L10 | TLM-10X1.5C-10   | MA3329-111 | 4184-10CN100  |
|             | 1.5                      | 2TLM-10X1.5C-15   | NA0276M10L15 | TLM-10X1.5C-15   | MA3329-161 | 4184-10CN150  |
|             | 2                        | 2TLM-10X1.5C-20   | NA0276M10L20 | TLM-10X1.5C-20   | MA3329-211 | 4184-10CN200  |
|             | 2.5                      | 2TLM-10X1.5C-25   | NA0276M10L25 | TLM-10X1.5C-25   | MA3329-261 | 4184-10CN250  |
|             | 3                        | ---               | ---          | TLM-10X1.5C-30   | MA3329-311 | 4184-10CN300  |
| M12X1.75    | 1                        | 2TLM-12X1.75C-12  | NA0276M12L10 | TLM-12X1.75C-12  | MA3329-114 | 4184-12CN120  |
|             | 1.5                      | 2TLM-12X1.75C-18  | NA0276M12L15 | TLM-12X1.75C-18  | MA3329-164 | 4184-12CN180  |
|             | 2                        | 2TLM-12X1.75C-24  | NA0276M12L20 | TLM-12X1.75C-24  | MA3329-214 | 4184-12CN240  |
|             | 2.5                      | ---               | ---          | TLM-12X1.75C-30  | MA3329-264 | 4184-12CN300  |
|             | 3                        | ---               | ---          | TLM-12X1.75C-36  | MA3329-314 | 4184-12CN360  |

# CoilThread Part Numbers & Cross References

## Metric Coarse - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |            |               |
|-------------|--------------------------|----------------|------------|----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.  | Heli-Coil No. |
| M14X2       | 1                        | ---            | ---        | TLM-14X2C-14   | MA3329-116 | 4184-14CN140  |
|             | 1.5                      | ---            | ---        | TLM-14X2C-21   | MA3329-166 | 4184-14CN210  |
|             | 2                        | ---            | ---        | TLM-14X2C-28   | MA3329-216 | 4184-14CN280  |
|             | 2.5                      | ---            | ---        | TLM-14X2C-35   | MA3329-266 | 4184-14CN350  |
|             | 3                        | ---            | ---        | TLM-14X2C-42   | MA3329-316 | 4184-14CN420  |
| M16X2       | 1                        | ---            | ---        | TLM-16X2C-16   | MA3329-118 | 4184-16CN160  |
|             | 1.5                      | ---            | ---        | TLM-16X2C-24   | MA3329-168 | 4184-16CN240  |
|             | 2                        | ---            | ---        | TLM-16X2C-32   | MA3329-218 | 4184-16CN320  |
|             | 2.5                      | ---            | ---        | TLM-16X2C-40   | MA3329-268 | 4184-16CN400  |
|             | 3                        | ---            | ---        | TLM-16X2C-48   | MA3329-318 | 4184-16CN480  |
| M18X2.5     | 1                        | ---            | ---        | TLM-18X2.5C-18 | MA3329-121 | 4184-18CN180  |
|             | 1.5                      | ---            | ---        | TLM-18X2.5C-27 | MA3329-171 | 4184-18CN270  |
|             | 2                        | ---            | ---        | TLM-18X2.5C-36 | MA3329-221 | 4184-18CN360  |
|             | 2.5                      | ---            | ---        | TLM-18X2.5C-45 | MA3329-271 | 4184-18CN450  |
|             | 3                        | ---            | ---        | TLM-18X2.5C-54 | MA3329-321 | 4184-18CN540  |
| M20X2.5     | 1                        | ---            | ---        | TLM-20X2.5C-20 | MA3329-124 | 4184-20CN200  |
|             | 1.5                      | ---            | ---        | TLM-20X2.5C-30 | MA3329-174 | 4184-20CN300  |
|             | 2                        | ---            | ---        | TLM-20X2.5C-40 | MA3329-224 | 4184-20CN400  |
|             | 2.5                      | ---            | ---        | TLM-20X2.5C-50 | MA3329-274 | 4184-20CN500  |
|             | 3                        | ---            | ---        | TLM-20X2.5C-60 | MA3329-324 | 4184-20CN600  |
| M22X2.5     | 1                        | ---            | ---        | TLM-22X2.5C-22 | MA3329-127 | 4184-22CN220  |
|             | 1.5                      | ---            | ---        | TLM-22X2.5C-33 | MA3329-177 | 4184-22CN330  |
|             | 2                        | ---            | ---        | TLM-22X2.5C-44 | MA3329-227 | 4184-22CN440  |
|             | 2.5                      | ---            | ---        | TLM-22X2.5C-55 | MA3329-277 | 4184-22CN550  |
|             | 3                        | ---            | ---        | TLM-22X2.5C-66 | MA3329-327 | 4184-22CN660  |
| M24X3       | 1                        | ---            | ---        | TLM-24X3C-24   | MA3329-129 | 4184-24CN240  |
|             | 1.5                      | ---            | ---        | TLM-24X3C-36   | MA3329-179 | 4184-24CN360  |
|             | 2                        | ---            | ---        | TLM-24X3C-48   | MA3329-229 | 4184-24CN480  |
|             | 2.5                      | ---            | ---        | TLM-24X3C-60   | MA3329-279 | 4184-24CN600  |
|             | 3                        | ---            | ---        | TLM-24X3C-72   | MA3329-329 | 4184-24CN720  |
| M27X3       | 1                        | ---            | ---        | TLM-27X3C-27   | MA3329-131 | 4184-27CN270  |
|             | 1.5                      | ---            | ---        | TLM-27X3C-40.5 | MA3329-181 | 4184-27CN405  |
|             | 2                        | ---            | ---        | TLM-27X3C-54   | MA3329-231 | 4184-27CN540  |
|             | 2.5                      | ---            | ---        | TLM-27X3C-67.5 | MA3329-281 | 4184-27CN675  |
|             | 3                        | ---            | ---        | TLM-27X3C-81   | MA3329-331 | 4184-27CN810  |

## Metric Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |            |               |
|-------------|--------------------------|----------------|------------|----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.  | Heli-Coil No. |
| M8X1        | 1                        | ---            | ---        | TLM-8X1C-8     | MA3329-108 | 5255-8CN080   |
|             | 1.5                      | ---            | ---        | TLM-8X1C-12    | MA3329-158 | 5255-8CN120   |
|             | 2                        | ---            | ---        | TLM-8X1C-16    | MA3329-208 | 5255-8CN160   |
|             | 2.5                      | ---            | ---        | TLM-8X1C-20    | MA3329-258 | 5255-8CN200   |
|             | 3                        | ---            | ---        | TLM-8X1C-24    | MA3329-308 | 5255-8CN240   |

# CoilThread Part Numbers & Cross References

## Metric Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged          |            |               |
|-------------|--------------------------|----------------|------------|-----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No.  | MA/MS No.  | Heli-Coil No. |
| M10X1       | 1                        | ---            | ---        | TLM-10X1C-10    | MA3329-141 | 5255-10CN100  |
|             | 1.5                      | ---            | ---        | TLM-10X1C-15    | MA3329-191 | 5255-10CN150  |
|             | 2                        | ---            | ---        | TLM-10X1C-20    | MA3329-241 | 5255-10CN200  |
|             | 2.5                      | ---            | ---        | TLM-10X1C-25    | MA3329-291 | 5255-10CN250  |
|             | 3                        | ---            | ---        | TLM-10X1C-30    | MA3329-341 | 5255-10CN300  |
| M10X1.25    | 1                        | ---            | ---        | TLM-10X1.25C-10 | MA3329-110 | 5649-10CN100  |
|             | 1.5                      | ---            | ---        | TLM-10X1.25C-15 | MA3329-160 | 5649-10CN150  |
|             | 2                        | ---            | ---        | TLM-10X1.25C-20 | MA3329-210 | 5649-10CN200  |
|             | 2.5                      | ---            | ---        | TLM-10X1.25C-25 | MA3329-260 | 5649-10CN250  |
|             | 3                        | ---            | ---        | TLM-10X1.25C-30 | MA3329-310 | 5649-10CN300  |
| M12X1.25    | 1                        | ---            | ---        | TLM-12X1.25C-12 | MA3329-112 | 5649-12CN120  |
|             | 1.5                      | ---            | ---        | TLM-12X1.25C-18 | MA3329-162 | 5649-12CN180  |
|             | 2                        | ---            | ---        | TLM-12X1.25C-24 | MA3329-212 | 5649-12CN240  |
|             | 2.5                      | ---            | ---        | TLM-12X1.25C-30 | MA3329-262 | 5649-12CN300  |
|             | 3                        | ---            | ---        | TLM-12X1.25C-36 | MA3329-312 | 5649-12CN360  |
| M12X1.5     | 1                        | ---            | ---        | TLM-12X1.5C-12  | MA3329-113 | 5145-12CN120  |
|             | 1.5                      | ---            | ---        | TLM-12X1.5C-18  | MA3329-163 | 5145-12CN180  |
|             | 2                        | ---            | ---        | TLM-12X1.5C-24  | MA3329-213 | 5145-12CN240  |
|             | 2.5                      | ---            | ---        | TLM-12X1.5C-30  | MA3329-263 | 5145-12CN300  |
|             | 3                        | ---            | ---        | TLM-12X1.5C-36  | MA3329-313 | 5145-12CN360  |
| M14X1.5     | 1                        | ---            | ---        | TLM-14X1.5C-14  | MA3329-115 | 5145-14CN140  |
|             | 1.5                      | ---            | ---        | TLM-14X1.5C-21  | MA3329-165 | 5145-14CN210  |
|             | 2                        | ---            | ---        | TLM-14X1.5C-28  | MA3329-215 | 5145-14CN280  |
|             | 2.5                      | ---            | ---        | TLM-14X1.5C-35  | MA3329-265 | 5145-14CN350  |
|             | 3                        | ---            | ---        | TLM-14X1.5C-42  | MA3329-315 | 5145-14CN420  |
| M16X1.5     | 1                        | ---            | ---        | TLM-16X1.5C-16  | MA3329-117 | 5145-16CN160  |
|             | 1.5                      | ---            | ---        | TLM-16X1.5C-24  | MA3329-167 | 5145-16CN240  |
|             | 2                        | ---            | ---        | TLM-16X1.5C-32  | MA3329-217 | 5145-16CN320  |
|             | 2.5                      | ---            | ---        | TLM-16X1.5C-40  | MA3329-267 | 5145-16CN400  |
|             | 3                        | ---            | ---        | TLM-16X1.5C-48  | MA3329-317 | 5145-16CN480  |
| M18X1.5     | 1                        | ---            | ---        | TLM-18X1.5C-18  | MA3329-119 | 5145-18CN180  |
|             | 1.5                      | ---            | ---        | TLM-18X1.5C-27  | MA3329-169 | 5145-18CN270  |
|             | 2                        | ---            | ---        | TLM-18X1.5C-36  | MA3329-219 | 5145-18CN360  |
|             | 2.5                      | ---            | ---        | TLM-18X1.5C-45  | MA3329-269 | 5145-18CN450  |
|             | 3                        | ---            | ---        | TLM-18X1.5C-54  | MA3329-319 | 5145-18CN540  |
| M18X2       | 1                        | ---            | ---        | TLM-18X2C-18    | MA3329-120 | 5266-18CN180  |
|             | 1.5                      | ---            | ---        | TLM-18X2C-27    | MA3329-170 | 5266-18CN270  |
|             | 2                        | ---            | ---        | TLM-18X2C-36    | MA3329-220 | 5266-18CN360  |
|             | 2.5                      | ---            | ---        | TLM-18X2C-45    | MA3329-270 | 5266-18CN450  |
|             | 3                        | ---            | ---        | TLM-18X2C-54    | MA3329-320 | 5266-18CN540  |
| M20X1.5     | 1                        | ---            | ---        | TLM-20X1.5C-20  | MA3329-122 | 5145-20CN200  |
|             | 1.5                      | ---            | ---        | TLM-20X1.5C-30  | MA3329-172 | 5145-20CN300  |
|             | 2                        | ---            | ---        | TLM-20X1.5C-40  | MA3329-222 | 5145-20CN400  |
|             | 2.5                      | ---            | ---        | TLM-20X1.5C-50  | MA3329-270 | 5145-20CN500  |
|             | 3                        | ---            | ---        | TLM-20X1.5C-60  | MA3329-322 | 5145-20CN600  |
| M20X2       | 1                        | ---            | ---        | TLM-20X2C-20    | MA3329-123 | 5266-20CN200  |
|             | 1.5                      | ---            | ---        | TLM-20X2C-30    | MA3329-173 | 5266-20CN300  |
|             | 2                        | ---            | ---        | TLM-20X2C-40    | MA3329-223 | 5266-20CN400  |
|             | 2.5                      | ---            | ---        | TLM-20X2C-50    | MA3329-273 | 5266-20CN500  |
|             | 3                        | ---            | ---        | TLM-20X2C-60    | MA3329-323 | 5266-20CN600  |

# CoilThread Part Numbers & Cross References

## Metric Fine - Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |            |                |
|-------------|--------------------------|----------------|------------|----------------|------------|----------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.  | Helix-Coil No. |
| M22X1.5     | 1                        | ---            | ---        | TLM-22X1.5C-22 | MA3329-125 | 5145-22CN220   |
|             | 1.5                      | ---            | ---        | TLM-22X1.5C-33 | MA3329-175 | 5145-22CN330   |
|             | 2                        | ---            | ---        | TLM-22X1.5C-44 | MA3329-225 | 5145-22CN440   |
|             | 2.5                      | ---            | ---        | TLM-22X1.5C-55 | MA3329-275 | 5145-22CN550   |
|             | 3                        | ---            | ---        | TLM-22X1.5C-66 | MA3329-325 | 5145-22CN660   |
| M22X2       | 1                        | ---            | ---        | TLM-22X2C-22   | MA3329-126 | 5266-22CN220   |
|             | 1.5                      | ---            | ---        | TLM-22X2C-33   | MA3329-176 | 5266-22CN330   |
|             | 2                        | ---            | ---        | TLM-22X2C-44   | MA3329-226 | 5266-22CN440   |
|             | 2.5                      | ---            | ---        | TLM-22X2C-55   | MA3329-276 | 5266-22CN550   |
|             | 3                        | ---            | ---        | TLM-22X2C-66   | MA3329-326 | 5266-22CN660   |
| M24X2       | 1                        | ---            | ---        | TLM-24X2C-24   | MA3329-128 | 5266-24CN240   |
|             | 1.5                      | ---            | ---        | TLM-24X2C-36   | MA3329-178 | 5266-24CN360   |
|             | 2                        | ---            | ---        | TLM-24X2C-48   | MA3329-228 | 5266-24CN480   |
|             | 2.5                      | ---            | ---        | TLM-24X2C-60   | MA3329-278 | 5266-24CN600   |
|             | 3                        | ---            | ---        | TLM-24X2C-72   | MA3329-328 | 5266-24CN720   |
| M27X2       | 1                        | ---            | ---        | TLM-27X2C-27   | MA3329-130 | 5266-27CN270   |
|             | 1.5                      | ---            | ---        | TLM-27X2C-40.5 | MA3329-180 | 5266-27CN405   |
|             | 2                        | ---            | ---        | TLM-27X2C-54   | MA3329-230 | 5266-27CN540   |
|             | 2.5                      | ---            | ---        | TLM-27X2C-67.5 | MA3329-280 | 5266-27CN675   |
|             | 3                        | ---            | ---        | TLM-27X2C-81   | MA3329-330 | 5266-27CN810   |
| M30X2       | 1                        | ---            | ---        | TLM-30X2C-30   | MA3329-132 | 5266-30CN030   |
|             | 1.5                      | ---            | ---        | TLM-30X2C-45   | MA3329-182 | 5266-30CN045   |
|             | 2                        | ---            | ---        | TLM-30X2C-60   | MA3329-232 | 5266-30CN060   |
|             | 2.5                      | ---            | ---        | TLM-30X2C-75   | MA3329-282 | 5266-30CN075   |
|             | 3                        | ---            | ---        | TLM-30X2C-90   | MA3329-332 | 5266-30CN090   |
| M33X2       | 1                        | ---            | ---        | TLM-33X2C-33   | MA3329-134 | 5266-33CN330   |
|             | 1.5                      | ---            | ---        | TLM-33X2C-49.5 | MA3329-184 | 5266-33CN495   |
|             | 2                        | ---            | ---        | TLM-33X2C-66   | MA3329-234 | 5266-33CN660   |
|             | 2.5                      | ---            | ---        | TLM-33X2C-82.5 | MA3329-284 | 5266-33CN825   |
|             | 3                        | ---            | ---        | TLM-33X2C-99   | MA3329-334 | 5266-33CN990   |
| M36X2       | 1                        | ---            | ---        | TLM-36X2C-36   | MA3329-136 | 5266-36CN036   |
|             | 1.5                      | ---            | ---        | TLM-36X2C-54   | MA3329-186 | 5266-36CN054   |
|             | 2                        | ---            | ---        | TLM-36X2C-72   | MA3329-236 | 5266-36CN072   |
|             | 2.5                      | ---            | ---        | TLM-36X2C-90   | MA3329-286 | 5266-36CN090   |
|             | 3                        | ---            | ---        | TLM-36X2C-108  | MA3329-336 | 5266-36CN108   |
| M39X2       | 1                        | ---            | ---        | TLM-39X2C-39   | MA3329-138 | 5266-39CN390   |
|             | 1.5                      | ---            | ---        | TLM-39X2C-58.5 | MA3329-188 | 5266-39CN585   |
|             | 2                        | ---            | ---        | TLM-39X2C-78   | MA3329-238 | 5266-39CN780   |
|             | 2.5                      | ---            | ---        | TLM-39X2C-97.5 | MA3329-288 | 5266-39CN970   |
|             | 3                        | ---            | ---        | TLM-39X2C-117  | MA3329-338 | 5266-39CN117   |
| M36X3       | 1                        | ---            | ---        | TLM-36X3C-36   | MA3329-137 | 5277-36CN360   |
|             | 1.5                      | ---            | ---        | TLM-36X3C-54   | MA3329-187 | 5277-36CN540   |
|             | 2                        | ---            | ---        | TLM-36X3C-72   | MA3329-237 | 5277-36CN720   |
|             | 2.5                      | ---            | ---        | TLM-36X3C-90   | MA3329-287 | 5277-36CN900   |
|             | 3                        | ---            | ---        | TLM-36X3C-108  | MA3329-337 | 5277-36CN108   |
| M39X3       | 1                        | ---            | ---        | TLM-39X3C-39   | MA3329-139 | 5277-39CN390   |
|             | 1.5                      | ---            | ---        | TLM-39X3C-58.5 | MA3329-189 | 5277-39CN585   |
|             | 2                        | ---            | ---        | TLM-39X3C-78   | MA3329-239 | 5277-39CN780   |
|             | 2.5                      | ---            | ---        | TLM-39X3C-97.5 | MA3329-289 | 5277-39CN975   |
|             | 3                        | ---            | ---        | TLM-39X3C-117  | MA3329-339 | 5277-39CN117   |

# CoilThread Part Numbers & Cross References

## Unified Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |           |               |
|-------------|--------------------------|----------------|---------------|----------------|-----------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No. | Heli-Coil No. |
| 1-64        | 1                        | 2TNC-01C-0073  | ---           | ---            | ---       | ---           |
|             | 1.5                      | 2TNC-01C-0110  | ---           | ---            | ---       | ---           |
|             | 2                        | 2TNC-01C-0146  | ---           | ---            | ---       | ---           |
|             | 2.5                      | ---            | ---           | ---            | ---       | ---           |
|             | 3                        | ---            | ---           | ---            | ---       | ---           |
| 2-56        | 1                        | 2TNC-02C-0086  | NAS1130-02-10 | TNC-02C-0086   | MS122095  | 1185-02CN086  |
|             | 1.5                      | 2TNC-02C-0129  | NAS1130-02-15 | TNC-02C-0129   | MS122135  | 1185-02CN129  |
|             | 2                        | 2TNC-02C-0172  | NAS1130-02-20 | TNC-02C-0172   | MS122175  | 1185-02CN172  |
|             | 2.5                      | 2TNC-02C-0215  | NAS1130-02-25 | TNC-02C-0215   | MS122215  | 1185-02CN215  |
|             | 3                        | 2TNC-02C-0258  | NAS1130-02-30 | TNC-02C-0258   | MS122255  | 1185-02CN258  |
| 3-48        | 1                        | ---            | ---           | TNC-03C-0099   | MS122115  | 1185-03CN099  |
|             | 1.5                      | ---            | ---           | TNC-03C-0148   | MS122155  | 1185-03CN148  |
|             | 2                        | ---            | ---           | TNC-03C-0198   | MS122195  | 1185-03CN198  |
|             | 2.5                      | ---            | ---           | TNC-03C-0248   | MS122235  | 1185-03CN248  |
|             | 3                        | ---            | ---           | TNC-03C-0297   | MS122275  | 1185-03CN297  |
| 4-40        | 1                        | 2TNC-04C-0112  | NAS1130-04-10 | TNC-04C-0112   | MS122076  | 1185-04CN112  |
|             | 1.5                      | 2TNC-04C-0168  | NAS1130-04-15 | TNC-04C-0168   | MS122116  | 1185-04CN168  |
|             | 2                        | 2TNC-04C-0224  | NAS1130-04-20 | TNC-04C-0224   | MS122156  | 1185-04CN224  |
|             | 2.5                      | 2TNC-04C-0280  | NAS1130-04-25 | TNC-04C-0280   | MS122196  | 1185-04CN280  |
|             | 3                        | 2TNC-04C-0336  | NAS1130-04-30 | TNC-04C-0336   | MS122236  | 1185-04CN336  |
| 5-40        | 1                        | ---            | ---           | TNC-05C-0125   | MS122077  | 1185-05CN125  |
|             | 1.5                      | ---            | ---           | TNC-05C-0188   | MS122117  | 1185-05CN188  |
|             | 2                        | ---            | ---           | TNC-05C-0250   | MS122157  | 1185-05CN250  |
|             | 2.5                      | ---            | ---           | TNC-05C-0312   | MS122197  | 1185-05CN312  |
|             | 3                        | ---            | ---           | TNC-05C-0375   | MS122237  | 1185-05CN375  |
| 6-32        | 1                        | 2TNC-06C-0138  | NAS1130-06-10 | TNC-06C-0138   | MS122078  | 1185-06CN138  |
|             | 1.5                      | 2TNC-06C-0207  | NAS1130-06-15 | TNC-06C-0207   | MS122118  | 1185-06CN207  |
|             | 2                        | 2TNC-06C-0276  | NAS1130-06-20 | TNC-06C-0276   | MS122158  | 1185-06CN276  |
|             | 2.5                      | 2TNC-06C-0345  | NAS1130-06-25 | TNC-06C-0345   | MS122198  | 1185-06CN345  |
|             | 3                        | 2TNC-06C-0414  | NAS1130-06-30 | TNC-06C-0414   | MS122238  | 1185-06CN414  |
| 8-32        | 1                        | 2TNC-2C-0164   | NAS1130-08-10 | TNC-2C-0164    | MS122079  | 1185-2CN164   |
|             | 1.5                      | 2TNC-2C-0246   | NAS1130-08-15 | TNC-2C-0246    | MS122119  | 1185-2CN246   |
|             | 2                        | 2TNC-2C-0328   | NAS1130-08-20 | TNC-2C-0328    | MS122159  | 1185-2CN328   |
|             | 2.5                      | 2TNC-2C-0410   | NAS1130-08-25 | TNC-2C-0410    | MS122199  | 1185-2CN410   |
|             | 3                        | 2TNC-2C-0492   | NAS1130-08-30 | TNC-2C-0492    | MS122239  | 1185-2CN492   |
| 10-24       | 1                        | 2TNC-3C-0190   | NAS1130-3C-10 | TNC-3C-0190    | MS122080  | 1185-3CN190   |
|             | 1.5                      | 2TNC-3C-0285   | NAS1130-3C-15 | TNC-3C-0285    | MS122120  | 1185-3CN285   |
|             | 2                        | 2TNC-3C-0380   | NAS1130-3C-20 | TNC-3C-0380    | MS122160  | 1185-3CN380   |
|             | 2.5                      | 2TNC-3C-0475   | NAS1130-3C-25 | TNC-3C-0475    | MS122200  | 1185-3CN475   |
|             | 3                        | 2TNC-3C-0570   | NAS1130-3C-30 | TNC-3C-0570    | MS122240  | 1185-3CN570   |
| 12-24       | 1                        | ---            | ---           | TNC-1C-0216    | ---       | 1185-1CN216   |
|             | 1.5                      | ---            | ---           | TNC-1C-0324    | ---       | 1185-1CN324   |
|             | 2                        | ---            | ---           | TNC-1C-0432    | ---       | 1185-1CN432   |
|             | 2.5                      | ---            | ---           | TNC-1C-0540    | ---       | 1185-1CN540   |
|             | 3                        | ---            | ---           | TNC-1C-0648    | ---       | 1185-1CN648   |
| 1/4-20      | 1                        | 2TNC-4C-0250   | NAS1130-4-10  | TNC-4C-0250    | MS122081  | 1185-4CN250   |
|             | 1.5                      | 2TNC-4C-0375   | NAS1130-4-15  | TNC-4C-0375    | MS122121  | 1185-4CN375   |
|             | 2                        | 2TNC-4C-0500   | NAS1130-4-20  | TNC-4C-0500    | MS122161  | 1185-4CN500   |
|             | 2.5                      | 2TNC-4C-0625   | NAS1130-4-25  | TNC-4C-0625    | MS122201  | 1185-4CN625   |
|             | 3                        | 2TNC-4C-0750   | NAS1130-4-30  | TNC-4C-0750    | MS122241  | 1185-4CN750   |

# CoilThread Part Numbers & Cross References

## Unified Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |           |               |
|-------------|--------------------------|----------------|---------------|----------------|-----------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No. | Hell-Coil No. |
| 5/16-18     | 1                        | 2TNC-5C-0312   | NAS1130-5C-10 | TNC-5C-0312    | MS122082  | 1185-5CN312   |
|             | 1.5                      | 2TNC-5C-0469   | NAS1130-5C-15 | TNC-5C-0469    | MS122122  | 1185-5CN469   |
|             | 2                        | 2TNC-5C-0625   | NAS1130-5C-20 | TNC-5C-0625    | MS122162  | 1185-5CN625   |
|             | 2.5                      | 2TNC-5C-0781   | NAS1130-5C-25 | TNC-5C-0781    | MS122202  | 1185-5CN781   |
|             | 3                        | 2TNC-5C-0938   | NAS1130-5C-30 | TNC-5C-0938    | MS122242  | 1185-5CN938   |
| 3/8-16      | 1                        | 2TNC-6C-0375   | NAS1130-6C-10 | TNC-6C-0375    | MS122083  | 1185-6CN375   |
|             | 1.5                      | 2TNC-6C-0562   | NAS1130-6C-15 | TNC-6C-0562    | MS122123  | 1185-6CN562   |
|             | 2                        | 2TNC-6C-0750   | NAS1130-6C-20 | TNC-6C-0750    | MS122163  | 1185-6CN750   |
|             | 2.5                      | 2TNC-6C-0938   | NAS1130-6C-25 | TNC-6C-0938    | MS122203  | 1185-6CN938   |
|             | 3                        | ---            | ---           | TNC-6C-1125    | MS122243  | 1185-6CN1125  |
| 7/16-14     | 1                        | ---            | ---           | TNC-7C-0438    | MS122084  | 1185-7CN438   |
|             | 1.5                      | ---            | ---           | TNC-7C-0656    | MS122124  | 1185-7CN656   |
|             | 2                        | ---            | ---           | TNC-7C-0875    | MS122164  | 1185-7CN875   |
|             | 2.5                      | ---            | ---           | TNC-7C-1094    | MS122204  | 1185-7CN1094  |
|             | 3                        | ---            | ---           | TNC-7C-1312    | MS122244  | 1185-7CN1312  |
| 1/2-13      | 1                        | ---            | ---           | TNC-8C-0500    | MS122085  | 1185-8CN500   |
|             | 1.5                      | ---            | ---           | TNC-8C-0750    | MS122125  | 1185-8CN750   |
|             | 2                        | ---            | ---           | TNC-8C-1000    | MS122165  | 1185-8CN1000  |
|             | 2.5                      | ---            | ---           | TNC-8C-1250    | MS122205  | 1185-8CN1250  |
|             | 3                        | ---            | ---           | TNC-8C-1500    | MS122245  | 1185-8CN1500  |
| 9/16-12     | 1                        | ---            | ---           | TNC-9C-0562    | MS122086  | 1185-9CN562   |
|             | 1.5                      | ---            | ---           | TNC-9C-0844    | MS122126  | 1185-9CN844   |
|             | 2                        | ---            | ---           | TNC-9C-1125    | MS122166  | 1185-9CN1125  |
|             | 2.5                      | ---            | ---           | TNC-9C-1406    | MS122206  | 1185-9CN1406  |
|             | 3                        | ---            | ---           | TNC-9C-1688    | MS122246  | 1185-9CN1688  |
| 5/8-11      | 1                        | ---            | ---           | TNC-10C-0625   | MS122087  | 1185-10CN625  |
|             | 1.5                      | ---            | ---           | TNC-10C-0938   | MS122127  | 1185-10CN938  |
|             | 2                        | ---            | ---           | TNC-10C-1250   | MS122167  | 1185-10CN1250 |
|             | 2.5                      | ---            | ---           | TNC-10C-1562   | MS122207  | 1185-10CN1562 |
|             | 3                        | ---            | ---           | TNC-10C-1875   | MS122247  | 1185-10CN1875 |
| 3/4-10      | 1                        | ---            | ---           | TNC-12C-0750   | MS122088  | 1185-12CN750  |
|             | 1.5                      | ---            | ---           | TNC-12C-1125   | MS122128  | 1185-12CN1125 |
|             | 2                        | ---            | ---           | TNC-12C-1500   | MS122168  | 1185-12CN1500 |
|             | 2.5                      | ---            | ---           | TNC-12C-1875   | MS122208  | 1185-12CN1875 |
|             | 3                        | ---            | ---           | TNC-12C-2250   | MS122248  | 1185-12CN2250 |
| 7/8-9       | 1                        | ---            | ---           | TNC-14C-0875   | MS122089  | 1185-14CN875  |
|             | 1.5                      | ---            | ---           | TNC-14C-1312   | MS122129  | 1185-14CN1312 |
|             | 2                        | ---            | ---           | TNC-14C-1750   | MS122169  | 1185-14CN1750 |
|             | 2.5                      | ---            | ---           | TNC-14C-2188   | MS122209  | 1185-14CN2188 |
|             | 3                        | ---            | ---           | TNC-14C-2625   | MS122249  | 1185-14CN2625 |
| 1-8         | 1                        | ---            | ---           | TNC-16C-1000   | MS122090  | 1185-16CN1000 |
|             | 1.5                      | ---            | ---           | TNC-16C-1500   | MS122130  | 1185-16CN1500 |
|             | 2                        | ---            | ---           | TNC-16C-2000   | MS122170  | 1185-16CN2000 |
|             | 2.5                      | ---            | ---           | TNC-16C-2500   | MS122210  | 1185-16CN2500 |
|             | 3                        | ---            | ---           | TNC-16C-3000   | MS122250  | 1185-16CN3000 |

# CoilThread Part Numbers & Cross References

## Unified Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |           |               |
|-------------|--------------------------|----------------|------------|----------------|-----------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No. | Heli-Coil No. |
| 1-1/8-7     | 1                        | ---            | ---        | TNC-18C-1125   | MS122091  | 1185-18CN1125 |
|             | 1.5                      | ---            | ---        | TNC-18C-1688   | MS122131  | 1185-18CN1688 |
|             | 2                        | ---            | ---        | TNC-18C-2250   | MS122171  | 1185-18CN2250 |
|             | 2.5                      | ---            | ---        | TNC-18C-2812   | MS122211  | 1185-18CN2812 |
|             | 3                        | ---            | ---        | TNC-18C-3375   | MS122251  | 1185-18CN3375 |
| 1-1/4-7     | 1                        | ---            | ---        | TNC-20C-1250   | MS122092  | 1185-20CN1250 |
|             | 1.5                      | ---            | ---        | TNC-20C-1875   | MS122132  | 1185-20CN1875 |
|             | 2                        | ---            | ---        | TNC-20C-2500   | MS122172  | 1185-20CN2500 |
|             | 2.5                      | ---            | ---        | TNC-20C-3125   | MS122212  | 1185-20CN3125 |
|             | 3                        | ---            | ---        | TNC-20C-3750   | MS122252  | 1185-20CN3750 |
| 1-3/8-6     | 1                        | ---            | ---        | TNC-22C-1375   | MS122093  | 1185-22CN1375 |
|             | 1.5                      | ---            | ---        | TNC-22C-2062   | MS122133  | 1185-22CN2062 |
|             | 2                        | ---            | ---        | TNC-22C-2750   | MS122173  | 1185-22CN2750 |
|             | 2.5                      | ---            | ---        | TNC-22C-3438   | MS122213  | 1185-22CN3438 |
|             | 3                        | ---            | ---        | TNC-22C-4125   | MS122253  | 1185-22CN4125 |
| 1-1/2-6     | 1                        | ---            | ---        | TNC-24C-1500   | MS122094  | 1185-24CN1500 |
|             | 1.5                      | ---            | ---        | TNC-24C-2250   | MS122134  | 1185-24CN2250 |
|             | 2                        | ---            | ---        | TNC-24C-3000   | MS122174  | 1185-24CN3000 |
|             | 2.5                      | ---            | ---        | TNC-24C-3750   | MS122214  | 1185-24CN3750 |
|             | 3                        | ---            | ---        | TNC-24C-4500   | MS122254  | 1185-24CN4500 |

## Unified Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |           |               |
|-------------|--------------------------|----------------|------------|----------------|-----------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No. | Heli-Coil No. |
| 0-80        | 1                        | 2TNF-00C-0060  | ---        | ---            | ---       | ---           |
|             | 1.5                      | 2TNF-00C-0090  | ---        | ---            | ---       | ---           |
|             | 2                        | 2TNF-00C-0120  | ---        | ---            | ---       | ---           |
|             | 2.5                      | ---            | ---        | ---            | ---       | ---           |
|             | 3                        | ---            | ---        | ---            | ---       | ---           |
| 3-56        | 1                        | ---            | ---        | TNF-03C-0099   | MS124670  | 1191-03CN099  |
|             | 1.5                      | ---            | ---        | TNF-03C-0148   | MS124710  | 1191-03CN148  |
|             | 2                        | ---            | ---        | TNF-03C-0198   | MS124750  | 1191-03CN198  |
|             | 2.5                      | ---            | ---        | TNF-03C-0248   | MS124790  | 1191-03CN248  |
|             | 3                        | ---            | ---        | TNF-03C-0297   | MS124830  | 1191-03CN297  |
| 4-48        | 1                        | ---            | ---        | TNF-04C-0112   | MS124671  | 1191-04CN112  |
|             | 1.5                      | ---            | ---        | TNF-04C-0168   | MS124711  | 1191-04CN168  |
|             | 2                        | ---            | ---        | TNF-04C-0224   | MS124751  | 1191-04CN224  |
|             | 2.5                      | ---            | ---        | TNF-04C-0280   | MS124791  | 1191-04CN280  |
|             | 3                        | ---            | ---        | TNF-04C-0336   | MS124831  | 1191-04CN336  |
| 6-40        | 1                        | ---            | ---        | TNF-06C-0138   | MS124653  | 1191-06CN138  |
|             | 1.5                      | ---            | ---        | TNF-06C-0207   | MS124693  | 1191-06CN207  |
|             | 2                        | ---            | ---        | TNF-06C-0276   | MS124733  | 1191-06CN276  |
|             | 2.5                      | ---            | ---        | TNF-06C-0345   | MS124773  | 1191-06CN345  |
|             | 3                        | ---            | ---        | TNF-06C-0414   | MS124813  | 1191-06CN414  |

# CoilThread Part Numbers & Cross References

## Unified Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |               | Tanged         |           |               |
|-------------|--------------------------|----------------|---------------|----------------|-----------|---------------|
|             |                          | CoilThread No. | NA/NAS No.    | CoilThread No. | MA/MS No. | Hell-Coil No. |
| 8-36        | 1                        | ---            | ---           | TNF-2C-0164    | MS124654  | 1191-2CN164   |
|             | 1.5                      | ---            | ---           | TNF-2C-0246    | MS124694  | 1191-2CN246   |
|             | 2                        | ---            | ---           | TNF-2C-0328    | MS124734  | 1191-2CN328   |
|             | 2.5                      | ---            | ---           | TNF-2C-0410    | MS124774  | 1191-2CN410   |
|             | 3                        | ---            | ---           | TNF-2C-0492    | MS124814  | 1191-2CN492   |
| 10-32       | 1                        | 2TNF-3C-0190   | NAS1130-3-10  | TNF-3C-0190    | MS124655  | 1191-3CN190   |
|             | 1.5                      | 2TNF-3C-0285   | NAS1130-3-15  | TNF-3C-0285    | MS124695  | 1191-3CN285   |
|             | 2                        | 2TNF-3C-0380   | NAS1130-3-20  | TNF-3C-0380    | MS124735  | 1191-3CN380   |
|             | 2.5                      | 2TNF-3C-0475   | NAS1130-3-25  | TNF-3C-0475    | MS124775  | 1191-3CN475   |
|             | 3                        | 2TNF-3C-0570   | NAS1130-3-30  | TNF-3C-0570    | MS124815  | 1191-3CN570   |
| 1/4-28      | 1                        | 2TNF-4C-0250   | NAS1130-4F-10 | TNF-4C-0250    | MS124656  | 1191-4CN250   |
|             | 1.5                      | 2TNF-4C-0375   | NAS1130-4F-15 | TNF-4C-0375    | MS124696  | 1191-4CN375   |
|             | 2                        | 2TNF-4C-0500   | NAS1130-4F-20 | TNF-4C-0500    | MS124736  | 1191-4CN500   |
|             | 2.5                      | 2TNF-4C-0625   | NAS1130-4F-25 | TNF-4C-0625    | MS124776  | 1191-4CN625   |
|             | 3                        | 2TNF-4C-0750   | NAS1130-4F-30 | TNF-4C-0750    | MS124816  | 1191-4CN750   |
| 5/16-24     | 1                        | 2TNF-5C-0312   | NAS1130-5F-10 | TNF-5C-0312    | MS124657  | 1191-5CN312   |
|             | 1.5                      | 2TNF-5C-0469   | NAS1130-5F-15 | TNF-5C-0469    | MS124697  | 1191-5CN469   |
|             | 2                        | 2TNF-5C-0625   | NAS1130-5F-20 | TNF-5C-0625    | MS124737  | 1191-5CN625   |
|             | 2.5                      | 2TNF-5C-0781   | NAS1130-5F-25 | TNF-5C-0781    | MS124777  | 1191-5CN781   |
|             | 3                        | ---            | ---           | TNF-5C-0938    | MS124817  | 1191-5CN938   |
| 3/8-24      | 1                        | 2TNF-6C-0375   | NAS1130-6F-10 | TNF-6C-0375    | MS124658  | 1191-6CN375   |
|             | 1.5                      | 2TNF-6C-0562   | NAS1130-6F-15 | TNF-6C-0562    | MS124698  | 1191-6CN562   |
|             | 2                        | 2TNF-6C-0750   | NAS1130-6F-20 | TNF-6C-0750    | MS124738  | 1191-6CN750   |
|             | 2.5                      | ---            | ---           | TNF-6C-0938    | MS124778  | 1191-6CN938   |
|             | 3                        | ---            | ---           | TNF-6C-1125    | MS124818  | 1191-6CN1125  |
| 7/16-20     | 1                        | 2TNF-7C-0438   | ---           | TNF-7C-0438    | MS124659  | 1191-7CN438   |
|             | 1.5                      | 2TNF-7C-0656   | ---           | TNF-7C-0656    | MS124699  | 1191-7CN656   |
|             | 2                        | 2TNF-7C-0875   | ---           | TNF-7C-0875    | MS124739  | 1191-7CN875   |
|             | 2.5                      | ---            | ---           | TNF-7C-1094    | MS124779  | 1191-7CN1094  |
|             | 3                        | ---            | ---           | TNF-7C-1312    | MS124819  | 1191-7CN1312  |
| 1/2-20      | 1                        | 2TNF-8C-0500   | ---           | TNF-8C-0500    | MS124660  | 1191-8CN500   |
|             | 1.5                      | 2TNF-8C-0750   | ---           | TNF-8C-0750    | MS124700  | 1191-8CN750   |
|             | 2                        | 2TNF-8C-1000   | ---           | TNF-8C-1000    | MS124740  | 1191-8CN1000  |
|             | 2.5                      | ---            | ---           | TNF-8C-1250    | MS124780  | 1191-8CN1250  |
|             | 3                        | ---            | ---           | TNF-8C-1500    | MS124820  | 1191-8CN1500  |
| 9/16-18     | 1                        | ---            | ---           | TNF-9C-0562    | MS124661  | 1191-9CN562   |
|             | 1.5                      | ---            | ---           | TNF-9C-0844    | MS124701  | 1191-9CN844   |
|             | 2                        | ---            | ---           | TNF-9C-1125    | MS124741  | 1191-9CN1125  |
|             | 2.5                      | ---            | ---           | TNF-9C-1406    | MS124781  | 1191-9CN1406  |
|             | 3                        | ---            | ---           | TNF-9C-1688    | MS124821  | 1191-9CN1688  |
| 5/8-18      | 1                        | ---            | ---           | TNF-10C-0625   | MS124662  | 1191-10CN625  |
|             | 1.5                      | ---            | ---           | TNF-10C-0938   | MS124702  | 1191-10CN938  |
|             | 2                        | ---            | ---           | TNF-10C-1250   | MS124742  | 1191-10CN1250 |
|             | 2.5                      | ---            | ---           | TNF-10C-1562   | MS124782  | 1191-10CN1562 |
|             | 3                        | ---            | ---           | TNF-10C-1875   | MS124822  | 1191-10CN1875 |

# CoilThread Part Numbers & Cross References

## Unified Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |           |                |
|-------------|--------------------------|----------------|------------|----------------|-----------|----------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No. | Heli-Coil No.  |
| 3/4-16      | 1                        | ---            | ---        | TNF-12C-0750   | MS124663  | 1191-12CN750   |
|             | 1.5                      | ---            | ---        | TNF-12C-1125   | MS124703  | 1191-12CN1125  |
|             | 2                        | ---            | ---        | TNF-12C-1500   | MS124743  | 1191-12CN1500  |
|             | 2.5                      | ---            | ---        | TNF-12C-1875   | MS124783  | 1191-12CN1875  |
|             | 3                        | ---            | ---        | TNF-12C-2250   | MS124823  | 1191-12CN2250  |
| 7/8-14      | 1                        | ---            | ---        | TNF-14C-0875   | MS124664  | 1191-14CN875   |
|             | 1.5                      | ---            | ---        | TNF-14C-1312   | MS124704  | 1191-14CN1312  |
|             | 2                        | ---            | ---        | TNF-14C-1750   | MS124744  | 1191-14CN1750  |
|             | 2.5                      | ---            | ---        | TNF-14C-2188   | MS124784  | 1191-14CN2188  |
|             | 3                        | ---            | ---        | TNF-14C-2625   | MS124824  | 1191-14CN2625  |
| 1-12        | 1                        | ---            | ---        | TNF-161C-1000  | MS124651  | 1191-161CN1000 |
|             | 1.5                      | ---            | ---        | TNF-161C-1500  | MS124691  | 1191-161CN1500 |
|             | 2                        | ---            | ---        | TNF-161C-2000  | MS124731  | 1191-161CN2000 |
|             | 2.5                      | ---            | ---        | TNF-161C-2500  | MS124771  | 1191-161CN2500 |
|             | 3                        | ---            | ---        | TNF-161C-3000  | MS124811  | 1191-161CN3000 |
| 1-1/8-12    | 1                        | ---            | ---        | TNF-18C-1125   | MS124666  | 1191-18CN1125  |
|             | 1.5                      | ---            | ---        | TNF-18C-1688   | MS124706  | 1191-18CN1688  |
|             | 2                        | ---            | ---        | TNF-18C-2250   | MS124746  | 1191-18CN2250  |
|             | 2.5                      | ---            | ---        | TNF-18C-2812   | MS124786  | 1191-18CN2812  |
|             | 3                        | ---            | ---        | TNF-18C-3375   | MS124826  | 1191-18CN3375  |
| 1-1/4-12    | 1                        | ---            | ---        | TNF-20C-1250   | MS124667  | 1191-20CN1250  |
|             | 1.5                      | ---            | ---        | TNF-20C-1875   | MS124707  | 1191-20CN1875  |
|             | 2                        | ---            | ---        | TNF-20C-2500   | MS124747  | 1191-20CN2500  |
|             | 2.5                      | ---            | ---        | TNF-20C-3125   | MS124787  | 1191-20CN3125  |
|             | 3                        | ---            | ---        | TNF-20C-3750   | MS124827  | 1191-20CN3750  |
| 1-3/8-12    | 1                        | ---            | ---        | TNF-22C-1375   | MS124668  | 1191-22CN1375  |
|             | 1.5                      | ---            | ---        | TNF-22C-2062   | MS124708  | 1191-22CN2062  |
|             | 2                        | ---            | ---        | TNF-22C-2750   | MS124748  | 1191-22CN2750  |
|             | 2.5                      | ---            | ---        | TNF-22C-3438   | MS124788  | 1191-22CN3438  |
|             | 3                        | ---            | ---        | TNF-22C-4125   | MS124828  | 1191-22CN4125  |
| 1-1/2-12    | 1                        | ---            | ---        | TNF-24C-1500   | MS124669  | 1191-24CN1500  |
|             | 1.5                      | ---            | ---        | TNF-24C-2250   | MS124709  | 1191-24CN2250  |
|             | 2                        | ---            | ---        | TNF-24C-3000   | MS124749  | 1191-24CN3000  |
|             | 2.5                      | ---            | ---        | TNF-24C-3750   | MS124789  | 1191-24CN3750  |
|             | 3                        | ---            | ---        | TNF-24C-4500   | MS124829  | 1191-24CN4500  |



# CoilThread Part Numbers & Cross References

## Metric Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless          |              | Tanged           |            |               |
|-------------|--------------------------|-------------------|--------------|------------------|------------|---------------|
|             |                          | CoilThread No.    | NA/NAS No.   | CoilThread No.   | MA/MS No.  | Heli-Coil No. |
| M2X0.4      | 1                        | 2TNM-2X.4C-2      | ---          | TNM-2X.4C-2      | MA3279-140 | 1084-2CN020   |
|             | 1.5                      | 2TNM-2X.4C-3      | ---          | TNM-2X.4C-3      | MA3279-190 | 1084-2CN030   |
|             | 2                        | 2TNM-2X.4C-4      | ---          | TNM-2X.4C-4      | MA3279-240 | 1084-2CN040   |
|             | 2.5                      | ---               | ---          | TNM-2X.4C-5      | MA3279-290 | 1084-2CN050   |
|             | 3                        | ---               | ---          | TNM-2X.4C-6      | MA3279-340 | 1084-2CN060   |
| M2.2X0.45   | 1                        | ---               | ---          | TNM-2.2X.45C-2.2 | MA3279-100 | 1084-2.2CN022 |
|             | 1.5                      | ---               | ---          | TNM-2.2X.45C-3.3 | MA3279-150 | 1084-2.2CN033 |
|             | 2                        | ---               | ---          | TNM-2.2X.45C-4.4 | MA3279-200 | 1084-2.2CN044 |
|             | 2.5                      | ---               | ---          | TNM-2.2X.45C-5.5 | MA3279-250 | 1084-2.2CN055 |
|             | 3                        | ---               | ---          | TNM-2.2X.45C-6.6 | MA3279-300 | 1084-2.2CN066 |
| M2.5X0.45   | 1                        | 2TNM-2.5X.45C-2.5 | NA0276M2A-10 | TNM-2.5X.45C-2.5 | MA3279-101 | 1084-2.5CN025 |
|             | 1.5                      | 2TNM-2.5X.45C-3.8 | NA0276M2A-15 | TNM-2.5X.45C-3.8 | MA3279-151 | 1084-2.5CN038 |
|             | 2                        | 2TNM-2.5X.45C-5   | NA0276M2A-20 | TNM-2.5X.45C-5   | MA3279-201 | 1084-2.5CN050 |
|             | 2.5                      | 2TNM-2.5X.45C-6.3 | NA0276M2A-25 | TNM-2.5X.45C-6.3 | MA3279-251 | 1084-2.5CN063 |
|             | 3                        | 2TNM-2.5X.45C-7.5 | NA0276M2A-30 | TNM-2.5X.45C-7.5 | MA3279-301 | 1084-2.5CN075 |
| M3X0.5      | 1                        | 2TNM-3X.5C-3      | NA0276M3-10  | TNM-3X.5C-3      | MA3279-102 | 1084-3CN030   |
|             | 1.5                      | 2TNM-3X.5C-4.5    | NA0276M3-15  | TNM-3X.5C-4.5    | MA3279-152 | 1084-3CN045   |
|             | 2                        | 2TNM-3X.5C-6      | NA0276M3-20  | TNM-3X.5C-6      | MA3279-202 | 1084-3CN060   |
|             | 2.5                      | 2TNM-3X.5C-7.5    | NA0276M3-25  | TNM-3X.5C-7.5    | MA3279-252 | 1084-3CN075   |
|             | 3                        | 2TNM-3X.5C-9.0    | NA0276M3-30  | TNM-3X.5C-9      | MA3279-302 | 1084-3CN090   |
| M3.5X0.6    | 1                        | ---               | ---          | TNM-3.5X.6C-3.5  | MA3279-103 | 1084-3.5CN035 |
|             | 1.5                      | ---               | ---          | TNM-3.5X.6C-5.3  | MA3279-153 | 1084-3.5CN053 |
|             | 2                        | ---               | ---          | TNM-3.5X.6C-7    | MA3279-203 | 1084-3.5CN070 |
|             | 2.5                      | ---               | ---          | TNM-3.5X.6C-8.8  | MA3279-253 | 1084-3.5CN088 |
|             | 3                        | ---               | ---          | TNM-3.5X.6C-10.5 | MA3279-303 | 1084-3.5CN105 |
| M4X0.7      | 1                        | 2TNM-4X.7C-4      | NA0276M4-10  | TNM-4X.7C-4      | MA3279-104 | 1084-4CN040   |
|             | 1.5                      | 2TNM-4X.7C-6      | NA0276M4-15  | TNM-4X.7C-6      | MA3279-154 | 1084-4CN060   |
|             | 2                        | 2TNM-4X.7C-8      | NA0276M4-20  | TNM-4X.7C-8      | MA3279-204 | 1084-4CN080   |
|             | 2.5                      | 2TNM-4X.7C-10     | NA0276M4-25  | TNM-4X.7C-10     | MA3279-254 | 1084-4CN100   |
|             | 3                        | 2TNM-4X.7C-12     | NA0276M4-30  | TNM-4X.7C-12     | MA3279-304 | 1084-4CN120   |
| M5X0.8      | 1                        | 2TNM-5X.8C-5      | NA0276M5-10  | TNM-5X.8C-5      | MA3279-105 | 1084-5CN050   |
|             | 1.5                      | 2TNM-5X.8C-7.5    | NA0276M5-15  | TNM-5X.8C-7.5    | MA3279-155 | 1084-5CN075   |
|             | 2                        | 2TNM-5X.8C-10     | NA0276M5-20  | TNM-5X.8C-10     | MA3279-205 | 1084-5CN100   |
|             | 2.5                      | 2TNM-5X.8C-12.5   | NA0276M5-25  | TNM-5X.8C-12.5   | MA3279-255 | 1084-5CN125   |
|             | 3                        | 2TNM-5X.8C-15     | NA0276M5-30  | TNM-5X.8C-15     | MA3279-305 | 1084-5CN150   |
| M6X1        | 1                        | 2TNM-6X1C-6       | NA0276M6-10  | TNM-6X1C-6       | MA3279-106 | 1084-6CN060   |
|             | 1.5                      | 2TNM-6X1C-9       | NA0276M6-15  | TNM-6X1C-9       | MA3279-156 | 1084-6CN090   |
|             | 2                        | 2TNM-6X1C-12      | NA0276M6-20  | TNM-6X1C-12      | MA3279-206 | 1084-6CN120   |
|             | 2.5                      | 2TNM-6X1C-15      | NA0276M6-25  | TNM-6X1C-15      | MA3279-256 | 1084-6CN150   |
|             | 3                        | 2TNM-6X1C-18      | NA0276M6-30  | TNM-6X1C-18      | MA3279-306 | 1084-6CN180   |
| M7X1        | 1                        | ---               | ---          | TNM-7X1C-7       | MA3279-107 | 1084-7CN070   |
|             | 1.5                      | ---               | ---          | TNM-7X1C-10.5    | MA3279-157 | 1084-7CN105   |
|             | 2                        | ---               | ---          | TNM-7X1C-14      | MA3279-207 | 1084-7CN140   |
|             | 2.5                      | ---               | ---          | TNM-7X1C-17.5    | MA3279-257 | 1084-7CN175   |
|             | 3                        | ---               | ---          | TNM-7X1C-21      | MA3279-307 | 1084-7CN210   |

# CoilThread Part Numbers & Cross References

## Metric Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless         |              | Tanged          |            |               |
|-------------|--------------------------|------------------|--------------|-----------------|------------|---------------|
|             |                          | CoilThread No.   | NA/NAS No.   | CoilThread No.  | MA/MS No.  | Heli-Coil No. |
| M8X1.25     | 1                        | 2TNM-8X1.25C-8   | NA0276M8-10  | TNM-8X1.25C-8   | MA3279-109 | 1084-8CN080   |
|             | 1.5                      | 2TNM-8X1.25C-12  | NA0276M8-15  | TNM-8X1.25C-12  | MA3279-159 | 1084-8CN120   |
|             | 2                        | 2TNM-8X1.25C-16  | NA0276M8-20  | TNM-8X1.25C-16  | MA3279-209 | 1084-8CN160   |
|             | 2.5                      | 2TNM-8X1.25C-20  | NA0276M8-25  | TNM-8X1.25C-20  | MA3279-259 | 1084-8CN200   |
|             | 3                        | 2TNM-8X1.25C-24  | NA0276M8-30  | TNM-8X1.25C-24  | MA3279-309 | 1084-8CN240   |
| M10X1.5     | 1                        | 2TNM-10X1.5C-10  | NA0276M10-10 | TNM-10X1.5C-10  | MA3279-111 | 1084-10CN100  |
|             | 1.5                      | 2TNM-10X1.5C-15  | NA0276M10-15 | TNM-10X1.5C-15  | MA3279-161 | 1084-10CN150  |
|             | 2                        | 2TNM-10X1.5C-20  | NA0276M10-20 | TNM-10X1.5C-20  | MA3279-211 | 1084-10CN200  |
|             | 2.5                      | 2TNM-10X1.5C-25  | NA0276M10-25 | TNM-10X1.5C-25  | MA3279-261 | 1084-10CN250  |
|             | 3                        | ---              | ---          | TNM-10X1.5C-30  | MA3279-311 | 1084-10CN300  |
| M12X1.75    | 1                        | 2TNM-12X1.75C-12 | NA0276M12-10 | TNM-12X1.75C-12 | MA3279-114 | 1084-12CN120  |
|             | 1.5                      | 2TNM-12X1.75C-18 | NA0276M12-15 | TNM-12X1.75C-18 | MA3279-164 | 1084-12CN180  |
|             | 2                        | 2TNM-12X1.75C-24 | NA0276M12-20 | TNM-12X1.75C-24 | MA3279-214 | 1084-12CN240  |
|             | 2.5                      | ---              | ---          | TNM-12X1.75C-30 | MA3279-264 | 1084-12CN300  |
|             | 3                        | ---              | ---          | TNM-12X1.75C-36 | MA3279-314 | 1084-12CN360  |
| M14X2       | 1                        | ---              | ---          | TNM-14X2C-14    | MA3279-116 | 1084-14CN140  |
|             | 1.5                      | ---              | ---          | TNM-14X2C-21    | MA3279-166 | 1084-14CN210  |
|             | 2                        | ---              | ---          | TNM-14X2C-28    | MA3279-216 | 1084-14CN280  |
|             | 2.5                      | ---              | ---          | TNM-14X2C-35    | MA3279-266 | 1084-14CN350  |
|             | 3                        | ---              | ---          | TNM-14X2C-42    | MA3279-316 | 1084-14CN420  |
| M16X2       | 1                        | ---              | ---          | TNM-16X2C-16    | MA3279-118 | 1084-16CN160  |
|             | 1.5                      | ---              | ---          | TNM-16X2C-24    | MA3279-168 | 1084-16CN240  |
|             | 2                        | ---              | ---          | TNM-16X2C-32    | MA3279-218 | 1084-16CN320  |
|             | 2.5                      | ---              | ---          | TNM-16X2C-40    | MA3279-268 | 1084-16CN400  |
|             | 3                        | ---              | ---          | TNM-16X2C-48    | MA3279-318 | 1084-16CN480  |
| M18X2.5     | 1                        | ---              | ---          | TNM-18X2.5C-18  | MA3279-121 | 1084-18CN180  |
|             | 1.5                      | ---              | ---          | TNM-18X2.5C-27  | MA3279-171 | 1084-18CN270  |
|             | 2                        | ---              | ---          | TNM-18X2.5C-36  | MA3279-221 | 1084-18CN360  |
|             | 2.5                      | ---              | ---          | TNM-18X2.5C-45  | MA3279-271 | 1084-18CN450  |
|             | 3                        | ---              | ---          | TNM-18X2.5C-54  | MA3279-321 | 1084-18CN540  |
| M20X2.5     | 1                        | ---              | ---          | TNM-20X2.5C-20  | MA3279-124 | 1084-20CN200  |
|             | 1.5                      | ---              | ---          | TNM-20X2.5C-30  | MA3279-174 | 1084-20CN300  |
|             | 2                        | ---              | ---          | TNM-20X2.5C-40  | MA3279-224 | 1084-20CN400  |
|             | 2.5                      | ---              | ---          | TNM-20X2.5C-50  | MA3279-274 | 1084-20CN500  |
|             | 3                        | ---              | ---          | TNM-20X2.5C-60  | MA3279-324 | 1084-20CN600  |
| M22X2.5     | 1                        | ---              | ---          | TNM-22X2.5C-22  | MA3279-127 | 1084-22CN220  |
|             | 1.5                      | ---              | ---          | TNM-22X2.5C-33  | MA3279-177 | 1084-22CN330  |
|             | 2                        | ---              | ---          | TNM-22X2.5C-44  | MA3279-227 | 1084-22CN440  |
|             | 2.5                      | ---              | ---          | TNM-22X2.5C-55  | MA3279-277 | 1084-22CN550  |
|             | 3                        | ---              | ---          | TNM-22X2.5C-66  | MA3279-327 | 1084-22CN660  |
| M24X3       | 1                        | ---              | ---          | TNM-24X3C-24    | MA3279-129 | 1084-24CN240  |
|             | 1.5                      | ---              | ---          | TNM-24X3C-36    | MA3279-179 | 1084-24CN360  |
|             | 2                        | ---              | ---          | TNM-24X3C-48    | MA3279-229 | 1084-24CN480  |
|             | 2.5                      | ---              | ---          | TNM-24X3C-60    | MA3279-279 | 1084-24CN600  |
|             | 3                        | ---              | ---          | TNM-24X3C-72    | MA3279-329 | 1084-24CN720  |

# CoilThread Part Numbers & Cross References

## Metric Coarse - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |            |               |
|-------------|--------------------------|----------------|------------|----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.  | Heli-Coil No. |
| M27X3       | 1                        | ---            | ---        | TNM-27X3C-27   | MA3279-131 | 1084-27CN270  |
|             | 1.5                      | ---            | ---        | TNM-27X3C-40.5 | MA3279-181 | 1084-27CN405  |
|             | 2                        | ---            | ---        | TNM-27X3C-54   | MA3279-231 | 1084-27CN540  |
|             | 2.5                      | ---            | ---        | TNM-27X3C-67.5 | MA3279-281 | 1084-27CN675  |
|             | 3                        | ---            | ---        | TNM-27X3C-81   | MA3279-331 | 1084-27CN810  |

## Metric Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged          |            |               |
|-------------|--------------------------|----------------|------------|-----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No.  | MA/MS No.  | Heli-Coil No. |
| M8X1        | 1                        | ---            | ---        | TNM-8X1C-8      | MA3279-108 | 4255-8CN080   |
|             | 1.5                      | ---            | ---        | TNM-8X1C-12     | MA3279-158 | 4255-8CN120   |
|             | 2                        | ---            | ---        | TNM-8X1C-16     | MA3279-208 | 4255-8CN160   |
|             | 2.5                      | ---            | ---        | TNM-8X1C-20     | MA3279-258 | 4255-8CN200   |
|             | 3                        | ---            | ---        | TNM-8X1C-24     | MA3279-308 | 4255-8CN240   |
| M10X1       | 1                        | ---            | ---        | TNM-10X1C-10    | MA3279-141 | 4255-10CN100  |
|             | 1.5                      | ---            | ---        | TNM-10X1C-15    | MA3279-191 | 4255-10CN150  |
|             | 2                        | ---            | ---        | TNM-10X1C-20    | MA3279-241 | 4255-10CN200  |
|             | 2.5                      | ---            | ---        | TNM-10X1C-25    | MA3279-291 | 4255-10CN250  |
|             | 3                        | ---            | ---        | TNM-10X1C-30    | MA3279-341 | 4255-10CN300  |
| M10X1.25    | 1                        | ---            | ---        | TNM-10X1.25C-10 | MA3279-110 | 4649-10CN100  |
|             | 1.5                      | ---            | ---        | TNM-10X1.25C-15 | MA3279-160 | 4649-10CN150  |
|             | 2                        | ---            | ---        | TNM-10X1.25C-20 | MA3279-210 | 4649-10CN200  |
|             | 2.5                      | ---            | ---        | TNM-10X1.25C-25 | MA3279-260 | 4649-10CN250  |
|             | 3                        | ---            | ---        | TNM-10X1.25C-30 | MA3279-310 | 4649-10CN300  |
| M12X1.25    | 1                        | ---            | ---        | TNM-12X1.25C-12 | MA3279-112 | 4649-12CN120  |
|             | 1.5                      | ---            | ---        | TNM-12X1.25C-18 | MA3279-162 | 4649-12CN180  |
|             | 2                        | ---            | ---        | TNM-12X1.25C-24 | MA3279-212 | 4649-12CN240  |
|             | 2.5                      | ---            | ---        | TNM-12X1.25C-30 | MA3279-262 | 4649-12CN300  |
|             | 3                        | ---            | ---        | TNM-12X1.25C-36 | MA3279-312 | 4649-12CN360  |
| M12X1.5     | 1                        | ---            | ---        | TNM-12X1.5C-12  | MA3279-113 | 3745-12CN120  |
|             | 1.5                      | ---            | ---        | TNM-12X1.5C-18  | MA3279-163 | 3745-12CN180  |
|             | 2                        | ---            | ---        | TNM-12X1.5C-24  | MA3279-213 | 3745-12CN240  |
|             | 2.5                      | ---            | ---        | TNM-12X1.5C-30  | MA3279-263 | 3745-12CN300  |
|             | 3                        | ---            | ---        | TNM-12X1.5C-36  | MA3279-313 | 3745-12CN360  |
| M14X1.5     | 1                        | ---            | ---        | TNM-14X1.5C-14  | MA3279-115 | 3745-14CN140  |
|             | 1.5                      | ---            | ---        | TNM-14X1.5C-21  | MA3279-165 | 3745-14CN210  |
|             | 2                        | ---            | ---        | TNM-14X1.5C-28  | MA3279-215 | 3745-14CN280  |
|             | 2.5                      | ---            | ---        | TNM-14X1.5C-35  | MA3279-265 | 3745-14CN350  |
|             | 3                        | ---            | ---        | TNM-14X1.5C-42  | MA3279-315 | 3745-14CN420  |
| M16X1.5     | 1                        | ---            | ---        | TNM-16X1.5C-16  | MA3279-117 | 3745-16CN160  |
|             | 1.5                      | ---            | ---        | TNM-16X1.5C-24  | MA3279-167 | 3745-16CN240  |
|             | 2                        | ---            | ---        | TNM-16X1.5C-32  | MA3279-217 | 3745-16CN320  |
|             | 2.5                      | ---            | ---        | TNM-16X1.5C-40  | MA3279-267 | 3745-16CN400  |
|             | 3                        | ---            | ---        | TNM-16X1.5C-48  | MA3279-317 | 3745-16CN480  |

# CoilThread Part Numbers & Cross References

## Metric Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |             |               |
|-------------|--------------------------|----------------|------------|----------------|-------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS Specs | Heli-Coil No. |
| M18X1.5     | 1                        | ---            | ---        | TNM-18X1.5C-18 | MA3279-119  | 3745-18CN180  |
|             | 1.5                      | ---            | ---        | TNM-18X1.5C-27 | MA3279-169  | 3745-18CN270  |
|             | 2                        | ---            | ---        | TNM-18X1.5C-36 | MA3279-219  | 3745-18CN360  |
|             | 2.5                      | ---            | ---        | TNM-18X1.5C-45 | MA3279-269  | 3745-18CN450  |
|             | 3                        | ---            | ---        | TNM-18X1.5C-54 | MA3279-319  | 3745-18CN540  |
| M18X2       | 1                        | ---            | ---        | TNM-18X2C-18   | MA3279-120  | 4266-18CN180  |
|             | 1.5                      | ---            | ---        | TNM-18X2C-27   | MA3279-170  | 4266-18CN270  |
|             | 2                        | ---            | ---        | TNM-18X2C-36   | MA3279-220  | 4266-18CN360  |
|             | 2.5                      | ---            | ---        | TNM-18X2C-45   | MA3279-270  | 4266-18CN450  |
|             | 3                        | ---            | ---        | TNM-18X2C-54   | MA3279-320  | 4266-18CN540  |
| M20X1.5     | 1                        | ---            | ---        | TNM-20X1.5C-20 | MA3279-122  | 3745-20CN200  |
|             | 1.5                      | ---            | ---        | TNM-20X1.5C-30 | MA3279-172  | 3745-20CN300  |
|             | 2                        | ---            | ---        | TNM-20X1.5C-40 | MA3279-222  | 3745-20CN400  |
|             | 2.5                      | ---            | ---        | TNM-20X1.5C-50 | MA3279-272  | 3745-20CN500  |
|             | 3                        | ---            | ---        | TNM-20X1.5C-60 | MA3279-322  | 3745-20CN600  |
| M20X2       | 1                        | ---            | ---        | TNM-20X2C-20   | MA3279-123  | 4266-20CN200  |
|             | 1.5                      | ---            | ---        | TNM-20X2C-30   | MA3279-173  | 4266-20CN300  |
|             | 2                        | ---            | ---        | TNM-20X2C-40   | MA3279-223  | 4266-20CN400  |
|             | 2.5                      | ---            | ---        | TNM-20X2C-50   | MA3279-273  | 4266-20CN500  |
|             | 3                        | ---            | ---        | TNM-20X2C-60   | MA3279-323  | 4266-20CN600  |
| M22X1.5     | 1                        | ---            | ---        | TNM-22X1.5C-22 | MA3279-125  | 3745-22CN220  |
|             | 1.5                      | ---            | ---        | TNM-22X1.5C-33 | MA3279-175  | 3745-22CN330  |
|             | 2                        | ---            | ---        | TNM-22X1.5C-44 | MA3279-225  | 3745-22CN440  |
|             | 2.5                      | ---            | ---        | TNM-22X1.5C-55 | MA3279-275  | 3745-22CN550  |
|             | 3                        | ---            | ---        | TNM-22X1.5C-66 | MA3279-325  | 3745-22CN660  |
| M22X2       | 1                        | ---            | ---        | TNM-22X2C-22   | MA3279-126  | 4266-22CN220  |
|             | 1.5                      | ---            | ---        | TNM-22X2C-33   | MA3279-176  | 4266-22CN330  |
|             | 2                        | ---            | ---        | TNM-22X2C-44   | MA3279-226  | 4266-22CN440  |
|             | 2.5                      | ---            | ---        | TNM-22X2C-55   | MA3279-276  | 4266-22CN550  |
|             | 3                        | ---            | ---        | TNM-22X2C-66   | MA3279-326  | 4266-22CN660  |
| M24X2       | 1                        | ---            | ---        | TNM-24X2C-24   | MA3279-128  | 4266-24CN240  |
|             | 1.5                      | ---            | ---        | TNM-24X2C-36   | MA3279-178  | 4266-24CN360  |
|             | 2                        | ---            | ---        | TNM-24X2C-48   | MA3279-228  | 4266-24CN480  |
|             | 2.5                      | ---            | ---        | TNM-24X2C-60   | MA3279-278  | 4266-24CN600  |
|             | 3                        | ---            | ---        | TNM-24X2C-72   | MA3279-328  | 4266-24CN720  |
| M27X2       | 1                        | ---            | ---        | TNM-27X2C-27   | MA3279-130  | 4266-27CN270  |
|             | 1.5                      | ---            | ---        | TNM-27X2C-40.5 | MA3279-180  | 4266-27CN405  |
|             | 2                        | ---            | ---        | TNM-27X2C-54   | MA3279-230  | 4266-27CN540  |
|             | 2.5                      | ---            | ---        | TNM-27X2C-67.5 | MA3279-280  | 4266-27CN675  |
|             | 3                        | ---            | ---        | TNM-27X2C-81   | MA3279-330  | 4266-27CN810  |
| M30X2       | 1                        | ---            | ---        | TNM-30X2C-30   | MA3279-132  | 4266-33CN330  |
|             | 1.5                      | ---            | ---        | TNM-30X2C-45   | MA3279-182  | 4266-33CN495  |
|             | 2                        | ---            | ---        | TNM-30X2C-60   | MA3279-232  | 4266-33CN660  |
|             | 2.5                      | ---            | ---        | TNM-30X2C-75   | MA3279-282  | 4266-33CN825  |
|             | 3                        | ---            | ---        | TNM-30X2C-90   | MA3279-332  | 4266-33CN990  |

# CoilThread Part Numbers & Cross References

## Metric Fine - Non-Locking Series

| Thread Size | Nominal Length (in Dia.) | Tangless       |            | Tanged         |            |               |
|-------------|--------------------------|----------------|------------|----------------|------------|---------------|
|             |                          | CoilThread No. | NA/NAS No. | CoilThread No. | MA/MS No.  | Heli-Coil No. |
| M33X2       | 1                        | ---            | ---        | TNM-33X2C-33   | MA3279-134 | 4277-33CN330  |
|             | 1.5                      | ---            | ---        | TNM-33X2C-49.5 | MA3279-184 | 4277-33CN495  |
|             | 2                        | ---            | ---        | TNM-33X2C-66   | MA3279-234 | 4277-33CN660  |
|             | 2.5                      | ---            | ---        | TNM-33X2C-82.5 | MA3279-284 | 4277-33CN825  |
|             | 3                        | ---            | ---        | TNM-33X2C-99   | MA3279-334 | 4277-33CN990  |
| M39X2       | 1                        | ---            | ---        | TNM-39X2C-39   | MA3279-138 | 4266-39CN390  |
|             | 1.5                      | ---            | ---        | TNM-39X2C-58.5 | MA3279-188 | 4266-39CN585  |
|             | 2                        | ---            | ---        | TNM-39X2C-78   | MA3279-238 | 4266-39CN780  |
|             | 2.5                      | ---            | ---        | TNM-39X2C-97.5 | MA3279-288 | 4266-39CN975  |
|             | 3                        | ---            | ---        | TNM-39X2C-117  | MA3279-338 | 4266-39CN117  |
| M36X3       | 1                        | ---            | ---        | TNM-36X3C-36   | MA3279-137 | 4277-36CN360  |
|             | 1.5                      | ---            | ---        | TNM-36X3C-54   | MA3279-187 | 4277-36CN540  |
|             | 2                        | ---            | ---        | TNM-36X3C-72   | MA3279-237 | 4277-36CN720  |
|             | 2.5                      | ---            | ---        | TNM-36X3C-90   | MA3279-287 | 4277-36CN900  |
|             | 3                        | ---            | ---        | TNM-36X3C-108  | MA3279-337 | 4277-36CN108  |
| M39X3       | 1                        | ---            | ---        | TNM-39X3C-39   | MA3279-139 | 4277-39CN390  |
|             | 1.5                      | ---            | ---        | TNM-39X3C-58.5 | MA3279-189 | 4277-39CN585  |
|             | 2                        | ---            | ---        | TNM-39X3C-78   | MA3279-239 | 4277-39CN780  |
|             | 2.5                      | ---            | ---        | TNM-39X3C-97.5 | MA3279-289 | 4277-39CN975  |
|             | 3                        | ---            | ---        | TNM-39X3C-117  | MA3279-339 | 4277-39CN117  |



# CoilThread STI Taps

**KATO CoilThread STI (Screw Thread Insert) Taps** are designed specifically to create internal threads that will accommodate a KATO CoilThread insert. CoilThread STI Taps can be used in a range of materials including aluminum, magnesium, steel, plastics, and other free machining materials. KATO Taps are manufactured from High Speed Steel for durability and prolonged tooling life.

## KATO offers four tap styles for various applications:

Standard Regular Finishing Plug (4-Thread Chamfer) - Easy starting for through-holes and blind holes.



**Standard Regular Finishing Plug**

Standard Regular Finishing Bottoming (2-Thread Chamfer) - Ideal for blind holes which are drilled to the minimum depth, and for applications that require threads to be close to the bottom of the blind hole.



**Standard Regular Finishing Bottoming**

Spiral Pointed Plug (4-Thread Chamfer) - Free-cutting for use in long through-holes and in blind holes with chip clearance.



**Spiral Pointed Plug**

Spiral Flute Bottoming (2-Thread Chamfer) - Designed to pull chips out of deep or blind holes in soft materials.



**Spiral Flute Bottoming**

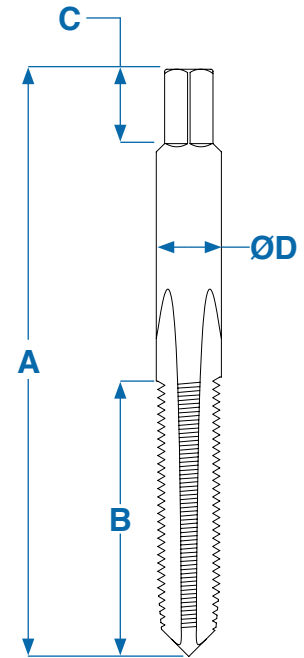
## Features and Benefits

- KATO STI Taps can be used for both Tangless and tanged CoilThread inserts.
- Available in 3B and 2B (Unified) or 4H and 5H (Metric) Class of Fit.
- Full range of Unified and Metric thread sizes available.
- Lower cost than similar taps from competitors.

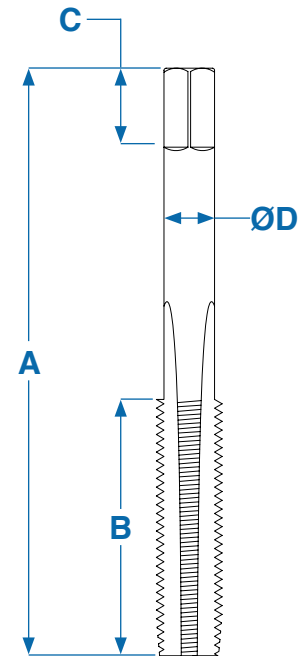
# CoilThread STI Taps - Dimensions

| Thread Size    | Tap Dimensions   |                    |                    |                     |                | Number of Flutes           |                   |                        |
|----------------|------------------|--------------------|--------------------|---------------------|----------------|----------------------------|-------------------|------------------------|
|                | Length Overall A | Length of Thread B | Length of Square C | Diameter of Shank D | Size of Square | Finishing Plug & Bottoming | Spiral Point Plug | Spiral Flute Bottoming |
| Unified Coarse |                  |                    |                    |                     |                |                            |                   |                        |
| 1-64           | 1.88             | 0.56               | 0.17               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 2-56           | 1.88             | 0.56               | 0.19               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 3-48           | 1.94             | 0.63               | 0.19               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 4-40           | 2.00             | 0.69               | 0.19               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 5-40           | 2.13             | 0.75               | 0.25               | 0.17                | 0.13           | 3                          | 2                 | 3                      |
| 6-32           | 2.38             | 0.88               | 0.25               | 0.19                | 0.15           | 3                          | 2                 | 3                      |
| 8-32           | 2.38             | 0.94               | 0.28               | 0.22                | 0.17           | 3                          | 2                 | 3                      |
| 10-24          | 2.50             | 1.00               | 0.31               | 0.26                | 0.19           | 3                          | 2                 | 3                      |
| 12-24          | 2.72             | 1.13               | 0.38               | 0.32                | 0.24           | 3                          | 2                 | 3                      |
| 1/4-20         | 2.72             | 1.13               | 0.38               | 0.32                | 0.24           | 3                          | 2                 | 3                      |
| 5/16-18        | 2.94             | 1.25               | 0.44               | 0.38                | 0.29           | 4                          | 3                 | 3                      |
| 3/8-16         | 3.38             | 1.66               | 0.44               | 0.37                | 0.28           | 4                          | 3                 | 3                      |
| 7/16-14        | 3.59             | 1.66               | 0.50               | 0.43                | 0.32           | 4                          | 3                 | 4                      |
| 1/2-13         | 3.81             | 1.81               | 0.56               | 0.48                | 0.36           | 4                          | 3                 | 4                      |
| 9/16-12        | 4.03             | 1.81               | 0.63               | 0.54                | 0.41           | 4                          | --                | --                     |
| 5/8-11         | 4.25             | 2.00               | 0.69               | 0.59                | 0.44           | 4                          | --                | --                     |
| 3/4-10         | 4.69             | 2.22               | 0.75               | 0.70                | 0.52           | 4                          | --                | --                     |
| 7/8-9          | 5.13             | 2.50               | 0.81               | 0.80                | 0.60           | 4                          | --                | --                     |
| 1-8            | 5.75             | 2.56               | 1.00               | 1.02                | 0.77           | 4                          | --                | --                     |
| 1-1/8-7        | 6.06             | 3.00               | 1.17               | 1.11                | 0.83           | 4                          | --                | --                     |
| 1-1/4-7        | 6.38             | 3.00               | 1.13               | 1.23                | 0.93           | 4                          | --                | --                     |
| 1-3/8-6        | 6.69             | 3.19               | 1.13               | 1.31                | 0.98           | 4                          | --                | --                     |
| 1-1/2-6        | 7.00             | 3.19               | 1.25               | 1.43                | 1.07           | 6                          | --                | --                     |
| Unified Fine   |                  |                    |                    |                     |                |                            |                   |                        |
| 0-80           | 1.70             | 0.38               | 0.23               | 0.14                | 0.11           | 3                          | ---               | ---                    |
| 3-56           | 1.94             | 0.63               | 0.19               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 4-48           | 2.00             | 0.69               | 0.19               | 0.14                | 0.11           | 3                          | 2                 | 2                      |
| 6-40           | 2.13             | 0.75               | 0.25               | 0.17                | 0.13           | 3                          | 2                 | 3                      |
| 8-36           | 2.38             | 0.94               | 0.28               | 0.22                | 0.17           | 3                          | 2                 | 3                      |
| 10-32          | 2.50             | 1.00               | 0.31               | 0.26                | 0.19           | 3                          | 2                 | 3                      |
| 1/4-28         | 2.72             | 1.13               | 0.38               | 0.32                | 0.24           | 3                          | 2                 | 3                      |
| 5/16-24        | 2.94             | 1.25               | 0.44               | 0.38                | 0.29           | 4                          | 3                 | 3                      |
| 3/8-24         | 3.16             | 1.44               | 0.81               | 0.32                | 0.29           | 4                          | 3                 | 3                      |
| 7/16-20        | 3.38             | 1.66               | 0.44               | 0.37                | 0.28           | 4                          | 3                 | 3                      |
| 1/2-20         | 3.59             | 1.66               | 0.50               | 0.43                | 0.32           | 4                          | 3                 | 4                      |
| 9/16-18        | 3.81             | 1.81               | 0.56               | 0.48                | 0.36           | 4                          | --                | --                     |
| 5/8-18         | 4.03             | 1.81               | 0.63               | 0.54                | 0.41           | 4                          | --                | --                     |
| 3/4-16         | 4.47             | 2.00               | 0.69               | 0.65                | 0.49           | 4                          | --                | --                     |
| 7/8-14         | 5.13             | 2.50               | 0.81               | 0.80                | 0.60           | 4                          | --                | --                     |
| 1-12           | 5.44             | 2.56               | 0.88               | 0.90                | 0.67           | 4                          | --                | --                     |
| 1-1/8-12       | 5.75             | 2.56               | 1.00               | 1.02                | 0.77           | 4                          | --                | --                     |
| 1-1/4-12       | 6.06             | 3.00               | 1.06               | 1.11                | 0.83           | 6                          | --                | --                     |
| 1-3/8-12       | 6.38             | 3.00               | 1.13               | 1.23                | 0.93           | 6                          | --                | --                     |
| 1-1/2-12       | 6.69             | 3.19               | 1.13               | 1.31                | 0.98           | 6                          | --                | --                     |

**Standard Regular Finishing Plug:**  
Easy starting for through-holes and blind holes.



**Standard Regular Finishing Bottoming:**  
Ideal for blind holes which are drilled to the minimum depth.

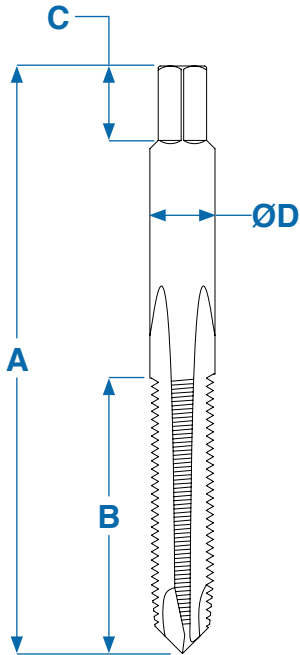


1. All dimensions are in inches.
2. All dimensions are for reference only.

# CoilThread STI Taps - Dimensions

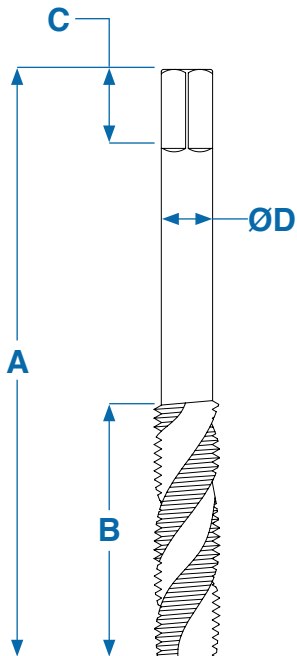
## Spiral Pointed Plug:

Free-cutting for use in long through-holes and in blind holes with chip clearance.



## Spiral Flute Bottoming:

Designed to pull chips out of deep or blind holes in soft materials.

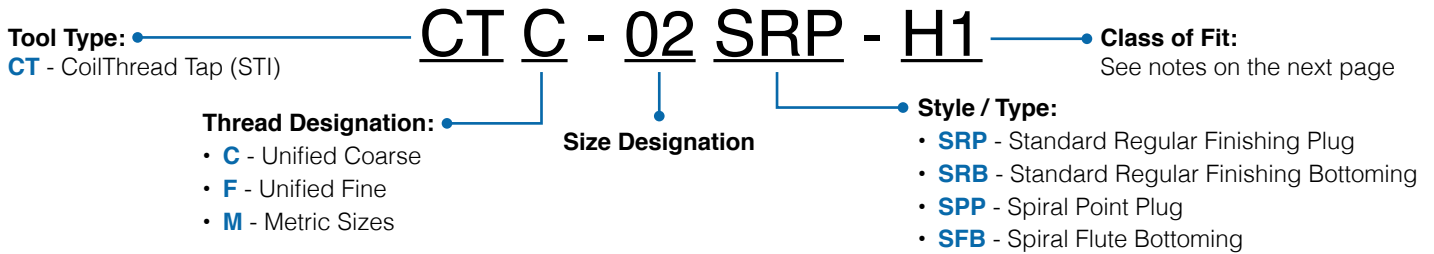


| Thread Size          | Tap Dimensions   |                    |                    |                     |                | Number of Flutes           |                   |                        |
|----------------------|------------------|--------------------|--------------------|---------------------|----------------|----------------------------|-------------------|------------------------|
|                      | Length Overall A | Length of Thread B | Length of Square C | Diameter of Shank D | Size of Square | Finishing Plug & Bottoming | Spiral Point Plug | Spiral Flute Bottoming |
| <b>Metric Coarse</b> |                  |                    |                    |                     |                |                            |                   |                        |
| M2x0.4               | 46.04            | 12.70              | 4.77               | 3.580               | 2.80           | 3                          | 2                 | 2                      |
| M2.2X0.45            | 47.62            | 14.29              | 4.76               | 3.580               | 2.790          | 3                          | 2                 | 2                      |
| M2.5X0.45            | 49.21            | 15.88              | 4.76               | 3.580               | 2.790          | 3                          | 2                 | 2                      |
| M3X0.5               | 50.80            | 17.46              | 4.76               | 3.580               | 2.790          | 3                          | 2                 | 2                      |
| M3.5X0.6             | 53.98            | 19.05              | 6.35               | 4.270               | 3.330          | 3                          | 2                 | 3                      |
| M4X0.7               | 60.32            | 22.22              | 6.35               | 4.930               | 3.860          | 3                          | 2                 | 3                      |
| M5X0.8               | 63.50            | 25.40              | 7.94               | 6.480               | 4.850          | 3                          | 2                 | 3                      |
| M6X1                 | 69.06            | 28.58              | 9.52               | 8.080               | 6.040          | 4                          | 2                 | 3                      |
| M7X1                 | 74.61            | 31.75              | 11.11              | 9.680               | 7.260          | 4                          | 3                 | 3                      |
| M8X1.25              | 74.61            | 31.75              | 11.11              | 9.680               | 7.260          | 4                          | 3                 | 3                      |
| M10X1.5              | 85.72            | 42.07              | 11.11              | 9.320               | 6.980          | 4                          | 3                 | 3                      |
| M12X1.75             | 91.28            | 42.07              | 12.70              | 10.900              | 8.180          | 4                          | 3                 | 4                      |
| M14X2                | 102.39           | 46.04              | 15.88              | 13.770              | 10.310         | 4                          | 3                 | --                     |
| M16X2                | 107.95           | 50.80              | 17.46              | 14.990              | 11.230         | 4                          | 3                 | --                     |
| M18X2.5              | 119.06           | 56.36              | 19.05              | 17.700              | 13.280         | 4                          | --                | --                     |
| M20X2.5              | 124.62           | 56.36              | 19.05              | 19.300              | 14.480         | 4                          | --                | --                     |
| M22X2.5              | 130.18           | 63.50              | 20.64              | 20.320              | 15.240         | 4                          | --                | --                     |
| M24X3                | 138.11           | 65.09              | 22.22              | 22.760              | 17.070         | 4                          | --                | --                     |
| M27X3                | 146.05           | 65.09              | 25.40              | 25.980              | 19.460         | 4                          | --                | --                     |
| <b>Metric Fine</b>   |                  |                    |                    |                     |                |                            |                   |                        |
| M8X1                 | 74.61            | 31.75              | 11.11              | 9.680               | 7.260          | 4                          | 3                 | 3                      |
| M10X1                | 80.71            | 36.51              | 10.32              | 8.200               | 6.150          | 4                          | 3                 | 3                      |
| M10X1.25             | 85.72            | 42.07              | 11.11              | 9.320               | 6.980          | 4                          | 3                 | 3                      |
| M12X1.25             | 91.28            | 42.07              | 12.70              | 10.900              | 8.180          | 4                          | 3                 | 4                      |
| M12X1.5              | 91.28            | 42.07              | 12.70              | 10.900              | 8.180          | 4                          | 3                 | 4                      |
| M14X1.5              | 96.84            | 46.04              | 14.26              | 12.190              | 9.140          | 4                          | 3                 | 4                      |
| M16X1.5              | 107.95           | 50.80              | 17.46              | 14.990              | 11.230         | 4                          | 3                 | --                     |
| M18X1.5              | 113.51           | 50.80              | 17.46              | 16.560              | 12.420         | 4                          | --                | --                     |
| M20X1.5              | 119.06           | 56.36              | 19.05              | 17.700              | 13.280         | 4                          | --                | --                     |
| M22X1.5              | 130.18           | 63.50              | 20.64              | 20.320              | 15.240         | 4                          | --                | --                     |
| M18X2                | 113.51           | 50.80              | 17.46              | 16.560              | 12.420         | 4                          | --                | --                     |
| M20X2                | 124.62           | 56.36              | 19.05              | 19.300              | 14.480         | 4                          | --                | --                     |
| M22X2                | 130.18           | 63.50              | 20.64              | 20.320              | 15.240         | 4                          | --                | --                     |
| M24X2                | 130.18           | 63.50              | 22.22              | 22.760              | 17.070         | 4                          | --                | --                     |
| M27X2                | 138.11           | 65.09              | 25.40              | 25.930              | 19.460         | 4                          | --                | --                     |
| M30X2                | 146.05           | 65.09              | 26.99              | 28.140              | 21.110         | 6                          | --                | --                     |
| M33X2                | 153.99           | 76.20              | 28.58              | 31.320              | 23.500         | 6                          | --                | --                     |
| M39X2                | 177.80           | 80.96              | 31.75              | 36.320              | 27.230         | 6                          | --                | --                     |
| M36X3                | 169.86           | 80.96              | 28.58              | 33.150              | 24.870         | 6                          | --                | --                     |
| M39X3                | 177.80           | 80.96              | 31.75              | 36.200              | 27.230         | 6                          | --                | --                     |

1. All dimensions are in millimeters.
2. All dimensions are for reference only.

# CoilThread STI Taps - Part Numbers

Example of a KATO CoilThread STI Tap part number:



| Thread Size    | Standard Regular Finishing |              |              |              | Spiral Pointed |              | Spiral Flute |              |
|----------------|----------------------------|--------------|--------------|--------------|----------------|--------------|--------------|--------------|
|                | Plug                       |              | Bottoming    |              | Plug           |              | Bottoming    |              |
|                | 3B                         | 2B           | 3B           | 2B           | 3B             | 2B           | 3B           | 2B           |
| Unified Coarse |                            |              |              |              |                |              |              |              |
| 1-64           | CTC-01SRP-H1               | CTC-01SRP-H2 | CTC-01SRB-H1 | CTC-01SRB-H2 | CTC-01SPP-H1   | CTC-01SPP-H2 | CTC-01SFB-H1 | CTC-01SFB-H2 |
| 2-56           | CTC-02SRP-H1               | CTC-02SRP-H2 | CTC-02SRB-H1 | CTC-02SRB-H2 | CTC-02SPP-H1   | CTC-02SPP-H2 | CTC-02SFB-H1 | CTC-02SFB-H2 |
| 3-48           | CTC-03SRP-H1               | CTC-03SRP-H2 | CTC-03SRB-H1 | CTC-03SRB-H2 | CTC-03SPP-H1   | CTC-03SPP-H2 | CTC-03SFB-H1 | CTC-03SFB-H2 |
| 4-40           | CTC-04SRP-H1               | CTC-04SRP-H2 | CTC-04SRB-H1 | CTC-04SRB-H2 | CTC-04SPP-H1   | CTC-04SPP-H2 | CTC-04SFB-H1 | CTC-04SFB-H2 |
| 5-40           | CTC-05SRP-H1               | CTC-05SRP-H2 | CTC-05SRB-H1 | CTC-05SRB-H2 | CTC-05SPP-H1   | CTC-05SPP-H2 | CTC-05SFB-H1 | CTC-05SFB-H2 |
| 6-32           | CTC-06SRP-H2               | CTC-06SRP-H3 | CTC-06SRB-H2 | CTC-06SRB-H3 | CTC-06SPP-H2   | CTC-06SPP-H3 | CTC-06SFB-H2 | CTC-06SFB-H3 |
| 8-32           | CTC-2SRP-H2                | CTC-2SRP-H3  | CTC-2SRB-H2  | CTC-2SRB-H3  | CTC-2SPP-H2    | CTC-2SPP-H3  | CTC-2SFB-H2  | CTC-2SFB-H3  |
| 10-24          | CTC-3SRP-H2                | CTC-3SRP-H3  | CTC-3SRB-H2  | CTC-3SRB-H3  | CTC-3SPP-H2    | CTC-3SPP-H3  | CTC-3SFB-H2  | CTC-3SFB-H3  |
| 12-24          | CTC-1SRP-H2                | CTC-1SRP-H3  | CTC-1SRB-H2  | CTC-1SRB-H3  | CTC-1SPP-H2    | CTC-1SPP-H3  | CTC-1SFB-H2  | CTC-1SFB-H3  |
| 1/4-20         | CTC-4SRP-H2                | CTC-4SRP-H3  | CTC-4SRB-H2  | CTC-4SRB-H3  | CTC-4SPP-H2    | CTC-4SPP-H3  | CTC-4SFB-H2  | CTC-4SFB-H3  |
| 5/16-18        | CTC-5SRP-H3                | CTC-5SRP-H4  | CTC-5SRB-H3  | CTC-5SRB-H4  | CTC-5SPP-H3    | CTC-5SPP-H4  | CTC-5SFB-H3  | CTC-5SFB-H4  |
| 3/8-16         | CTC-6SRP-H3                | CTC-6SRP-H4  | CTC-6SRB-H3  | CTC-6SRB-H4  | CTC-6SPP-H3    | CTC-6SPP-H4  | CTC-6SFB-H3  | CTC-6SFB-H4  |
| 7/16-14        | CTC-7SRP-H3                | CTC-7SRP-H4  | CTC-7SRB-H3  | CTC-7SRB-H4  | CTC-7SPP-H3    | CTC-7SPP-H4  | CTC-7SFB-H3  | CTC-7SFB-H4  |
| 1/2-13         | CTC-8SRP-H3                | CTC-8SRP-H4  | CTC-8SRB-H3  | CTC-8SRB-H4  | CTC-8SPP-H3    | CTC-8SPP-H4  | CTC-8SFB-H3  | CTC-8SFB-H4  |
| 9/16-12        | CTC-9SRP-H3                | CTC-9SRP-H4  | CTC-9SRB-H3  | CTC-9SRB-H4  | ---            | ---          | ---          | ---          |
| 5/8-11         | CTC-10SRP-H3               | CTC-10SRP-H4 | CTC-10SRB-H3 | CTC-10SRB-H4 | ---            | ---          | ---          | ---          |
| 3/4-10         | CTC-12SRP-H3               | CTC-12SRP-H5 | CTC-12SRB-H3 | CTC-12SRB-H5 | ---            | ---          | ---          | ---          |
| 7/8-9          | CTC-14SRP-H3               | CTC-14SRP-H5 | CTC-14SRB-H3 | CTC-14SRB-H5 | ---            | ---          | ---          | ---          |
| 1-8            | CTC-16SRP-H4               | CTC-16SRP-H6 | CTC-16SRB-H4 | CTC-16SRB-H6 | ---            | ---          | ---          | ---          |
| 1-1/8-7        | CTC-18SRP-H4               | CTC-18SRP-H6 | CTC-18SRB-H4 | CTC-18SRB-H6 | ---            | ---          | ---          | ---          |
| 1-1/4-7        | CTC-20SRP-H4               | CTC-20SRP-H6 | CTC-20SRB-H4 | CTC-20SRB-H6 | ---            | ---          | ---          | ---          |
| 1-3/8-6        | CTC-22SRP-H6               | CTC-22SRP-H8 | CTC-22SRB-H6 | CTC-22SRB-H8 | ---            | ---          | ---          | ---          |
| 1-1/2-6        | CTC-24SRP-H6               | CTC-24SRP-H8 | CTC-24SRB-H6 | CTC-24SRB-H8 | ---            | ---          | ---          | ---          |
| Unified Fine   |                            |              |              |              |                |              |              |              |
| 0-80           | CTF-00SRP-H1               | CTF-03SRP-H1 | CTF-00SRB-H1 | CTF-00SRB-H2 | ---            | ---          | ---          | ---          |
| 3-56           | CTF-03SRP-H1               | CTF-03SRP-H2 | CTF-03SRB-H1 | CTF-03SRB-H2 | CTF-03SPP-H1   | CTF-03SPP-H2 | CTF-03SFB-H1 | CTF-03SFB-H2 |
| 4-48           | CTF-04SRP-H1               | CTF-04SRP-H2 | CTF-04SRB-H1 | CTF-04SRB-H2 | CTF-04SPP-H1   | CTF-04SPP-H2 | CTF-04SFB-H1 | CTF-04SFB-H2 |
| 6-40           | CTF-06SRP-H1               | CTF-06SRP-H2 | CTF-06SRB-H1 | CTF-06SRB-H2 | CTF-06SPP-H1   | CTF-06SPP-H2 | CTF-06SFB-H1 | CTF-06SFB-H2 |
| 8-36           | CTF-2SRP-H1                | CTF-2SRP-H2  | CTF-2SRB-H1  | CTF-2SRB-H2  | CTF-2SPP-H1    | CTF-2SPP-H2  | CTF-2SFB-H1  | CTF-2SFB-H2  |
| 10-32          | CTF-3SRP-H2                | CTF-3SRP-H3  | CTF-3SRB-H2  | CTF-3SRB-H3  | CTF-3SPP-H2    | CTF-3SPP-H3  | CTF-3SFB-H2  | CTF-3SFB-H3  |
| 1/4-28         | CTF-4SRP-H2                | CTF-4SRP-H3  | CTF-4SRB-H2  | CTF-4SRB-H3  | CTF-4SPP-H2    | CTF-4SPP-H3  | CTF-4SFB-H2  | CTF-4SFB-H3  |
| 5/16-24        | CTF-5SRP-H2                | CTF-5SRP-H3  | CTF-5SRB-H2  | CTF-5SRB-H3  | CTF-5SPP-H2    | CTF-5SPP-H3  | CTF-5SFB-H2  | CTF-5SFB-H3  |
| 3/8-24         | CTF-6SRP-H2                | CTF-6SRP-H3  | CTF-6SRB-H2  | CTF-6SRB-H3  | CTF-6SPP-H2    | CTF-6SPP-H3  | CTF-6SFB-H2  | CTF-6SFB-H3  |
| 7/16-20        | CTF-7SRP-H3                | CTF-7SRP-H4  | CTF-7SRB-H3  | CTF-7SRB-H4  | CTF-7SPP-H3    | CTF-7SPP-H4  | CTF-7SFB-H3  | CTF-7SFB-H4  |
| 1/2-20         | CTF-8SRP-H3                | CTF-8SRP-H4  | CTF-8SRB-H3  | CTF-8SRB-H4  | CTF-8SPP-H3    | CTF-8SPP-H4  | CTF-8SFB-H3  | CTF-8SFB-H4  |
| 9/16-18        | CTF-9SRP-H3                | CTF-9SRP-H4  | CTF-9SRB-H3  | CTF-9SRB-H4  | ---            | ---          | ---          | ---          |
| 5/8-18         | CTF-10SRP-H3               | CTF-10SRP-H4 | CTF-10SRB-H3 | CTF-10SRB-H4 | ---            | ---          | ---          | ---          |
| 3/4-16         | CTF-12SRP-H3               | CTF-12SRP-H4 | CTF-12SRB-H3 | CTF-12SRB-H4 | ---            | ---          | ---          | ---          |
| 7/8-14         | CTF-14SRP-H3               | CTF-14SRP-H4 | CTF-14SRB-H3 | CTF-14SRB-H4 | ---            | ---          | ---          | ---          |
| 1-12           | CTF-16SRP-H4               | CTF-16SRP-H6 | CTF-16SRB-H4 | CTF-16SRB-H6 | ---            | ---          | ---          | ---          |
| 1-1/8-12       | CTF-18SRP-H4               | CTF-18SRP-H6 | CTF-18SRB-H4 | CTF-18SRB-H6 | ---            | ---          | ---          | ---          |
| 1-1/4-12       | CTF-20SRP-H4               | CTF-20SRP-H6 | CTF-20SRB-H4 | CTF-20SRB-H6 | ---            | ---          | ---          | ---          |
| 1-3/8-12       | CTF-22SRP-H6               | CTF-22SRP-H8 | CTF-22SRB-H6 | CTF-22SRB-H8 | ---            | ---          | ---          | ---          |
| 1-1/2-12       | CTF-24SRP-H6               | CTF-24SRP-H8 | CTF-24SRB-H6 | CTF-24SRB-H8 | ---            | ---          | ---          | ---          |

# CoilThread STI Taps - Part Numbers

| Thread Size   | Standard Regular Finishing |                   |                   |                   |
|---------------|----------------------------|-------------------|-------------------|-------------------|
|               | Plug                       |                   | Bottoming         |                   |
|               | 4H                         | 5H                | 4H                | 5H                |
| Metric Coarse |                            |                   |                   |                   |
| M2X0.4        | CTM-2X.4SRP-4H             | CTM-2X.4SRP-5H    | CTM-2X.45SRB-4H   | CTM-2X.45SRB-5H   |
| M2.2X0.45     | CTM-2.2X.45SRP-4H          | CTM-2.2X.45SRP-5H | CTM-2.2X.45SRB-4H | CTM-2.2X.45SRB-5H |
| M2.5X0.45     | CTM-2.5X.45SRP-4H          | CTM-2.5X.45SRP-5H | CTM-2.5X.45SRB-4H | CTM-2.5X.45SRB-5H |
| M3X0.5        | CTM-3X.5SRP-4H             | CTM-3X.5SRP-5H    | CTM-3X.5SRB-4H    | CTM-3X.5SRB-5H    |
| M3.5X0.6      | CTM-3.5X.6SRP-4H           | CTM-3.5X.6SRP-5H  | CTM-3.5X.6SRB-4H  | CTM-3.5X.6SRB-5H  |
| M4X0.7        | CTM-4X.7SRP-4H             | CTM-4X.7SRP-5H    | CTM-4X.7SRB-4H    | CTM-4X.7SRB-5H    |
| M5X0.8        | CTM-5X.8SRP-4H             | CTM-5X.8SRP-5H    | CTM-5X.8SRB-4H    | CTM-5X.8SRB-5H    |
| M6X1          | CTM-6X1SRP-4H              | CTM-6X1SRP-5H     | CTM-6X1SRB-4H     | CTM-6X1SRB-5H     |
| M7X1          | CTM-7X1SRP-4H              | CTM-7X1SRP-5H     | CTM-7X1SRB-4H     | CTM-7X1SRB-5H     |
| M8X1.25       | CTM-8X1.25SRP-4H           | CTM-8X1.25SRP-5H  | CTM-8X1.25SRB-4H  | CTM-8X1.25SRB-5H  |
| M10X1.5       | CTM-10X1.5SRP-4H           | CTM-10X1.5SRP-5H  | CTM-10X1.5SRB-4H  | CTM-10X1.5SRB-5H  |
| M12X1.75      | CTM-12X1.75SRP-4H          | CTM-12X1.75SRP-5H | CTM-12X1.75SRB-4H | CTM-12X1.75SRB-5H |
| M14X2         | CTM-14X2SRP-4H             | CTM-14X2SRP-5H    | CTM-14X2SRB-4H    | CTM-14X2SRB-5H    |
| M16X2         | CTM-16X2SRP-4H             | CTM-16X2SRP-5H    | CTM-16X2SRB-4H    | CTM-16X2SRB-4H    |
| M18X2.5       | CTM-18X2.5SRP-4H           | CTM-18X2.5SRP-5H  | CTM-18X2.5SRB-4H  | CTM-18X2.5SRB-5H  |
| M20X2.5       | CTM-20X2.5SRP-4H           | CTM-20X2.5SRP-5H  | CTM-20X2.5SRB-4H  | CTM-20X2.5SRB-5H  |
| M22X2.5       | CTM-22X2.5SRP-4H           | CTM-22X2.5SRP-5H  | CTM-22X2.5SRB-4H  | CTM-22X2.5SRB-5H  |
| M24X3         | CTM-24X3SRP-4H             | CTM-24X3SRP-5H    | CTM-24X3SRB-4H    | CTM-24X3SRB-5H    |
| M27X3         | CTM-27X3SRP-4H             | CTM-27X3SRP-5H    | CTM-27X3SRB-4H    | CTM-27X3SRB-5H    |
| Metric Fine   |                            |                   |                   |                   |
| M8X1          | CTM-8X1SRP-4H              | CTM-8X1SRP-5H     | CTM-8X1SRB-4H     | CTM-8X1SRB-5H     |
| M10X1         | CTM-10X1SRP-4H             | CTM-10X1SRP-5H    | CTM-10X1SRB-4H    | CTM-10X1SRB-5H    |
| M10X1.25      | CTM-10X1.25SRP-4H          | CTM-10X1.25SRP-5H | CTM-10X1.25SRB-4H | CTM-10X1.25SRB-5H |
| M12X1.25      | CTM-12X1.25SRP-4H          | CTM-12X1.25SRP-5H | CTM-12X1.25SRB-4H | CTM-12X1.25SRB-5H |
| M12X1.5       | CTM-12X1.5SRP-4H           | CTM-12X1.5SRP-5H  | CTM-12X1.5SRB-4H  | CTM-12X1.5SRB-5H  |
| M14X1.5       | CTM-14X1.5SRP-4H           | CTM-14X1.5SRP-5H  | CTM-14X1.5SRB-4H  | CTM-14X1.5SRB-5H  |
| M16X1.5       | CTM-16X1.5SRP-4H           | CTM-16X1.5SRP-5H  | CTM-16X1.5SRB-4H  | CTM-16X1.5SRB-5H  |
| M18X1.5       | CTM-18X1.5SRP-4H           | CTM-18X1.5SRP-5H  | CTM-18X1.5SRB-4H  | CTM-18X1.5SRB-5H  |
| M20X1.5       | CTM-20X1.5SRP-4H           | CTM-20X1.5SRP-5H  | CTM-20X1.5SRB-4H  | CTM-20X1.5SRB-5H  |
| M22X1.5       | CTM-22X1.5SRP-4H           | CTM-22X1.5SRP-5H  | CTM-22X1.5SRB-4H  | CTM-22X1.5SRB-5H  |
| M18X2         | CTM-18X2SRP-4H             | CTM-18X2SRP-5H    | CTM-18X2SRB-4H    | CTM-18X2SRB-5H    |
| M20X2         | CTM-20X2SRP-4H             | CTM-20X2SRP-5H    | CTM-20X2SRB-4H    | CTM-20X2SRB-5H    |
| M22X2         | CTM-22X2SRP-4H             | CTM-22X2SRP-5H    | CTM-22X2SRB-4H    | CTM-22X2SRB-5H    |
| M24X2         | CTM-24X2SRP-4H             | CTM-24X2SRP-5H    | CTM-24X2SRB-4H    | CTM-24X2SRB-5H    |
| M27X2         | CTM-27X2SRP-4H             | CTM-27X2SRP-5H    | CTM-27X2SRB-4H    | CTM-27X2SRB-5H    |
| M30X2         | CTM-30X2SRP-4H             | CTM-30X2SRP-5H    | CTM-24X2SRB-4H    | CTM-24X2SRB-5H    |
| M33X2         | CTM-33X2SRP-4H             | CTM-33X2SRP-5H    | CTM-33X2SRB-4H    | CTM-33X2SRB-5H    |
| M39X2         | CTM-39X2SRP-4H             | CTM-39X2SRP-5H    | CTM-39X2SRB-4H    | CTM-39X2SRB-5H    |
| M36X3         | CTM-36X3SRP-4H             | CTM-36X3SRP-5H    | CTM-36X3SRB-4H    | CTM-36X3SRB-5H    |
| M39X3         | CTM-39X3SRP-4H             | CTM-39X3SRP-5H    | CTM-39X3SRB-4H    | CTM-39X3SRB-5H    |

1. The "H" limit indicates the tolerance range above the basic pitch diameter. Each "H" number is equal to 0.0005 inch above the basic pitch diameter.
2. The Class of Fit specifies the pitch diameter tolerance of the tapped hole, with class 3B (Unified) and 4H (Metric) being the tighter range usually specified in military/aerospace applications. Class 2B (Unified) and 5H (Metric) taps provide a broader tolerance range or looser fit, and are normally specified in commercial/industrial applications.
3. The class of fit of the installed insert is controlled by the class of fit of the tapped hole.

# CoilThread STI Taps - Part Numbers

| Thread Size   | Spiral Pointed Plug |                   | Spiral Flute Bottoming |                   |
|---------------|---------------------|-------------------|------------------------|-------------------|
|               | 4H                  | 5H                | 4H                     | 5H                |
| Metric Coarse |                     |                   |                        |                   |
| M2X0.4        | CTM-2X.4SPP-4H      | CTM-2X.4SPP-5H    | CTM-2X.45SFB-4H        | CTM-2X.4SFB-5H    |
| M2.2X0.45     | CTM-2.2X.45SPP-4H   | CTM-2.2X.45SPP-5H | CTM-2.2X.45SFB-4H      | CTM-2.2X.45SFB-5H |
| M2.5X0.45     | CTM-2.5X.45SPP-4H   | CTM-2.5X.45SPP-5H | CTM-2.5X.45SFB-4H      | CTM-2.5X.45SFB-5H |
| M3X0.5        | CTM-3X.5SPP-4H      | CTM-3X.5SPP-5H    | CTM-3X.5SFB-4H         | CTM-3X.5SFB-5H    |
| M3.5X0.6      | CTM-3.5X.6SPP-4H    | CTM-3.5X.6SPP-5H  | CTM-3.5X.6SFB-4H       | CTM-3.5X.6SFB-5H  |
| M4X0.7        | CTM-4X.7SPP-4H      | CTM-4X.7SPP-5H    | CTM-4X.7SFB-4H         | CTM-4X.7SFB-5H    |
| M5X0.8        | CTM-5X.8SPP-4H      | CTM-5X.8SPP-5H    | CTM-5X.8SFB-4H         | CTM-5X.8SFB-5H    |
| M6X1          | CTM-6X1SPP-4H       | CTM-6X1SPP-5H     | CTM-6X1SFB-4H          | CTM-6X1SFB-5H     |
| M7X1          | CTM-7X1SPP-4H       | CTM-7X1SPP-5H     | CTM-7X1SFB-4H          | CTM-7X1SFB-5H     |
| M8X1.25       | CTM-8X1.25SPP-4H    | CTM-8X1.25SPP-5H  | CTM-8X1.25SFB-4H       | CTM-8X1.25SFB-5H  |
| M10X1.5       | CTM-10X1.5SPP-4H    | CTM-10X1.5SPP-5H  | CTM-10X1.5SFB-4H       | CTM-10X1.5SFB-5H  |
| M12X1.75      | CTM-12X1.75SPP-4H   | CTM-12X1.75SPP-5H | CTM-12X1.75SFB-4H      | CTM-12X1.75SFB-5H |
| Metric Fine   |                     |                   |                        |                   |
| M8X1          | CTM-8X1SPP-4H       | CTM-8X1SPP-5H     | CTM-8X1SFB-4H          | CTM-8X1SFB-5H     |
| M10X1         | CTM-10X1SPP-4H      | CTM-10X1SPP-5H    | CTM-10X1SFB-4H         | CTM-10X1SFB-5H    |
| M10X1.25      | CTM-10X1.25SPP-4H   | CTM-10X1.25SPP-5H | CTM-10X1.25SFB-4H      | CTM-10X1.25SFB-5H |
| M12X1.25      | CTM-12X1.25SPP-4H   | CTM-12X1.25SPP-5H | CTM-12X1.25SFB-4H      | CTM-12X1.25SFB-5H |
| M12X1.5       | CTM-12X1.5SPP-4H    | CTM-12X1.5SPP-5H  | CTM-12X1.5SFB-4H       | CTM-12X1.5SFB-5H  |



# CoilThread STI Taps - Cross References

| KATO Part Number                | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number | KATO Part Number                     | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number |
|---------------------------------|-----------------------|------------------|-----------------------|--------------------------------------|-----------------------|------------------|-----------------------|
| Standard Regular Finishing Plug |                       |                  |                       | Standard Regular Finishing Bottoming |                       |                  |                       |
| 3B                              |                       | 2B               |                       | 3B                                   |                       | 2B               |                       |
| Unified Coarse                  |                       |                  |                       |                                      |                       |                  |                       |
| CTC-01SRP-H1                    | 01CPB                 | CTC-01SRP-H2     | 01CPA                 | CTC-01SRB-H1                         | 01CBB                 | CTC-01SRB-H2     | 01CBA                 |
| CTC-02SRP-H1                    | 02CPB                 | CTC-02SRP-H2     | 02CPA                 | CTC-02SRB-H1                         | 02CBB                 | CTC-02SRB-H2     | 02CBA                 |
| CTC-03SRP-H1                    | 03CPB                 | CTC-03SRP-H2     | 03CPA                 | CTC-03SRB-H1                         | 03CBB                 | CTC-03SRB-H2     | 03CBA                 |
| CTC-04SRP-H1                    | 04CPB                 | CTC-04SRP-H2     | 04CPA                 | CTC-04SRB-H1                         | 04CBB                 | CTC-04SRB-H2     | 04CBA                 |
| CTC-05SRP-H1                    | 05CPB                 | CTC-05SRP-H2     | 05CPA                 | CTC-05SRB-H1                         | 05CBB                 | CTC-05SRB-H2     | 05CBA                 |
| CTC-06SRP-H2                    | 06CPB                 | CTC-06SRP-H3     | 06CPA                 | CTC-06SRB-H2                         | 06CBB                 | CTC-06SRB-H3     | 06CBA                 |
| CTC-2SRP-H2                     | 2CPB                  | CTC-2SRP-H3      | 2CPA                  | CTC-2SRB-H2                          | 2CBB                  | CTC-2SRB-H3      | 2CBA                  |
| CTC-3SRP-H2                     | 3CPB                  | CTC-3SRP-H3      | 3CPA                  | CTC-3SRB-H2                          | 3CBB                  | CTC-3SRB-H3      | 3CBA                  |
| CTC-1SRP-H2                     | 1CPB                  | CTC-1SRP-H3      | 1CPA                  | CTC-1SRB-H2                          | 1CBB                  | CTC-1SRB-H3      | 1CBA                  |
| CTC-4SRP-H2                     | 4CPB                  | CTC-4SRP-H3      | 4CPA                  | CTC-4SRB-H2                          | 4CBB                  | CTC-4SRB-H3      | 4CBA                  |
| CTC-5SRP-H3                     | 5CPB                  | CTC-5SRP-H4      | 5CPA                  | CTC-5SRB-H3                          | 5CBB                  | CTC-5SRB-H4      | 5CBA                  |
| CTC-6SRP-H3                     | 6CPB                  | CTC-6SRP-H4      | 6CPA                  | CTC-6SRB-H3                          | 6CBB                  | CTC-6SRB-H4      | 6CBA                  |
| CTC-7SRP-H3                     | 7CPB                  | CTC-7SRP-H4      | 7CPA                  | CTC-7SRB-H3                          | 7CBB                  | CTC-7SRB-H4      | 7CBA                  |
| CTC-8SRP-H3                     | 8CPB                  | CTC-8SRP-H4      | 8CPA                  | CTC-8SRB-H3                          | 8CBB                  | CTC-8SRB-H4      | 8CBA                  |
| CTC-9SRP-H3                     | 187-9                 | CTC-9SRP-H4      | 38187-9               | CTC-9SRB-H3                          | 4187-9                | CTC-9SRB-H4      | 43187-9               |
| CTC-10SRP-H3                    | 8187-10               | CTC-10SRP-H4     | 18187-10              | CTC-10SRB-H3                         | 10187-10              | CTC-10SRB-H4     | 20187-10              |
| CTC-12SRP-H3                    | 8187-12               | CTC-12SRP-H5     | 18187-12              | CTC-12SRB-H3                         | 10187-12              | CTC-12SRB-H5     | 20187-12              |
| CTC-14SRP-H3                    | 8187-14               | CTC-14SRP-H5     | 18187-14              | CTC-14SRB-H3                         | 10187-14              | CTC-14SRB-H5     | 20187-14              |
| CTC-16SRP-H4                    | 8187-16               | CTC-16SRP-H6     | 18187-16              | CTC-16SRB-H4                         | 10187-16              | CTC-16SRB-H6     | 20187-16              |
| CTC-18SRP-H4                    | 8187-18               | CTC-18SRP-H6     | 18187-18              | CTC-18SRB-H4                         | 10187-18              | CTC-18SRB-H6     | 20187-18              |
| CTC-20SRP-H4                    | 8187-20               | CTC-20SRP-H6     | 18187-20              | CTC-20SRB-H4                         | 10187-20              | CTC-20SRB-H6     | 20187-20              |
| CTC-22SRP-H6                    | 8187-22               | CTC-22SRP-H8     | 18187-22              | CTC-22SRB-H6                         | 10187-22              | CTC-22SRB-H8     | 20187-22              |
| CTC-24SRP-H6                    | 8187-24               | CTC-24SRP-H8     | 18187-24              | CTC-24SRB-H6                         | 10187-24              | CTC-24SRB-H8     | 20187-24              |
| Unified Fine                    |                       |                  |                       |                                      |                       |                  |                       |
| CTF-00SRP-H1                    | ---                   | CTF-00SRP-H2     | ---                   | CTF-00SRB-H1                         | ---                   | CTF-00SRB-H2     | ---                   |
| CTF-03SRP-H1                    | 03FPB                 | CTF-03SRP-H2     | 03FPA                 | CTF-03SRB-H1                         | 03FBB                 | CTF-03SRB-H2     | 03FBA                 |
| CTF-04SRP-H1                    | 04FPB                 | CTF-04SRP-H2     | 04FPA                 | CTF-04SRB-H1                         | 04FBB                 | CTF-04SRB-H2     | 04FBA                 |
| CTF-06SRP-H1                    | 06FPB                 | CTF-06SRP-H2     | 06FPA                 | CTF-06SRB-H1                         | 06FBB                 | CTF-06SRB-H2     | 06FBA                 |
| CTF-2SRP-H1                     | 2FPB                  | CTF-2SRP-H2      | 2FPA                  | CTF-2SRB-H1                          | 2FBB                  | CTF-2SRB-H2      | 2FBA                  |
| CTF-3SRP-H2                     | 3FPB                  | CTF-3SRP-H3      | 3FPA                  | CTF-3SRB-H2                          | 3FBB                  | CTF-3SRB-H3      | 3FBA                  |
| CTF-4SRP-H2                     | 4FPB                  | CTF-4SRP-H3      | 4FPA                  | CTF-4SRB-H2                          | 4FBB                  | CTF-4SRB-H3      | 4FBA                  |
| CTF-5SRP-H2                     | 5FPB                  | CTF-5SRP-H3      | 5FPA                  | CTF-5SRB-H2                          | 5FBB                  | CTF-5SRB-H3      | 5FBA                  |
| CTF-6SRP-H2                     | 6FPB                  | CTF-6SRP-H3      | 6FPA                  | CTF-6SRB-H2                          | 6FBB                  | CTF-6SRB-H3      | 6FBA                  |
| CTF-7SRP-H3                     | 7FPB                  | CTF-7SRP-H4      | 7FPA                  | CTF-7SRB-H3                          | 7FBB                  | CTF-7SRB-H4      | 7FBA                  |
| CTF-8SRP-H3                     | 8FPB                  | CTF-8SRP-H4      | 8FPA                  | CTF-8SRB-H3                          | 8FBB                  | CTF-8SRB-H4      | 8FBA                  |
| CTF-9SRP-H3                     | 38193-9               | CTF-9SRP-H4      | 18193-9               | CTF-9SRB-H3                          | 43193-9               | CTF-9SRB-H4      | 20193-9               |
| CTF-10SRP-H3                    | 8193-10               | CTF-10SRP-H4     | 18193-10              | CTF-10SRB-H3                         | 10193-10              | CTF-10SRB-H4     | 20193-10              |
| CTF-12SRP-H3                    | 8193-12               | CTF-12SRP-H4     | 18193-12              | CTF-12SRB-H3                         | 10193-12              | CTF-12SRB-H4     | 20193-12              |
| CTF-14SRP-H3                    | 8193-14               | CTF-14SRP-H4     | 18193-14              | CTF-14SRB-H3                         | 10193-14              | CTF-14SRB-H4     | 20193-14              |
| CTF-16SRP-H4                    | 8193-16               | CTF-16SRP-H6     | 18193-16              | CTF-16SRB-H4                         | 10193-16              | CTF-16SRB-H6     | 20193-16              |
| CTF-18SRP-H4                    | 8193-18               | CTF-18SRP-H6     | 18193-18              | CTF-18SRB-H4                         | 10193-18              | CTF-18SRB-H6     | 20193-18              |
| CTF-20SRP-H4                    | 8193-20               | CTF-20SRP-H6     | 18193-20              | CTF-20SRB-H4                         | 10193-20              | CTF-20SRB-H6     | 20193-20              |
| CTF-22SRP-H6                    | 8193-22               | CTF-22SRP-H8     | 18193-22              | CTF-22SRB-H6                         | 10193-22              | CTF-22SRB-H8     | 20193-22              |
| CTF-24SRP-H6                    | 8193-24               | CTF-24SRP-H8     | 18193-24              | CTF-24SRB-H6                         | 10193-24              | CTF-24SRB-H8     | 20193-24              |

# CoilThread STI Taps - Cross References

| KATO Part Number  | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number | KATO Part Number       | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number |
|-------------------|-----------------------|------------------|-----------------------|------------------------|-----------------------|------------------|-----------------------|
| Spiral Point Plug |                       |                  |                       | Spiral Flute Bottoming |                       |                  |                       |
| 3B                |                       | 2B               |                       | 3B                     |                       | 2B               |                       |
| Unified Coarse    |                       |                  |                       |                        |                       |                  |                       |
| CTC-01SPP-H1      | 01CSB                 | CTC-01SPP-H2     | 01CSA                 | CTC-01SFB-H1           | 5905-01               | CTC-01SFB-H2     | 6905-01               |
| CTC-02SPP-H1      | 02CSB                 | CTC-02SPP-H2     | 02CSA                 | CTC-02SFB-H1           | 5905-02               | CTC-02SFB-H2     | 6905-02               |
| CTC-03SPP-H1      | 03CSB                 | CTC-03SPP-H2     | 03CSA                 | CTC-03SFB-H1           | 5905-03               | CTC-03SFB-H2     | 6905-03               |
| CTC-04SPP-H1      | 04CSB                 | CTC-04SPP-H2     | 04CSA                 | CTC-04SFB-H1           | 5905-04               | CTC-04SFB-H2     | 6905-04               |
| CTC-05SPP-H1      | 05CSB                 | CTC-05SPP-H2     | 05CSA                 | CTC-05SFB-H1           | 5905-05               | CTC-05SFB-H2     | 6905-05               |
| CTC-06SPP-H2      | 06CSB                 | CTC-06SPP-H3     | 06CSA                 | CTC-06SFB-H2           | 5905-06               | CTC-06SFB-H3     | 6905-06               |
| CTC-2SPP-H2       | 2CSB                  | CTC-2SPP-H3      | 2CSA                  | CTC-2SFB-H2            | 5905-2                | CTC-2SFB-H3      | 6905-2                |
| CTC-3SPP-H2       | 3CSB                  | CTC-3SPP-H3      | 3CSA                  | CTC-3SFB-H2            | 5905-3                | CTC-3SFB-H3      | 6905-3                |
| CTC-1SPP-H2       | 1CSB                  | CTC-1SPP-H3      | 1CSA                  | CTC-1SFB-H2            | 5905-1                | CTC-1SFB-H3      | 6905-1                |
| CTC-4SPP-H2       | 4CSB                  | CTC-4SPP-H3      | 4CSA                  | CTC-4SFB-H2            | 5905-4                | CTC-4SFB-H3      | 6905-4                |
| CTC-5SPP-H3       | 5CSB                  | CTC-5SPP-H4      | 5CSA                  | CTC-5SFB-H3            | 5905-5                | CTC-5SFB-H4      | 6905-5                |
| CTC-6SPP-H3       | 6CSB                  | CTC-6SPP-H4      | 6CSA                  | CTC-6SFB-H3            | 5905-6                | CTC-6SFB-H4      | 6905-6                |
| CTC-7SPP-H3       | 7CSB                  | CTC-7SPP-H4      | 7CSA                  | CTC-7SFB-H3            | 5905-7                | CTC-7SFB-H4      | 6905-7                |
| CTC-8SPP-H3       | 8CSB                  | CTC-8SPP-H4      | 8CSA                  | CTC-8SFB-H3            | 5905-8                | CTC-8SFB-H4      | 6905-8                |
| Unified Fine      |                       |                  |                       |                        |                       |                  |                       |
| CTF-03SPP-H1      | 03FSB                 | CTF-03SPP-H2     | 03FSA                 | CTF-03SFB-H1           | 5906-03               | CTF-03SFB-H2     | 6906-03               |
| CTF-04SPP-H1      | 04FSB                 | CTF-04SPP-H2     | 04FSA                 | CTF-04SFB-H1           | 5906-04               | CTF-04SFB-H2     | 6906-04               |
| CTF-06SPP-H1      | 06FSB                 | CTF-06SPP-H2     | 06FSA                 | CTF-06SFB-H1           | 5906-06               | CTF-06SFB-H2     | 6906-06               |
| CTF-2SPP-H1       | 2FSB                  | CTF-2SPP-H2      | 2FSA                  | CTF-2SFB-H1            | 5906-2                | CTF-2SFB-H2      | 6906-2                |
| CTF-3SPP-H2       | 3FSB                  | CTF-3SPP-H3      | 3FSA                  | CTF-3SFB-H2            | 5906-3                | CTF-3SFB-H3      | 6906-3                |
| CTF-4SPP-H2       | 4FSB                  | CTF-4SPP-H3      | 4FSA                  | CTF-4SFB-H2            | 5906-4                | CTF-4SFB-H3      | 6906-4                |
| CTF-5SPP-H2       | 5FSB                  | CTF-5SPP-H3      | 5FSA                  | CTF-5SFB-H2            | 5906-5                | CTF-5SFB-H3      | 6906-5                |
| CTF-6SPP-H2       | 6FSB                  | CTF-6SPP-H3      | 6FSA                  | CTF-6SFB-H2            | 5906-6                | CTF-6SFB-H3      | 6906-6                |
| CTF-7SPP-H3       | 7FSB                  | CTF-7SPP-H4      | 7FSA                  | CTF-7SFB-H3            | 5906-7                | CTF-7SFB-H4      | 6906-7                |
| CTF-8SPP-H3       | 8FSB                  | CTF-8SPP-H4      | 8FSA                  | CTF-8SFB-H3            | 5906-8                | CTF-8SFB-H4      | 6906-8                |



# CoilThread STI Taps - Cross References

| KATO Part Number                | Heli-Coil Part Number | KATO Part Number  | Heli-Coil Part Number | KATO Part Number                     | Heli-Coil Part Number | KATO Part Number  | Heli-Coil Part Number |
|---------------------------------|-----------------------|-------------------|-----------------------|--------------------------------------|-----------------------|-------------------|-----------------------|
| Standard Regular Finishing Plug |                       |                   |                       | Standard Regular Finishing Bottoming |                       |                   |                       |
| 4H                              |                       | 5H                |                       | 4H                                   |                       | 5H                |                       |
| Metric Coarse                   |                       |                   |                       |                                      |                       |                   |                       |
| CTM-2X.4SRP-4H                  | 4687-2                | CTM-2X.4SRP-5H    | 2087-2                | CTM-2X.4SRB-4H                       | 4693-2                | CTM-2X.4SRB-5H    | 2093-2                |
| CTM-2.2X.45SRP-4H               | 4687-2.2              | CTM-2.2X.45SRP-5H | 2087-2.2              | CTM-2.2X.45SRB-4H                    | 4693-2.2              | CTM-2.2X.45SRB-5H | 2093-2.2              |
| CTM-2.5X.45SRP-4H               | 4687-2.5              | CTM-2.5X.45SRP-5H | 2087-2.5              | CTM-2.5X.45SRB-4H                    | 4693-2.5              | CTM-2.5X.45SRB-5H | 2093-2.5              |
| CTM-3X.5SRP-4H                  | 4687-3                | CTM-3X.5SRP-5H    | 2087-3                | CTM-3X.5SRB-4H                       | 4693-3                | CTM-3X.5SRB-5H    | 2093-3                |
| CTM-3.5X.6SRP-4H                | 4687-3.5              | CTM-3.5X.6SRP-5H  | 2087-3.5              | CTM-3.5X.6SRB-4H                     | 4693-3.5              | CTM-3.5X.6SRB-5H  | 2093-3.5              |
| CTM-4X.7SRP-4H                  | 4687-4                | CTM-4X.7SRP-5H    | 2087-4                | CTM-4X.7SRB-4H                       | 4693-4                | CTM-4X.7SRB-5H    | 2093-4                |
| CTM-5X.8SRP-4H                  | 4687-5                | CTM-5X.8SRP-5H    | 2087-5                | CTM-5X.8SRB-4H                       | 4693-5                | CTM-5X.8SRB-5H    | 2093-5                |
| CTM-6X1SRP-4H                   | 4687-6                | CTM-6X1SRP-5H     | 2087-6                | CTM-6X1SRB-4H                        | 4693-6                | CTM-6X1SRB-5H     | 2093-6                |
| CTM-7X1SRP-4H                   | 4687-7                | CTM-7X1SRP-5H     | 2087-7                | CTM-7X1SRB-4H                        | 4693-7                | CTM-7X1SRB-5H     | 2093-7                |
| CTM-8X1.25SRP-4H                | 4687-8                | CTM-8X1.25SRP-5H  | 2087-8                | CTM-8X1.25SRB-4H                     | 4693-8                | CTM-8X1.25SRB-5H  | 2093-8                |
| CTM-10X1.5SRP-4H                | 4687-10               | CTM-10X1.5SRP-5H  | 2087-10               | CTM-10X1.5SRB-4H                     | 4693-10               | CTM-10X1.5SRB-5H  | 2093-10               |
| CTM-12X1.75SRP-4H               | 4687-12               | CTM-12X1.75SRP-5H | 2087-12               | CTM-12X1.75SRB-4H                    | 4693-12               | CTM-12X1.75SRB-5H | 2093-12               |
| CTM-14X2SRP-4H                  | 4687-14               | CTM-14X2SRP-5H    | 2087-14               | CTM-14X2SRB-4H                       | 4693-14               | CTM-14X2SRB-5H    | 2093-14               |
| CTM-16X2SRP-4H                  | 4687-16               | CTM-16X2SRP-5H    | 2087-16               | CTM-16X2SRB-4H                       | 4693-16               | CTM-16X2SRB-5H    | 2093-16               |
| CTM-18X2.5SRP-4H                | 4687-18               | CTM-18X2.5SRP-5H  | 2087-18               | CTM-18X2.5SRB-4H                     | 4693-18               | CTM-18X2.5SRB-5H  | 2093-18               |
| CTM-20X2.5SRP-4H                | 4687-20               | CTM-20X2.5SRP-5H  | 2087-20               | CTM-20X2.5SRB-4H                     | 4693-20               | CTM-20X2.5SRB-5H  | 2093-20               |
| CTM-22X2.5SRP-4H                | 4687-22               | CTM-22X2.5SRP-5H  | 2087-22               | CTM-22X2.5SRB-4H                     | 4693-22               | CTM-22X2.5SRB-5H  | 2093-22               |
| CTM-24X3SRP-4H                  | 4687-24               | CTM-24X3SRP-5H    | 2087-24               | CTM-24X3SRB-4H                       | 4693-24               | CTM-24X3SRB-5H    | 2093-24               |
| CTM-27X3SRP-4H                  | 4687-27               | CTM-27X3SRP-5H    | 2087-27               | CTM-24X3SRB-4H                       | 4693-22               | CTM-24X3SRB-5H    | 2093-22               |
| Metric Fine                     |                       |                   |                       |                                      |                       |                   |                       |
| CTM-8X1SRP-4H                   | 5484-8                | CTM-8X1SRP-5H     | 4984-8                | CTM-8X1SRB-4H                        | 5486-8                | CTM-8X1SRB-5H     | 4986-8                |
| CTM-10X1SRP-4H                  | 5484-10               | CTM-10X1SRP-5H    | 4984-10               | CTM-10X1SRB-4H                       | 5486-10               | CTM-10X1SRB-5H    | 4986-10               |
| CTM-10X1.25SRP-4H               | 5444-10               | CTM-10X1.25SRP-5H | 4944-10               | CTM-10X1.25SRB-4H                    | 5445-10               | CTM-10X1.25SRB-5H | 4945-10               |
| CTM-12X1.25SRP-4H               | 5444-12               | CTM-12X1.25SRP-5H | 4944-12               | CTM-12X1.25SRB-4H                    | 5445-12               | CTM-12X1.25SRB-5H | 4945-12               |
| CTM-12X1.5SRP-4H                | 5476-12               | CTM-12X1.5SRP-5H  | 4976-12               | CTM-12X1.5SRB-4H                     | 5477-12               | CTM-12X1.5SRB-5H  | 4977-12               |
| CTM-14X1.5SRP-4H                | 5476-14               | CTM-14X1.5SRP-5H  | 4976-14               | CTM-14X1.5SRB-4H                     | 5477-14               | CTM-14X1.5SRB-5H  | 4977-14               |
| CTM-16X1.5SRP-4H                | 5476-16               | CTM-16X1.5SRP-5H  | 4976-16               | CTM-16X1.5SRB-4H                     | 5477-16               | CTM-16X1.5SRB-5H  | 4977-16               |
| CTM-18X1.5SRP-4H                | 5476-18               | CTM-18X1.5SRP-5H  | 4976-18               | CTM-18X1.5SRB-4H                     | 5477-18               | CTM-18X1.5SRB-5H  | 4977-18               |
| CTM-20X1.5SRP-4H                | 5476-20               | CTM-20X1.5SRP-5H  | 4976-20               | CTM-20X1.5SRB-4H                     | 5477-20               | CTM-20X1.5SRB-5H  | 4977-20               |
| CTM-22X1.5SRP-4H                | 5476-22               | CTM-22X1.5SRP-5H  | 4976-22               | CTM-22X1.5SRB-4H                     | 5477-22               | CTM-22X1.5SRB-5H  | 4977-22               |
| CTM-18X2SRP-4H                  | 5490-18               | CTM-18X2SRP-5H    | 4990-18               | CTM-18X2SRB-4H                       | 5492-18               | CTM-18X2SRB-5H    | 4992-18               |
| CTM-20X2SRP-4H                  | 5490-20               | CTM-20X2SRP-5H    | 4990-20               | CTM-20X2SRB-4H                       | 5492-20               | CTM-20X2SRB-5H    | 4992-20               |
| CTM-22X2SRP-4H                  | 5490-22               | CTM-22X2SRP-5H    | 4990-22               | CTM-22X2SRB-4H                       | 5492-22               | CTM-22X2SRB-5H    | 4992-22               |
| CTM-24X2SRP-4H                  | 5490-24               | CTM-24X2SRP-5H    | 4990-24               | CTM-24X2SRB-4H                       | 5492-24               | CTM-24X2SRB-5H    | 4992-24               |
| CTM-27X2SRP-4H                  | 5490-27               | CTM-27X2SRP-5H    | 4990-27               | CTM-27X2SRB-4H                       | 5492-27               | CTM-27X2SRB-5H    | 4992-27               |
| CTM-30X2SRP-4H                  | 5490-30               | CTM-30X2SRP-5H    | 4990-30               | CTM-30X2SRB-4H                       | 5492-30               | CTM-30X2SRB-5H    | 4992-30               |
| CTM-33X2SRP-4H                  | 5490-33               | CTM-33X2SRP-5H    | 4990-33               | CTM-33X2SRB-4H                       | 5492-33               | CTM-33X2SRB-5H    | 4992-33               |
| CTM-39X2SRP-4H                  | 5490-39               | CTM-39X2SRP-5H    | 4990-39               | CTM-39X2SRB-4H                       | 5492-39               | CTM-39X2SRB-5H    | 4992-39               |
| CTM-36X3SRP-4H                  | 5496-36               | CTM-36X3SRP-5H    | 4996-36               | CTM-36X3SRB-4H                       | 5497-36               | CTM-36X3SRB-5H    | 4997-36               |
| CTM-39X3SRP-4H                  | 5496-39               | CTM-39X3SRP-5H    | 4996-39               | CTM-39X3SRB-4H                       | 5497-39               | CTM-39X3SRB-5H    | 4997-39               |

# CoilThread STI Taps - Cross References

| KATO Part Number  | Heli-Coil Part Number | KATO Part Number  | Heli-Coil Part Number | KATO Part Number       | Heli-Coil Part Number | KATO Part Number  | Heli-Coil Part Number |
|-------------------|-----------------------|-------------------|-----------------------|------------------------|-----------------------|-------------------|-----------------------|
| Spiral Point Plug |                       |                   |                       | Spiral Flute Bottoming |                       |                   |                       |
| 4H                |                       | 5H                |                       | 4H                     |                       | 5H                |                       |
| Metric Coarse     |                       |                   |                       |                        |                       |                   |                       |
| CTM-2X.4SPP-4H    | 4863-2                | CTM-2X.4SPP-5H    | 4763-2                | CTM-2X.4SFB-4H         | 5081-2                | CTM-2X.4SFB-5H    | 4681-2                |
| CTM-2.2X.45SPP-4H | 4863-2.2              | CTM-2.2X.45SPP-5H | 4763-2.2              | CTM-2.2X.45SFB-4H      | 5081-2.2              | CTM-2.2X.45SFB-5H | 4681-2.2              |
| CTM-2.5X.45SPP-4H | 4863-2.5              | CTM-2.5X.45SPP-5H | 4763-2.5              | CTM-2.5X.45SFB-4H      | 5081-2.5              | CTM-2.5X.45SFB-5H | 4681-2.5              |
| CTM-3X.5SPP-4H    | 4863-3                | CTM-3X.5SPP-5H    | 4763-3                | CTM-3X.5SFB-4H         | 5081-3                | CTM-3X.5SFB-5H    | 4681-3                |
| CTM-3.5X.6SPP-4H  | 4863-3.5              | CTM-3.5X.6SPP-5H  | 4763-3.5              | CTM-3.5X.6SFB-4H       | 5081-3.5              | CTM-3.5X.6SFB-5H  | 4681-3.5              |
| CTM-4X.7SPP-4H    | 4863-4                | CTM-4X.7SPP-5H    | 4763-4                | CTM-4X.7SFB-4H         | 5081-4                | CTM-4X.7SFB-5H    | 4681-4                |
| CTM-5X.8SPP-4H    | 4863-5                | CTM-5X.8SPP-5H    | 4763-5                | CTM-5X.8SFB-4H         | 5081-5                | CTM-5X.8SFB-5H    | 4681-5                |
| CTM-6X1SPP-4H     | 4863-6                | CTM-6X1SPP-5H     | 4763-6                | CTM-6X1SFB-4H          | 5081-6                | CTM-6X1SFB-5H     | 4681-6                |
| CTM-7X1SPP-4H     | 4863-7                | CTM-7X1SPP-5H     | 4763-7                | CTM-7X1SFB-4H          | 5081-7                | CTM-7X1SFB-5H     | 4681-7                |
| CTM-8X1.25SPP-4H  | 4863-8                | CTM-8X1.25SPP-5H  | 4763-8                | CTM-8X1.25SFB-4H       | 5081-8                | CTM-8X1.25SFB-5H  | 4681-8                |
| CTM-10X1.5SPP-4H  | 4863-10               | CTM-10X1.5SPP-5H  | 4763-10               | CTM-10X1.5SFB-4H       | 5081-10               | CTM-10X1.5SFB-5H  | 4681-10               |
| CTM-12X1.75SPP-4H | 4863-12               | CTM-12X1.75SPP-5H | 4763-12               | CTM-12X1.75SFB-4H      | 5081-12               | CTM-12X1.75SFB-5H | 4681-12               |
| Metric Fine       |                       |                   |                       |                        |                       |                   |                       |
| CTM-8X1SPP-4H     | 4864-8                | CTM-8X1SPP-5H     | 4764-8                | CTM-8X1SFB-4H          | 5066-8                | CTM-8X1SFB-5H     | 4666-8                |
| CTM-10X1SPP-4H    | 4864-10               | CTM-10X1SPP-5H    | 4764-10               | CTM-10X1SFB-4H         | 5066-10               | CTM-10X1SFB-5H    | 4666-10               |
| CTM-10X1.25SPP-4H | 4865-10               | CTM-10X1.25SPP-5H | 4765-10               | CTM-10X1.25SFB-4H      | 5067-10               | CTM-10X1.25SFB-5H | 4667-10               |
| CTM-12X1.25SPP-4H | 4865-12               | CTM-12X1.25SPP-5H | 4765-12               | CTM-12X1.25SFB-4H      | 5067-12               | CTM-12X1.25SFB-5H | 4667-12               |
| CTM-12X1.5SPP-4H  | 4866-12               | CTM-12X1.5SPP-5H  | 4766-12               | CTM-12X1.5SFB-4H       | 5068-12               | CTM-12X1.5SFB-5H  | 4668-12               |



# CoilThread STI Gages

**KATO CoilThread STI (Screw Thread Insert) Thread Plug Gages** are designed to check the accuracy of the internal thread of an STI tapped hole. Gaging the tapped hole prior to installation of the insert is critical to ensure the accuracy of the finished thread. If the tapped hole gages correctly, the finished thread will also be accurate once the insert is properly installed and seated. It is not necessary to gage the installed insert. Gaging of the tapped thread is specified because a standard gage may not freely enter an installed insert. The insert will seat itself once a bolt or screw is installed and tightened (Ref. NASM33537). In fact, it is not possible to gage a screw locking insert because of the locking coil(s).

## KATO offers two types of STI Thread Plug Gages (for unified sizes):

### Working Gages:

Recommended for production use since their greater tolerance allows for more wear.

### Reference Gages:

Have pitch diameters at or very close to the basic size and are to be used as master gages.

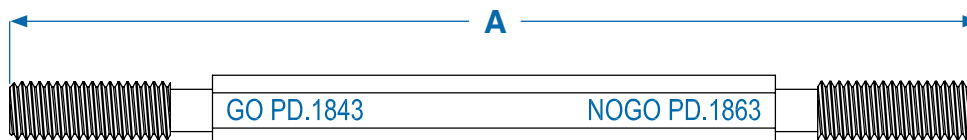
KATO STI Gages include a “GO” and “HI” (NO GO) member. The Working gage GO member has a 0.0002 wear allowance on the pitch diameter. The GO member checks the basic pitch diameter, major diameter minimum and lead. The HI member checks the maximum pitch diameter. **The minor diameter must be checked separately with a graduated pin set.**

## Features and Benefits:

- Available in 3B or 2B (Unified) and 4H or 5H (Metric) Class of Fit.
- Full range of Unified and Metric thread sizes available.
- Ensures accuracy of the finished threads.
- Lower cost than similar gages from competitors.



# CoilThread STI Gages - Dimensions



| Thread Size    | Pitch Diameter (in) |        |        |        | Length A |
|----------------|---------------------|--------|--------|--------|----------|
|                | 3B                  |        | 2B     |        |          |
|                | Go                  | NoGo   | Go     | NoGo   |          |
| Unified Coarse |                     |        |        |        |          |
| 1-64           | 0.0832              | 0.0843 | 0.0832 | 0.0850 | 2.5      |
| 2-56           | 0.0976              | 0.0989 | 0.0976 | 0.0996 | 2.5      |
| 3-48           | 0.1126              | 0.1140 | 0.1126 | 0.1148 | 2.5      |
| 4-40           | 0.1283              | 0.1299 | 0.1283 | 0.1308 | 2.9      |
| 5-40           | 0.1413              | 0.1430 | 0.1413 | 0.1438 | 2.9      |
| 6-32           | 0.1583              | 0.1601 | 0.1583 | 0.1611 | 2.9      |
| 8-32           | 0.1843              | 0.1862 | 0.1843 | 0.1872 | 3.1      |
| 10-24          | 0.2170              | 0.2192 | 0.2170 | 0.2203 | 3.1      |
| 12-24          | 0.2430              | 0.2453 | 0.2430 | 0.2464 | 3.1      |
| 1/4-20         | 0.2825              | 0.2851 | 0.2825 | 0.2863 | 3.5      |
| 5/16-18        | 0.3486              | 0.3515 | 0.3486 | 0.3529 | 3.5      |
| 3/8-16         | 0.4156              | 0.4189 | 0.4156 | 0.4203 | 4.6      |
| 7/16-14        | 0.4839              | 0.4875 | 0.4839 | 0.4890 | 4.6      |
| 1/2-13         | 0.5499              | 0.5537 | 0.5499 | 0.5554 | 4.6      |
| 9/16-12        | 0.6167              | 0.6208 | 0.6167 | 0.6225 | 5.1      |
| 5/8-11         | 0.6841              | 0.6885 | 0.6841 | 0.6903 | 5.1      |
| 3/4-10         | 0.8149              | 0.8196 | 0.8149 | 0.8216 | 5.1      |
| 7/8-9          | 0.9471              | 0.9522 | 0.9471 | 0.9543 | 5.8      |
| 1-8            | 1.0812              | 1.0868 | 1.0812 | 1.0868 | 5.8      |
| 1-1/8-7        | 1.2178              | 1.2239 | 1.2178 | 1.2262 | 5.8      |
| 1-1/4-7        | 1.3428              | 1.3490 | 1.3428 | 1.3514 | 6.8      |
| 1-3/8-6        | 1.4832              | 1.4900 | 1.4832 | 1.4926 | 6.8      |
| 1-1/2-6        | 1.6082              | 1.6151 | 1.6082 | 1.6177 | 6.8      |
| Unified Fine   |                     |        |        |        |          |
| 0-80           | 0.0681              | 0.0690 | 0.0681 | 0.0697 | 2.9      |
| 3-56           | 0.1106              | 0.1119 | 0.1106 | 0.1126 | 2.5      |
| 4-48           | 0.1256              | 0.1271 | 0.1256 | 0.1279 | 2.9      |
| 6-40           | 0.1543              | 0.1560 | 0.1543 | 0.1569 | 2.9      |
| 8-36           | 0.1821              | 0.1840 | 0.1821 | 0.1849 | 3.1      |
| 10-32          | 0.2103              | 0.2123 | 0.2103 | 0.2133 | 3.1      |
| 1/4-28         | 0.2732              | 0.2754 | 0.2732 | 0.2765 | 4.0      |
| 5/16-24        | 0.3395              | 0.3421 | 0.3395 | 0.3433 | 4.0      |
| 3/8-24         | 0.4020              | 0.4047 | 0.4020 | 0.4059 | 4.6      |
| 7/16-20        | 0.4700              | 0.4731 | 0.4700 | 0.4744 | 4.6      |
| 1/2-20         | 0.5325              | 0.5357 | 0.5325 | 0.5371 | 4.6      |
| 9/16-18        | 0.5986              | 0.6020 | 0.5986 | 0.6035 | 5.1      |
| 5/8-18         | 0.6611              | 0.6646 | 0.6611 | 0.6661 | 5.1      |
| 3/4-16         | 0.7906              | 0.7945 | 0.7906 | 0.7961 | 5.1      |
| 7/8-14         | 0.9214              | 0.9257 | 0.9214 | 0.9274 | 5.8      |
| 1-12           | 1.0542              | 1.0589 | 1.0542 | 1.0608 | 5.8      |
| 1-1/8-12       | 1.1792              | 1.1841 | 1.1792 | 1.1860 | 5.8      |
| 1-1/4-12       | 1.3042              | 1.3092 | 1.3042 | 1.3112 | 6.8      |
| 1-3/8-12       | 1.4292              | 1.4343 | 1.4292 | 1.4364 | 6.8      |
| 1-1/2-12       | 1.5542              | 1.5595 | 1.5542 | 1.5615 | 6.8      |

| Thread Size   | Pitch Diameter (mm) |        |        |        | Length A |
|---------------|---------------------|--------|--------|--------|----------|
|               | 4H                  |        | 5H     |        |          |
|               | Go                  | NoGo   | Go     | NoGo   |          |
| Metric Coarse |                     |        |        |        |          |
| M2X0.4        | 2.260               | 2.295  | 2.260  | 2.310  | 63.5     |
| M2.2X0.45     | 2.492               | 2.532  | 2.492  | 2.547  | 63.5     |
| M2.5X0.45     | 2.792               | 2.832  | 2.792  | 2.847  | 63.5     |
| M3X0.5        | 3.325               | 3.367  | 3.325  | 3.384  | 73.6     |
| M3.5X0.6      | 3.890               | 3.940  | 3.890  | 3.959  | 73.6     |
| M4X0.7        | 4.455               | 4.509  | 4.455  | 4.529  | 78.7     |
| M5X0.8        | 5.520               | 5.577  | 5.520  | 5.597  | 78.7     |
| M6X1          | 6.650               | 6.719  | 6.650  | 6.742  | 101.6    |
| M7X1          | 7.650               | 7.719  | 7.650  | 7.742  | 101.6    |
| M8X1.25       | 8.812               | 8.886  | 8.812  | 8.911  | 101.6    |
| M10X1.5       | 10.974              | 11.061 | 10.974 | 11.089 | 116.8    |
| M12X1.75      | 13.137              | 13.236 | 13.137 | 13.271 | 116.8    |
| M14X2         | 15.299              | 15.406 | 15.299 | 15.444 | 129.5    |
| M16X2         | 17.299              | 17.406 | 17.299 | 17.444 | 129.5    |
| M18X2.5       | 19.624              | 19.738 | 19.624 | 19.778 | 129.5    |
| M20X2.5       | 21.624              | 21.738 | 21.624 | 21.778 | 129.5    |
| M22X2.5       | 23.624              | 23.738 | 23.624 | 23.778 | 129.5    |
| M24X3         | 25.948              | 26.093 | 25.948 | 26.135 | 147.3    |
| M27X3         | 28.948              | 29.093 | 28.948 | 29.135 | 147.3    |
| Metric Fine   |                     |        |        |        |          |
| M8X1          | 8.650               | 8.719  | 8.650  | 8.742  | 101.6    |
| M10X1         | 10.650              | 10.719 | 10.650 | 10.742 | 116.8    |
| M10X1.25      | 10.812              | 10.886 | 10.812 | 10.911 | 116.8    |
| M12X1.25      | 12.812              | 12.898 | 12.812 | 12.926 | 116.8    |
| M12X1.5       | 12.974              | 13.067 | 12.974 | 13.099 | 116.8    |
| M14X1.5       | 14.974              | 15.067 | 14.974 | 15.099 | 129.5    |
| M16X1.5       | 16.974              | 17.067 | 16.974 | 17.099 | 129.5    |
| M18X1.5       | 18.974              | 19.067 | 18.974 | 19.099 | 129.5    |
| M20X1.5       | 20.974              | 21.067 | 20.974 | 21.099 | 129.5    |
| M22X1.5       | 22.974              | 23.067 | 22.974 | 23.099 | 129.5    |
| M18X2         | 19.299              | 19.406 | 19.299 | 19.444 | 129.5    |
| M20X2         | 21.299              | 21.406 | 21.299 | 21.444 | 129.5    |
| M22X2         | 23.299              | 23.406 | 23.299 | 23.444 | 129.5    |
| M24X2         | 25.299              | 25.414 | 25.299 | 25.454 | 147.3    |
| M27X2         | 28.299              | 28.414 | 28.299 | 28.455 | 147.3    |
| M30X2         | 31.299              | 31.414 | 31.299 | 31.454 | 147.3    |
| M33X2         | 34.299              | 34.414 | 34.299 | 34.454 | 147.3    |
| M39X2         | 40.299              | 40.414 | 40.299 | 40.454 | 171.5    |
| M36X3         | 37.948              | 38.093 | 37.948 | 38.135 | 171.5    |
| M39X3         | 40.948              | 41.093 | 40.948 | 41.135 | 171.5    |

1. All dimensions for unified sizes are in inches.
2. All dimensions for metric sizes are in millimeters.
3. All dimensions are for reference only.

# CoilThread STI Gages - Part Numbers

Tool Type:

**CG** - CoilThread Gage (STI)

## CG C - 02 X - 3B

Class of Fit:

See notes

Thread Designation:

- **C** - Unified Coarse
- **F** - Unified Fine
- **M** - Metric Sizes

Size Designation

Style / Type:

- **X** - Working
- **W** - References

| Thread Size           | Working Gages |            | Reference Gages |            |
|-----------------------|---------------|------------|-----------------|------------|
|                       | 3B            | 2B         | 3B              | 2B         |
| <b>Unified Coarse</b> |               |            |                 |            |
| 1-64                  | CGC-01X-3B    | CGC-01X-2B | CGC-01W-3B      | CGC-01W-2B |
| 2-56                  | CGC-02X-3B    | CGC-02X-2B | CGC-02W-3B      | CGC-02W-2B |
| 3-48                  | CGC-03X-3B    | CGC-03X-2B | CGC-03W-3B      | CGC-03W-2B |
| 4-40                  | CGC-04X-3B    | CGC-04X-2B | CGC-04W-3B      | CGC-04W-2B |
| 5-40                  | CGC-05X-3B    | CGC-05X-2B | CGC-05W-3B      | CGC-05W-2B |
| 6-32                  | CGC-06X-3B    | CGC-06X-2B | CGC-06W-3B      | CGC-06W-2B |
| 8-32                  | CGC-2X-3B     | CGC-2X-2B  | CGC-2W-3B       | CGC-2W-2B  |
| 10-24                 | CGC-3X-3B     | CGC-3X-2B  | CGC-3W-3B       | CGC-3W-2B  |
| 12-24                 | CGC-1X-3B     | CGC-1X-2B  | CGC-1W-3B       | CGC-1W-2B  |
| 1/4-20                | CGC-4X-3B     | CGC-4X-2B  | CGC-4W-3B       | CGC-4W-2B  |
| 5/16-18               | CGC-5X-3B     | CGC-5X-2B  | CGC-5W-3B       | CGC-5W-2B  |
| 3/8-16                | CGC-6X-3B     | CGC-6X-2B  | CGC-6W-3B       | CGC-6W-2B  |
| 7/16-14               | CGC-7X-3B     | CGC-7X-2B  | CGC-7W-3B       | CGC-7W-2B  |
| 1/2-13                | CGC-8X-3B     | CGC-8X-2B  | CGC-8W-3B       | CGC-8W-2B  |
| 9/16-12               | CGC-9X-3B     | CGC-9X-2B  | CGC-9W-3B       | CGC-9W-2B  |
| 5/8-11                | CGC-10X-3B    | CGC-10X-2B | CGC-10W-3B      | CGC-10W-2B |
| 3/4-10                | CGC-12X-3B    | CGC-12X-2B | CGC-12W-3B      | CGC-12W-2B |
| 7/8-9                 | CGC-14X-3B    | CGC-14X-2B | CGC-14W-3B      | CGC-14W-2B |
| 1-8                   | CGC-16X-3B    | CGC-16X-2B | CGC-16W-3B      | CGC-16W-2B |
| 1-1/8-7               | CGC-18X-3B    | CGC-18X-2B | CGC-18W-3B      | CGC-18W-2B |
| 1-1/4-7               | CGC-20X-3B    | CGC-20X-2B | CGC-20W-3B      | CGC-20W-2B |
| 1-3/8-6               | CGC-22X-3B    | CGC-22X-2B | CGC-22W-3B      | CGC-22W-2B |
| 1-1/2-6               | CGC-24X-3B    | CGC-24X-2B | CGC-24W-3B      | CGC-24W-2B |
| <b>Unified Fine</b>   |               |            |                 |            |
| 0-80                  | CGF-00X-3B    | CGF-00X-2B | CGF-00W-3B      | CGF-00W-2B |
| 3-56                  | CGF-03X-3B    | CGF-03X-2B | CGF-03W-3B      | CGF-03W-2B |
| 4-48                  | CGF-04X-3B    | CGF-04X-2B | CGF-04W-3B      | CGF-04W-2B |
| 6-40                  | CGF-06X-3B    | CGF-06X-2B | CGF-06W-3B      | CGF-06W-2B |
| 8-36                  | CGF-2X-3B     | CGF-2X-2B  | CGF-2W-3B       | CGF-2W-2B  |
| 10-32                 | CGF-3X-3B     | CGF-3X-2B  | CGF-3W-3B       | CGF-3W-2B  |
| 1/4-28                | CGF-4X-3B     | CGF-4X-2B  | CGF-4W-3B       | CGF-4W-2B  |
| 5/16-24               | CGF-5X-3B     | CGF-5X-2B  | CGF-5W-3B       | CGF-5W-2B  |
| 3/8-24                | CGF-6X-3B     | CGF-6X-2B  | CGF-6W-3B       | CGF-6W-2B  |
| 7/16-20               | CGF-7X-3B     | CGF-7X-2B  | CGF-7W-3B       | CGF-7W-2B  |
| 1/2-20                | CGF-8X-3B     | CGF-8X-2B  | CGF-8W-3B       | CGF-8W-2B  |
| 9/16-18               | CGF-9X-3B     | CGF-9X-2B  | CGF-9W-3B       | CGF-9W-2B  |
| 5/8-18                | CGF-10X-3B    | CGF-10X-2B | CGF-10W-3B      | CGF-10W-2B |
| 3/4-16                | CGF-12X-3B    | CGF-12X-2B | CGF-12W-3B      | CGF-12W-2B |
| 7/8-14                | CGF-14X-3B    | CGF-14X-2B | CGF-14W-3B      | CGF-14W-2B |
| 1-12                  | CGF-16X-3B    | CGF-16X-2B | CGF-16W-3B      | CGF-16W-2B |
| 1-1/8-12              | CGF-18X-3B    | CGF-18X-2B | CGF-18W-3B      | CGF-18W-2B |
| 1-1/4-12              | CGF-20X-3B    | CGF-20X-2B | CGF-20W-3B      | CGF-20W-2B |
| 1-3/8-12              | CGF-22X-3B    | CGF-22X-2B | CGF-22W-3B      | CGF-22W-2B |
| 1-1/2-12              | CGF-24X-3B    | CGF-24X-2B | CGF-24W-3B      | CGF-24W-2B |

| Thread Size          | Working Gages  |                |
|----------------------|----------------|----------------|
|                      | 4H             | 5H             |
| <b>Metric Coarse</b> |                |                |
| M2X0.4               | CGM-2X.4-4H    | CGM-2X.4-5H    |
| M2.2X0.45            | CGM-2.2X.45-4H | CGM-2.2X.45-5H |
| M2.5X0.45            | CGM-2.5X.45-4H | CGM-2.5X.45-5H |
| M3X0.5               | CGM-3X.5-4H    | CGM-3X.5-5H    |
| M3.5X0.6             | CGM-3.5X.6-4H  | CGM-3.5X.6-5H  |
| M4X0.7               | CGM-4X.7-4H    | CGM-4X.7-5H    |
| M5X0.8               | CGM-5X.8-4H    | CGM-5X.8-5H    |
| M6X1                 | CGM-6X1-4H     | CGM-6X1-5H     |
| M7X1                 | CGM-7X1-4H     | CGM-7X1-5H     |
| M8X1.25              | CGM-8X1.25-4H  | CGM-8X1.25-5H  |
| M10X1.5              | CGM-10X1.5-4H  | CGM-10X1.5-5H  |
| M12X1.75             | CGM-12X1.75-4H | CGM-12X1.75-5H |
| M14X2                | CGM-14X2-4H    | CGM-14X2-5H    |
| M16X2                | CGM-16X2-4H    | CGM-16X2-5H    |
| M18X2.5              | CGM-18X2.5-4H  | CGM-18X2.5-5H  |
| M20X2.5              | CGM-20X2.5-4H  | CGM-20X2.5-5H  |
| M22X2.5              | CGM-22X2.5-4H  | CGM-22X2.5-5H  |
| M24X3                | CGM-24X3-4H    | CGM-24X3-5H    |
| M27X3                | CGM-27X3-4H    | CGM-27X3-5H    |
| <b>Metric Fine</b>   |                |                |
| M8X1                 | CGM-8X1-4H     | CGM-8X1-5H     |
| M10X1                | CGM-10X1-4H    | CGM-10X1-5H    |
| M10X1.25             | CGM-10X1.25-4H | CGM-10X1.25-5H |
| M12X1.25             | CGM-12X1.25-4H | CGM-12X1.25-5H |
| M12X1.5              | CGM-12X1.5-4H  | CGM-12X1.5-5H  |
| M14X1.5              | CGM-14X1.5-4H  | CGM-14X1.5-5H  |
| M16X1.5              | CGM-16X1.5-4H  | CGM-16X1.5-5H  |
| M18X1.5              | CGM-18X1.5-4H  | CGM-18X1.5-5H  |
| M20X1.5              | CGM-20X1.5-4H  | CGM-20X1.5-5H  |
| M22X1.5              | CGM-22X1.5-4H  | CGM-22X1.5-5H  |
| M18X2                | CGM-18X2-4H    | CGM-18X2-5H    |
| M20X2                | CGM-20X2-4H    | CGM-20X2-5H    |
| M22X2                | CGM-22X2-4H    | CGM-22X2-5H    |
| M24X2                | CGM-24X2-4H    | CGM-24X2-5H    |
| M27X2                | CGM-27X2-4H    | CGM-27X2-5H    |
| M30X2                | CGM-30X2-4H    | CGM-30X2-5H    |
| M33X2                | CGM-33X2-4H    | CGM-33X2-5H    |
| M39X2                | CGM-39X2-4H    | CGM-39X2-5H    |
| M36X3                | CGM-36X3-4H    | CGM-36X3-5H    |
| M39X3                | CGM-39X3-4H    | CGM-39X3-5H    |

- Gaging of the tapped thread is specified because a standard gage may not freely enter an installed insert. The insert will seat itself once a bolt or screw is installed and tightened.
- The "GO" member checks basic pitch diameter, major diameter minimum and lead. The "HI" member checks maximum pitch diameter. The minor diameter is checked separately with a graduated pin set.
- The Class of Fit specifies the pitch diameter tolerance of the tapped hole, with class 3B (Unified) and 4H (Metric) being the tighter range usually specified in military/aerospace applications. Class 2B (Unified) and 5H (Metric) gages have provide a broader tolerance range and are normally specified in commercial/ industrial applications.

# CoilThread STI Gages - Cross References

| KATO Part Number | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number |
|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|------------------|-----------------------|
| 3B Working       |                       | 2B Working       |                       | 3B Reference     |                       | 2B Reference     |                       |
| Unified Coarse   |                       |                  |                       |                  |                       |                  |                       |
| CGC-01X-3B       | 3688-01               | CGC-01X-2B       | 1442-01               | CGC-01W-3B       | 1688-01               | CGC-01W-2B       | 1440-01               |
| CGC-02X-3B       | 3688-02               | CGC-02X-2B       | 1442-02               | CGC-02W-3B       | 1688-02               | CGC-02W-2B       | 1440-02               |
| CGC-03X-3B       | 3688-03               | CGC-03X-2B       | 1442-03               | CGC-03W-3B       | 1688-03               | CGC-03W-2B       | 1440-03               |
| CGC-04X-3B       | 3688-04               | CGC-04X-2B       | 1442-04               | CGC-04W-3B       | 1688-04               | CGC-04W-2B       | 1440-04               |
| CGC-05X-3B       | 3688-05               | CGC-05X-2B       | 1442-05               | CGC-05W-3B       | 1688-05               | CGC-05W-2B       | 1440-05               |
| CGC-06X-3B       | 3688-06               | CGC-06X-2B       | 1442-06               | CGC-06W-3B       | 1688-06               | CGC-06W-2B       | 1440-06               |
| CGC-2X-3B        | 3688-2                | CGC-2X-2B        | 1442-2                | CGC-2W-3B        | 1688-2                | CGC-2W-2B        | 1440-2                |
| CGC-3X-3B        | 3688-3                | CGC-3X-2B        | 1442-3                | CGC-3W-3B        | 1688-3                | CGC-3W-2B        | 1440-3                |
| CGC-1X-3B        | 3688-1                | CGC-1X-2B        | 1442-1                | CGC-1W-3B        | 1688-1                | CGC-1W-2B        | 1440-1                |
| CGC-4X-3B        | 3688-4                | CGC-4X-2B        | 1442-4                | CGC-4W-3B        | 1688-4                | CGC-4W-2B        | 1440-4                |
| CGC-5X-3B        | 3688-5                | CGC-5X-2B        | 1442-5                | CGC-5W-3B        | 1688-5                | CGC-5W-2B        | 1440-5                |
| CGC-6X-3B        | 3688-6                | CGC-6X-2B        | 1442-6                | CGC-6W-3B        | 1688-6                | CGC-6W-2B        | 1440-6                |
| CGC-7X-3B        | 3688-7                | CGC-7X-2B        | 1442-7                | CGC-7W-3B        | 1688-7                | CGC-7W-2B        | 1440-7                |
| CGC-8X-3B        | 3688-8                | CGC-8X-2B        | 1442-8                | CGC-8W-3B        | 1688-8                | CGC-8W-2B        | 1440-8                |
| CGC-9X-3B        | 3688-9                | CGC-9X-2B        | 1442-9                | CGC-9W-3B        | 1688-9                | CGC-9W-2B        | 1440-9                |
| CGC-10X-3B       | 3688-10               | CGC-10X-2B       | 1442-10               | CGC-10W-3B       | 1688-10               | CGC-10W-2B       | 1440-10               |
| CGC-12X-3B       | 3688-12               | CGC-12X-2B       | 1442-12               | CGC-12W-3B       | 1688-12               | CGC-12W-2B       | 1440-12               |
| CGC-14X-3B       | 3688-14               | CGC-14X-2B       | 1442-14               | CGC-14W-3B       | 1688-14               | CGC-14W-2B       | 1440-14               |
| CGC-16X-3B       | 3688-16               | CGC-16X-2B       | 1442-16               | CGC-16W-3B       | 1688-16               | CGC-16W-2B       | 1440-16               |
| CGC-18X-3B       | 3688-18               | CGC-18X-2B       | 1442-18               | CGC-18W-3B       | 1688-18               | CGC-18W-2B       | 1440-18               |
| CGC-20X-3B       | 3688-20               | CGC-20X-2B       | 1442-20               | CGC-20W-3B       | 1688-20               | CGC-20W-2B       | 1440-20               |
| CGC-22X-3B       | 3688-22               | CGC-22X-2B       | 1442-22               | CGC-22W-3B       | 1688-22               | CGC-22W-2B       | 1440-22               |
| CGC-24X-3B       | 3688-24               | CGC-24X-2B       | 1442-24               | CGC-24W-3B       | 1688-24               | CGC-24W-2B       | 1440-24               |
| Unified Fine     |                       |                  |                       |                  |                       |                  |                       |
| CGF-00X-3B       | ---                   | CGF-00X-2B       | ---                   | CGF-00W-3B       | ---                   | CGF-00W-2B       | ---                   |
| CGF-03X-3B       | 3694-03               | CGF-03X-2B       | 1443-03               | CGF-03W-3B       | 1694-03               | CGF-03W-2B       | 1441-03               |
| CGF-04X-3B       | 3694-04               | CGF-04X-2B       | 1443-04               | CGF-04W-3B       | 1694-04               | CGF-04W-2B       | 1441-04               |
| CGF-06X-3B       | 3694-06               | CGF-06X-2B       | 1443-06               | CGF-06W-3B       | 1694-06               | CGF-06W-2B       | 1441-06               |
| CGF-2X-3B        | 3694-2                | CGF-2X-2B        | 1443-2                | CGF-2W-3B        | 1694-2                | CGF-2W-2B        | 1441-2                |
| CGF-3X-3B        | 3694-3                | CGF-3X-2B        | 1443-3                | CGF-3W-3B        | 1694-3                | CGF-3W-2B        | 1441-3                |
| CGF-4X-3B        | 3694-4                | CGF-4X-2B        | 1443-4                | CGF-4W-3B        | 1694-4                | CGF-4W-2B        | 1441-4                |
| CGF-5X-3B        | 3694-5                | CGF-5X-2B        | 1443-5                | CGF-5W-3B        | 1694-5                | CGF-5W-2B        | 1441-5                |
| CGF-6X-3B        | 3694-6                | CGF-6X-2B        | 1443-6                | CGF-6W-3B        | 1694-6                | CGF-6W-2B        | 1441-6                |
| CGF-7X-3B        | 3694-7                | CGF-7X-2B        | 1443-7                | CGF-7W-3B        | 1694-7                | CGF-7W-2B        | 1441-7                |
| CGF-8X-3B        | 3694-8                | CGF-8X-2B        | 1443-8                | CGF-8W-3B        | 1694-8                | CGF-8W-2B        | 1441-8                |
| CGF-9X-3B        | 3694-9                | CGF-9X-2B        | 1443-9                | CGF-9W-3B        | 1694-9                | CGF-9W-2B        | 1441-9                |
| CGF-10X-3B       | 3694-10               | CGF-10X-2B       | 1443-10               | CGF-10W-3B       | 1694-10               | CGF-10W-2B       | 1441-10               |
| CGF-12X-3B       | 3694-12               | CGF-12X-2B       | 1443-12               | CGF-12W-3B       | 1694-12               | CGF-12W-2B       | 1441-12               |
| CGF-14X-3B       | 3694-14               | CGF-14X-2B       | 1443-14               | CGF-14W-3B       | 1694-14               | CGF-14W-2B       | 1441-14               |
| CGF-16X-3B       | 3694-16               | CGF-16X-2B       | 1443-16               | CGF-16W-3B       | 1694-16               | CGF-16W-2B       | 1441-16               |
| CGF-18X-3B       | 3694-18               | CGF-18X-2B       | 1443-18               | CGF-18W-3B       | 1694-18               | CGF-18W-2B       | 1441-18               |
| CGF-20X-3B       | 3694-20               | CGF-20X-2B       | 1443-20               | CGF-20W-3B       | 1694-20               | CGF-20W-2B       | 1441-20               |
| CGF-22X-3B       | 3694-22               | CGF-22X-2B       | 1443-22               | CGF-22W-3B       | 1694-22               | CGF-22W-2B       | 1441-22               |
| CGF-24X-3B       | 3694-24               | CGF-24X-2B       | 1443-24               | CGF-24W-3B       | 1694-24               | CGF-24W-2B       | 1441-24               |

# CoilThread STI Gages - Cross References

| KATO Part Number | Heli-Coil Part Number | KATO Part Number | Heli-Coil Part Number |
|------------------|-----------------------|------------------|-----------------------|
| 4H Working       |                       | 5H Working       |                       |
| Metric Coarse    |                       |                  |                       |
| CGM-2X.4-4H      | 4624-2                | CGM-2X.4-5H      | 1324-2                |
| CGM-2.2X.45-4H   | 4624-2.2              | CGM-2.2X.45-5H   | 1324-2.2              |
| CGM-2.5X.45-4H   | 4624-2.5              | CGM-2.5X.45-5H   | 1324-2.5              |
| CGM-3X.5-4H      | 4624-3                | CGM-3X.5-5H      | 1324-3                |
| CGM-3.5X.6-4H    | 4624-3.5              | CGM-3.5X.6-5H    | 1324-3.5              |
| CGM-4X.7-4H      | 4624-4                | CGM-4X.7-5H      | 1324-4                |
| CGM-5X.8-4H      | 4624-5                | CGM-5X.8-5H      | 1324-5                |
| CGM-6X1-4H       | 4624-6                | CGM-6X1-5H       | 1324-6                |
| CGM-7X.1-4H      | 4624-7                | CGM-7X1-5H       | 1324-7                |
| CGM-8X1.25-4H    | 4624-8                | CGM-8X1.25-5H    | 1324-8                |
| CGM-10X1.5-4H    | 4624-10               | CGM-10X1.5-5H    | 1324-10               |
| CGM-12X1.75-4H   | 4624-12               | CGM-12X1.75-5H   | 1324-12               |
| CGM-14X2-4H      | 4624-14               | CGM-14X2-5H      | 1324-14               |
| CGM-16X2-4H      | 4624-16               | CGM-16X2-5H      | 1324-16               |
| CGM-18X2.5-4H    | 4624-18               | CGM-18X2.5-5H    | 1324-18               |
| CGM-20X2.5-4H    | 4624-20               | CGM-20X2.5-5H    | 1324-20               |
| CGM-22X2.5-4H    | 4624-22               | CGM-22X2.5-5H    | 1324-22               |
| CGM-24X3-4H      | 4624-24               | CGM-24X3-5H      | 1324-24               |
| CGM-27X3-4H      | 4624-27               | CGM-27X3-5H      | 1324-27               |
| Metric Fine      |                       |                  |                       |
| CGM-8X1-4H       | 5416-8                | CGM-8X1-5H       | 4916-8                |
| CGM-10X1-4H      | 5416-10               | CGM-10X1-5H      | 4916-10               |
| CGM-10X1.25-4H   | 5424-10               | CGM-10X1.25-5H   | 4924-10               |
| CGM-12X1.25-4H   | 5424-12               | CGM-12X1.25-5H   | 4924-12               |
| CGM-12X1.5-4H    | 5480-12               | CGM-12X1.5-5H    | 4980-12               |
| CGM-14X1.5-4H    | 5480-14               | CGM-14X1.5-5H    | 4980-14               |
| CGM-16X1.5-4H    | 5480-16               | CGM-16X1.5-5H    | 4980-16               |
| CGM-18X1.5-4H    | 5480-18               | CGM-18X1.5-5H    | 4980-18               |
| CGM-20X1.5-4H    | 5480-20               | CGM-20X1.5-5H    | 4980-20               |
| CGM-22X1.5-4H    | 5480-22               | CGM-22X1.5-5H    | 4980-22               |
| CGM-18X2-4H      | 5418-18               | CGM-18X2-5H      | 4918-18               |
| CGM-20X2-4H      | 5418-20               | CGM-20X2-5H      | 4918-20               |
| CGM-22X2-4H      | 5418-22               | CGM-22X2-5H      | 4918-22               |
| CGM-24X2-4H      | 5418-24               | CGM-24X2-5H      | 4918-24               |
| CGM-27X2-4H      | 5418-27               | CGM-27X2-5H      | 4918-27               |
| CGM-30X2-4H      | 5418-30               | CGM-30X2-5H      | 4918-30               |
| CGM-33X2-4H      | 5418-33               | CGM-33X2-5H      | 4918-33               |
| CGM-39X2-4H      | --                    | CGM-39X2-5H      | --                    |
| CGM-36X3-4H      | --                    | CGM-36X3-5H      | --                    |
| CGM-39X3-4H      | 5421-39               | CGM-39X3-5H      | 4918-39               |



# CoilThread Tools Part Numbering System

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The CoilThread tools part numbering system was designed to make identifying and ordering KATO installation and removal tools quick and easy. Each letter and number is used to clearly identify the tool type, style, and size.

The KATO tool part number includes up to 5 segments. The example below is a Tangless KATO Prewinder Air tool for a 4-40 thread size.

2 KPA C - 04      
1            2            3            4            5

**1**

## Tool Type (Tangless or Tanged):

- **Blank** - Tanged tool
- **2** - prefix for CoilThread II Tangless tool

**2**

## Tool Style:

- **KHE** - KATO Hex Electric
- **KIP** - KATO Installation Pawl
- **KPA** - KATO Prewinder Air
- **KPE** - KATO Prewinder Electric
- **KPH** - KATO Prewinder Hand
- **KRE** - KATO Round Electric
- **KRP** - KATO Removal Pawl
- **KRT** - KATO Removal Tool
- **KTBT** - KATO Tang Break-off Tool

**3**

## Thread Designation:

- **C** - Unified Coarse
- **F** - Unified Fine
- **M** - Metric
- **V** - Various

**4**

## Size Designation

**5**

## Component / Replacement Part Suffix:

- **D** - Prewinder Body
- **G** - Nylon Guard
- **H** - Housing
- **K** - Pawl Kit (only on pawl part numbers 2KIP & 2KRP series)
- **M** - Mandrel or Mandrel Assembly (based on tool type and where applicable)
- **S** - Spacer Set (where applicable)

# Tangless Installation Pawl

The **KATO One Pawl Fits All™** system was designed to simplify the Pawl ordering process, inventory management, and reduce overall costs for users of KATO Tangless inserts & tools. Here's how it works... Order any size KATO installation pawl (2KIP Series) and use it in any KATO Tangless installation tool of the same size, it's that simple!

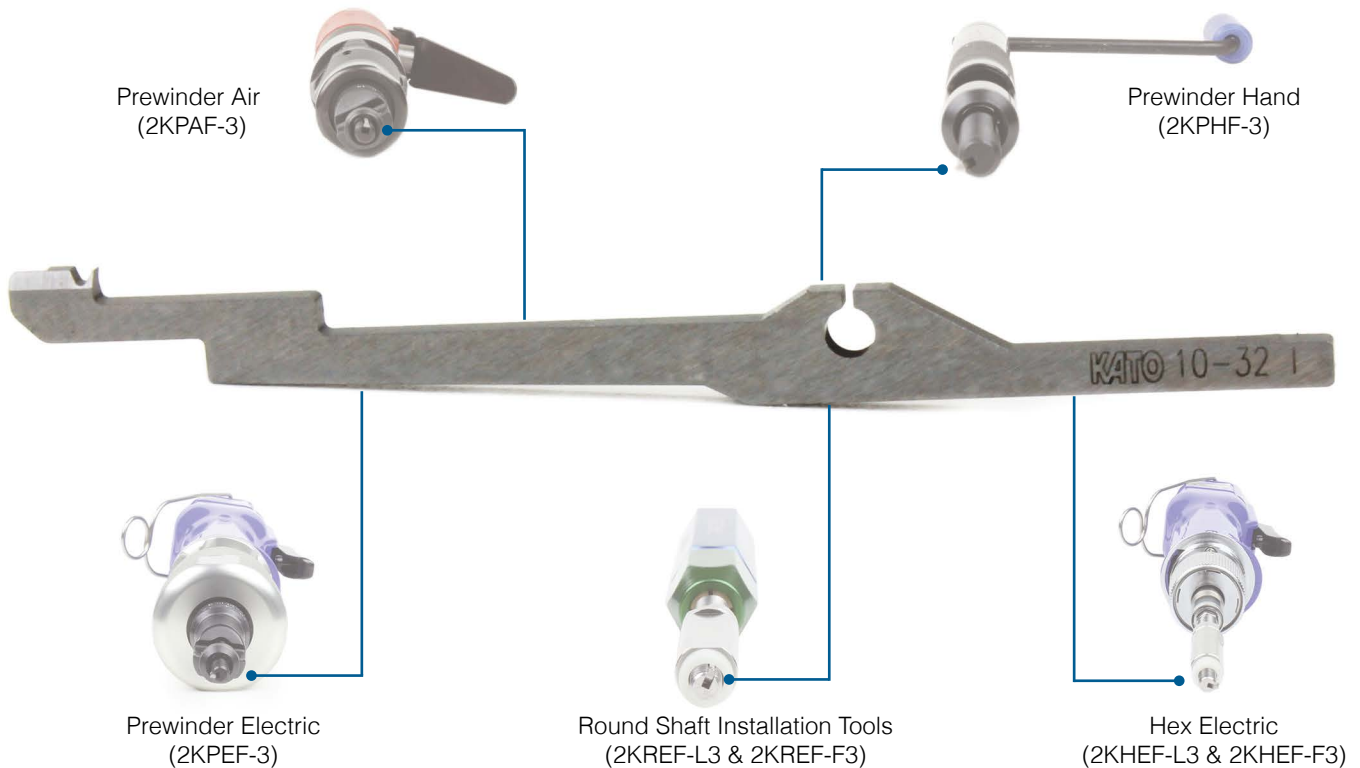


## Pawl Kit includes:

- 1 Pawl (2KIP Series)
- 2 Springs (2KSPR Series)
- 2 Pins (2KPIN Series)

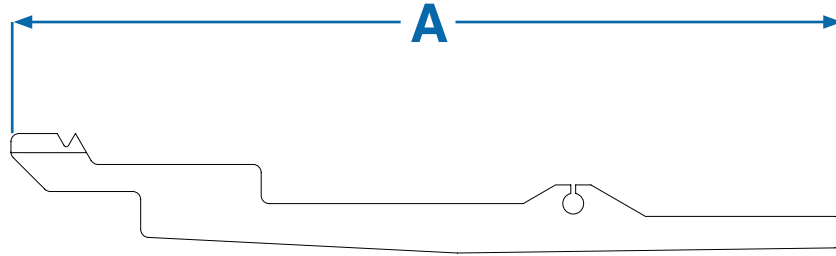
For example, order a 10-32 installation pawl (2KIPF-3) and it's guaranteed to work with all KATO 10-32 Tangless installation tools:

| Guaranteed Fit | KATO Tool Part Number | Description                              |
|----------------|-----------------------|--|
| ✓              | 2KHEF-F3              | 10-32 Hex Electric Tool (Free-Running)   |
| ✓              | 2KHEF-L3              | 10-32 Hex Electric Tool (Locking)        |
| ✓              | 2KPAF-3               | 10-32 Prewinder Air Tool                 |
| ✓              | 2KPEF-3               | 10-32 Prewinder Electric Tool            |
| ✓              | 2KPHF-3               | 10-32 Prewinder Hand Tool                |
| ✓              | 2KREF-F3              | 10-32 Round Electric Tool (Free-Running) |
| ✓              | 2KREF-L3              | 10-32 Round Electric Tool (Locking)      |



# Tangless Installation Pawl

## Dimensions



| Thread Size    | Length A |
|----------------|----------|
| Unified Coarse |          |
| 1-64           | 0.95     |
| 2-56           | 1.95     |
| 4-40           | 1.82     |
| 6-32           | 1.85     |
| 8-32           | 1.90     |
| 10-24          | 2.00     |
| 1/4-20         | 1.87     |
| 5/16-18        | 2.09     |
| 3/8-16         | 2.20     |

| Thread Size  | Length A |
|--------------|----------|
| Unified Fine |          |
| 0-80         | 1.28     |
| 10-32        | 1.68     |
| 1/4-28       | 1.91     |
| 5/16-24      | 2.05     |
| 3/8-24       | 2.15     |
| 7/16-20      | 2.40     |
| 1/2-20       | 2.20     |

| Thread Size   | Length A |
|---------------|----------|
| Metric Coarse |          |
| M2X0.4        | 0.95     |
| M2.5X0.45     | 1.55     |
| M3X0.5        | 1.66     |
| M4X0.7        | 1.49     |
| M5X0.8        | 1.68     |
| M6X1          | 1.70     |
| M8X1.25       | 2.23     |
| M10X1.5       | 2.21     |
| M12X1.75      | 2.59     |

## Part Numbers

| Thread Size           | Tangless Installation Pawl | Tangless Installation Pawl Kit |
|-----------------------|----------------------------|--------------------------------|
| Unified Coarse        |                            |                                |
| 1-64                  | 2KIPC-01                   | 2KIPC-01K                      |
| 2-56                  | 2KIPC-02                   | 2KIPC-02K                      |
| 4-40                  | 2KIPC-04                   | 2KIPC-04K                      |
| 6-32                  | 2KIPC-06                   | 2KIPC-06K                      |
| 8-32                  | 2KIPC-2                    | 2KIPC-2K                       |
| 10-24                 | 2KIPC-3                    | 2KIPC-3K                       |
| 1/4-20                | 2KIPC-4                    | 2KIPC-4K                       |
| 5/16-18               | 2KIPC-5                    | 2KIPC-5K                       |
| 3/8-16                | 2KIPC-6                    | 2KIPC-6K                       |
| Unified Fine          |                            |                                |
| 0-80                  | 2KIPF-00                   | 2KIPF-00K                      |
| 10-32                 | 2KIPF-3                    | 2KIPF-3K                       |
| 1/4-28                | 2KIPF-4                    | 2KIPF-4K                       |
| 5/16-24               | 2KIPF-5                    | 2KIPF-5K                       |
| 3/8-24                | 2KIPF-6                    | 2KIPF-6K                       |
| 7/16-20               | 2KIPF-7                    | 2KIPF-7K                       |
| 1/2-20                | 2KIPF-8                    | 2KIPF-8K                       |
| Metric Coarse         |                            |                                |
| M2X0.4                | 2KIPM-2                    | 2KIPM-2K                       |
| M2.5X0.45             | 2KIPM-2.5                  | 2KIPM-2.5K                     |
| M3X0.5                | 2KIPM-3                    | 2KIPM-3K                       |
| M4X0.7                | 2KIPM-4                    | 2KIPM-4K                       |
| M5X0.8                | 2KIPM-5                    | 2KIPM-5K                       |
| M6X1                  | 2KIPM-6                    | 2KIPM-6K                       |
| M8X1.25 <sup>1</sup>  | 2KIPM-8                    | 2KIPM-8K                       |
| M10X1.5 <sup>1</sup>  | 2KIPM-10                   | 2KIPM-10K                      |
| M12X1.75 <sup>1</sup> | 2KIPM-12                   | 2KIPM-12K                      |

## Cross References

| KATO Part Number      | Superseded KATO Pawl Number |             |              |           |
|-----------------------|-----------------------------|-------------|--------------|-----------|
|                       | Air Tool                    | Hex Tool    | Round Tool   | Hand Tool |
| Unified Coarse        |                             |             |              |           |
| 2KIPC-02              | 2CT11400-02                 | 2CTSB-02CP  | CT16402-02   | TCIC-02P  |
| 2KIPC-04              | 2CT11400-04                 | 2CTSB-04CP  | CT16402-04   | TCIC-04P  |
| 2KIPC-06              | 2CT11400-06                 | 2CTSB-06CP  | CT16402-06   | TCIC-06P  |
| 2KIPC-2               | 2CT11400-2                  | 2CTSB-2CP   | CT16402-2    | TCIC-2P   |
| 2KIPC-3               | 2CT11400-3                  | 2CTSB-3CP   | CT16402-3    | TCIC-3P   |
| 2KIPC-4               | 2CT11400-4                  | 2CTSB-4CP   | CT16402-4    | TCIC-4P   |
| 2KIPC-5               | 2CT11400-5                  | ---         | ---          | TCIC-5P   |
| 2KIPC-6               | 2CT11400-6                  | ---         | ---          | TCIC-6P   |
| Unified Fine          |                             |             |              |           |
| 2KIPF-3               | 2CT11401-3A                 | 2CTSB-3FP   | CT16403-3    | TCIF-3P   |
| 2KIPF-4               | 2CT11401-4                  | ---         | ---          | TCIF-4P   |
| 2KIPF-5               | 2CT11401-5                  | ---         | ---          | TCIF-5P   |
| 2KIPF-6               | 2CT11401-6                  | ---         | ---          | TCIF-6P   |
| 2KIPF-7               | ---                         | ---         | ---          | ---       |
| 2KIPF-8               | ---                         | ---         | ---          | ---       |
| Metric Coarse         |                             |             |              |           |
| 2KIPM-2.5             | 2CT11400-M2.5               | 2CTSB-M2.5P | CT16402-M2.5 | TCIM-2.5P |
| 2KIPM-3               | 2CT11400-M3                 | 2CTSB-M3P   | CT16402-M3   | TCIM-3P   |
| 2KIPM-4               | 2CT11400-M4                 | 2CTSB-M4P   | CT16402-M4   | TCIM-4P   |
| 2KIPM-5               | 2CT11400-M5                 | 2CTSB-M5P   | CT16402-M5   | TCIM-5P   |
| 2KIPM-6               | 2CT11400-M6                 | 2CTSB-M6P   | CT16402-M6   | TCIM-6P   |
| 2KIPM-8 <sup>1</sup>  | 2CT11400-M8                 | 2CTSB-M8P   | CT16402-M8   | TCIM-8P   |
| 2KIPM-10 <sup>1</sup> | 2CT11400-M10                | 2CTSB-M10P  | CT16402-M10  | TCIM-10P  |
| 2KIPM-12 <sup>1</sup> | 2CT11400-M12                | 2CTSB-M12P  | CT16402-M12  | TCIM-12P  |

1. Not compatible with the KATO One Pawl Fits All, 2KHEM, and 2KREM at this time.

2. Pawl Kit includes one pawl, two pins, and two springs.

# Hex Electric Tool

The **KATO Hex Electric (KHE)** installation tool is designed for medium to high volume users of KATO Tangless and tanged bulk packaged CoilThread inserts (for Strip-Feed packaged inserts, KATO recommends using the Prewinder Electric Tool). The KHE tool utilizes the KATO KFS-20 brushless electric driver (CT5420), which incorporates a 1/4" Quick-Disconnect keyless chuck system. When fully assembled, operators can quickly and easily change from one thread size to another, or between Tangless and tanged CoilThread inserts.

In addition, when used with the KATO KFS-20 electric driver (CT5420) the KHE installation tool system is auto-reversing. Once the insert is installed the driver will automatically reverse, minimizing overall installation time. Utilizing a powerful electric motor and two torque adjusting compression springs (one for smaller thread sizes and one for larger thread sizes), the KFS-20 electric driver (CT5420) is capable of installing inserts up to 3/8-16" & M12 (eliminating the need to purchase two drivers). This provides operators the ability to precisely adjust the auto-reversing torque to ensure consistent installation and prolong the life of the mandrel assembly.

## Features and Benefits

- Available for both Tangless and tanged CoilThread inserts.
- Eliminates the need to purchase two drivers. Installs inserts up to 3/8-16" and M12.
- Auto-Reversing for reduced installation time.
- Quick-Disconnect keyless chuck system.
- Utilizes KATO's One Pawl Fits All system (Tangless).
- Lower cost than competitive drivers with greater capability and ease of use.
- Adjustable torque, helps prolong the life of installation tools.
- 100% compatible with existing KATO Hex Electric tools (KHE Series).
- Clean and quiet, ideal for clean room operation.
- Brushless electric driver provides increase durability and reduces maintenance.

## How to Order - Complete tool requires the following parts:

- KFS-20 Electric Driver (CT5420) - Includes Power Adapter.
- Hex Shaft Mandrel Assembly (See page 61).



Shown with **KATO Linear Torque Arm (2KLRM-1)** see page 87



Power Adapter

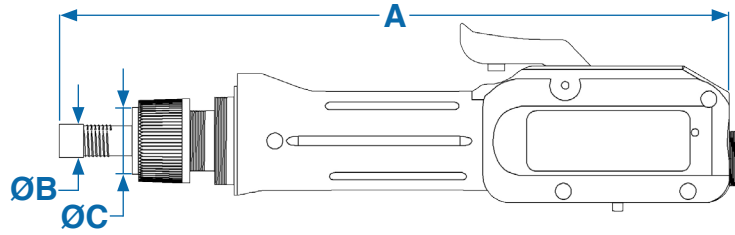
KFS-20 Electric Driver (CT5420)

Tangless Hex Tool (2KHE Series)

Tanged Hex Tool (KHE Series)

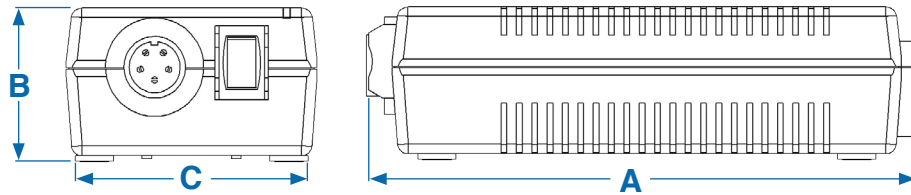
# Hex Electric Tool - Dimensions

## KFS-20 Electric Driver



| Torque (lbf-in) | Rpm @ 30VDC | Rpm @ 20VDC | Tap Capacity | Length A | Diameter B | Diameter C | Grip Diameter | Weight  | Chuck Capacity | Voltage   |
|-----------------|-------------|-------------|--------------|----------|------------|------------|---------------|---------|----------------|-----------|
| 0.17-6.90       | 1000        | 690         | M4           | 8.5"     | 0.428"     | 1.1"       | 1.3"          | 16.2 oz | 1/4 Hex"       | 20-30 VDC |

## Power Adapter

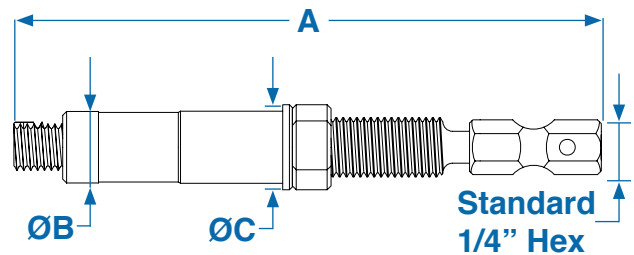


| Model    | Part Number | Maximum # of Driver | Control Box | Input   | Output         | Size Reference |          |         | Weight  |
|----------|-------------|---------------------|-------------|---------|----------------|----------------|----------|---------|---------|
|          |             |                     |             |         |                | Length A       | Height B | Width C |         |
| U.S.     | CT5420      | 1                   | Built In    | 110 VAC | 20 VDC/ 30 VDC | 5.7"           | 1.6"     | 2.6"    | 11.5 oz |
| European | CT5420-EU   | 1                   | Built In    | 240 VAC | 20 VDC/ 30 VDC | 5.7"           | 1.6"     | 2.6"    | 11.5 oz |

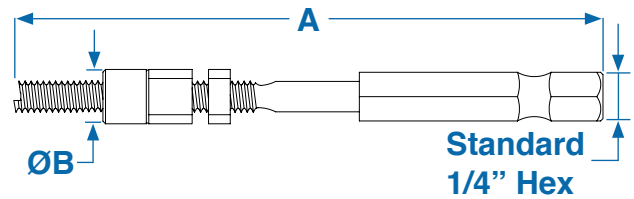
## Hex Shaft Mandrel Assembly

| Thread Size    | 2KHE - Tangless |            |            | KHE - Tanged |            |
|----------------|-----------------|------------|------------|--------------|------------|
|                | Length A        | Diameter B | Diameter C | Length A     | Diameter B |
| Unified Coarse |                 |            |            |              |            |
| 1-64           | 2.73            | 0.14       | 0.18       | ----         | ----       |
| 2-56           | 2.84            | 0.24       | 0.37       | 3.83         | 0.28       |
| 4-40           | 2.95            | 0.24       | 0.37       | 3.62         | 0.28       |
| 6-32           | 2.94            | 0.38       | 0.37       | 3.00         | 0.31       |
| 8-32           | 2.99            | 0.32       | 0.37       | 2.99         | 0.31       |
| 10-24          | 3.00            | 0.38       | 0.37       | 4.06         | 0.38       |
| 12-24          | ----            | ----       | ----       | 4.06         | 0.38       |
| 1/4-20         | 3.00            | 0.37       | 0.44       | 3.06         | 0.45       |
| 5/16-18        | 3.00            | 0.70       | 0.70       | 3.00         | 0.56       |
| 3/8-16         | 3.00            | 0.70       | 0.70       | 4.00         | 0.56       |
| Unified Fine   |                 |            |            |              |            |
| 0-80           | 1.82            | 0.12       | 0.18       | ---          | ---        |
| 10-32          | 3.11            | 0.38       | 0.44       | 3.61         | 0.38       |
| Metric Coarse  |                 |            |            |              |            |
| M2X0.4         | 2.73            | 0.24       | 0.38       | ----         | ----       |
| M2.5X0.45      | 2.73            | 0.24       | 0.37       | 3.00         | 0.26       |
| M3X0.5         | 2.71            | 0.24       | 0.37       | 3.00         | 0.25       |
| M3.5X0.6       | 2.73            | 0.24       | 0.37       | 2.98         | 0.24       |
| M4X0.7         | 3.00            | 0.24       | 0.37       | 2.99         | 0.32       |
| M5X0.8         | 3.11            | 0.24       | 0.37       | 4.00         | 0.38       |
| M6X1           | 3.09            | 0.44       | 0.44       | 4.14         | 0.44       |
| M8X1.25        | 3.88            | 0.51       | 0.51       | 3.04         | 0.56       |
| M10X1.5        | 4.11            | 0.61       | 0.61       | ---          | ---        |
| M12X1.75       | 4.52            | 0.69       | 0.69       | ---          | ---        |

## Tangless - 2KHE



## Tanged - KHE



1. All dimensions are for reference only.
2. All dimensions are in inches.

# Hex Electric Tool - Part Numbers

| Thread Size                | Tangless Hex Tool <sup>1</sup> | Tangless Replacement Mandrel | Tangless Replacement Pawl | Tanged Hex Tool | Electric Driver w/ Power Adapter       | Linear Torque Arm |
|----------------------------|--------------------------------|------------------------------|---------------------------|-----------------|--|-------------------|
| Unified Coarse             |                                |                              |                           |                 |  |                   |
| 1-64 <sup>4</sup>          | 2KHEC-01                       | 2KHEC-01M                    | 2KIPC-01                  | ---             | Manual Only                            |                   |
| 2-56                       | 2KHEC-02                       | 2KHEC-02M                    | 2KIPC-02                  | KHEC-02         | CT5420<br>or<br>CT5420-EU <sup>5</sup> | 2KLRM-1           |
| 4-40                       | 2KHEC-04                       | 2KHEC-04M                    | 2KIPC-04                  | KHEC-04         |  |                   |
| 6-32                       | 2KHEC-06                       | 2KHEC-06M                    | 2KIPC-06                  | KHEC-06         |  |                   |
| 8-32                       | 2KHEC-2                        | 2KHEC-2M                     | 2KIPC-2                   | KHEC-2          |  |                   |
| 10-24                      | 2KHEC-3                        | 2KHEC-3M                     | 2KIPC-3                   | KHEC-3          |  |                   |
| 12-24                      | ---                            | ---                          | ---                       | KHEC-1          |  |                   |
| 1/4-20                     | 2KHEC-4                        | 2KHEC-4M                     | 2KIPC-4                   | KHEC-4          |  |                   |
| 5/16-18                    | 2KHEC-5                        | 2KHEC-5M                     | 2KIPC-5                   | ---             |  |                   |
| 3/8-16                     | 2KHEC-6                        | 2KHEC-6M                     | 2KIPC-6                   | ---             |  |                   |
| Unified Fine <sup>2</sup>  |                                |                              |                           |                 |  |                   |
| 0-80 <sup>4</sup>          | 2KREF-00                       | 2KREF-00M                    | 2KIPF-00                  | ---             | Manual Only                            |                   |
| 10-32                      | 2KHEF-F3                       | 2KHEF-F3M                    | 2KIPF-3                   | KHEF-3          | CT5420<br>or<br>CT5420-EU <sup>5</sup> | 2KLRM-1           |
|                            | 2KHEF-L3                       | 2KHEF-L3M                    |                           |                 |  |                   |
| Metric Coarse <sup>2</sup> |                                |                              |                           |                 |  |                   |
| M2X0.4 <sup>4</sup>        | 2KHEM-F2                       | 2KHEM-F2M                    | 2KIPM-2                   | ---             | Manual Only                            |                   |
|                            | 2KHEM-L2                       | 2KHEM-L2M                    |                           |                 |  |                   |
| M2.5X0.45                  | 2KHEM-F2.5                     | 2KHEM-F2.5M                  | 2KIPM-2.5                 | KHEM-2.5        | CT5420<br>or<br>CT5420-EU <sup>5</sup> | 2KLRM-1           |
|                            | 2KHEM-L2.5                     | 2KHEM-L2.5M                  |                           |                 |  |                   |
| M3X0.5                     | 2KHEM-F3                       | 2KHEM-F3M                    | 2KIPM-3                   | KHEM-3          |  |                   |
|                            | 2KHEM-L3                       | 2KHEM-L3M                    |                           |                 |  |                   |
| M3.5X0.6                   | ---                            | ---                          | ---                       | KHEM-3.5        |  |                   |
| M4X0.7                     | 2KHEM-F4                       | 2KHEM-F4M                    | 2KIPM-4                   | KHEM-4          |  |                   |
|                            | 2KHEM-L4                       | 2KHEM-L4M                    |                           |                 |  |                   |
| M5X0.8                     | 2KHEM-F5                       | 2KHEM-F5M                    | 2KIPM-5                   | KHEM-5          |  |                   |
|                            | 2KHEM-L5                       | 2KHEM-L5M                    |                           |                 |  |                   |
| M6X1                       | 2KHEM-F6                       | 2KHEM-F6M                    | 2KIPM-6                   | KHEM-6          |  |                   |
|                            | 2KHEM-L6                       | 2KHEM-L6M                    |                           |                 |  |                   |
| M8x1.25 <sup>3</sup>       | 2KHEM-F8                       | ---                          | See Notes                 | KHEM-8          |  |                   |
|                            | 2KHEM-L8                       | ---                          |                           |                 |  |                   |
| M10x1.5 <sup>3</sup>       | 2KHEM-F10                      | ---                          | See Notes                 | ---             |  |                   |
|                            | 2KHEM-L10                      | ---                          |                           |                 |  |                   |
| M12X1.75 <sup>3</sup>      | 2KHEM-F12                      | ---                          | See Notes                 | ---             |  |                   |
|                            | 2KHEM-L12                      | ---                          |                           |                 |  |                   |

- The Hex Electric tool consists of the installation mandrel (hex shaft), installation pawl, spring, pin, wrenches, and adjusting sleeve fully assembled and ready for use.
- For improved Tangless installation UNF & Metric thread sizes use a different installation mandrel for Free-Running & Locking CoilThread inserts, this is indicated by the -F and -L designation in the part number. **KATO strongly recommends using the Prewinder Electric Tool (KPE Series) for Fine and Metric thread sizes.**
- Not compatible with the KATO One Pawl Fits All system at this time.
- For these smaller thread sizes, KATO recommends manual installation only. These tools include a gage handle.
- Use CT5420-EU for European Model (240V) only.

| Tangless Replacement Parts |   |
|----------------------------|---|
| Suffix                     | Description   |
| K                          | Pawl Kit (add a K to the end of the pawl part number; includes one pawl, two pins, and two springs) |
| G                          | Nylon Guard (example: <b>2KHEC-04G</b> )  |
| H                          | Housing (example: <b>2KHEC-04H</b> )  |

# Hex Electric Tool - Cross References

| KATO Part Number | Superseded Part Number |
|------------------|------------------------|
| Unified Coarse   |                        |
| 2KHEC-02         | 2CTSB-02C              |
| 2KHEC-02M        | 2CTSB-02CM             |
| 2KHEC-04         | 2CTSB-04C              |
| 2KHEC-04M        | 2CTSB-04CM             |
| 2KHEC-06         | 2CTSB-06C              |
| 2KHEC-06M        | 2CTSB-06CM             |
| 2KHEC-2          | 2CTSB-2C               |
| 2KHEC-2M         | 2CTSB-2CM              |
| 2KHEC-3          | 2CTSB-3C               |
| 2KHEC-3M         | 2CTSB-3CM              |
| 2KHEC-4          | 2CTSB-4C               |
| 2KHEC-4M         | 2CTSB-4CM              |

| KATO Part Number | Superseded Part Number |
|------------------|------------------------|
| Unified Fine     |                        |
| 2KHEF-F3         | 2CTSB-3F               |
| 2KHEF-F3M        | 2CTSB-3FM              |
| 2KHEF-L3         | 2CTSB-3F               |
| 2KHEF-L3M        | 2CTSB-3FM              |
| Metric Coarse    |                        |
| 2KHEM-F2.5       | 2CTSB-M2.5F            |
| 2KHEM-L2.5       | 2CTSB-M2.5L            |
| 2KHEM-F3         | 2CTSB-M3F              |
| 2KHEM-L3         | 2CTSB-M3L              |
| 2KHEM-F4         | 2CTSB-M4F              |
| 2KHEM-L4         | 2CTSB-M4L              |
| 2KHEM-F5         | 2CTSB-M5F              |
| 2KHEM-L5         | 2CTSB-M5L              |
| 2KHEM-F6         | 2CTSB-M6F              |
| 2KHEM-L6         | 2CTSB-M6L              |
| 2KHEM-F8         | 2CTSB-M8F              |
| 2KHEM-L8         | 2CTSB-M8L              |
| 2KHEM-F10        | 2CTSB-M10F             |
| 2KHEM-L10        | 2CTSB-M10L             |
| 2KHEM-F12        | 2CTSB-M12F             |
| 2KHEM-L12        | 2CTSB-M12L             |



# Prewinder Air Tool

The **KATO Prewinder Air (KPA)** installation tool is designed for medium to high volume users of KATO Tangless and tanged strip-feed packaged CoilThread inserts (can also be used with bulk inserts). The KPA tool is comprised of the KATO Air Motor (CT25017), a KATO Adapter (CT9605 or CT9705), and a Front End Assembly (see table on page 65).

Another important component to the air tool system is the KATO Filter-Regulator-Lubricator (2KFRL-1). The Filter-Regulator-Lubricator cleans the air, allows precise control of the air pressure, and lubricates the air motor. When used together, the KPA tool is capable of installing KATO CoilThread inserts up to 1/2" and M12 coarse and fine thread sizes.

For installation of Tangless CoilThread insert sizes 2-56, 4-40, M2.5, and M3, the KATO torque limiting Clutch Drive (CT9602) is required to control the installation torque generated by the air motor; preventing damage to the Front-End Assembly.

## Features and Benefits

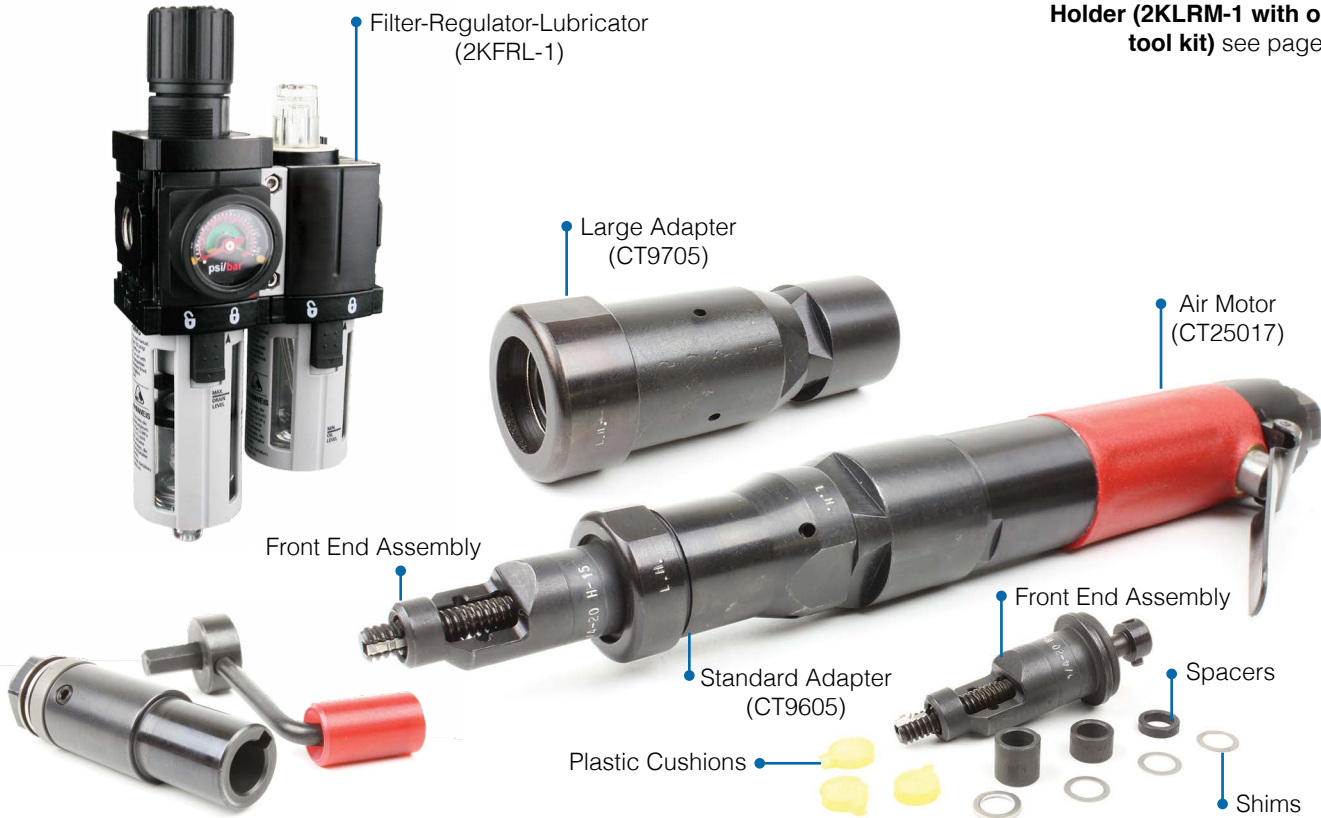
- Available for both Tangless and tanged CoilThread inserts.
- Installs inserts up to 1/2" and M12.
- Semi-automated reversing for reduced installation time.
- Utilizes KATO's One Pawl Fits All system (Tangless).

## How to Order - Complete tool requires the following parts:

- Air Motor (CT25017).
- Adapter (CT9605 or CT9705 see table for details).
- Front-End Assembly (see table on page 65) .
- Filter-Regulator-Lubricator (2KFRL-1).
- Torque Limiting Clutch Drive (CT9602) required for Tangless sizes 2-56, 4-40, M2.5, and M3.



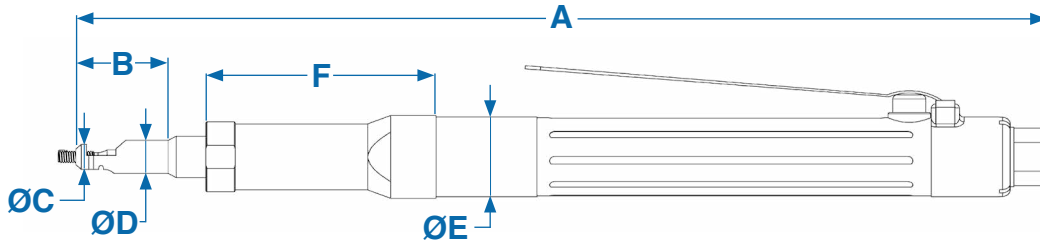
Shown with **KATO Linear Arm Tool Holder (2KLRM-1 with optional air tool kit)** see page 87



Torque Limiting Clutch Drive - CT9602  
Required for Tangless Size  
2-56, 4-40, M2.5, and M3.

# Prewinder Air Tool - Dimensions

CT25017



| Thread Size           | Length A | Length B | Diameter C | Diameter D | Diameter E | Length F | Max RPM at 90 PSI | Weight Air Motor   | Air Motor Torque <sup>3</sup> | Weight Complete Tool | Hose Fitting |
|-----------------------|----------|----------|------------|------------|------------|----------|-------------------|--------------------|-------------------------------|----------------------|--------------|
| <b>Unified Coarse</b> |          |          |            |            |            |          |                   |                    |                               |                      |              |
| 2-56                  | 10       | 0.97     | 0.18       | 0.34       | 1.25       | 3.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 1.4 lb               | 1/4" NPT     |
| 4-40                  | 10       | 1.09     | 0.26       | 0.40       |            |          |                   |                    |                               |                      |              |
| 6-32                  | 10       | 1.25     | 0.31       | 0.50       |            |          |                   |                    |                               |                      |              |
| 8-32                  | 10       | 1.05     | 0.35       | 0.51       |            |          |                   |                    |                               |                      |              |
| 10-24                 | 10       | 1.34     | 0.37       | 0.51       |            |          |                   |                    |                               |                      |              |
| 1/4-20                | 10       | 1.44     | 0.42       | 0.63       | 1.55       | 4.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 2 lb                 | 1/4" NPT     |
| 5/16-18               | 11       | 1.25     | 0.56       | 0.75       |            |          |                   |                    |                               |                      |              |
| 3/8-16                | 11       | 2.01     | 0.69       | 0.88       |            |          |                   |                    |                               |                      |              |
| 7/16-14               | 12       | 1.87     | 0.75       | 0.75       |            |          |                   |                    |                               |                      |              |
| 1/2-13                | 12       | 2.21     | 0.81       | 0.81       |            |          |                   |                    |                               |                      |              |
| <b>Unified Fine</b>   |          |          |            |            |            |          |                   |                    |                               |                      |              |
| 6-40                  | 10       | 1.03     | 0.31       | 0.50       | 1.25       | 3.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 1.4 lb               | 1/4" NPT     |
| 8-36                  | 10       | 1.05     | 0.35       | 0.51       |            |          |                   |                    |                               |                      |              |
| 10-32                 | 10       | 1.02     | 0.38       | 0.62       |            |          |                   |                    |                               |                      |              |
| 1/4-28                | 10       | 1.23     | 0.43       | 0.63       |            |          |                   |                    |                               |                      |              |
| 5/16-24               | 12       | 1.93     | 0.56       | 0.75       | 1.55       | 4.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 2 lb                 | 1/4" NPT     |
| 3/8-24                | 12       | 2.04     | 0.69       | 0.87       |            |          |                   |                    |                               |                      |              |
| 7/16-20               | 12       | 1.87     | 0.75       | 0.75       |            |          |                   |                    |                               |                      |              |
| 1/2-20                | 12       | 2.30     | 0.82       | 0.82       |            |          |                   |                    |                               |                      |              |
| <b>Metric Coarse</b>  |          |          |            |            |            |          |                   |                    |                               |                      |              |
| M2.5X0.45             | 10       | 1.47     | 0.39       | 0.39       | 1.25       | 3.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 1.4 lb               | 1/4" NPT     |
| M3X0.5                | 10       | 1.38     | 0.37       | 0.51       |            |          |                   |                    |                               |                      |              |
| M3.5X0.6              | 10       | 1.38     | 0.37       | 0.51       |            |          |                   |                    |                               |                      |              |
| M4X0.7                | 10       | 1.02     | 0.35       | 0.49       |            |          |                   |                    |                               |                      |              |
| M5X0.8                | 10       | 1.00     | 0.24       | 0.39       |            |          |                   |                    |                               |                      |              |
| M6X1                  | 10       | 1.48     | 0.39       | 0.63       |            |          |                   |                    |                               |                      |              |
| M7X1                  | 10       | 1.48     | 0.43       | 0.63       | 1.55       | 4.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 2 lb                 | 1/4" NPT     |
| M8X1.25               | 12       | 1.33     | 0.56       | 0.75       |            |          |                   |                    |                               |                      |              |
| M10X1.5               | 12       | 2.15     | 0.88       | 0.88       |            |          |                   |                    |                               |                      |              |
| M12X1.75              | 12       | 2.28     | 0.81       | 0.81       |            |          |                   |                    |                               |                      |              |
| <b>Metric Fine</b>    |          |          |            |            |            |          |                   |                    |                               |                      |              |
| M8X1                  | 12       | 1.326    | 0.563      | 0.563      | 1.55       | 4.00     | 1500              | 0.838 lb (393.8 g) | 0.9188                        | 2 lb                 | 1/4" NPT     |
| M10X1                 | 12       | 2.152    | 0.875      | 0.875      |            |          |                   |                    |                               |                      |              |
| M10X1.25              | 12       | 2.152    | 0.875      | 0.875      |            |          |                   |                    |                               |                      |              |
| M12X1.25              | 12       | 2.282    | 0.814      | 0.814      |            |          |                   |                    |                               |                      |              |
| M12X1.5               | 12       | 2.282    | 0.814      | 0.814      |            |          |                   |                    |                               |                      |              |

1. Dimensions listed are for a standard length front end assembly (1, 1.5, & 2 Diameter).

2. For thread sizes 2-56 to 1/4" and M2.5 to M6 use KATO Adapter CT9605. For thread sizes 5/16" to 1/2" and M8 to M12 use KATO Adapter CT9705.

3. Torque (lb-ft) is calculated based on 14hp @ 800 rpm.

4. All dimensions are in inches and for reference only.

# Prewinder Air Tool - Part Numbers

| Thread Size           | Tangless Front End Assembly <sup>2</sup> | Tangless Replacement Mandrel | Tangless Replacement Pawl | Tanged Front End Assembly <sup>2</sup> | Tanged Replacement Mandrel | Torque Limiting Clutch Drive | Air Motor | Adapter | Filter Regulator Lubricator | Linear Torque Arm  |
|-----------------------|--|------------------------------|---------------------------|--|----------------------------|------------------------------|-----------|---------|-----------------------------|--------------------|
| <b>Unified Coarse</b> |  |                              |                           |  |                            |                              |           |         |                             |                    |
| 2-56                  | 2KPAC-02                                 | 2KPAC-02M                    | 2KIPC-02                  | KPAC-02                                | KPAC-02M                   | CT9602 <sup>1</sup>          | CT25017   | CT9605  | 2KFRL-1                     | 2KLRM-1 & 2KLRM-1A |
| 4-40                  | 2KPAC-04                                 | 2KPAC-04M                    | 2KIPC-04                  | KPAC-04                                | KPAC-04M                   |                              |           |         |                             |                    |
| 6-32                  | 2KPAC-06                                 | 2KPAC-06M                    | 2KIPC-06                  | KPAC-06                                | KPAC-06M                   | ---                          |           | CT9705  |                             |                    |
| 8-32                  | 2KPAC-2                                  | 2KPAC-2M                     | 2KIPC-2                   | KPAC-2                                 | KPAC-2M                    |                              |           |         |                             |                    |
| 10-24                 | 2KPAC-3                                  | 2KPAC-3M                     | 2KIPC-3                   | KPAC-3                                 | KPAC-3M                    |                              |           |         |                             |                    |
| 1/4-20                | 2KPAC-4                                  | 2KPAC-4M                     | 2KIPC-4                   | KPAC-4                                 | KPAC-4M                    |                              |           |         |                             |                    |
| 5/16-18               | 2KPAC-5                                  | 2KPAC-5M                     | 2KIPC-5                   | KPAC-5                                 | KPAC-5M                    |                              |           |         |                             |                    |
| 3/8-16                | 2KPAC-6                                  | 2KPAC-6M                     | 2KIPC-6                   | KPAC-6                                 | KPAC-6M                    |                              |           |         |                             |                    |
| 7/16-14               | ---                                      | ---                          | ---                       | KPAC-7                                 | KPAC-7M                    |                              |           |         |                             |                    |
| 1/2-13                | ---                                      | ---                          | ---                       | KPAC-8                                 | KPAC-8M                    |                              |           |         |                             |                    |
| <b>Unified Fine</b>   |  |                              |                           |  |                            |                              |           |         |                             |                    |
| 6-40                  | ---                                      | ---                          | ---                       | KPAF-06                                | KPAF-06M                   | ---                          | CT25017   | CT9605  | 2KFRL-1                     | 2KLRM-1 & 2KLRM-1A |
| 8-36                  | ---                                      | ---                          | ---                       | KPAF-2                                 | KPAF-2M                    |                              |           |         |                             |                    |
| 10-32                 | 2KPAF-3                                  | 2KPAF-3M                     | 2KIPF-3                   | KPAF-3                                 | KPAF-3M                    |                              |           | CT9705  |                             |                    |
| 1/4-28                | 2KPAF-4                                  | 2KPAF-4M                     | 2KIPF-4                   | KPAF-4                                 | KPAF-4M                    |                              |           |         |                             |                    |
| 5/16-24               | 2KPAF-5                                  | 2KPAF-5M                     | 2KIPF-5                   | KPAF-5                                 | KPAF-5M                    |                              |           |         |                             |                    |
| 3/8-24                | 2KPAF-6                                  | 2KPAF-6M                     | 2KIPF-6                   | KPAF-6                                 | KPAF-6M                    |                              |           |         |                             |                    |
| 7/16-20 <sup>3</sup>  | 2KPAF-F7                                 | 2KPAF-F7M                    | 2KIPF-7                   | KPAF-7                                 | KPAF-7M                    |                              |           |         |                             |                    |
|                       | 2KPAF-L7                                 | 2KPAF-L7M                    |                           |  |                            |                              |           |         |                             |                    |
| 1/2-20 <sup>3</sup>   | 2KPAF-F8                                 | 2KPAF-F8M                    | 2KIPF-8                   | KPAF-8                                 | KPAF-8M                    |                              |           |         |                             |                    |
|                       | 2KPAF-L8                                 | 2KPAF-L8M                    |                           |  |                            |                              |           |         |                             |                    |
| <b>Metric Coarse</b>  |  |                              |                           |  |                            |                              |           |         |                             |                    |
| M2.5X0.45             | 2KPAM-2.5                                | 2KPAM-2.5M                   | 2KIPM-2.5                 | KPAM-2.5                               | KPAM-2.5M                  | CT9602 <sup>1</sup>          | CT25017   | CT9605  | 2KFRL-1                     | 2KLRM-1 & 2KLRM-1A |
| M3X0.5                | 2KPAM-3                                  | 2KPAM-3M                     | 2KIPM-3                   | KPAM-3                                 | KPAM-3M                    |                              |           |         |                             |                    |
| M3.5X0.6              | ---                                      | ---                          | ---                       | KPAM-3.5                               | KPAM-3.5M                  | ---                          |           | CT9705  |                             |                    |
| M4X0.7                | 2KPAM-4                                  | 2KPAM-4M                     | 2KIPM-4                   | KPAM-4                                 | KPAM-4M                    |                              |           |         |                             |                    |
| M5X0.8                | 2KPAM-5                                  | 2KPAM-5M                     | 2KIPM-5                   | KPAM-5                                 | KPAM-5M                    |                              |           |         |                             |                    |
| M6X1                  | 2KPAM-6                                  | 2KPAM-6M                     | 2KIPM-6                   | KPAM-6                                 | KPAM-6M                    |                              |           |         |                             |                    |
| M7X1                  | ---                                      | ---                          | ---                       | KPAM-7                                 | KPAM-7M                    |                              |           |         |                             |                    |
| M8X1.25               | 2KPAM-8                                  | 2KPAM-8M                     | 2KIPM-8                   | KPAM-8                                 | KPAM-8M                    |                              |           |         |                             |                    |
| M10X1.5               | 2KPAM-10                                 | 2KPAM-10M                    | 2KIPM-10                  | KPAM-10                                | KPAM-10M                   |                              |           |         |                             |                    |
| M12X1.75              | 2KPAM-12                                 | 2KPAM-12M                    | 2KIPM-12                  | KPAM-12                                | KPAM-12M                   |                              |           |         |                             |                    |
| <b>Metric Fine</b>    |  |                              |                           |  |                            |                              |           |         |                             |                    |
| M8X1                  | ---                                      | ---                          | ---                       | KPAM-8X1                               | KPAM-8X1M                  | ---                          | CT25017   | CT9705  | 2KFRL-1                     | 2KLRM-1 & 2KLRM-1A |
| M10X1                 | ---                                      | ---                          | ---                       | KPAM-10X1                              | KPAM-10X1M                 |                              |           |         |                             |                    |
| M10X1.25              | ---                                      | ---                          | ---                       | KPAM-10X1.25                           | KPAM-10X1.25M              |                              |           |         |                             |                    |
| M12X1.25              | ---                                      | ---                          | ---                       | KPAM-12X1.25                           | KPAM-12X1.25M              |                              |           |         |                             |                    |
| M12X1.5               | ---                                      | ---                          | ---                       | KPAM-12X1.5                            | KPAM-12X1.5M               |                              |           |         |                             |                    |

- The Torque Limiting Clutch Drive must be used with Tangless thread sizes 2-56, 4-40, M2.5 & M3. KATO will not warranty the mandrels or pawls without the use of the Clutch Drive.
- The Front End Assembly is designed to work with 1, 1.5, and 2 diameter inserts, for 2.5 and 3 diameter inserts, please contact KATO for availability.
- For improved Tangless installation UNF & Metric thread sizes use a different installation mandrel for Free-Running & Locking CoilThread inserts, this is indicated by the -F and -L designation in the part number.

| Replacement Parts |   |
|-------------------|---|
| Suffix            | Description   |
| D                 | Prewinder Body  |
| K                 | Pawl Kit (add a K to the end of the pawl part number; includes one pawl, two pins, and two springs)   |
| M                 | Mandrel Assembly (Tangless mandrel includes, pawl, pin, and spring fully assembled and ready for use) |
| S                 | Spacer Set (includes three spacers, one thick shim and three thin shims)                              |

# Prewinder Air Tool - Cross References

For your convenience, the cross reference table below includes the KATO part number, the superseded KATO part number, and the Heli-Coil part number where applicable.

| KATO Part Number      | Superseded Part Number | Heli-Coil Part Number | KATO Part Number      | Superseded Part Number | Heli-Coil Part Number | KATO Part Number     | Superseded Part Number | Heli-Coil Part Number |
|-----------------------|------------------------|-----------------------|-----------------------|------------------------|-----------------------|----------------------|------------------------|-----------------------|
| <b>Unified Coarse</b> |                        |                       | <b>Unified Coarse</b> |                        |                       | <b>Metric Coarse</b> |                        |                       |
| 2KPAC-02              | 2CT11000-02            | 18551-02-15           | KPAC-02               | CT11000-02             | 8551-02-15            | KPAM-2.5             | CT11000-M2.5           | 8751-2.5              |
| 2KPAC-02M             | 2CT11200-02            | 18551-02-30           | KPAC-02M              | CT11200-02             | 8553-02               | KPAM-2.5M            | CT11200-M2.5           | 8757-2.5              |
| 2KPAC-04              | 2CT11000-04            | 18551-04-15           | KPAC-04               | CT11000-04             | 8551-04-15            | KPAM-3               | CT11000-M3             | 8751-3                |
| 2KPAC-04M             | 2CT11200-04            | 18551-04-30           | KPAC-04M              | CT11200-04             | 8553-04               | KPAM-3M              | CT11200-M3             | 8757-3                |
| 2KPAC-06              | 2CT11000-06            | 18551-06-15           | KPAC-06               | CT11000-06             | 8551-06-15            | KPAM-3.5             | CT11000-M3.5           | 8751-3.5              |
| 2KPAC-06M             | 2CT11200-06            | 18551-06-30           | KPAC-06M              | CT11200-06             | 8553-06               | KPAM-3.5M            | CT11200-M3.5           | 8757-3.5              |
| 2KPAC-2               | 2CT11000-2             | 18551-2-15            | KPAC-2                | CT11000-2              | 8551-2-15             | KPAM-4               | CT11000-M4             | 8751-4                |
| 2KPAC-2M              | 2CT11200-2             | 18551-2-30            | KPAC-2M               | CT11200-2              | 8553-2                | KPAM-4M              | CT11200-M4             | 8757-4                |
| 2KPAC-3               | 2CT11000-3             | 18551-3-15            | KPAC-3                | CT11000-3              | 8551-3-15             | KPAM-5               | CT11000-M5             | 8751-5                |
| 2KPAC-3M              | 2CT11200-3             | 18551-3-30            | KPAC-3M               | CT11200-3              | 8553-3                | KPAM-5M              | CT11200-M5             | 8757-5                |
| 2KPAC-4               | 2CT11000-4             | 18551-4-15            | KPAC-4                | CT11000-4              | 8551-4-15             | KPAM-6               | CT11000-M6             | 8751-6                |
| 2KPAC-4M              | 2CT11200-4             | 18551-4-30            | KPAC-4M               | CT11200-4              | 8553-4                | KPAM-6M              | CT11200-M6             | 8757-6                |
| 2KPAC-5               | 2CT11000-5             | ---                   | KPAC-5                | CT11000-5              | 8551-5-15             | KPAM-7               | CT11000-M7             | 8751-7                |
| 2KPAC-5M              | 2CT11200-5             | ---                   | KPAC-5M               | CT11200-5              | 8253-5                | KPAM-7M              | CT11200-M7             | 8757-7                |
| 2KPAC-6               | 2CT11000-6             | ---                   | KPAC-6                | CT11000-6              | 8251-6                | KPAM-8               | CT11000-M8             | 8751-8                |
| 2KPAC-6M              | 2CT11200-6             | ---                   | KPAC-6M               | CT11200-6              | 8253-6                | KPAM-8M              | CT11200-M8             | 8757-8                |
| <b>Unified Fine</b>   |                        |                       | KPAC-7                | CT11000-7              | 8251-7                | KPAM-10              | CT11000-M10            | 8751-10               |
| 2KPAF-3               | 2CT11001-3A            | 18852-3-15            | KPAC-7M               | CT11200-7              | 8253-7                | KPAM-10M             | CT11200-M10            | 8757-10               |
| 2KPAF-3M              | 2CT11201-3A            | 18852-3-30            | KPAC-8                | CT11000-8              | 8251-8                | KPAM-12              | CT11000-M12            | 8751-12               |
| 2KPAF-4               | 2CT11001-4             | 18852-4-15            | KPAC-8M               | CT11200-8              | 8253-8                | KPAM-12M             | CT11200-M12            | 8757-12               |
| 2KPAF-4M              | 2CT11201-4             | 18852-4-30            | <b>Unified Fine</b>   |                        |                       | <b>Metric Fine</b>   |                        |                       |
| 2KPAF-5               | 2CT11001-5             | ---                   | KPAF-06               | CT11001-06             | 8552-06               | KPAM-8X1             | CT11000-M8X1           | 8755-8                |
| 2KPAF-5M              | 2CT11201-5             | ---                   | KPAF-06M              | CT11201-06             | 8554-06               | KPAM-8X1M            | CT11200-M8X1           | 8764-8                |
| 2KPAF-6               | 2CT11001-6             | ---                   | KPAF-2                | CT11001-2              | ---                   | KPAM-10X1            | CT11000-M10X1          | 8755-10               |
| 2KPAF-6M              | 2CT11201-6             | ---                   | KPAF-2M               | CT11201-2              | ---                   | KPAM-10X1M           | CT11200-M10X1          | 8764-10               |
| <b>Metric Coarse</b>  |                        |                       | KPAF-3                | CT11001-3              | 8552-3-15             | KPAM-10X1.25         | CT11000-M10X1.25       | 8756-10               |
| 2KPAM-2.5             | 2CT11000-M2.5          | ---                   | KPAF-3M               | CT11201-3              | 8554-3                | KPAM-10X1.25M        | CT11200-M10X1.25       | 8759-10               |
| 2KPAM-2.5M            | 2CT11200-M2.5          | ---                   | KPAF-4                | CT11001-4              | 8552-4-15             | KPAM-12X1.25         | CT11000-M12X1.25       | 8756-12               |
| 2KPAM-3               | 2CT11000-M3            | ---                   | KPAF-4M               | CT11201-4              | 8554-4                | KPAM-12X1.25M        | CT11200-M12X1.25       | 8759-12               |
| 2KPAM-3M              | 2CT11200-M3            | ---                   | KPAF-5                | CT11001-5              | 8252-5-15             | KPAM-12X1.5          | CT11000-M10X1.5        | 8753-12               |
| 2KPAM-4               | 2CT11000-M4            | ---                   | KPAF-5M               | CT11201-5              | 8254-5                | KPAM-12X1.5M         | CT11200-M10X1.5        | 8774-12               |
| 2KPAM-4M              | 2CT11200-M4            | ---                   | KPAF-6                | CT11001-6              | 8252-6                |                      |                        |                       |
| 2KPAM-5               | 2CT11000-M5            | ---                   | KPAF-6M               | CT11201-6              | 8254-6                |                      |                        |                       |
| 2KPAM-5M              | 2CT11200-M5            | ---                   | KPAF-7                | CT11001-7              | 8252-7                |                      |                        |                       |
| 2KPAM-6               | 2CT11000-M6            | ---                   | KPAF-7M               | CT11201-7              | 8254-7                |                      |                        |                       |
| 2KPAM-6M              | 2CT11200-M6            | ---                   | KPAF-8                | CT11001-8              | 8252-8                |                      |                        |                       |
| 2KPAM-8               | 2CT11000-M8            | ---                   | KPAF-8M               | CT11201-8              | 8254-8                |                      |                        |                       |
| 2KPAM-8M              | 2CT11200-M8            | ---                   |                       |                        |                       |                      |                        |                       |
| 2KPAM-10              | 2CT11000-M10           | ---                   |                       |                        |                       |                      |                        |                       |
| 2KPAM-10M             | 2CT11200-M10           | ---                   |                       |                        |                       |                      |                        |                       |
| 2KPAM-12              | 2CT11000-M12           | ---                   |                       |                        |                       |                      |                        |                       |
| 2KPAM-12M             | 2CT11200-M12           | ---                   |                       |                        |                       |                      |                        |                       |

# Prewinder Electric Tool

The **Best of Both Worlds**... Exclusive to KATO, the Prewinder Electric tool combines the best features of the air and electric installation tools. The KATO Prewinder Electric tool is the fastest semi-automatic installation system for Tangless and tanged helically coiled inserts on the market!

The **KATO Prewinder Electric (KPE)** installation tool is designed for medium to high volume users of KATO Tangless and tanged strip-feed packaged CoilThread inserts (can also be used with bulk inserts). The KPE tool is the industry's first and only electric installation tool that utilizes a Prewinder, which compresses the insert allowing for much easier and consistent installation. The KPE tool is comprised of the KATO KFS-20 brushless electric driver (CT5420), the innovative KATO prewinder adapter (CT5420-PA), and a front end assembly (see table on page 69).

In addition, the KPE tool is auto-reversing; once the insert is installed the driver will automatically reverse minimizing overall installation time. Utilizing a powerful electric motor and two torque adjusting compression springs (one for smaller thread sizes and one for larger thread sizes) the KFS-20 electric driver (CT5420) is capable of installing inserts up to 1/4" and M6 thread sizes. Allowing operators to precisely adjust the auto-reversing torque, will ensure consistent installation and prolong the life of the mandrel assembly.

## Features and Benefits

- Fastest installation system on the market.
- Works with both Tangless and tanged CoilThread inserts.
- Installs inserts up to 1/4" and M6.
- Auto-Reversing for reduced installation time.
- Utilizes KATO's One Pawl Fits All system (Tangless).
- Adjustable torque, helps prolong the life of installation tools.
- 100% compatible with existing KATO Prewinder Electric tools (KPE Series).
- Clean and quiet, ideal for clean room operation.
- Brushless electric driver provides increase durability and reduces maintenance.

## How to Order - Complete tool requires the following parts:

- KFS-20 Electric Driver (CT5420) - Includes Power Adapter.
- Prewinder Adapter (CT5420-PA).
- Front End Assembly (see table on page 69).

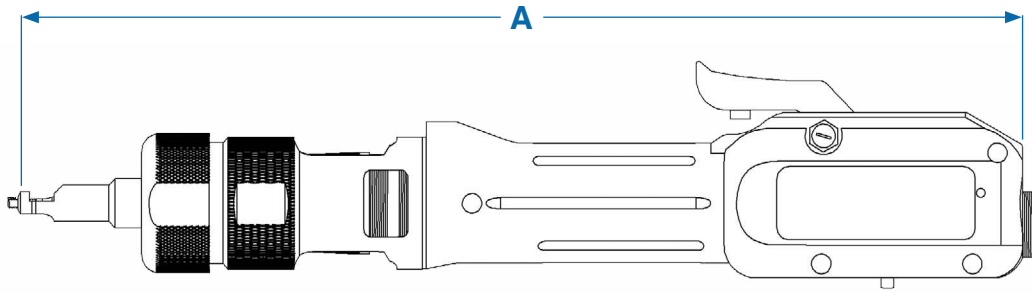


Shown with **KATO Linear Torque Arm (2KLRM-1)** see page 87



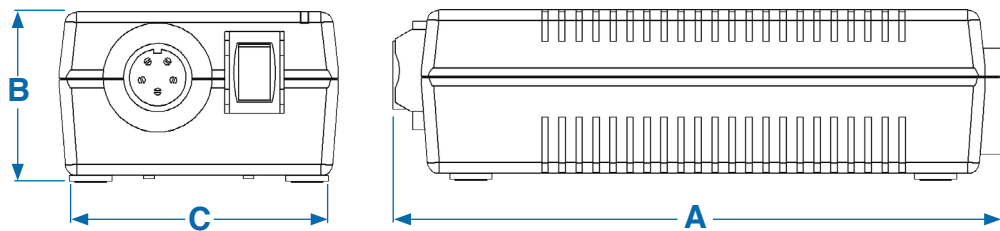
# Prewinder Electric Tool - Dimensions

## KFS-20 Electric Driver



| Torque (lbf-in) | Rpm @ 30VDC | Rpm @ 20VDC | Tap Capacity | Length A | Grip Diameter | Weight  | Chuck Capacity | Voltage   |
|-----------------|-------------|-------------|--------------|----------|---------------|---------|----------------|-----------|
| 0.26-6.93       | 1000        | 700         | M4           | 11.5     | 1.3"          | 16.5 oz | 1/4 Hex"       | 20-30 VDC |

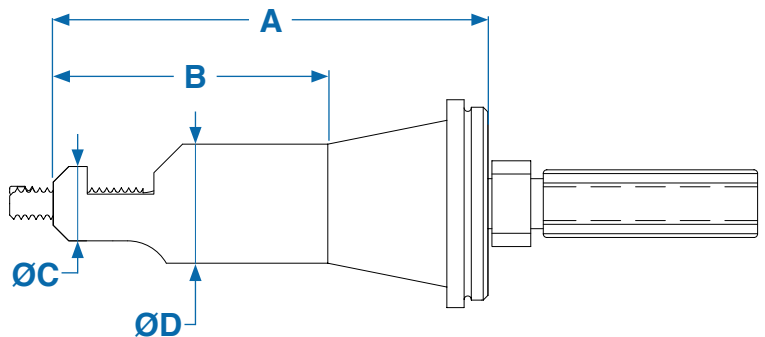
## Power Adapter



| Model    | Part Number | Maximum # of Driver | Control Box | Input   | Output         | Size Reference |          |         | Weight  |
|----------|-------------|---------------------|-------------|---------|----------------|----------------|----------|---------|---------|
|          |             |                     |             |         |                | Length A       | Height B | Width C |         |
| U.S.     | CT5420      | 1                   | Built In    | 110 VAC | 20 VDC/ 30 VDC | 5.7"           | 1.6"     | 2.6"    | 11.5 oz |
| European | CT5420-EU   | 1                   | Built In    | 240 VAC | 20 VDC/ 30 VDC | 5.7"           | 1.6"     | 2.6"    | 11.5 oz |

## Front End Assembly

| Thread Size    | Length A | Length B | Diameter C | Diameter D |
|----------------|----------|----------|------------|------------|
| Unified Coarse |          |          |            |            |
| 2-56           | 1.69     | 0.97     | 0.18       | 0.34       |
| 4-40           | 1.69     | 1.09     | 0.26       | 0.40       |
| 6-32           | 1.85     | 1.25     | 0.31       | 0.50       |
| 8-32           | 1.85     | 1.05     | 0.35       | 0.51       |
| 10-24          | 1.85     | 1.34     | 0.37       | 0.51       |
| 1/4-20         | 1.65     | 1.44     | 0.42       | 0.63       |
| Unified Fine   |          |          |            |            |
| 10-32          | 1.95     | 1.02     | 0.38       | 0.62       |
| 1/4-28         | 1.65     | 1.23     | 0.43       | 0.63       |
| Metric Coarse  |          |          |            |            |
| M2.5X0.45      | 1.69     | 1.47     | 0.39       | 0.39       |
| M3X0.5         | 1.69     | 1.38     | 0.37       | 0.51       |
| M4X0.7         | 1.65     | 1.02     | 0.35       | 0.49       |
| M5X0.8         | 1.75     | 1.00     | 0.24       | 0.39       |
| M6X1           | 1.65     | 1.48     | 0.39       | 0.63       |



1. All dimensions are in inches.
2. All dimensions for reference only.

# Prewinder Electric Tool - Part Numbers

| Thread Size <sup>1</sup> | Tangless Front End Assembly | Tangless Replacement Mandrel | Tangless Replacement Pawl | Tanged Front End Assembly | Tanged Replacement Mandrel | Electric Driver w/ Power Adapter       | Prewinder Adapter | Linear Torque Arm |
|--------------------------|-----------------------------|------------------------------|---------------------------|---------------------------|----------------------------|--|-------------------|-------------------|
| Unified Coarse           |                             |                              |                           |                           |                            |  |                   |                   |
| 2-56                     | 2KPEC-02                    | 2KPEC-02M                    | 2KIPC-02                  | KPEC-02                   | KPEC-02M                   | CT5420<br>or<br>CT5420-EU <sup>2</sup> | CT5420-PA         | 2KLRM-1           |
| 4-40                     | 2KPEC-04                    | 2KPEC-04M                    | 2KIPC-04                  | KPEC-04                   | KPEC-04M                   |  |                   |                   |
| 6-32                     | 2KPEC-06                    | 2KPEC-06M                    | 2KIPC-06                  | KPEC-06                   | KPEC-06M                   |  |                   |                   |
| 8-32                     | 2KPEC-2                     | 2KPEC-2M                     | 2KIPC-2                   | KPEC-2                    | KPEC-2M                    |  |                   |                   |
| 10-24                    | 2KPEC-3                     | 2KPEC-3M                     | 2KIPC-3                   | KPEC-3                    | KPEC-3M                    |  |                   |                   |
| 1/4-20                   | 2KPEC-4                     | 2KPEC-4M                     | 2KIPC-4                   | KPEC-4                    | KPEC-4M                    |  |                   |                   |
| Unified Fine             |                             |                              |                           |                           |                            |  |                   |                   |
| 10-32                    | 2KPEF-3                     | 2KPEF-3M                     | 2KIPF-3                   | KPEF-3                    | KPEF-3M                    | CT5420<br>or<br>CT5420-EU <sup>2</sup> | CT5420-PA         | 2KLRM-1           |
| 1/4-28                   | 2KPEF-4                     | 2KPEF-4M                     | 2KIPF-4                   | KPEF-4                    | KPEF-4M                    |  |                   |                   |
| Metric Coarse            |                             |                              |                           |                           |                            |  |                   |                   |
| M2.5X0.45                | 2KPEM-2.5                   | 2KPEM-2.5M                   | 2KIPM-2.5                 | KPEM-2.5                  | KPEM-2.5M                  | CT5420<br>or<br>CT5420-EU <sup>2</sup> | CT5420-PA         | 2KLRM-1           |
| M3X0.5                   | 2KPEM-3                     | 2KPEM-3M                     | 2KIPM-3                   | KPEM-3                    | KPEM-3M                    |  |                   |                   |
| M4X0.7                   | 2KPEM-4                     | 2KPEM-4M                     | 2KIPM-4                   | KPEM-4                    | KPEM-4M                    |  |                   |                   |
| M5X0.8                   | 2KPEM-5                     | 2KPEM-5M                     | 2KIPM-5                   | KPEM-5                    | KPEM-5M                    |  |                   |                   |
| M6X1                     | 2KPEM-6                     | 2KPEM-6M                     | 2KIPM-6                   | KPEM-6                    | KPEM-6M                    |  |                   |                   |

1. The Front End Assembly is designed to work with 1, 1.5, and 2 Dia inserts, for 2.5 and 3 Dia inserts please contact KATO for availability.

2. Use CT5420-EU for European Model (240V) only.

| Replacement Parts |   |
|-------------------|---|
| Suffix            | Description   |
| D                 | Prewinder Body  |
| K                 | Pawl Kit (add a K to the end of the pawl part number; includes one pawl, two pins, and two springs)   |
| M                 | Mandrel Assembly (Tangless mandrel includes, pawl, pin, and spring fully assembled and ready for use) |
| S                 | Spacer Set (includes three spacers, one thick shim and three thin shims)                              |



# Prewinder Hand Tools

The **KATO Prewinder Hand (KPH)** installation tool is designed for low volume users of KATO Tangless and tanged CoilThread inserts. Unlike competitors that utilize plastic body parts, the all-steel construction of the KPH tool makes them sturdy and dependable. The KPH tool is designed with precision and durability in mind for manual installation of CoilThread inserts. Customers that install hundreds or thousands of inserts per month should consider using the KATO Prewinder Electric tool for a significant boost in productivity and reduced labor costs (see page 67).

KATO strongly recommends using Prewinder style hand tools for ALL manual installation of CoilThread Tangless and tanged inserts. The prewinder compresses the insert allowing for easier and more consistent installation. For coarse inserts above 1/2", KATO does not offer the prewinder style hand tool. Style 2 (threaded mandrel) is recommended for these larger sizes.

## Features and Benefits

- Available for both Tangless and tanged CoilThread inserts.
- Available for all sizes up to 1-1/2" and M39 (Tangless inserts up to 3/8" and M12).
- All-Steel Construction.
- Utilizes KATO's One Pawl Fits All system (Tangless).
- Ergonomically friendly design.

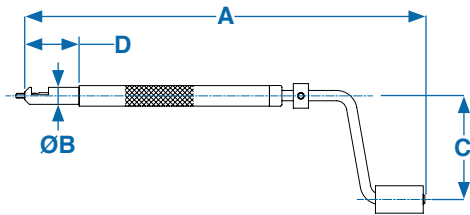
## How to Order

- A Tangless or tanged Prewinder Hand Tool is all that's needed (see table on page 73).

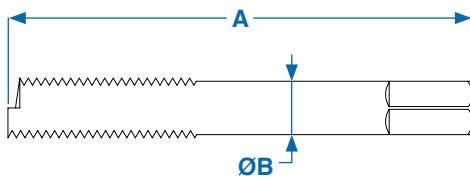


# Prewinder Hand Tools - Dimensions

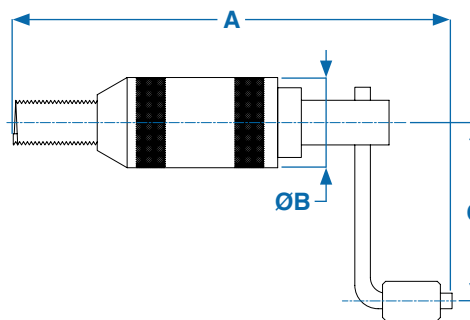
**Style 1**



**Style 2**



**Style 3**



| Thread Size           | Tool Style | Tangless Tools |            |          |          | Tanged Tools |            |          |          |
|-----------------------|------------|----------------|------------|----------|----------|--------------|------------|----------|----------|
|                       |            | Length A       | Diameter B | Length C | Length D | Length A     | Diameter B | Length C | Length D |
| <b>Unified Coarse</b> |            |                |            |          |          |              |            |          |          |
| 2-56                  | 1          | 7.47           | 0.28       | 2.28     | 0.98     | 7.47         | 0.28       | 2.28     | 0.98     |
| 3-48                  |            | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 1.00     |
| 4-40                  |            | 7.47           | 0.28       | 2.28     | 0.99     | 7.47         | 0.28       | 2.28     | 0.99     |
| 5-40                  |            | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 1.00     |
| 6-32                  |            | 7.47           | 0.28       | 2.28     | 1.00     | 7.47         | 0.28       | 2.28     | 1.00     |
| 8-32                  |            | 7.47           | 0.32       | 2.28     | 1.00     | 7.47         | 0.32       | 2.28     | 1.00     |
| 10-24                 |            | 7.47           | 0.37       | 2.28     | 1.00     | 7.47         | 0.37       | 2.28     | 1.00     |
| 12-24                 |            | ---            | ---        | ---      | ---      | 7.97         | 0.44       | 2.53     | 1.12     |
| 1/4-20                |            | 7.97           | 0.50       | 2.53     | 1.25     | 7.97         | 0.50       | 2.53     | 1.25     |
| 5/16-18               |            | 7.97           | 0.63       | 2.94     | ---      | 7.97         | 0.63       | 3.72     | ---      |
| 3/8-16                |            | 7.97           | 0.69       | 2.94     | ---      | 7.97         | 0.69       | 3.72     | ---      |
| 7/16-14               |            | ---            | ---        | ---      | ---      | 8.47         | 0.75       | 3.72     | ---      |
| 1/2-13                |            | ---            | ---        | ---      | ---      | 8.84         | 0.88       | 3.78     | ---      |
| 9/16-12               |            | 2 <sup>1</sup> | ---        | ---      | ---      | ---          | 4.25       | 0.50     | ---      |
| 5/8-11                | ---        |                | ---        | ---      | ---      | 5.00         | 0.56       | ---      | ---      |
| 3/4-10                | ---        |                | ---        | ---      | ---      | 5.00         | 0.69       | ---      | ---      |
| 7/8-9                 | ---        |                | ---        | ---      | ---      | 5.00         | 0.75       | ---      | ---      |
| 1-8                   | ---        |                | ---        | ---      | ---      | 5.00         | 0.88       | ---      | ---      |
| 1-1/8-7               | ---        |                | ---        | ---      | ---      | 6.00         | 1.00       | ---      | ---      |
| 1-1/4-7               | ---        |                | ---        | ---      | ---      | 6.75         | 1.25       | ---      | ---      |
| 1-3/8-6               | ---        |                | ---        | ---      | ---      | 6.75         | 1.38       | ---      | ---      |
| 1-1/2-6               | ---        | ---            | ---        | ---      | 6.75     | 1.50         | ---        | ---      |          |
| <b>Unified Fine</b>   |            |                |            |          |          |              |            |          |          |
| 3-56                  | 1          | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 0.99     |
| 4-48                  |            | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 0.99     |
| 6-40                  |            | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 1.00     |
| 8-36                  |            | ---            | ---        | ---      | ---      | 7.47         | 0.32       | 2.28     | 1.00     |
| 10-32                 |            | 7.47           | 0.37       | 2.28     | 0.99     | 7.47         | 0.37       | 2.28     | 0.99     |
| 1/4-28                |            | 7.97           | 0.44       | 2.53     | 1.24     | 7.97         | 0.44       | 2.53     | 1.09     |
| 5/16-24               |            | 7.97           | 0.63       | 2.94     | ---      | 7.97         | 0.63       | 3.72     | ---      |
| 3/8-24                |            | 7.97           | 0.69       | 2.94     | ---      | 7.97         | 0.69       | 3.72     | ---      |
| 7/16-20               |            | 8.75           | 0.75       | 3.72     | ---      | 8.75         | 0.75       | 3.72     | ---      |
| 1/2-20                |            | 9.00           | 0.88       | 3.78     | ---      | 9.00         | 0.88       | 3.78     | ---      |
| 9/16-18               | 3          | ---            | ---        | ---      | ---      | 6.38         | 1.13       | 2.88     | ---      |
| 5/8-18                |            | ---            | ---        | ---      | ---      | 6.38         | 1.13       | 2.88     | ---      |
| 3/4-16                |            | ---            | ---        | ---      | ---      | 7.00         | 1.50       | 2.88     | ---      |
| 7/8-14                |            | ---            | ---        | ---      | ---      | 7.38         | 1.50       | 2.88     | ---      |
| 1-12                  |            | ---            | ---        | ---      | ---      | 6.88         | 1.75       | 2.88     | ---      |
| 1-1/8-12              |            | ---            | ---        | ---      | ---      | 7.31         | 2.00       | 2.88     | ---      |
| 1-1/4-12              |            | ---            | ---        | ---      | ---      | 6.81         | 2.00       | 2.88     | ---      |
| 1-3/8-12              |            | ---            | ---        | ---      | ---      | 7.31         | 2.25       | 3.00     | ---      |
| 1-1/2-12              |            | ---            | ---        | ---      | ---      | 8.00         | 2.25       | 3.00     | ---      |

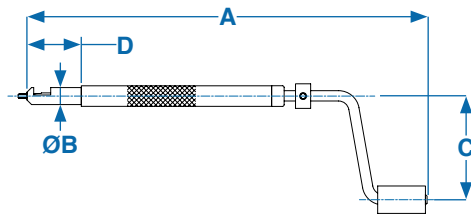
1. Style 2 tool (threaded mandrel) does not utilize a prewinder.

2. All dimensions are in inches.

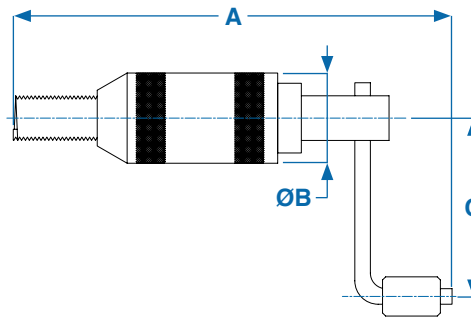
3. All dimensions for reference only.

# Prewinder Hand Tools - Dimensions

**Style 1**



**Style 3**



| Thread Size          | Tool Style | Tangless Tools |            |          |          | Tanged Tools |            |          |          |
|----------------------|------------|----------------|------------|----------|----------|--------------|------------|----------|----------|
|                      |            | Length A       | Diameter B | Length C | Length D | Length A     | Diameter B | Length C | Length D |
| <b>Metric Coarse</b> |            |                |            |          |          |              |            |          |          |
| M2X0.4               | 1          | ---            | ---        | ---      | ---      | 7.47         | 0.28       | 2.28     | 0.98     |
| M2.2X0.45            |            | ---            | ---        | ---      | ---      | 7.47         | 0.31       | 2.28     | 0.86     |
| M2.5X0.45            |            | 7.47           | 0.28       | 2.28     | 1.00     | 7.47         | 0.28       | 2.28     | 1.00     |
| M3X0.5               |            | 7.47           | 0.28       | 2.28     | 0.99     | 7.47         | 0.28       | 2.28     | 0.99     |
| M3.5X0.6             |            | ---            | ---        | ---      | ---      | 7.47         | 0.30       | 2.28     | 0.99     |
| M4X0.7               |            | 7.47           | 0.31       | 2.28     | 1.00     | 7.47         | 0.31       | 2.28     | 1.00     |
| M5X0.8               |            | 7.47           | 0.37       | 2.28     | 1.00     | 7.47         | 0.37       | 2.28     | 1.00     |
| M6X1                 |            | 7.97           | 0.43       | 2.28     | 1.25     | 7.97         | 0.43       | 2.53     | 1.25     |
| M7X1                 |            | ---            | ---        | ---      | ---      | 7.97         | 0.69       | 3.72     | ---      |
| M8X1.25              |            | 7.97           | 0.50       | 2.53     | ---      | 7.97         | 0.69       | 3.72     | ---      |
| M10X1.5              |            | 7.97           | 0.69       | 2.94     | ---      | 8.47         | 0.75       | 3.72     | ---      |
| M12X1.75             | 7.97       | 0.83           | 2.94       | ---      | 8.84     | 0.88         | 3.78       | ---      |          |
| M14X2                | 3          | ---            | ---        | ---      | ---      | 5.38         | 1.13       | 4.00     | ---      |
| M16X2                |            | ---            | ---        | ---      | ---      | 5.38         | 1.13       | 4.00     | ---      |
| M18X2.5              |            | ---            | ---        | ---      | ---      | 4.88         | 1.24       | 2.38     | ---      |
| M20X2.5              |            | ---            | ---        | ---      | ---      | 4.88         | 1.37       | 2.75     | ---      |
| M22X2.5              |            | ---            | ---        | ---      | ---      | 5.88         | 1.75       | 4.50     | ---      |
| M24X3                |            | ---            | ---        | ---      | ---      | 4.88         | 1.65       | 2.13     | ---      |
| M27X3                |            | ---            | ---        | ---      | ---      | 6.88         | 1.75       | 2.88     | ---      |
| M27X3                |            | ---            | ---        | ---      | ---      | 6.88         | 1.75       | 2.88     | ---      |
| <b>Metric Fine</b>   |            |                |            |          |          |              |            |          |          |
| M8X1                 | 1          | ---            | ---        | ---      | ---      | 7.97         | 0.69       | 3.72     | ---      |
| M10X1                |            | ---            | ---        | ---      | ---      | 8.47         | 0.38       | 3.72     | ---      |
| M10X1.25             |            | ---            | ---        | ---      | ---      | 8.47         | 0.38       | 3.72     | ---      |
| M12X1.25             |            | ---            | ---        | ---      | ---      | 8.84         | 0.88       | 3.78     | ---      |
| M12X1.5              |            | ---            | ---        | ---      | ---      | 8.84         | 0.88       | 3.78     | ---      |
| M14X1.5              | 3          | ---            | ---        | ---      | ---      | 5.38         | 1.13       | 4.00     | ---      |
| M16X1.5              |            | ---            | ---        | ---      | ---      | 5.38         | 1.13       | 4.00     | ---      |
| M18X1.5              |            | ---            | ---        | ---      | ---      | 6.00         | 1.50       | 4.00     | ---      |
| M20X1.5              |            | ---            | ---        | ---      | ---      | 6.38         | 1.50       | 4.50     | ---      |
| M22X1.5              |            | ---            | ---        | ---      | ---      | 5.88         | 1.75       | 4.50     | ---      |
| M18X2                |            | ---            | ---        | ---      | ---      | 6.00         | 1.50       | 4.00     | ---      |
| M20X2                |            | ---            | ---        | ---      | ---      | 6.38         | 1.50       | 4.50     | ---      |
| M22X2                |            | ---            | ---        | ---      | ---      | 5.88         | 1.75       | 4.50     | ---      |
| M24X2                |            | ---            | ---        | ---      | ---      | 5.88         | 1.75       | 4.50     | ---      |
| M27X2                |            | ---            | ---        | ---      | ---      | 6.88         | 1.75       | 2.88     | ---      |
| M30X2                |            | ---            | ---        | ---      | ---      | 7.31         | 2.00       | 2.88     | ---      |
| M33X2                |            | ---            | ---        | ---      | ---      | 6.81         | 2.00       | 2.88     | ---      |
| M39X2                |            | ---            | ---        | ---      | ---      | 8.00         | 2.25       | 3.00     | ---      |
| M36X3                |            | ---            | ---        | ---      | ---      | 7.31         | 2.25       | 3.00     | ---      |
| M39X3                |            | ---            | ---        | ---      | ---      | 8.00         | 2.25       | 3.00     | ---      |

1. All dimensions are in inches.
2. All dimensions for reference only.

# Prewinder Hand Tools - Part Numbers

| Thread Size           | Tangless Prewinder Hand Tool | Tangless Replacement Pawl | Tanged Prewinder Hand Tool | Style |                |
|-----------------------|------------------------------|---------------------------|----------------------------|-------|----------------|
| <b>Unified Coarse</b> |                              |                           |                            |       |                |
| 2-56                  | 2KPHC-02                     | 2KIPC-02                  | KPHC-02                    | 1     |                |
| 3-48                  | ---                          | ---                       | KPHC-03                    |       |                |
| 4-40                  | 2KPHC-04                     | 2KIPC-04                  | KPHC-04                    |       |                |
| 5-40                  | ---                          | ---                       | KPHC-05                    |       |                |
| 6-32                  | 2KPHC-06                     | 2KIPC-06                  | KPHC-06                    |       |                |
| 8-32                  | 2KPHC-2                      | 2KIPC-2                   | KPHC-2                     |       |                |
| 10-24                 | 2KPHC-3                      | 2KIPC-3                   | KPHC-3                     |       |                |
| 12-24                 | ---                          | ---                       | KPHC-1                     |       |                |
| 1/4-20                | 2KPHC-4                      | 2KIPC-4                   | KPHC-4                     |       |                |
| 5/16-18               | 2KPHC-5                      | 2KIPC-5                   | KPHC-5                     |       |                |
| 3/8-16                | 2KPHC-6                      | 2KIPC-6                   | KPHC-6                     |       |                |
| 7/16-14               | ---                          | ---                       | KPHC-7                     |       |                |
| 1/2-13                | ---                          | ---                       | KPHC-8                     |       |                |
| 9/16-12               | ---                          | ---                       | KPHC-9                     |       | 2 <sup>1</sup> |
| 5/8-11                | ---                          | ---                       | KPHC-10                    |       |                |
| 3/4-10                | ---                          | ---                       | KPHC-12                    |       |                |
| 7/8-9                 | ---                          | ---                       | KPHC-14                    |       |                |
| 1-8                   | ---                          | ---                       | KPHC-16                    |       |                |
| 1-1/8-7               | ---                          | ---                       | KPHC-18                    |       |                |
| 1-1/4-7               | ---                          | ---                       | KPHC-20                    |       |                |
| 1-3/8-6               | ---                          | ---                       | KPHC-22                    |       |                |
| 1-1/2-6               | ---                          | ---                       | KPHC-24                    |       |                |
| <b>Unified Fine</b>   |                              |                           |                            |       |                |
| 3-56                  | ---                          | ---                       | KPHF-03                    | 1     |                |
| 4-48                  | ---                          | ---                       | KPHF-04                    |       |                |
| 6-40                  | ---                          | ---                       | KPHF-06                    |       |                |
| 8-36                  | ---                          | ---                       | KPHF-2                     |       |                |
| 10-32                 | 2KPHF-3                      | 2KIPF-3                   | KPHF-3                     |       |                |
| 1/4-28                | 2KPHF-4                      | 2KIPF-4                   | KPHF-4                     |       |                |
| 5/16-24               | 2KPHF-5                      | 2KIPF-5                   | KPHF-5                     |       |                |
| 3/8-24                | 2KPHF-6                      | 2KIPF-6                   | KPHF-6                     |       |                |
| 7/16-20 <sup>2</sup>  | 2KPHF-F7                     | 2KIPF-F7                  | KPHF-7                     |       |                |
|                       | 2KPHF-L7                     | 2KIPF-L7                  |                            |       |                |
| 1/2-20 <sup>2</sup>   | 2KPHF-F8                     | 2KIPF-F8                  | KPHF-8                     |       |                |
|                       | 2KPHF-L8                     | 2KIPF-L8                  |                            |       |                |
| 9/16-18               | ---                          | ---                       | KPHF-9                     |       | 3              |
| 5/8-18                | ---                          | ---                       | KPHF-10                    |       |                |
| 3/4-16                | ---                          | ---                       | KPHF-12                    |       |                |
| 7/8-14                | ---                          | ---                       | KPHF-14                    |       |                |
| 1-12                  | ---                          | ---                       | KPHF-16                    |       |                |
| 1-1/8-12              | ---                          | ---                       | KPHF-18                    |       |                |
| 1-1/4-12              | ---                          | ---                       | KPHF-20                    |       |                |
| 1-3/8-12              | ---                          | ---                       | KPHF-22                    |       |                |
| 1-1/2-12              | ---                          | ---                       | KPHF-24                    |       |                |

| Thread Size          | Tangless Prewinder Hand Tool | Tangless Replacement Pawl | Tanged Prewinder Hand Tool | Style |   |
|----------------------|------------------------------|---------------------------|----------------------------|-------|---|
| <b>Metric Coarse</b> |                              |                           |                            |       |   |
| M2X0.4               | ---                          | ---                       | KPHM-2                     | 1     |   |
| M2.2X0.45            | ---                          | ---                       | KPHM-2.2                   |       |   |
| M2.5X0.45            | 2KPHM-2.5                    | 2KIPM-2.5                 | KPHM-2.5                   |       |   |
| M3X0.5               | 2KPHM-3                      | 2KIPM-3                   | KPHM-3                     |       |   |
| M3.5X0.6             | ---                          | ---                       | KPHM-3.5                   |       |   |
| M4X0.7               | 2KPHM-4                      | 2KIPM-4                   | KPHM-4                     |       |   |
| M5X0.8               | 2KPHM-5                      | 2KIPM-5                   | KPHM-5                     |       |   |
| M6X1                 | 2KPHM-6                      | 2KIPM-6                   | KPHM-6                     |       |   |
| M7X1                 | ---                          | ---                       | KPHM-7                     |       |   |
| M8X1.25              | 2KPHM-8                      | 2KIPM-8                   | KPHM-8                     |       |   |
| M10X1.5              | 2KPHM-10                     | 2KIPM-10                  | KPHM-10                    |       |   |
| M12X1.75             | 2KPHM-12                     | 2KIPM-12                  | KPHM-12                    |       |   |
| M14X2                | ---                          | ---                       | KPHM-14                    |       | 3 |
| M16X2                | ---                          | ---                       | KPHM-16                    |       |   |
| M18X2.5              | ---                          | ---                       | KPHM-18                    |       |   |
| M20X2.5              | ---                          | ---                       | KPHM-20                    |       |   |
| M22X2.5              | ---                          | ---                       | KPHM-22                    |       |   |
| M24X3                | ---                          | ---                       | KPHM-24                    |       |   |
| M27X3                | ---                          | ---                       | KPHM-27                    |       |   |
| <b>Metric Fine</b>   |                              |                           |                            |       |   |
| M8X1                 | ---                          | ---                       | KPHM-8X1                   | 1     |   |
| M10X1                | ---                          | ---                       | KPHM-10X1                  |       |   |
| M10X1.25             | ---                          | ---                       | KPHM-10X1.25               |       |   |
| M12X1.25             | ---                          | ---                       | KPHM-12X1.25               | 3     |   |
| M12X1.5              | ---                          | ---                       | KPHM-12X1.5                |       |   |
| M14X1.5              | ---                          | ---                       | KPHM-14X1.5                |       |   |
| M16X1.5              | ---                          | ---                       | KPHM-16X1.5                |       |   |
| M18X1.5              | ---                          | ---                       | KPHM-18X1.5                |       |   |
| M18X2                | ---                          | ---                       | KPHM-18X2                  |       |   |
| M20X1.5              | ---                          | ---                       | KPHM-20X1.5                |       |   |
| M20X2                | ---                          | ---                       | KPHM-20X2                  |       |   |
| M22X1.5              | ---                          | ---                       | KPHM-22X1.5                |       |   |
| M22X2                | ---                          | ---                       | KPHM-22X2                  |       |   |
| M24X2                | ---                          | ---                       | KPHM-24X2                  |       |   |
| M27X2                | ---                          | ---                       | KPHM-27X2                  |       |   |
| M30X2                | ---                          | ---                       | KPHM-30X2                  |       |   |
| M33X2                | ---                          | ---                       | KPHM-33X2                  |       |   |
| M39X2                | ---                          | ---                       | KPHM-39X2                  |       |   |
| M36X3                | ---                          | ---                       | KPHM-36X3                  |       |   |
| M39X3                | ---                          | ---                       | KPHM-39X3                  |       |   |

1. Style 2 tool (threaded mandrel) does not utilize a prewinder.

2. For Improved Tangless installation UNF & Metric thread sizes use a different installation mandrel for Free-Running and Locking CoilThread inserts, this is indicated by the -F and -L designation in the part number.

# Prewinder Hand Tools - Cross References

For your convenience, the cross reference table below includes the KATO part number, the superseded KATO part number, and the Heli-Coil part number where applicable.

| KATO Part Number      | Superseded Part Number | Heli-Coil Part Number |
|-----------------------|------------------------|-----------------------|
| <b>Unified Coarse</b> |                        |                       |
| 2KPHC-02              | TCIC-02                | 17551-02              |
| 2KPHC-04              | TCIC-04                | 17551-04              |
| 2KPHC-06              | TCIC-06                | 17551-06              |
| 2KPHC-2               | TCIC-2                 | 17551-2               |
| 2KPHC-3               | TCIC-3                 | 17551-3               |
| 2KPHC-4               | TCIC-4                 | 17551-4               |
| 2KPHC-5               | TCIC-5                 | ---                   |
| 2KPHC-6               | TCIC-6                 | ---                   |
| <b>Unified Fine</b>   |                        |                       |
| 2KPHF-3               | TCIF-3                 | 17552-3               |
| 2KPHF-4               | TCIF-4                 | 17552-4               |
| 2KPHF-5               | TCIF-5                 | ---                   |
| 2KPHF-6               | TCIF-6                 | ---                   |
| <b>Metric Coarse</b>  |                        |                       |
| 2KPHM-2.5             | TCIM-2.5               | ---                   |
| 2KPHM-3               | TCIM-3                 | ---                   |
| 2KPHM-4               | TCIM-4                 | ---                   |
| 2KPHM-5               | TCIM-5                 | ---                   |
| 2KPHM-6               | TCIM-6                 | ---                   |
| 2KPHM-8               | TCIM-8                 | ---                   |
| 2KPHM-10              | TCIM-10                | ---                   |
| 2KPHM-12              | TCIM-12                | ---                   |

| KATO Part Number      | Superseded Part Number | Heli-Coil Part Number |
|-----------------------|------------------------|-----------------------|
| <b>Unified Coarse</b> |                        |                       |
| KPHC-02               | CIC-02                 | 551-02                |
| KPHC-03               | CIC-03                 | 551-03                |
| KPHC-04               | CIC-04                 | 7551-04               |
| KPHC-05               | CIC-05                 | 7551-05               |
| KPHC-06               | CIC-06                 | 7551-06               |
| KPHC-1                | CIC-1                  | 7551-1                |
| KPHC-2                | CIC-2                  | 7551-2                |
| KPHC-3                | CIC-3                  | 7551-3                |
| KPHC-4                | CIC-4                  | 7551-4                |
| KPHC-5                | CIC-5                  | 7551-5                |
| KPHC-6                | CIC-6                  | 7551-6                |
| KPHC-7                | CIC-7                  | 7551-7                |
| KPHC-8                | CIC-8                  | 7551-8                |
| KPHC-9                | CIC-9                  | 3724-9                |
| KPHC-10               | CIC-10                 | 3724-10               |
| KPHC-12               | CIC-12                 | 3724-12               |
| KPHC-14               | CIC-14                 | 3724-14               |
| KPHC-16               | CIC-16                 | 3724-16               |
| KPHC-18               | CIC-18                 | 3724-18               |
| KPHC-20               | CIC-20                 | 3724-20               |
| KPHC-22               | CIC-22                 | 3724-22               |
| KPHC-24               | CIC-24                 | 3724-24               |
| <b>Unified Fine</b>   |                        |                       |
| KPHF-03               | CIF-03                 | 7552-03               |
| KPHF-04               | CIF-04                 | 7552-04               |
| KPHF-06               | CIF-06                 | 7552-06               |
| KPHF-2                | CIF-2                  | 7552-2                |
| KPHF-3                | CIF-3                  | 7552-3                |
| KPHF-4                | CIF-4                  | 7552-4                |
| KPHF-5                | CIF-5                  | 7552-5                |
| KPHF-6                | CIF-6                  | 7552-6                |
| KPHF-7                | CIF-7                  | 7552-7                |
| KPHF-8                | CIF-8                  | 7552-8                |
| KPHF-9                | CIF-9                  | 535-9                 |
| KPHF-10               | CIF-10                 | 535-10                |
| KPHF-12               | CIF-12                 | 535-12                |
| KPHF-14               | CIF-14                 | 535-14                |
| KPHF-16               | CIF-16                 | 535-161               |
| KPHF-18               | CIF-18                 | 535-18                |
| KPHF-20               | CIF-20                 | 535-20                |
| KPHF-22               | CIF-22                 | 535-22                |
| KPHF-24               | CIF-24                 | 535-24                |

| KATO Part Number     | Superseded Part Number | Heli-Coil Part Number |
|----------------------|------------------------|-----------------------|
| <b>Metric Coarse</b> |                        |                       |
| KPHM-2               | CIM-2                  | 7751-2                |
| KPHM-2.2             | CIM-2.2                | 7751-2.2              |
| KPHM-2.5             | CIM-2.5                | 7751-2.5              |
| KPHM-3               | CIM-3                  | 7751-3                |
| KPHM-3.5             | CIM-3.5                | 7751-3.5              |
| KPHM-4               | CIM-4                  | 7751-4                |
| KPHM-5               | CIM-5                  | 7751-5                |
| KPHM-6               | CIM-6                  | 7751-6                |
| KPHM-7               | CIM-7                  | 7751-7                |
| KPHM-8               | CIM-8X1.25             | 7751-8                |
| KPHM-10              | CIM-10X1.5             | 7751-10               |
| KPHM-12              | CIM-12X1.75            | 7751-12               |
| KPHM-14              | CIM-14X2               | 7751-14               |
| KPHM-16              | CIM-16X2               | 7751-16               |
| KPHM-18              | CIM-18X2.5             | 7751-18               |
| KPHM-20              | CIM-20X2.5             | 7751-20               |
| KPHM-22              | CIM-22X2.5             | 7751-22               |
| KPHM-24              | CIM-24X3               | 7751-24               |
| KPHM-27              | ---                    | 7751-27               |
| <b>Metric Fine</b>   |                        |                       |
| KPHM-8X1             | CIM-8X1                | 7755-8                |
| KPHM-10X1            | CIM-10X1               | 7755-10               |
| KPHM-10X1.25         | CIM-10X1.25            | 7756-10               |
| KPHM-12X1.25         | CIM-12X1.25            | 7756-12               |
| KPHM-12X1.5          | CIM-12X1.5             | 7753-12               |
| KPHM-14X1.5          | CIM-14X1.5             | 7753-14               |
| KPHM-16X1.5          | CIM-16X1.5             | 7753-16               |
| KPHM-18X1.5          | CIM-18X1.5             | 7753-18               |
| KPHM-18X2            | CIM-18X2               | 7754-18               |
| KPHM-20X1.5          | CIM-20X1.5             | 7753-20               |
| KPHM-20X2            | CIM-20X2               | 7754-20               |
| KPHM-22X1.5          | CIM-22X1.5             | 7753-22               |
| KPHM-22X2            | CIM-22X2               | 7754-22               |
| KPHM-24X2            | CIM-24X2               | 7754-24               |
| KPHM-27X2            | ---                    | 7754-27               |
| KPHM-30X2            | ---                    | 7754-30               |
| KPHM-33X2            | ---                    | 7754-33               |
| KPHM-39X2            | ---                    | 7754-39               |
| KPHM-36X3            | ---                    | 7752-36               |
| KPHM-39X3            | ---                    | 7752-39               |

# Round Shaft Installation Tools

## KATO has transitioned over to the all new KFS-20 brushless electric driver.

KATO recommends switching to the Hex Electric installation tools to increase productivity and reduce cost. See page 59.

For the fastest & most productive semi-automatic installation system. KATO recommends switching to the Prewinder Electric tool. See page 67.

## Features and Benefits

- Available for both Tangless and tanged CoilThread inserts.
- Utilizes KATO's One Pawl Fits All system (Tangless).
- Compatibility with legacy round electric drivers.
- Can be used for manual installation (Tangless) with the **optional handle (2KREH-UI)**.



## How to Order

- Round Shaft Installation Tool (see page 77)

KATO offers a free **Hex Kit (hex sleeve and pin)** to enable Tangless customers to easily switch to the new KFS-20 brushless hex electric driver.

Tangless 2KRE Tool With **Optional Handle**  
(Handle Part#: 2KREH-UI)



Tangless Round Electric Tool  
(2KRE Series)



Tanged Round Electric Tool  
(KRE Series)

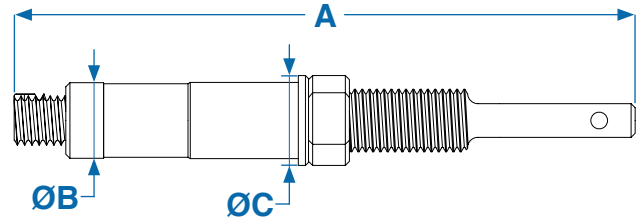


# Round Shaft Installation - Dimensions

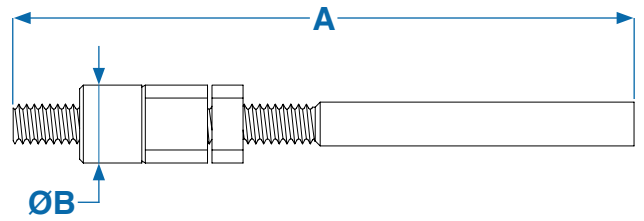
## Round Shaft Mandrel Assembly

| Thread Size    | 2KRE - Tangless |            |            | KRE - Tanged |            |
|----------------|-----------------|------------|------------|--------------|------------|
|                | Length A        | Diameter B | Diameter C | Length A     | Diameter B |
| Unified Coarse |                 |            |            |              |            |
| 1-64           | 2.73            | 0.14       | 0.18       | ----         | ----       |
| 2-56           | 2.84            | 0.24       | 0.37       | 3.00         | 0.25       |
| 4-40           | 2.95            | 0.24       | 0.37       | 3.02         | 0.28       |
| 6-32           | 2.94            | 0.38       | 0.37       | 3.00         | 0.31       |
| 8-32           | 2.99            | 0.32       | 0.37       | 3.00         | 0.31       |
| 10-24          | 3.00            | 0.38       | 0.37       | 3.01         | 0.38       |
| 12-24          | ----            | ----       | ----       | 3.01         | 0.38       |
| 1/4-20         | 3.00            | 0.37       | 0.44       | 3.06         | 0.45       |
| 5/16-18        | 3.00            | 0.70       | 0.70       | 3.00         | 0.56       |
| 3/8-16         | 3.00            | 0.70       | 0.70       | 4.00         | 0.56       |
| Unified Fine   |                 |            |            |              |            |
| 0-80           | 1.82            | 0.12       | 0.18       | ---          | ---        |
| 10-32          | 3.11            | 0.38       | 0.44       | 3.00         | 0.39       |
| Metric Coarse  |                 |            |            |              |            |
| M2X0.4         | 2.73            | 0.24       | 0.38       | ----         | ----       |
| M2.5X0.45      | 2.73            | 0.24       | 0.37       | 3.00         | 0.25       |
| M3X0.5         | 2.71            | 0.24       | 0.37       | 2.98         | 0.24       |
| M3.5X0.6       | 2.73            | 0.24       | 0.37       | 2.98         | 0.24       |
| M4X0.7         | 3.00            | 0.24       | 0.37       | 3.00         | 0.32       |
| M5X0.8         | 3.11            | 0.24       | 0.37       | 2.99         | 0.38       |
| M6X1           | 3.09            | 0.44       | 0.44       | 3.01         | 0.44       |
| M8X1.25        | 3.88            | 0.51       | 0.51       | 3.04         | 0.56       |
| M10X1.5        | 4.11            | 0.61       | 0.61       | ---          | ---        |
| M12X1.75       | 4.51            | 0.69       | 0.69       | ---          | ---        |

## Tangless - 2KRE



## Tanged - KRE



1. All dimensions for reference only.
2. All dimensions are in inches.

# Round Shaft Installation - Part Numbers

| Thread Size                      | Tangless Round Electric Tool <sup>1</sup> | Tangless Replacement Mandrel | Tangless Replacement Pawl | Tanged Round Electric Tool | Optional Handle Tangless Only | Hex Kit               |
|----------------------------------|---|------------------------------|---------------------------|----------------------------|-------------------------------|-----------------------|
| <b>Unified Coarse</b>            |   |                              |                           |                            |                               |                       |
| 1-64 <sup>4</sup>                | 2KREC-01                                  | 2KREC-01M                    | 2KIPC-01                  | ---                        | Included                      |                       |
| 2-56                             | 2KREC-02                                  | 2KREC-02M                    | 2KIPC-02                  | KREC-02                    | 2KREH-UI                      | 2KHEX-1K <sup>5</sup> |
| 4-40                             | 2KREC-04                                  | 2KREC-04M                    | 2KIPC-04                  | KREC-04                    |                               |                       |
| 6-32                             | 2KREC-06                                  | 2KREC-06M                    | 2KIPC-06                  | KREC-06                    |                               |                       |
| 8-32                             | 2KREC-2                                   | 2KREC-2M                     | 2KIPC-2                   | KREC-2                     |                               |                       |
| 10-24                            | 2KREC-3                                   | 2KREC-3M                     | 2KIPC-3                   | KREC-3                     |                               |                       |
| 12-24                            | ---                                       | ---                          | ---                       | KREC-1                     |                               |                       |
| 1/4-20                           | 2KREC-4                                   | 2KREC-4M                     | 2KIPC-4                   | KREC-4                     |                               |                       |
| 5/16-18                          | 2KREC-5                                   | 2KREC-5M                     | 2KIPC-5                   | KREC-5                     |                               |                       |
| 3/8-16                           | 2KREC-6                                   | 2KREC-6M                     | 2KIPC-6                   | KREC-6                     |                               |                       |
| <b>Unified Fine<sup>2</sup></b>  |   |                              |                           |                            |                               |                       |
| 0-80 <sup>4</sup>                | 2KREF-00                                  | 2KREF-00M                    | 2KIPF-00                  | ---                        | Included                      |                       |
| 10-32                            | 2KREF-F3                                  | 2KREF-F3M                    | 2KIPF-3                   | KREF-3                     | 2KREH-UI                      | 2KHEX-1K <sup>5</sup> |
|                                  | 2KREF-L3                                  | 2KREF-L3M                    |                           |                            |                               |                       |
| <b>Metric Coarse<sup>2</sup></b> |   |                              |                           |                            |                               |                       |
| M2X0.4 <sup>4</sup>              | 2KREM-F2                                  | 2KREM-F2M                    | 2KIPM-2                   | ---                        | Included                      |                       |
|                                  | 2KREM-L2                                  | 2KREM-L2M                    |                           |                            |                               |                       |
| M2.5X0.45                        | 2KREM-F2.5                                | 2KREM-F2.5M                  | 2KIPM-2.5                 | KREM-2.5                   | 2KREH-UI                      | 2KHEX-1K <sup>5</sup> |
|                                  | 2KREM-L2.5                                | 2KREM-L2.5M                  |                           |                            |                               |                       |
| M3X0.5                           | 2KREM-F3                                  | 2KREM-F3M                    | 2KIPM-3                   | KREM-3                     |                               |                       |
|                                  | 2KREM-L3                                  | 2KREM-L3M                    |                           |                            |                               |                       |
| M3.5X0.6                         | ---                                       | ---                          | ---                       | KREM-3.5                   |                               |                       |
| M4X0.7                           | 2KREM-F4                                  | 2KREM-F4M                    | 2KIPM-4                   | KREM-4                     |                               |                       |
|                                  | 2KREM-L4                                  | 2KREM-L4M                    |                           |                            |                               |                       |
| M5X0.8                           | 2KREM-F5                                  | 2KREM-F5M                    | 2KIPM-5                   | KREM-5                     |                               |                       |
|                                  | 2KREM-L5                                  | 2KREM-L5M                    |                           |                            |                               |                       |
| M6X1                             | 2KREM-F6                                  | 2KREM-F6M                    | 2KIPM-6                   | KREM-6                     |                               |                       |
|                                  | 2KREM-L6                                  | 2KREM-L6M                    |                           |                            |                               |                       |
| M8x1.25 <sup>3</sup>             | 2KREM-F8                                  | ---                          | See Notes                 | KREM-8                     |                               |                       |
|                                  | 2KREM-L8                                  | ---                          |                           |                            |                               |                       |
| M10x1.5 <sup>3</sup>             | 2KREM-F10                                 | ---                          | See Notes                 | ---                        |                               |                       |
|                                  | 2KREM-L10                                 | ---                          |                           |                            |                               |                       |
| M12X1.75 <sup>3</sup>            | 2KREM-F12                                 | ---                          | See Notes                 | ---                        |                               |                       |
|                                  | 2KREM-L12                                 | ---                          |                           |                            |                               |                       |

1. The Round Electric tool consists of the installation mandrel (round shaft), installation pawl, spring, pin, wrenches, and adjusting sleeve fully assembled and ready for use. **For manual installation order the optional handle 2KREH-UI handle.**

2. For improved Tangless installation UNF & Metric thread sizes use a different installation mandrel for free-running & locking CoilThread inserts, this is indicated by the -F and -L designation in the part number. **KATO strongly recommends using Prewinder Electric Tool (KPE Series) for Fine and Metric thread sizes.**

3. Not compatible with the KATO One Pawl Fits All system at this time.

4. For these smaller thread sizes, KATO recommends manual installation only. These tools include a gage handle.

5. Free for customers switching to KFS-20 Hex Electric Driver.

| Tangless Replacement Parts |   |
|----------------------------|---|
| Suffix                     | Description   |
| K                          | Pawl Kit (add a K to the end of the pawl part number; includes one pawl, two pins, and two springs) |
| G                          | Nylon Guard ( <b>example: 2KREC-04G</b> )   |
| H                          | Housing ( <b>example: 2KREC-04H</b> )   |

# Round Shaft Installation - Cross References

For your convenience, the cross reference table below includes the KATO part number, the superseded KATO part number, and the Heli-Coil part number where applicable.

| KATO Part Number | Superseded Part Number | Heli-Coil Part Number |
|------------------|------------------------|-----------------------|
| Unified Coarse   |                        |                       |
| 2KREC-02         | CT16002-02             | 7571-02               |
| 2KREC-02M        | CT16410-02BH           | ---                   |
| 2KREC-04         | CT16002-04             | 7571-04               |
| 2KREC-04M        | CT16410-04BH           | ---                   |
| 2KREC-06         | CT16002-06             | 7571-06               |
| 2KREC-06M        | CT16410-06BH           | ---                   |
| 2KREC-2          | CT16002-2              | 7571-2                |
| 2KREC-2M         | CT16410-2BH            | ---                   |
| 2KREC-3          | CT16002-3              | 7571-3                |
| 2KREC-3M         | CT16410-3              | ---                   |
| 2KREC-4          | CT16002-4              | 7571-4                |
| 2KREC-4M         | CT16410-4              | ---                   |
| 2KREC-5          | ---                    | ---                   |
| 2KREC-5M         | ---                    | ---                   |
| 2KREC-6          | ---                    | ---                   |
| 2KREC-6M         | ---                    | ---                   |
| Unified Fine     |                        |                       |
| 2KREF-00         | ---                    | ---                   |
| 2KREF-F3         | CT16003-3              | 7572-3                |
| 2KREF-F3M        | CT16411-3              | ---                   |
| 2KREF-L3         | CT16003-3              | 7572-3                |
| 2KREF-L3M        | CT16411-3              | ---                   |
| Metric Coarse    |                        |                       |
| 2KREM-F2         | ---                    | ---                   |
| 2KREM-F2.5       | ---                    | 7587-2.5              |
| 2KREM-L2.5       | ---                    | 7587-2.5S             |
| 2KREM-F3         | ---                    | 7587-3                |
| 2KREM-L3         | CT16002-M3L            | 7587-3S               |
| 2KREM-F4         | CT16002-M4F            | 7587-4                |
| 2KREM-L4         | CT16002-M4L            | 7587-4S               |
| 2KREM-F5         | CT16002-M5F            | 7587-5                |
| 2KREM-L5         | CT16002-M5L            | 7587-5S               |
| 2KREM-F6         | CT16002-M6F            | 7587-6                |
| 2KREM-L6         | CT16002-M6L            | 7587-6S               |
| 2KREM-F8         | CT16002-M8F            | ---                   |
| 2KREM-L8         | CT16002-M8L            | ---                   |
| 2KREM-F10        | ---                    | ---                   |
| 2KREM-L10        | ---                    | ---                   |
| 2KREM-F12        | ---                    | ---                   |
| 2KREM-L12        | ---                    | ---                   |

| KATO Part Number | Superseded Part Number | Heli-Coil Part Number |
|------------------|------------------------|-----------------------|
| Unified Coarse   |                        |                       |
| KREC-02          | CTSB-02C               | 8051-02               |
| KREC-04          | CTSB-04C               | 8051-04               |
| KREC-06          | CTSB-06C               | 8051-06               |
| KREC-1           | CTSB-1C                | 8051-1                |
| KREC-2           | CTSB-2C                | 8051-2                |
| KREC-3           | CTSB-3C                | 8051-3                |
| KREC-4           | CTSB-4C                | 8051-4                |
| KREC-5           | ---                    | ---                   |
| KREC-6           | ---                    | ---                   |
| Unified Fine     |                        |                       |
| KREF-3           | CTSB-3F                | 10089-3               |
| KREF-4           | CTSB-4F                | 10089-4               |
| Metric Coarse    |                        |                       |
| KREM-2.5         | CTSB-M2.5              | ---                   |
| KREM-3           | CTSB-M3                | ---                   |
| KREM-3.5         | CTSB-M3.5              | ---                   |
| KREM-4           | CTSB-M4                | ---                   |
| KREM-5           | CTSB-M5                | ---                   |
| KREM-6           | CTSB-M6                | ---                   |
| KREM-8           | CTSB-M8X1.25C          | ---                   |

**KATO Removal Tools (KRT)** are insert specific, one style for Tangless CoilThread inserts and one for tanged CoilThread inserts.

**Tangless:** The Tangless KATO Removal Tool (2KRT) is unique in the helical coil screw thread insert industry. The KATO Tangless removal tool allows quick, non-destructive removal of Tangless inserts, preventing damage to the parent material and expensive castings.

The KATO Tangless removal tool simply threads into the installed insert, grabs the removal notch and threads the insert out without damaging the internal STI threads or surface of the casting (unlike competitor tools that must be manually lined up with the drive notch of the installed insert). Another unique feature to the KATO Tangless removal tool is its ability to back out or adjust an insert that has been installed too deep; giving operators greater control over installation depth.

As an added benefit, the mandrel assembly portion of the KATO Tangless removal tool can be withdrawn from the blue handle and inserted into the KATO SB-400C (CT5405) or SB-650C (CT5406) Electric Drivers for high-speed removal, or adjustment, for a large number of inserts. This is impossible with competitor removal tools or with conventional tanged style inserts.

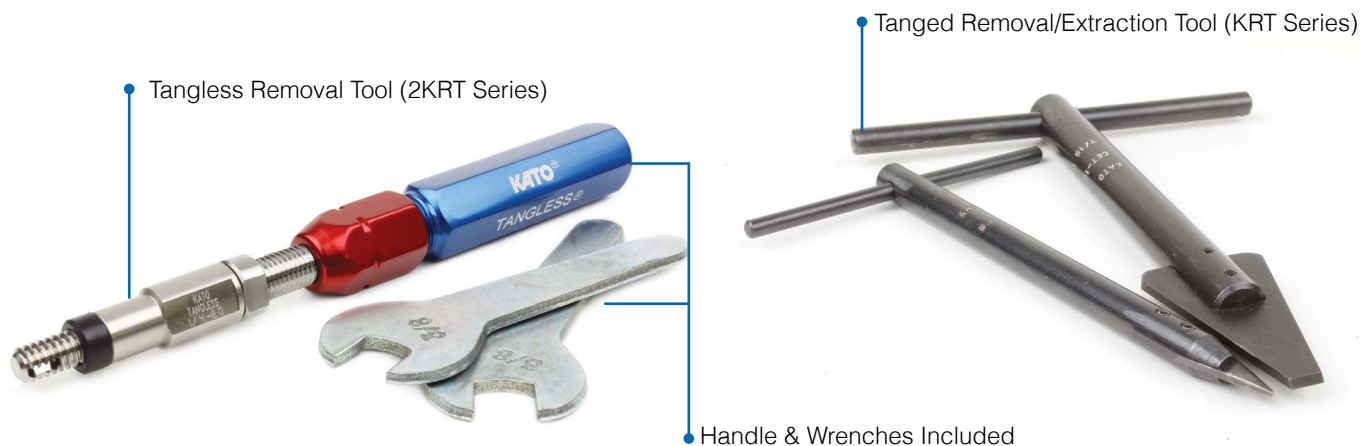
**Tanged:** The KATO Tanged Removal/Extraction Tool (KRT) is designed with a wedge-shaped tip and an integrated handle. The sharp tip is used to dig into the installed tanged insert (a hammer may be required). The handle is then used to turn the tool counter-clockwise while applying pressure until the insert is extracted from the parent material. Extraction of a tanged insert is only possible if the insert isn't installed too deep, and the KRT can reach it.

The extraction process typically results in damage to the surface of the parent material and possibly the STI Threads as well. KATO suggests caution when using the KRT to minimize damage to parent material. To avoid damage to your casting and minimize rework KATO recommends using Tangless CoilThread inserts.

**Consider switching to KATO Tangless CoilThread inserts and never use a destructive tanged extraction tool again!**

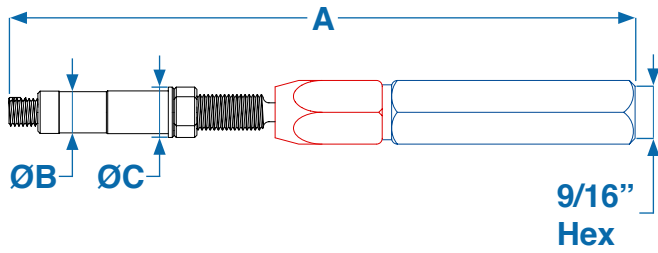
## Features and Benefits - For Tangless 2KRT only:

- Provides quick, non-destructive removal.
- Easily adjusts the installation depth of inserts that are too deep.
- Can be used in KATO electric drivers for fast, convenient removal or depth adjustment.



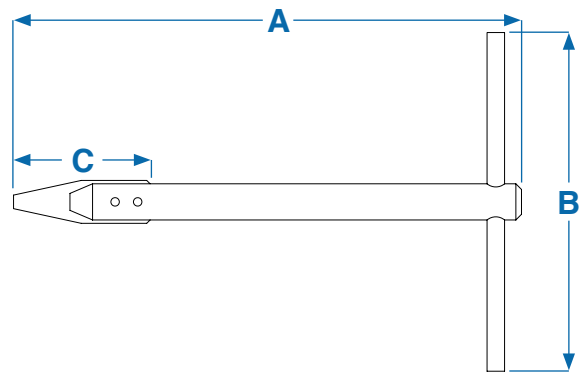
# Removal Tools - Dimensions

## 2KRT



| Thread Size    | Length A | Diameter B | Diameter C |
|----------------|----------|------------|------------|
| Unified Coarse |          |            |            |
| 1-64           | 5.18     | 0.24       | 0.38       |
| 2-56           | 5.16     | 0.24       | 0.37       |
| 4-40           | 5.33     | 0.24       | 0.37       |
| 6-32           | 5.36     | 0.38       | 0.44       |
| 8-32           | 5.60     | 0.36       | 0.44       |
| 10-24          | 5.41     | 0.37       | 0.44       |
| 1/4-20         | 5.49     | 0.37       | 0.44       |
| 5/16-18        | 5.74     | 0.71       | 0.71       |
| 3/8-16         | 5.76     | 0.71       | 0.71       |
| Unified Fine   |          |            |            |
| 0-80           | 3.52     | 0.24       | 0.27       |
| 10-32          | 5.67     | 0.37       | 0.44       |
| 1/4-28         | 5.46     | 0.37       | 0.44       |
| 5/16-24        | 5.74     | 0.71       | 0.71       |
| 3/8-24         | 5.76     | 0.71       | 0.71       |
| Metric Coarse  |          |            |            |
| M2X0.4         | 5.18     | 0.24       | 0.38       |
| M2.5X0.45      | 5.18     | 0.24       | 0.38       |
| M3X0.5         | 5.18     | 0.27       | 0.38       |
| M4X0.7         | 5.41     | 0.35       | 0.43       |
| M5X0.8         | 5.37     | 0.38       | 0.43       |
| M6X1           | 5.16     | 0.43       | 0.43       |
| M8X1.25        | 6.35     | 0.51       | 0.51       |
| M10X1.5        | 6.58     | 0.59       | 0.59       |
| M12X1.75       | 7.00     | 0.59       | 0.59       |

## KRT



| Thread Size           | Length A | Diameter B | Length C |
|-----------------------|----------|------------|----------|
| Unified Thread Sizes  |          |            |          |
| 2-56                  | 4.45     | 3.00       | 0.63     |
| (3-48) - (8-32)       | 4.45     | 3.00       | 0.63     |
| (10-24) - (3/8-16)    | 4.25     | 3.00       | 0.56     |
| (7/16-14) - (1-8)     | 5.06     | 4.00       | 1.63     |
| (1-1/8-7) - (1-1/2-6) | 6.13     | 4.00       | 1.31     |
| Metric Thread Sizes   |          |            |          |
| M2.2 - M2.5           | 4.45     | 3.00       | 0.63     |
| M3 - M4               | 4.45     | 3.00       | 0.63     |
| M5 - M10              | 4.25     | 3.00       | 0.56     |
| M12 - M24             | 5.06     | 4.00       | 1.63     |
| M26 - M39             | 6.13     | 4.00       | 1.31     |

1. All dimensions are in inches.
2. All dimensions are for reference only.



# Removal Tools - Part Numbers

| Thread Size    | Tangless Removal Tool | Tangless Replacement Pawl | Tanged Removal Tool |
|----------------|-----------------------|---------------------------|---------------------|
| Unified Coarse |                       |                           |                     |
| 1-64           | 2KRTC-01              | 2KRPC-01                  | ---                 |
| 2-56           | 2KRTC-02              | 2KRPC-02                  | KRTV-02             |
| 3-48           | ---                   | ---                       | KRTV-06             |
| 4-40           | 2KRTC-04              | 2KRPC-04                  |                     |
| 5-40           | ---                   | ---                       |                     |
| 6-32           | 2KRTC-06              | 2KRPC-06                  |                     |
| 8-32           | 2KRTC-2               | 2KRPC-2                   |                     |
| 10-24          | 2KRTC-3               | 2KRPC-3                   | KRTV-6              |
| 12-24          | ---                   | ---                       |                     |
| 1/4-20         | 2KRTC-4               | 2KRPC-4                   |                     |
| 5/16-18        | 2KRTC-5               | 2KRPC-5                   |                     |
| 3/8-16         | 2KRTC-6               | 2KRPC-6                   |                     |
| 7/16-14        | ---                   | ---                       | KRTV-16             |
| 1/2-13         | ---                   | ---                       |                     |
| 9/16-12        | ---                   | ---                       |                     |
| 5/8-11         | ---                   | ---                       |                     |
| 3/4-10         | ---                   | ---                       |                     |
| 7/8-9          | ---                   | ---                       |                     |
| 1-8            | ---                   | ---                       |                     |
| 1-1/8-7        | ---                   | ---                       | KRTV-24             |
| 1-1/4-7        | ---                   | ---                       |                     |
| 1-3/8-6        | ---                   | ---                       |                     |
| 1-1/2-6        | ---                   | ---                       |                     |
| Unified Fine   |                       |                           |                     |
| 0-80           | 2KRTF-00              | 2KRPF-00                  | ---                 |
| 3-56           | ---                   | ---                       | KRTV-06             |
| 4-48           | ---                   | ---                       |                     |
| 6-40           | ---                   | ---                       |                     |
| 8-36           | ---                   | ---                       |                     |
| 10-32          | 2KRTF-3               | 2KRPF-3                   |                     |
| 1/4-28         | 2KRTF-4               | 2KRPF-4                   | KRTV-6              |
| 5/16-24        | 2KRTF-5               | 2KRPF-5                   |                     |
| 3/8-24         | 2KRTF-6               | 2KRPF-6                   |                     |
| 7/16-20        | 2KRTF-7               | 2KRPF-7                   |                     |
| 1/2-20         | 2KRTF-8               | 2KRPF-8                   |                     |
| 9/16-18        | ---                   | ---                       | KRTV-16             |
| 5/8-18         | ---                   | ---                       |                     |
| 3/4-16         | ---                   | ---                       |                     |
| 7/8-14         | ---                   | ---                       |                     |
| 1-12           | ---                   | ---                       |                     |
| 1-1/8-12       | ---                   | ---                       |                     |
| 1-1/4-12       | ---                   | ---                       |                     |
| 1-3/8-12       | ---                   | ---                       | KRTV-24             |
| 1-1/2-12       | ---                   | ---                       |                     |

| Thread Size   | Tangless Removal Tool | Tangless Replacement Pawl | Tanged Removal Tool |
|---------------|-----------------------|---------------------------|---------------------|
| Metric Coarse |                       |                           |                     |
| M2X0.4        | 2KRTM-2               | 2KRPM-2                   | KRTV-02             |
| M2.2X0.45     | ---                   | ---                       | KRTV-06             |
| M2.5X0.45     | 2KRTM-2.5             | 2KRPM-2.5                 |                     |
| M3X0.5        | 2KRTM-3               | 2KRPM-3                   |                     |
| M3.5X0.6      | ---                   | ---                       |                     |
| M4X0.7        | 2KRTM-4               | 2KRPM-4                   |                     |
| M5X0.8        | 2KRTM-5               | 2KRPM-5                   | KRTV-6              |
| M6X1          | 2KRTM-6               | 2KRPM-6                   |                     |
| M7X1          | ---                   | ---                       |                     |
| M8X1.25       | 2KRTM-8               | 2KRPM-8                   | KRTV-16             |
| M10X1.5       | 2KRTM-10              | 2KRPM-10                  |                     |
| M12X1.75      | 2KRTM-12              | 2KRPM-12                  |                     |
| M14X2         | ---                   | ---                       |                     |
| M16X2         | ---                   | ---                       |                     |
| M18X2.5       | ---                   | ---                       |                     |
| M20X2.5       | ---                   | ---                       |                     |
| M22X2.5       | ---                   | ---                       |                     |
| M24X3         | ---                   | ---                       |                     |
| M27X3         | ---                   | ---                       |                     |
| Metric Fine   |                       |                           |                     |
| M8X1          | ---                   | ---                       | KRTV-6              |
| M10X1         | ---                   | ---                       |                     |
| M10X1.25      | ---                   | ---                       |                     |
| M12X1.25      | ---                   | ---                       | KRTV-16             |
| M12X1.5       | ---                   | ---                       |                     |
| M14X1.5       | ---                   | ---                       |                     |
| M16X1.5       | ---                   | ---                       |                     |
| M18X1.5       | ---                   | ---                       |                     |
| M18X2         | ---                   | ---                       |                     |
| M20X1.5       | ---                   | ---                       |                     |
| M20X2         | ---                   | ---                       |                     |
| M22X1.5       | ---                   | ---                       |                     |
| M22X2         | ---                   | ---                       |                     |
| M24X2         | ---                   | ---                       |                     |
| M27X2         | ---                   | ---                       | KRTV-24             |
| M30X2         | ---                   | ---                       |                     |
| M33X2         | ---                   | ---                       |                     |
| M39X2         | ---                   | ---                       |                     |
| M36X3         | ---                   | ---                       |                     |
| M39X3         | ---                   | ---                       |                     |

| Tangless Replacement Parts |   |
|----------------------------|---|
| Suffix                     | Description   |
| K                          | Pawl Kit (add a K to the end of the pawl part number; includes one pawl, two pins, and two springs) |
| G                          | Nylon Guard (example: 2KRTC-04G)  |
| M                          | Replacement Mandrel (example: 2KRTC-04M)  |
| H                          | Housing (example: 2KRTC-04H)  |

# Removal Tools - Cross References

For your convenience, the cross reference table below includes the KATO part number, the superseded KATO part number, and the Heli-Coil part number where applicable.

| KATO Part Number      | Superseded Part Number | Heli-Coil Part Number |
|-----------------------|------------------------|-----------------------|
| <b>Unified Coarse</b> |                        |                       |
| 2KRTC-02              | CT16002R-02            | 7570-02               |
| 2KRTC-02M             | CT16410-02             | ---                   |
| 2KRTC-04              | CT16002R-04            | 7570-04               |
| 2KRTC-04M             | CT16410-04             | ---                   |
| 2KRTC-06              | CT16002R-06            | 7570-06               |
| 2KRTC-06M             | CT16410-06             | ---                   |
| 2KRTC-2               | CT16002R-2             | 7570-2                |
| 2KRTC-2M              | CT16410-2              | ---                   |
| 2KRTC-3               | CT16002R-3             | 7570-3                |
| 2KRTC-3M              | CT16410R-3             | ---                   |
| 2KRTC-4               | CT16002R-4             | 7570-4                |
| 2KRTC-4M              | CT16410R-4             | ---                   |
| 2KRTC-5               | ---                    | ---                   |
| 2KRTC-5M              | ---                    | ---                   |
| 2KRTC-6               | ---                    | ---                   |
| 2KRTC-6M              | ---                    | ---                   |
| <b>Unified Fine</b>   |                        |                       |
| 2KRTF-00              | ---                    | ---                   |
| 2KRTF-3               | CT16003R-3             | 7560-3                |
| 2KRTF-3M              | CT16411R-3             | ---                   |
| 2KRTF-4               | CT16003R-4             | 7560-4                |
| 2KRTF-4M              | CT16411R-4             | ---                   |
| 2KRTF-5               | ---                    | ---                   |
| 2KRTF-5M              | ---                    | ---                   |
| 2KRTF-6               | ---                    | ---                   |
| 2KRTF-6M              | ---                    | ---                   |
| <b>Metric Coarse</b>  |                        |                       |
| 2KRTM-2               | ---                    | ---                   |
| 2KRTM-2.5             | CT16002R-M2.5          | ---                   |
| 2KRTM-3               | CT16002R-M3            | ---                   |
| 2KRTM-4               | CT16002R-M4            | ---                   |
| 2KRTM-5               | CT16002R-M5            | ---                   |
| 2KRTM-6               | CT16002R-M6            | ---                   |
| 2KRTM-8               | CT16002R-M8            | ---                   |
| 2KRTM-10              | CT16002R-M10           | ---                   |
| 2KRTM-12              | CT16002R-M12           | ---                   |

| KATO Part Number | Superseded Part Number | Heli-Coil Part Number |
|------------------|------------------------|-----------------------|
| KRTV-02          | CET-02                 | 1227-02               |
| KRTV-06          | CET-06                 | 1227-06               |
| KRTV-6           | CET-6                  | 1227-6                |
| KRTV-16          | CET-16                 | 1227-16               |
| KRTV-24          | CET-24                 | 1227-24               |



# Tang Break-Off Tool

The **KATO Tang Break-Off Tool (KTBT)**, as the name implies is a spring-loaded punch designed to cleanly break the tang off of conventional CoilThread inserts once they are installed. KATO recommends the tang be removed from the insert after installation.

The standard KTBT tool is designed to break off tangs for inserts up to 2 diameter in length. A longer punch is needed for 2.5 & 3 diameter nominal length inserts (see table on page 85).

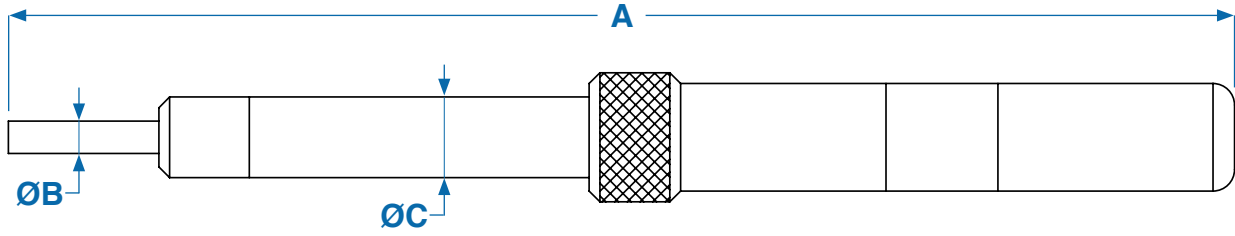
**To eliminate the tang break-off process, and to ensure a FOD-Free assembly consider switching to KATO Tangless CoilThread inserts. There are no tangs to break-off, retrieve, or lose!**

## Features and Benefits

- Available for tanged insert sizes up to 1/2" and M12.
- Steel construction for durability and prolonged tool life.
- Replacement punch available for all sizes.
- Lower cost than similar tools from competitors.



# Tang Break-Off Tool - Dimensions



| Thread Size    | Length A | Diameter B | Diameter C |
|----------------|----------|------------|------------|
| Unified Coarse |          |            |            |
| 2-56           | 5.44     | 0.06       | 0.38       |
| 3-48           | 5.44     | 0.06       | 0.38       |
| 4-40           | 5.50     | 0.08       | 0.38       |
| 5-40           | 5.50     | 0.08       | 0.38       |
| 6-32           | 5.56     | 0.09       | 0.38       |
| 8-32           | 5.63     | 0.11       | 0.38       |
| 10-24          | 5.75     | 0.13       | 0.38       |
| 12-24          | 5.75     | 0.13       | 0.38       |
| 1/4-20         | 5.81     | 0.15       | 0.38       |
| 5/16-18        | 5.81     | 0.12       | 0.47       |
| 3/8-16         | 5.94     | 0.19       | 0.47       |
| 7/16-14        | 7.22     | 0.23       | 0.56       |
| 1/2-13         | 7.34     | 0.29       | 0.56       |
| Unified Fine   |          |            |            |
| 3-56           | 5.44     | 0.06       | 0.38       |
| 4-48           | 5.50     | 0.08       | 0.38       |
| 6-40           | 5.56     | 0.09       | 0.38       |
| 8-36           | 5.63     | 0.11       | 0.38       |
| 10-32          | 5.75     | 0.13       | 0.38       |
| 1/4-28         | 5.81     | 0.15       | 0.38       |
| 5/16-24        | 5.81     | 0.12       | 0.47       |
| 3/8-24         | 5.81     | 0.19       | 0.47       |
| 7/16-20        | 7.22     | 0.23       | 0.56       |
| 1/2-20         | 7.34     | 0.29       | 0.56       |

| Thread Size   | Length A | Diameter B | Diameter C |
|---------------|----------|------------|------------|
| Metric Coarse |          |            |            |
| M2X0.4        | 5.44     | 0.06       | 0.38       |
| M2.2X0.45     | 5.44     | 0.06       | 0.38       |
| M2.5X0.45     | 5.44     | 0.06       | 0.38       |
| M3X0.5        | 5.50     | 0.08       | 0.38       |
| M3.5X0.6      | 5.56     | 0.09       | 0.38       |
| M4X0.7        | 5.63     | 0.11       | 0.38       |
| M5X0.8        | 5.75     | 0.13       | 0.38       |
| M6X1          | 5.81     | 0.15       | 0.38       |
| M7X1          | 5.81     | 0.15       | 0.38       |
| M8X1.25       | 5.81     | 0.12       | 0.47       |
| M10X1.5       | 5.94     | 0.19       | 0.47       |
| M12X1.75      | 7.34     | 0.29       | 0.56       |
| Metric Fine   |          |            |            |
| M8X1          | 5.81     | 0.12       | 0.47       |
| M10X1         | 5.94     | 0.19       | 0.47       |
| M10X1.25      | 5.94     | 0.19       | 0.47       |
| M12X1.25      | 7.34     | 0.29       | 0.56       |
| M12X1.5       | 7.34     | 0.29       | 0.56       |

1. All dimensions are in inches.
2. All dimensions are for reference only.



# Tang Break-Off Tool - Part Numbers

| Thread Size    | Tang Break-Off Tool<br>(1, 1.5 & 2D) | Replacement Punch<br>(1, 1.5 & 2D) | Tanged Break-Off Tool<br>(2.5 & 3D) | Replacement Punch<br>(2.5 & 3D) |
|----------------|--------------------------------------|------------------------------------|-------------------------------------|---------------------------------|
| Unified Coarse |                                      |                                    |                                     |                                 |
| 2-56           | KTBT-02                              | KTBT-02RP                          | KTBT-02-30                          | KTBT-02RP-30                    |
| 3-48           | KTBT-03                              | KTBT-03RP                          | KTBT-03-30                          | KTBT-03RP-30                    |
| 4-40           | KTBT-04                              | KTBT-04RP                          | KTBT-04-30                          | KTBT-04RP-30                    |
| 5-40           | KTBT-04                              | KTBT-04RP                          | KTBT-04-30                          | KTBT-04RP-30                    |
| 6-32           | KTBT-06                              | KTBT-06RP                          | KTBT-06-30                          | KTBT-06RP-30                    |
| 8-32           | KTBT-2                               | KTBT-2RP                           | KTBT-2-30                           | KTBT-2RP-30                     |
| 10-24          | KTBT-3                               | KTBT-3RP                           | KTBT-3-30                           | KTBT-3RP-30                     |
| 12-24          | KTBT-3                               | KTBT-3RP                           | KTBT-3-30                           | KTBT-3RP-30                     |
| 1/4-20         | KTBT-4                               | KTBT-4RP                           | KTBT-4-30                           | KTBT-4RP-30                     |
| 5/16-18        | KTBT-5                               | KTBT-5RP                           | KTBT-5-30                           | KTBT-5RP-30                     |
| 3/8-16         | KTBT-6                               | KTBT-6RP                           | KTBT-6-30                           | KTBT-6RP-30                     |
| 7/16-14        | KTBT-7                               | KTBT-7RP                           | KTBT-7-30                           | KTBT-7RP-30                     |
| 1/2-13         | KTBT-8                               | KTBT-8RP                           | KTBT-8-30                           | KTBT-8RP-30                     |
| Unified Fine   |                                      |                                    |                                     |                                 |
| 3-56           | KTBT-03                              | KTBT-03RP                          | KTBT-03-30                          | KTBT-03RP-30                    |
| 4-48           | KTBT-04                              | KTBT-04RP                          | KTBT-04-30                          | KTBT-04RP-30                    |
| 6-40           | KTBT-06                              | KTBT-06RP                          | KTBT-06-30                          | KTBT-06RP-30                    |
| 8-36           | KTBT-2                               | KTBT-2RP                           | KTBT-2-30                           | KTBT-2RP-30                     |
| 10-32          | KTBT-3                               | KTBT-3RP                           | KTBT-3-30                           | KTBT-3RP-30                     |
| 1/4-28         | KTBT-4                               | KTBT-4RP                           | KTBT-4-30                           | KTBT-4RP-30                     |
| 5/16-24        | KTBT-5                               | KTBT-5RP                           | KTBT-5-30                           | KTBT-5RP-30                     |
| 3/8-24         | KTBT-6                               | KTBT-6RP                           | KTBT-6-30                           | KTBT-6RP-30                     |
| 7/16-20        | KTBT-7                               | KTBT-7RP                           | KTBT-7-30                           | KTBT-7RP-30                     |
| 1/2-20         | KTBT-8                               | KTBT-8RP                           | KTBT-8-30                           | KTBT-8RP-30                     |

| Thread Size   | Tang Break-Off Tool<br>(1, 1.5 & 2D) | Replacement Punch<br>(1, 1.5 & 2D) | Tanged Break-Off Tool<br>(2.5 & 3D) | Replacement Punch<br>(2.5 & 3D) |
|---------------|--------------------------------------|------------------------------------|-------------------------------------|---------------------------------|
| Metric Coarse |                                      |                                    |                                     |                                 |
| M2X0.4        | KTBT-02                              | KTBT-02RP                          | KTBT-02-30                          | KTBT-02RP-30                    |
| M2.2X0.45     | KTBT-02                              | KTBT-02RP                          | KTBT-02-30                          | KTBT-02RP-30                    |
| M2.5X0.45     | KTBT-03                              | KTBT-03RP                          | KTBT-03-30                          | KTBT-03RP-30                    |
| M3X0.5        | KTBT-04                              | KTBT-04RP                          | KTBT-04-30                          | KTBT-04RP-30                    |
| M3.5X0.6      | KTBT-06                              | KTBT-06RP                          | KTBT-06-30                          | KTBT-06RP-30                    |
| M4X0.7        | KTBT-2                               | KTBT-2RP                           | KTBT-2-30                           | KTBT-2RP-30                     |
| M5X0.8        | KTBT-3                               | KTBT-3RP                           | KTBT-3-30                           | KTBT-3RP-30                     |
| M6X1          | KTBT-4                               | KTBT-4RP                           | KTBT-4-30                           | KTBT-4RP-30                     |
| M7X1          | KTBT-4                               | KTBT-4RP                           | KTBT-4-30                           | KTBT-4RP-30                     |
| M8X1.25       | KTBT-5                               | KTBT-5RP                           | KTBT-5-30                           | KTBT-5RP-30                     |
| M10X1.5       | KTBT-6                               | KTBT-6RP                           | KTBT-6-30                           | KTBT-6RP-30                     |
| M12X1.75      | KTBT-8                               | KTBT-8RP                           | KTBT-8-30                           | KTBT-8RP-30                     |
| Metric Fine   |                                      |                                    |                                     |                                 |
| M8X1          | KTBT-5                               | KTBT-5RP                           | KTBT-5-30                           | KTBT-5RP-30                     |
| M10X1         | KTBT-6                               | KTBT-6RP                           | KTBT-6-30                           | KTBT-6RP-30                     |
| M10X1.25      | KTBT-6                               | KTBT-6RP                           | KTBT-6-30                           | KTBT-6RP-30                     |
| M12X1.25      | KTBT-8                               | KTBT-8RP                           | KTBT-8-30                           | KTBT-8RP-30                     |
| M12X1.5       | KTBT-8                               | KTBT-8RP                           | KTBT-8-30                           | KTBT-8RP-30                     |

**1. Please Note:** For sizes larger than 1/2" and M12 use long-nosed pliers; bend tang up and down to snap off at notch.

# Tang Break-Off Tool - Cross References

For your convenience, the cross reference table below includes the KATO part number, the superseded KATO part number, and the Heli-Coil part number where applicable.

| KATO Part Number      | Superseded Part Number | Heli-Coil Part Number | KATO Replacement Punch | Superseded Replacement Punch | Heli-Coil Replacement Punch |
|-----------------------|------------------------|-----------------------|------------------------|------------------------------|-----------------------------|
| <b>Unified Coarse</b> |                        |                       |                        |                              |                             |
| KTBT-02               | CAB-02                 | 3695-02               | KTBT-02RP              | CAB-02RP                     | 3697-02                     |
| KTBT-04               | CAB-04                 | 3695-04               | KTBT-04RP              | CAB-04RP                     | 3697-04                     |
| KTBT-06               | CAB-06                 | 3695-06               | KTBT-06RP              | CAB-06RP                     | 3697-06                     |
| KTBT-2                | CAB-2                  | 3695-2                | KTBT-2RP               | CAB-2RP                      | 3697-2                      |
| KTBT-3                | CAB-3                  | 3695-3                | KTBT-3RP               | CAB-3RP                      | 3697-3                      |
| KTBT-4                | CAB-4                  | 3695-4                | KTBT-4RP               | CAB-4RP                      | 3697-4                      |
| KTBT-5                | CAB-5                  | 3695-5                | KTBT-5RP               | CAB-5RP                      | 3643-5                      |
| KTBT-6                | CAB-6                  | 3695-6                | KTBT-6RP               | CAB-6RP                      | 3643-6                      |
| KTBT-7                | CAB-7                  | 3695-7                | KTBT-7RP               | CAB-7RP                      | 3643-7                      |
| KTBT-8                | CAB-8                  | 3695-8                | KTBT-8RP               | CAB-8RP                      | 3643-8                      |
| <b>Unified Fine</b>   |                        |                       |                        |                              |                             |
| KTBT-02               | CAB-02                 | 3695-02               | KTBT-02RP              | CAB-02RP                     | 3697-02                     |
| KTBT-04               | CAB-04                 | 3695-04               | KTBT-04RP              | CAB-04RP                     | 3697-04                     |
| KTBT-06               | CAB-06                 | 3695-06               | KTBT-06RP              | CAB-06RP                     | 3697-06                     |
| KTBT-2                | CAB-2                  | 3695-2                | KTBT-2RP               | CAB-2RP                      | 3697-2                      |
| KTBT-3                | CAB-3                  | 3695-3                | KTBT-3RP               | CAB-3RP                      | 3697-3                      |
| KTBT-4                | CAB-4                  | 3695-4                | KTBT-4RP               | CAB-4RP                      | 3697-4                      |
| KTBT-5                | CAB-5                  | 3692-5                | KTBT-5RP               | CAB-5RP                      | 3645-5                      |
| KTBT-6                | CAB-6                  | 3692-6                | KTBT-6RP               | CAB-6RP                      | 3645-6                      |
| KTBT-7                | CAB-7                  | 3692-7                | KTBT-7RP               | CAB-7RP                      | 3645-7                      |
| KTBT-8                | CAB-8                  | 3692-8                | KTBT-8RP               | CAB-8RP                      | 3645-8                      |
| <b>Metric Coarse</b>  |                        |                       |                        |                              |                             |
| KTBT-02               | CAB-02                 | 4238-2.2              | KTBT-02RP              | CAB-02RP                     | 3697-02                     |
| KTBT-04               | CAB-04                 | 4238-3                | KTBT-04RP              | CAB-04RP                     | 3697-04                     |
| KTBT-06               | CAB-06                 | 4238-3                | KTBT-06RP              | CAB-06RP                     | 3697-04                     |
| KTBT-2                | CAB-2                  | 4238-4                | KTBT-2RP               | CAB-2RP                      | 3697-2                      |
| KTBT-3                | CAB-3                  | 4238-5                | KTBT-3RP               | CAB-3RP                      | 3697-3                      |
| KTBT-4                | CAB-4                  | 4238-6                | KTBT-4RP               | CAB-4RP                      | 3697-4                      |
| KTBT-4                | CAB-4                  | 4238-7                | KTBT-4RP               | CAB-4RP                      | 4436-7                      |
| KTBT-5                | CAB-6                  | 4238-8                | KTBT-5RP               | CAB-5RP                      | 3643-5                      |
| KTBT-6                | CAB-7                  | 4238-10               | KTBT-6RP               | CAB-6RP                      | 4436-10                     |
| KTBT-8                | CAB-8                  | 4238-12               | KTBT-8RP               | CAB-8RP                      | 4436-12                     |
| <b>Metric Fine</b>    |                        |                       |                        |                              |                             |
| KTBT-5                | CAB-5                  | 4238-8                | KTBT-5RP               | CAB-5RP                      | 3643-5                      |
| KTBT-6                | CAB-6                  | 4238-10               | KTBT-6RP               | CAB-6RP                      | 4436-10                     |
| KTBT-6                | CAB-6                  | 4238-10               | KTBT-6RP               | CAB-6RP                      | 4436-10                     |
| KTBT-8                | CAB-6                  | 4238-12               | KTBT-8RP               | CAB-8RP                      | 4436-12                     |
| KTBT-8                | CAB-8                  | 4238-12               | KTBT-8RP               | CAB-8RP                      | 4436-12                     |

# KATO Linear Torque Arm

**KATO Linear Torque Arm (2KLRM-1)** is designed to install Tangless or tanged KATO CoilThread inserts using any KATO electric installation tool. Add the optional Air Tool Kit (2KLRM-1A), and the KATO Linear Torque Arm will work seamlessly with the KATO pneumatic installation tools.

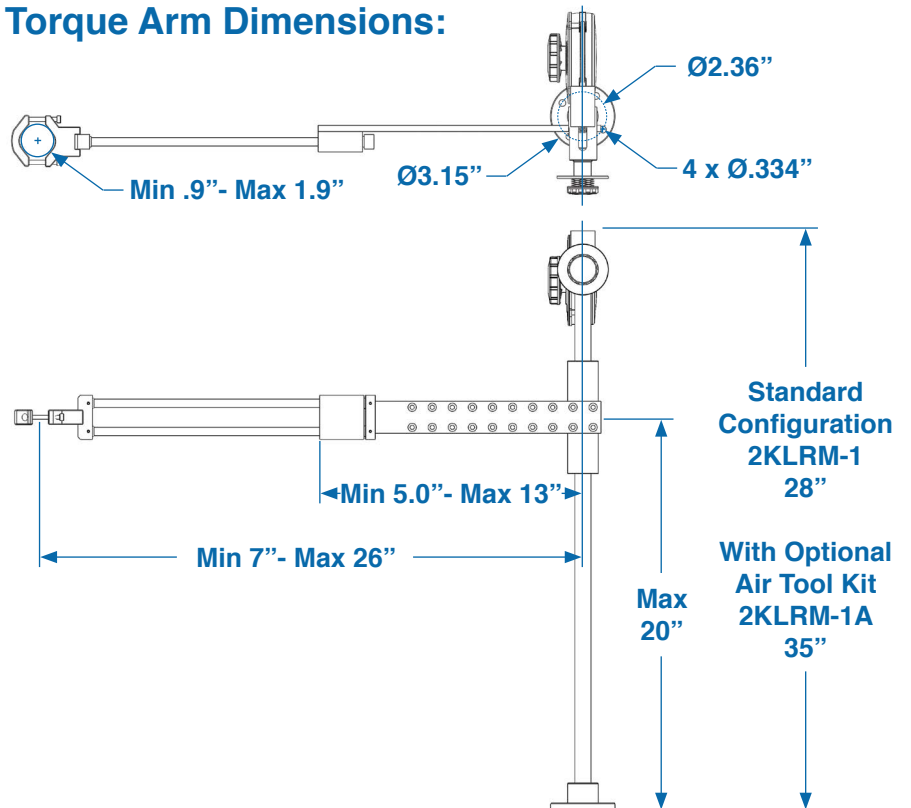
The KATO Linear Torque Arm offers an unprecedented smoothness of linear and rotational movements as it absorbs the torque reaction inherent with power installation tools. The KATO Linear Torque Arm delivers ultra smooth vertical, horizontal, and rotational motion, provides ergonomic support for the operator, and reduces operator fatigue. The fluid movement of the linear torque arm increases precision and production for a variety of applications.

## Features and Benefits

- Keeps the installation tool perpendicular to the work piece.
- Reduces RMI (Repetitive Motion Injury) and CTS (Carpal Tunnel Syndrome) while boosting production.
- Prevents cross threading and side load, prolonging the life of installation mandrels.
- Adjustable arm length.
- Adjustable counter balance provides exceptionally smooth vertical movement.
- Maneuvers smoothly as the arm absorbs torque reactions from electric and pneumatic tools. Torque capacity of 177 in-lbf (20 Nm).



## Torque Arm Dimensions:



# KATO Linear Torque Arm

## KATO Linear Torque Arm (2KLRM-1)



Strip-Feed Inserts, Electric Driver, and Transformer not included

### 2KLRM-1 Includes (standard configuration):

- KATO Linear Arm w/ vertical post and table stand.
- Adjustable counter balance.
- Spring loaded strip-feed reel bracket.
- Vertical tool holder designed to fit any KATO electric or pneumatic tool.

## Shown with Optional Air Tool Kit (2KLRM-1A)



### 2KLRM-1A Includes (optional air tool kit):

- Filter-Regulator-Lubricator mounting bracket (*designed to work with the KATO 2KFRL-1*).
- FRL mounting set screws & washers.
- Stainless steel air shutoff valve (1/4" NPT).
- Spiral Hose.
- 1/4" NPT Hose Fitting.
- 1/4" NPT Hose 90° (Elbow) Fitting.
- Teflon Tape.



Strip-Feed Inserts, Air Motor, and Filter-Regulator-Lubricator not included

# KATO Perma-Coil® Thread Repair Kits

**KATO Perma-Coil Kits** (Screw Thread Inserts for Maintenance, Repair and Overhaul) are universally accepted method of repairing stripped threads in all types of materials. By using KATO Perma-Coil Kits, damaged threads can be brought back to the original thread size, and better than new. Thread wear, corrosion and galling will be virtually eliminated, and the assembly will be stronger than the original with CoilThread inserts. Unlike threaded solid bushing type fasteners, CoilThread inserts provide space and weight savings. In addition, CoilThread inserts eliminate the need for oversized drilling and tapping, thread welding, or plugging of damaged holes.

At KATO, there is only one standard of quality for original equipment or repair. KATO CoilThread inserts meet or exceed all applicable military, aerospace, and commercial standards.

## Each KATO Perma-Coil Kit consists of:

- Aerospace quality free-running tapered inserts; in the most popular 1.5D nominal length.
- CoilThread STI Tap.
- All steel threaded installation tool.
- Complete and fool-proof instructions.



# KATO Perma-Coil® Thread Repair Kits - Part Numbers

| Thread Size    | KATO Perma-Coil Kits | Replacement Parts |                   |           |             |
|----------------|----------------------|-------------------|-------------------|-----------|-------------|
|                |                      | Pack of Inserts   | Installation Tool | Tap       |             |
| Unified Coarse |                      |                   |                   |           |             |
| 4-40           | 1208-014             | 208-014           | (12/PKG)          | 1172-014  | 1428-014    |
| 5-40           | 1208-015             | 208-015           | (12/PKG)          | 1172-015  | 1428-015    |
| 6-32           | 1208-016             | 208-016           | (12/PKG)          | 1182-016  | 1428-016    |
| 8-32           | 1208-018             | 208-018           | (12/PKG)          | 1182-018  | 1428-018    |
| 10-24          | 1208-101             | 208-101           | (12/PKG)          | 1182-101  | 1428-101    |
| 12-24          | 1208-102             | 208-102           | (12/PKG)          | 1182-102  | 1428-102    |
| 1/4-20         | 1208-104             | 208-104           | (12/PKG)          | 1182-104  | 1428-104    |
| 5/16-18        | 1208-105             | 208-105           | (12/PKG)          | 1182-105  | 1428-105    |
| 3/8-16         | 1208-106             | 208-106           | (12/PKG)          | 1182-106  | 1428-106    |
| 7/16-14        | 1208-107             | 208-107           | (6/PKG)           | 1182-107  | 1428-107    |
| 1/2-13         | 1208-108             | 208-108           | (6/PKG)           | 1182-108  | 1428-108    |
| 9/16-12        | 1208-109             | 208-109           | (6/PKG)           | 1182-109  | 1428-109    |
| 5/8-11         | 1208-110             | 208-110           | (6/PKG)           | 1182-110  | 1428-110    |
| 3/4-10         | 1208-112             | 208-112           | (4/PKG)           | 1182-112  | 1428-112    |
| 7/8-9          | 3208-C14             | 108-114           | (1/PKG)           | 1182-114  | 1043-14C93  |
| 1-8            | 3208-C16             | 108-116           | (1/PKG)           | 1182-116  | 1043-16C93  |
| 1 1/8-7        | 3208-C18             | 108-118           | (1/PKG)           | 1182-118  | 1043-18C93  |
| 1 1/4-7        | 3208-C20             | 108-120           | (1/PKG)           | 1182-120  | 1043-20C93  |
| 1 3/8-6        | 3208-C22             | 108-122           | (1/PKG)           | 1182-122  | 1043-22C93  |
| 1 1/2-6        | 3208-C24             | 108-124           | (1/PKG)           | 1182-124  | 1043-22C93  |
| Unified Fine   |                      |                   |                   |           |             |
| 10-32          | 1208-201             | 208-201           | (12/PKG)          | 1172-201  | 1428-201    |
| 1/4-28         | 1208-204             | 208-204           | (12/PKG)          | 1172-204  | 1428-204    |
| 5/16-24        | 1208-205             | 208-205           | (12/PKG)          | 1172-205  | 1428-205    |
| 3/8-24         | 1208-206             | 208-206           | (12/PKG)          | 1172-206  | 1428-206    |
| 7/16-20        | 1208-207             | 208-207           | (6/PKG)           | 1172-207  | 1428-207    |
| 1/2-20         | 1208-208             | 208-208           | (6/PKG)           | 1172-208  | 1428-208    |
| 9/16-18        | 1208-209             | 208-209           | (6/PKG)           | 1172-209  | 1428-209    |
| 5/8-18         | 1208-210             | 208-210           | (6/PKG)           | 1172-210  | 1428-210    |
| 3/4-16         | 1208-212             | 208-212           | (4/PKG)           | 1172-212  | 1428-212    |
| 7/8-14         | 3208-F14             | 108-214           | (1/PKG)           | 1039-14F  | 1043-14FP3  |
| 1-14           | 3208-F164            | 108-2164          | (1/PKG)           | 1039-164F | 1043-164FP3 |
| 1-12           | 3208-F16             | 108-216           | (1/PKG)           | 1039-16F  | 1043-16FP3  |
| 1 1/8-12       | 3208-F18             | 108-218           | (1/PKG)           | 1039-18F  | 1043-18FP3  |
| 1 1/4-12       | 3208-F20             | 108-220           | (1/PKG)           | 1039-20F  | 1043-20FP3  |
| 1 3/8-12       | 3208-F22             | 208-222           | (1/PKG)           | 1039-22F  | 1043-22FP3  |
| 1 1/2-12       | 3208-F24             | 108-224           | (1/PKG)           | 1039-24F  | 1043-24FP3  |

| Thread Size   | KATO Perma-Coil Kits | Replacement Parts |                   |            |              |
|---------------|----------------------|-------------------|-------------------|------------|--------------|
|               |                      | Pack of Inserts   | Installation Tool | Tap        |              |
| Metric Coarse |                      |                   |                   |            |              |
| M3X0.5        | 1221-303             | 206-303           | (12/PKG)          | 1287-303   | 1448-303     |
| M4X0.7        | 1221-304             | 206-304           | (12/PKG)          | 1287-304   | 1448-304     |
| M5X0.8        | 1221-305             | 206-305           | (12/PKG)          | 1287-305   | 1448-305     |
| M6X1          | 1221-306             | 206-306           | (12/PKG)          | 1287-306   | 1448-306     |
| M7X1          | 1221-307             | 206-307           | (12/PKG)          | 1289-307   | 1448-307     |
| M8X1.25       | 1221-308             | 206-308           | (12/PKG)          | 1289-308   | 1448-308     |
| M9X1.25       | 1221-309             | 206-309           | (12/PKG)          | 1289-309   | 1448-309     |
| M10X1.5       | 1221-310             | 206-310           | (12/PKG)          | 1289-310   | 1448-310     |
| M11X1.5       | 1221-311             | 206-311           | (6/PKG)           | 1289-311   | 1448-311     |
| M12X1.75      | 3221-M12C            | 106-312           | (6/PKG)           | 1289-312   | 5043-120CP4  |
| M14X2         | 3221-M14C            | 106-314           | (6/PKG)           | 1289-314   | 5043-140CP4  |
| M16X2         | 3221-M16C            | 106-316           | (6/PKG)           | 1289-316   | 5043-160CP4  |
| M18X2.5       | 3221-M18C            | 106-318           | (6/PKG)           | 1289-318   | 5043-180CP4  |
| M20X2.5       | 3221-M20C            | 106-320           | (6/PKG)           | 1289-320   | 5043-200CP4  |
| Metric Fine   |                      |                   |                   |            |              |
| M8X1.0        | 1221-M8F             | 106-608           | (6/PKG)           | 1287-608   | 1448-608     |
| M10X1.0       | 1221-M1010           | 106-61010         | (6/PKG)           | 1287-61010 | 1448-61010   |
| M10X1.25      | 3221-M10F            | 106-610           | (12/PKG)          | 1287-610   | 1448-610     |
| M11X1.0       | 1221-M11F            | 106-611           | (6/PKG)           | 1287-611   | 1448-611     |
| M11X1.25      | 1221-M1125           | 106-61125         | (6/PKG)           | 127-61125  | 1448-61125   |
| M12X1.25      | 3221-M12F            | 106-612           | (6/PKG)           | 1287-612   | 5043-120FP4  |
| M12X1.5       | 3221-M1215           | 106-61215         | (6/PKG)           | 1287-61215 | 5043-1215FP4 |
| M14X1.5       | 3221-M14F            | 106-614           | (6/PKG)           | 1287-614   | 5043-140FP4  |
| M16X1.5       | 3221-M16F            | 106-616           | (6/PKG)           | 1287-616   | 5043-160FP4  |

# KATO Perma-Coil® Master Thread Repair Kits



**KATO Perma-Coil Master Thread Repair Kits** are designed for professionals and mechanics. The Master Thread Repair Kits contain the most popular thread sizes used in automotive and light truck applications. By using Perma-Coil Thread Repair Kits, damaged threads can be brought back to the original thread size, and made better than new. Thread wear, corrosion and galling will be virtually eliminated, and the assembly will be even stronger than the original with Perma-Coil inserts.

## Each Perma-Coil Master Thread Repair Kit consists of:

- 30 (6 of each size) Aerospace quality free-running tanged inserts; in the most popular 1.5 Dia. nominal length.
- 5 CoilThread STI Tap.
- 5 All steel threaded installation mandrel.
- 5 Molded Prewinder Sleeve for Unified Fine (1208-FMK).
- 3 Molded Prewinder Sleeve for Metric (1221-MMK).
- Step by Step instructions including drill sizes.

## Master Thread Repair Kits

| 1208-CMK  |
|---|
|  |
| Unified Coarse  |
| 1/4-20  |
| 5/16-18   |
| 3/8-16  |
| 7/16-14   |
| 1/2-13  |

| 1208-FMK  |
|---|
|  |
| Unified Fine  |
| 1/4-28  |
| 5/16-24   |
| 3/8-24  |
| 7/16-20   |
| 1/2-20  |

| 1221-MMK  |
|---|
|  |
| Metric  |
| M5X0.8  |
| M6X1.0  |
| M8X1.25   |
| M10X1.25  |
| M10X1.5   |

# KATO LockOne®

**KATO's NEW LockOne** is a revolutionary positive locking product designed to prevent a standard nut from loosening free under vibration. Upon tightening, the LockOne coils stretch, providing a superior locking force. Unlike nuts with nylon or locking compounds, the KATO LockOne does not degrade with each use. Due to the unique LockOne design, the assembly is FOD free. Save on assembly cost! No expensive replacement nuts! The LockOne lightweight design is perfect for use on weight sensitive applications.



## Effective

LockOne fasteners underwent 30,000 cycle accelerated vibration testing in accordance with NAS3350 (National Aerospace Specification for impact type vibration test). In fact, even after 180,000 cycles the LockOne assembly remained intact!

LockOne can be easily substituted into existing designs. LockOne is reusable<sup>1</sup>, does not degrade with each cycle. Made from 304 Stainless Steel WPB, LockOne is naturally corrosion resistant. KATO LockOne replaces items such as double nuts (jam nuts), cotter pins, safety-wire, nylon nuts, Loctite®, and more!

*1. Contact KATO for reuse guideline.*

## Design and Assembly

Designing in LockOne couldn't be easier! Simply account for an extra three threads to the bolt length. That's it! Its compact nature allows for ease of use in designs with weight restrictions and maintenance schedules.

KATO's LockOne is fast and easy to install. No locking compounds to apply. A standard dodecagonal (12-Point) socket wrench installs the LockOne at the same time as the nut, minimizing installation time. LockOne may also be installed on existing applications, simply thread LockOne on the preinstalled nut. LockOne is adjustable and removable after installation with the same 12-point socket.

**LockOne prevents the nut from loosening free from the bolt!**

## Installation is Easy!

### Step 1

Simply load the LockOne into the 12-Point socket.



### Step 3

Tighten to application requirements.



### Step 2

Load the standard nut on top of the LockOne.

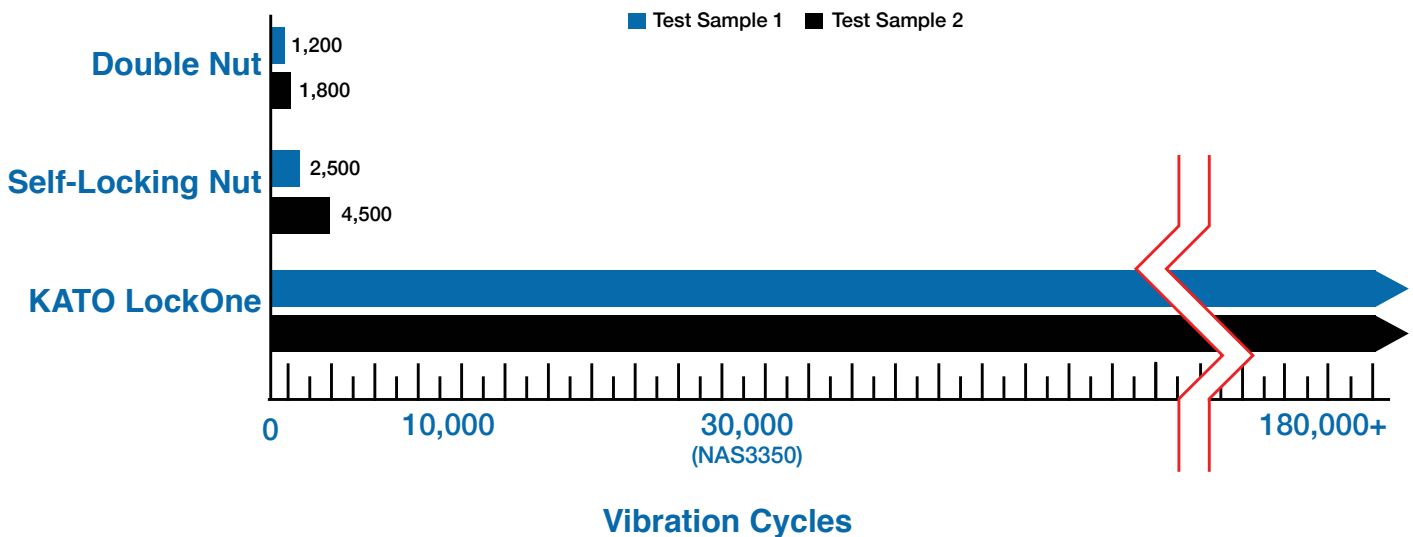


### Step 4

If there is a gap between the LockOne and the nut, simply tighten the LockOne until it is flush with the nut.



## LockOne Performance



**LockOne surpasses the testing requirements of NAS3350 (National Aerospace Specification for impact type vibration test).**

## Part Numbers

**Product Code:**

- **KLO** - KATO LockOne

**Thread Designation:**

- **C** - Coarse
- **M** - Metric

**KLO C - 8**

**Product:**

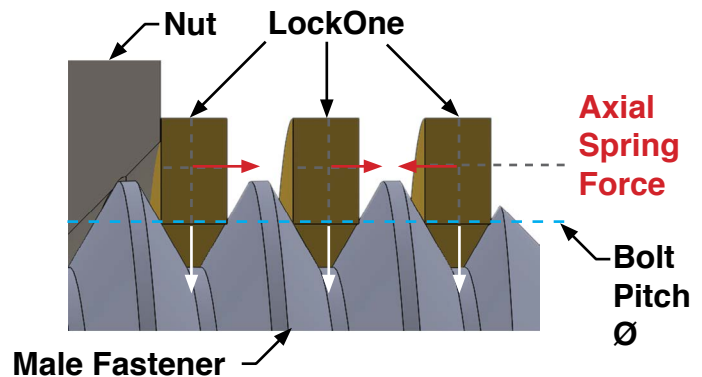
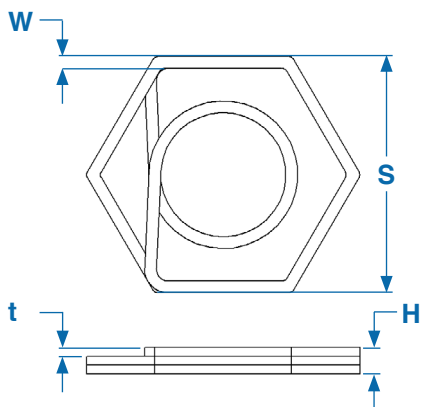
- **P** - LockOne Pack

**Size Designation:**

- **Chart Below**

| Thread Size          | KATO LockOne | Technical Data |      |      |      | Weight  | LockOne Pack     |                   | 12PT-Socket (Ref.) |
|----------------------|--------------|----------------|------|------|------|---------|------------------|-------------------|--------------------|
|                      |              | S              | H    | W    | t    |         | Pack Part Number | Quantity Per Pack |                    |
| <b>Unified Sizes</b> |              |                |      |      |      |         |                  |                   |                    |
| 1/4-20               | KLOC-4       | 0.43           | 0.11 | 0.03 | 0.03 | 0.80 g  | KLOC-4P          | (10/PKG)          | 7/16               |
| 5/16-18              | KLOC-5       | 0.50           | 0.11 | 0.03 | 0.03 | 0.80 g  | KLOC-5P          | (10/PKG)          | 1/2                |
| 3/8-16               | KLOC-6       | 0.55           | 0.13 | 0.04 | 0.03 | 1.30 g  | KLOC-6P          | (10/PKG)          | 9/16               |
| 7/16-14              | KLOC-7       | 0.65           | 0.14 | 0.05 | 0.03 | 2.31 g  | KLOC-7P          | (10/PKG)          | 11/16              |
| 1/2-13               | KLOC-8       | 0.75           | 0.16 | 0.05 | 0.04 | 3.00 g  | KLOC-8P          | (10/PKG)          | 3/4                |
| 5/8-11               | KLOC-10      | 0.93           | 0.18 | 0.06 | 0.04 | 4.80 g  | KLOC-10P         | (6/PKG)           | 15/16              |
| 3/4-10               | KLOC-12      | 1.12           | 0.22 | 0.07 | 0.05 | 9.40 g  | KLOC-12P         | (2/PKG)           | 1-1/8              |
| 7/8-9                | KLOC-14      | 1.30           | 0.22 | 0.07 | 0.05 | 10.10 g | KLOC-14P         | (2/PKG)           | 1-5/16             |
| 1-8                  | KLOC-16      | 1.49           | 0.28 | 0.08 | 0.06 | 16.25 g | KLOC-16P         | (2/PKG)           | 1-1/2              |
| <b>Metric Sizes</b>  |              |                |      |      |      |         |                  |                   |                    |
| M4X.7                | KLOM-4       | 7              | 1.4  | .50  | .35  | 0.24 g  | KLOM-4P          | (10/PKG)          | 7mm                |
| M5X.8                | KLOM-5       | 8              | 1.6  | .60  | .40  | 0.24 g  | KLOM-5P          | (10/PKG)          | 8mm                |
| M6X1                 | KLOM-6       | 10             | 2.0  | .70  | .50  | 0.45 g  | KLOM-6P          | (10/PKG)          | 10mm               |
| M8X1.25              | KLOM-8       | 13             | 2.5  | .88  | .63  | 0.95 g  | KLOM-8P          | (10/PKG)          | 13mm               |
| M10X1.5              | KLOM-10      | 17             | 3.0  | 1.05 | .75  | 1.79 g  | KLOM-10P         | (10/PKG)          | 17mm               |
| M12X1.75             | KLOM-12      | 19             | 3.5  | 1.23 | .88  | 2.83 g  | KLOM-12P         | (10/PKG)          | 19mm               |
| M16X2                | KLOM-16      | 24             | 4.0  | 1.40 | 1.00 | 4.78 g  | KLOM-16P         | (6/PKG)           | 24mm               |
| M20X2.5              | KLOM-20      | 30             | 5.0  | 1.75 | 1.25 | 9.39 g  | KLOM-20P         | (2/PKG)           | 30mm               |
| M22X2.5              | KLOM-22      | 32             | 5.0  | 1.75 | 1.25 | 10.12 g | KLOM-22P         | (2/PKG)           | 32mm               |
| M24X3                | KLOM-24      | 36             | 6.0  | 2.10 | 1.50 | 16.21 g | KLOM-24P         | (2/PKG)           | 36mm               |

## Specifications



## Superior Force

Once positioned against the nut, LockOne engages the bolt along pitch diameter inducing spring forces axially and radially. These forces hold LockOne in place, preventing bolts and nuts from loosening free under vibration.

**KATO Hexatorq Hinges (KH)** are innovative, high quality, metal and plastic resin hinge assemblies that offer an unprecedented smoothness of motion. Hexatorq hinges have now set the industry standard for reliable, constant torque and cost effective motion control.

## Hexatorq: The Smooth Operator of Constant Torque Hinges

Conventional spring type hinges can lose their stiffness and seize up to damage mating parts if used in high temperature environments, or where excessive cycling increases the temperature inside the hinge. The Hexatorq design, utilizing a modern engineered plastic resin, requires no lubrication. In fact, in an elevated temperature application, Hexatorq hinges experience a predictable drop-off in torque, and will then return to preset torque values after a minimal cool down period. This means no damage to your expensive part!

Hexatorq hinges are offered in standardized sizes to meet virtually all common application requirements. We've done the testing for you! Our standardized range of Hexatorq sizes and configurations was determined through extensive design and durability testing. By utilizing a Hexatorq series hinge you can significantly reduce your typical design to manufacture time cycle. Add those savings right to your bottom line! Custom shaft configurations are available. Please contact the KATO Tech-Group for additional information.



Hexatorq Hinges **with bracket**

Hexatorq Hinges **without bracket**

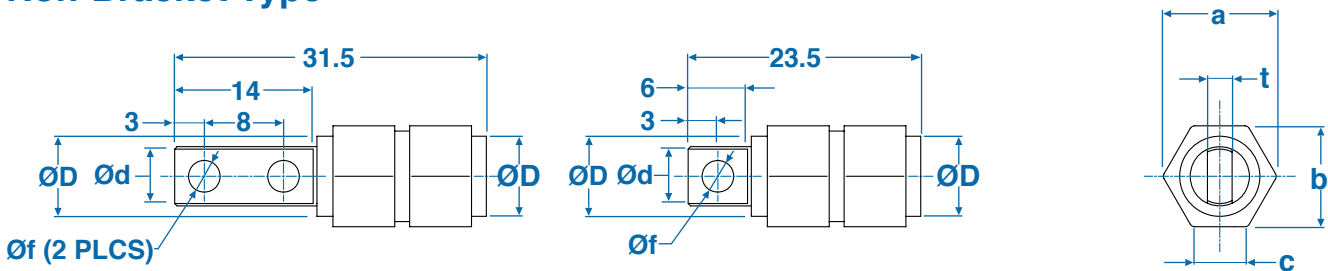


## Features and Benefits:

- Consistent torque over life...designed for 30,000 cycles or more without failure.
- Smooth operation throughout 360° range of motion.
- Holds position throughout full range of motion, no spring-back.
- Corrosion resistant stainless steel and engineered resin design.
- Light-weight and compact.
- Hex configuration provides for easy mold-in mounting without brackets.
- Custom shaft configurations available.
- No lubrication required! Eliminates the possibility of contamination or corrosion to sensitive parts.
- FOD free design, no metal to metal friction means no foreign object damage from metal particles.

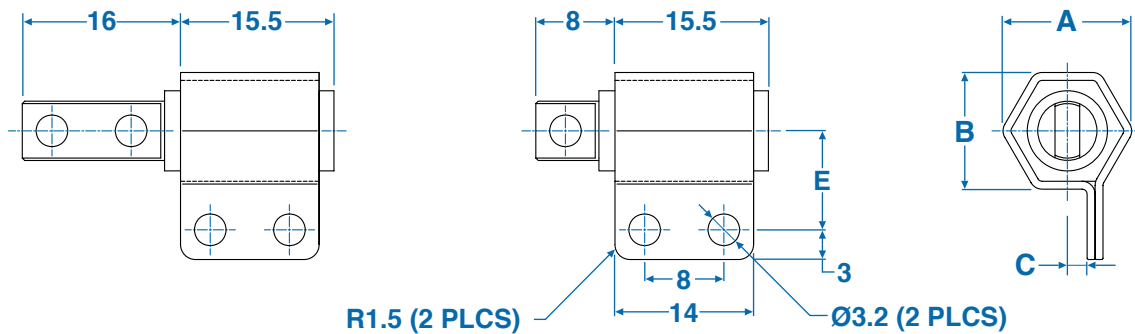
# Hexatorq Hinges - Dimensions

## Non-Bracket Type

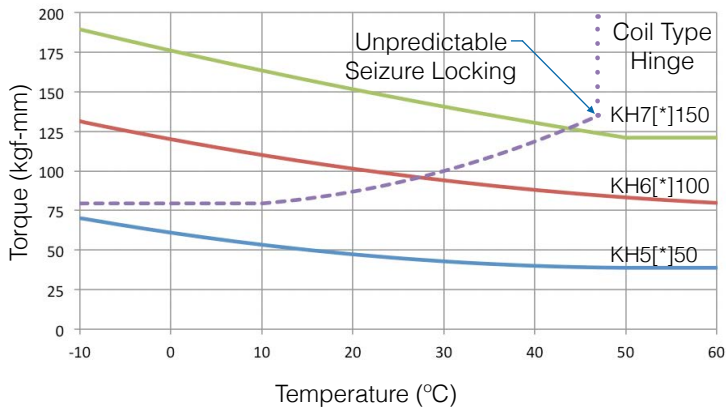


## Bracket Type

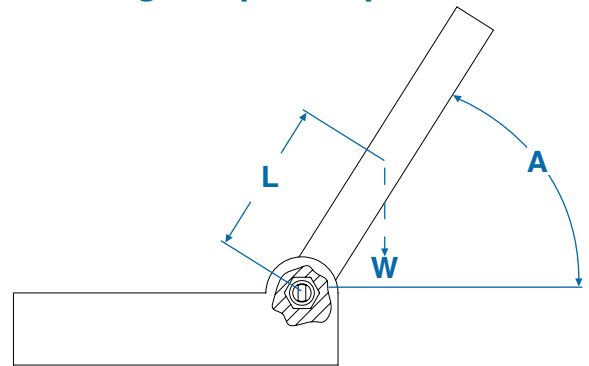
Left hand mounting shown.



## Torque vs. Temperature



## Calculating Torque Requirements



Formula for calculating torque rating of Hexatorq Hinge:

$$T = W \times L \times \text{Cos}(A)$$

**Where:**  
 A = Angle  
 L = Distance to Center of Gravity  
 T = Torque  
 W = Weight of Object to be Supported

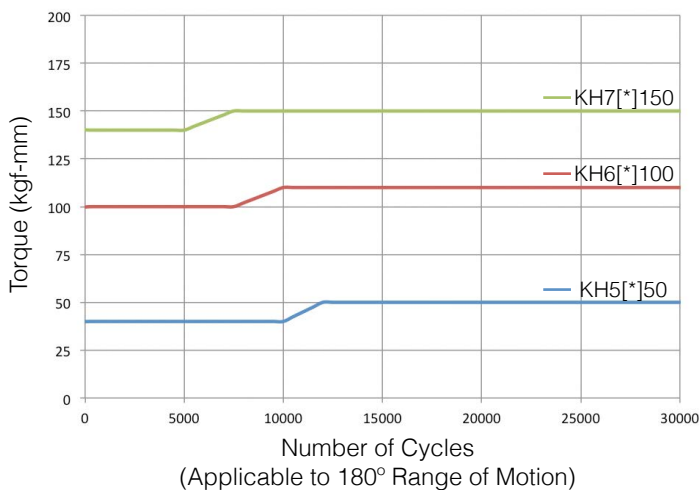
**Example:** W = 2lbs. L = 4in. Angle = 0°

$$T = (2\text{lbs.})(4\text{in.})\text{Cos}(0^\circ)$$

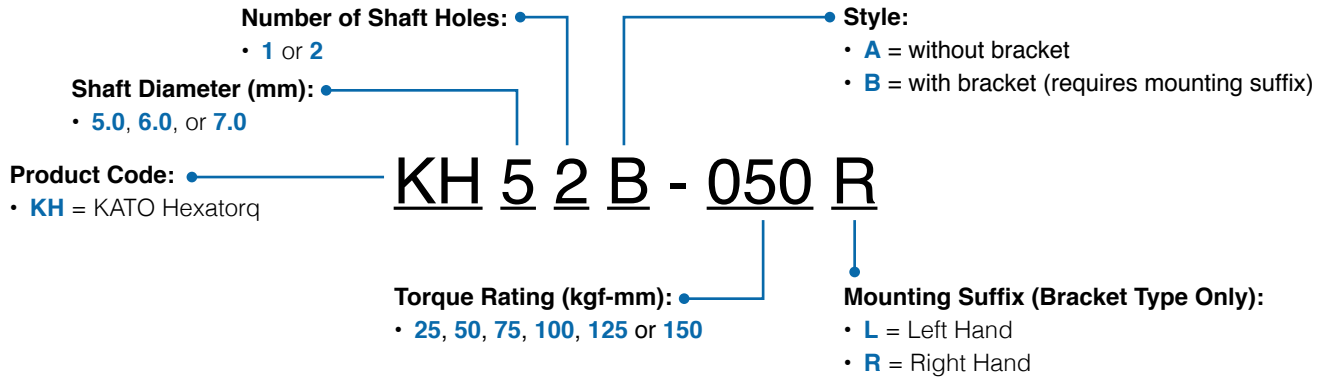
$$T = 8\text{lb-in.}$$

Notes:

1. If 2 Hinges are used:  $8\text{lb-in}/2 = 4\text{lb-in}$  per Hinge.
2. To convert from lbf-in to kgf-mm, divide by 11.5212.



# Hexatorq Hinges - Part Numbers



| Part Numbers | Torque |        | Bracketed Hinges |      |     |      | Non-Bracketed Hinges |      |     | Diameter D | Diameter d | Diameter f | t   |
|--------------|--------|--------|------------------|------|-----|------|----------------------|------|-----|------------|------------|------------|-----|
|              | kgf-mm | lbf-in | A                | B    | C   | E    | a                    | b    | c   |            |            |            |     |
| KH51A025     | 25     | 2.2    | 11.2             | 9.8  | 1.5 | 9.0  | 9.3                  | 8.2  | 4.8 | 7.0        | 5.0        | 2.7        | 2.0 |
| KH51B025R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH51B025L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH52A025     | 25     | 2.2    | 11.2             | 9.8  | 1.5 | 9.0  | 9.3                  | 8.2  | 4.8 | 7.0        | 5.0        | 2.7        | 2.0 |
| KH52B025R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH52B025L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH51A050     | 50     | 4.3    | 11.2             | 9.8  | 1.5 | 9.0  | 9.3                  | 8.2  | 4.8 | 7.0        | 5.0        | 2.7        | 2.0 |
| KH51B050R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH51B050L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH52A050     | 50     | 4.3    | 11.2             | 9.8  | 1.5 | 9.0  | 9.3                  | 8.2  | 4.8 | 7.0        | 5.0        | 2.7        | 2.0 |
| KH52B050R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH52B050L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH61A075     | 75     | 6.5    | 13.4             | 11.8 | 2.0 | 10.0 | 11.6                 | 10.2 | 5.8 | 8.1        | 6.0        | 3.2        | 2.5 |
| KH61B075R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH61B075L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH62A075     | 75     | 6.5    | 13.4             | 11.8 | 2.0 | 10.0 | 11.6                 | 10.2 | 5.8 | 8.1        | 6.0        | 3.2        | 2.5 |
| KH62B075R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH62B075L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH61A100     | 100    | 8.7    | 13.4             | 11.8 | 2.0 | 10.0 | 11.6                 | 10.2 | 5.8 | 8.1        | 6.0        | 3.2        | 2.5 |
| KH61B100R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH61B100L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH62A100     | 100    | 8.7    | 13.4             | 11.8 | 2.0 | 10.0 | 11.6                 | 10.2 | 5.8 | 8.1        | 6.0        | 3.2        | 2.5 |
| KH62B100R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH62B100L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH71A125     | 125    | 10.9   | 16.1             | 14.2 | 2.5 | 11.0 | 14.0                 | 12.2 | 7.0 | 10.2       | 7.0        | 3.2        | 3.0 |
| KH71B125R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72B125L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72A125     | 125    | 10.9   | 16.1             | 14.2 | 2.5 | 11.0 | 14.0                 | 12.2 | 7.0 | 10.2       | 7.0        | 3.2        | 3.0 |
| KH72B125R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72B125L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH71A150     | 150    | 13.0   | 16.1             | 14.2 | 2.5 | 11.0 | 14.0                 | 12.2 | 7.0 | 10.2       | 7.0        | 3.2        | 3.0 |
| KH71B150R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72B150L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72A150     | 150    | 13.0   | 16.1             | 14.2 | 2.5 | 11.0 | 14.0                 | 12.2 | 7.0 | 10.2       | 7.0        | 3.2        | 3.0 |
| KH72B150R    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |
| KH72B150L    |        |        |                  |      |     |      |                      |      |     |            |            |            |     |

1. All dimensions are in millimeters.

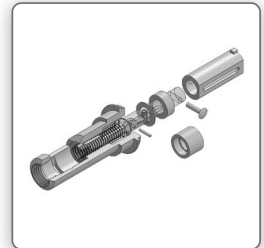
2. To convert from kgf-mm to lbf-in, multiply by 0.0868.

**KATOpedia** is the most comprehensive online encyclopedia on helical coil screw thread inserts. The KATO website has always contained more information on helical coil screw thread inserts than any other website in existence!

KATOpedia not only replaces the Tech-Data section from our previous website but improves on it by providing even more information like technical data sheets, drawings, instructions, compliance statements, and so much more! Try out KATOpedia and let us know what you think.

## Tool Instructions

Now you can view, read, and/or print any of our tooling instructions from our website. Stay up to date on all the latest information and procedures for installing Tangless or tanged inserts, setting and using installation tools, and learning important tips for tool maintenance and care!



Tool Instructions

## Video Workshop

One of the most frequently visited pages on the KATO website is the Video Workshop. The KATO instructional videos have already helped thousands of customers learn how to setup and use their KATO tools, but we've made them even better. The Video Workshop contains instructional videos on the latest KATO tools. All of the videos were shot in 1080p for exceptional clarity. The videos are short, easy to follow, and excellent for training purposes!

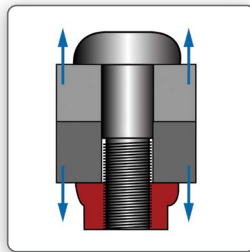


Video Workshop

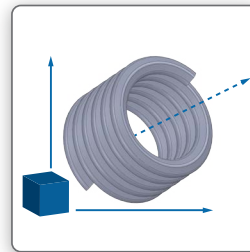
## And Much More!



Product Wizard



Tensile Strength Wizard



3D-Models



Compliance Statement



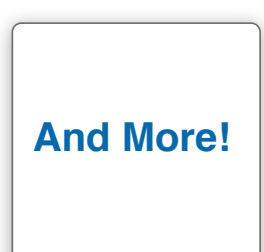
Certifications



Insert Selection



Technical Articles



**And More!**



**KATO Fastening Systems**, the original inventor and manufacturer of the bi-directional Tangless CoilThread insert, is introducing the next version of the most powerful product search App for helical coil screw thread inserts and tools. The **KATO App** contains the most comprehensive product database for helical coil screw thread inserts.

With four search options (KATO Part Number, Style & Size, MS/MA Number, and NAS/NA Number), the KATO App makes it extremely easy to locate product & technical information, and tooling options for any Tangless or tanged screw thread insert!



## Tooling Information:

KATO has taken the guess work out of finding the right tool for the job. The KATO App provides part numbers and ordering instructions for STI taps, STI gages, air tools, electric tools, hand tools, and removal tools.

## Hole Preparation:

The KATO App provides step-by-step instructions to accurately prepare an STI hole for proper insert installation.

## Search by:

- KATO Part Number
- MS124 Series
- MA3279 - MA3281
- MS21209
- MA3329 - MA3331
- NA0276
- MS122 Series
- NAS1130

## Style & Size:

No part number? No problem. Search using the Style & Size option, and the KATO app will provide the part number.



KATO FASTENING SYSTEMS, INC.  
11864 FISHING POINT DRIVE  
NEWPORT NEWS, VA 23606  
PHONE: 757-873-8980  
FAX: 757-873-4920  
WWW.KATOFASTENING.COM

KATO AUTHORIZED DISTRIBUTOR



**ADVANEX**

CoilThread Inserts, an Advanex product

**BE BOLD. GO TANGLESS!**

