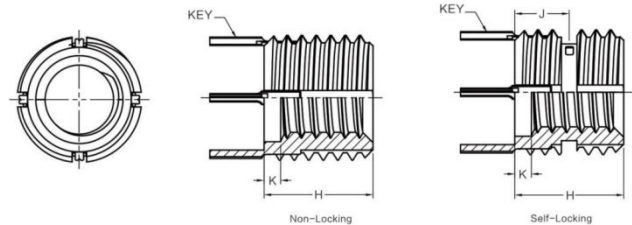
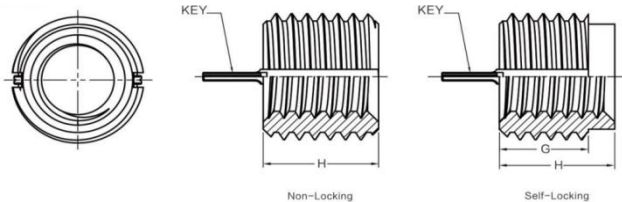
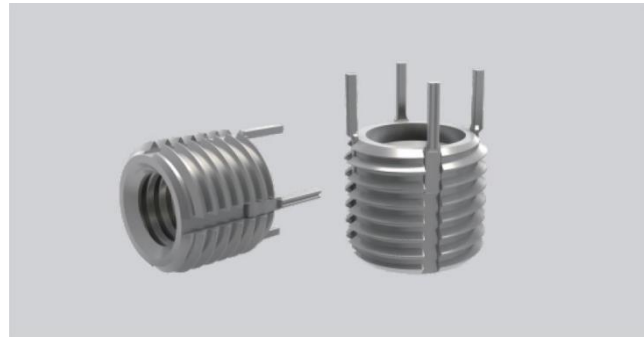


## Key Locking Insert (Keensert or Keysert )



Key locking inserts are used in alloys, light materials, steel and cast iron to increase the strength of the thread in these materials. They can be used for thread repair, if the defected thread has to be replaced with the same nominal diameter.

Key locking inserts are standard available in stainless steel and have 2 or 4 pre-assembled kees according to the dimensions. After installation of the kees into the parent material the assembly is form-closed. Due to these kees, key locking inserts have a positive lock against rotation and vibration. Key locking inserts give high strength joints in low strength materials.

Key locking thread inserts are divided in 3 major types: - **Miniature** - **Lightweight** - **Heavy duty**. There are always 2 versions available of a key locking insert: the **standard version** and the **self-locking version**.

Production standards and thread precision for Key locking inserts:

- 1). Industrial standard thread precision: Metric: 6H/6g, UN: 2B/2A;
- 2). Military standard thread precision: Metric: 5H/5g, UN: 3B/3A;
- 3). Aerospace standard thread precision: Metric: 4H/4g, UN: 3B/3A.

**Material:** In Carbon Steel - C1215 or equivalent

In Stainless Steel - 303 /304/316 or equivalent

In A286 Steel

Keys - 302 CRES or equivalent

**Finish:** Carbon Steel - Zinc Phosphate

Stainless Steel - Passivated

**Tolerances:**  $\pm 0.10$  inch or  $\pm 25$  mm unless specified otherwise.

**Dimensions:** Are in inches except metric inserts are in millimeters

Metric/Inch inserts have a metric internal thread while all other dimensions are in inches.

**Keys:** Inserts with an internal thread size of 5/16 or M7 and larger have 4 locking keys, smaller sizes have 2 locking keys.

**Technical Data:**

| Miniature/Thin wall — Metric Series |               |                                |                                |               |                      |                                    |                  |              |         |       |
|-------------------------------------|---------------|--------------------------------|--------------------------------|---------------|----------------------|------------------------------------|------------------|--------------|---------|-------|
| Key Locking Insert                  |               |                                |                                |               | Installation         |                                    |                  |              | Removal |       |
| Part No.                            |               | Internal<br>Thread<br>Class 6H | External<br>Thread<br>Class 6g | Length<br>mm. | Tap<br>Drill<br>Size | C' Sink<br>Diameter<br>+ .25/- .00 | Thread Tap       |              | Drill   |       |
| Standard                            | Self-locking  |                                |                                |               |                      |                                    | Size Class<br>6H | Min<br>Depth | Size    | Depth |
| KNCM2x0.4                           | KNCML2x0.4    | M2-0.4                         | M4-0.7                         | 3.0           | 3.4                  | 4.1                                | M4-0.7           | 4.0          | 2.8     | 2.0   |
| KNCM2.5x0.45                        | KNCML2.5x0.45 | M2.5-0.45                      | M4.5-0.75                      | 3.8           | 3.9                  | 4.6                                | M4.5-0.75        | 5.0          | 3.0     | 2.0   |
| KNCM3x0.5                           | KNCML3x0.5    | M3-0.5                         | M5-0.8                         | 4.25          | 4.4                  | 5.1                                | M5-0.8           | 5.5          | 3.5     | 2.25  |
| KNCM4x0.7                           | KNCML4x0.7    | M4-0.7                         | M6-0.75                        | 5.25          | 5.5                  | 6.1                                | M6-0.75          | 6.5          | 4.6     | 2.5   |
| KNM5x0.8                            | KNML5x0.8     | M5-0.8                         | M8-1.25                        | 8.0           | 6.9                  | 8.25                               | M8-1.25          | 9.5          | 5.50    | 4.0   |
| KNM6x1.0                            | KNML6x1.0     | M6-1.0                         | M10-1.25                       | 10.0          | 8.8                  | 10.25                              | M10-1.25         | 11.5         | 7.50    | 4.75  |
| KNM8x1.25                           | KNML8x1.25    | M8-1.25                        | M12-1.25                       | 12.0          | 10.8                 | 12.25                              | M12-1.25         | 13.5         | 9.50    | 4.75  |
| KNM8x1.0                            | KNML8x1.0     | M8-1.0                         |                                |               |                      |                                    |                  |              |         |       |
| KNM10x1.5                           | KNML10x1.5    | M10-1.5                        | M14-1.5                        | 14.0          | 12.8                 | 14.25                              | M14-1.5          | 15.5         | 11.50   | 4.75  |
| KNM10x1.25                          | KNML10x1.25   | M10-1.25                       |                                |               |                      |                                    |                  |              |         |       |
| KNM12x1.75                          | KNML12x1.75   | M12-1.75                       | M16-1.5                        | 16.0          | 14.75                | 16.25                              | M16-1.5          | 17.5         | 13.50   | 4.75  |
| KNM12x1.25                          | KNML12x1.25   | M12-1.25                       |                                |               |                      |                                    |                  |              |         |       |
| Heavy Duty — Metric Series          |               |                                |                                |               |                      |                                    |                  |              |         |       |
| Key Locking Insert                  |               |                                |                                |               | Installation         |                                    |                  |              | Removal |       |
| Part No.                            |               | Internal<br>Thread<br>Class 6H | External<br>Thread<br>Class 6g | Length<br>mm. | Tap<br>Drill<br>Size | C' Sink<br>Diameter<br>+ .25/- .00 | Thread Tap       |              | Drill   |       |
| Standard                            | Self-locking  |                                |                                |               |                      |                                    | Size Class<br>6H | Min<br>Depth | Size    | Depth |
| KNHM4x0.7                           | KNHML4x0.7    | M4-0.7                         | M8-1.25                        | 8.0           | 6.90                 | 8.25                               | M8-1.25          | 9.5          | 5.50    | 4.00  |
| KNHM5x0.8                           | KNHML5x0.8    | M5-0.8                         | M10-1.25                       | 10.0          | 8.80                 | 10.25                              | M10-1.25         | 12.5         | 7.50    | 4.75  |
| KNHM6x1.0                           | KNHML6x1.0    | M6-1.0                         | M12-1.25                       | 12.0          | 10.80                | 12.25                              | M12-1.25         | 14.5         | 9.50    | 4.75  |
| KNHM8x1.25                          | KNHML8x1.25   | M8-1.25                        | M14-1.5                        | 14.0          | 12.80                | 14.25                              | M14-1.5          | 16.5         | 11.50   | 4.75  |
| KNHM8x1.0                           | KNHML8x1.0    | M8-1.0                         |                                |               |                      |                                    |                  |              |         |       |
| KNHM10x1.5                          | KNHML10x1.5   | M10-1.5                        | M16-1.5                        | 16.0          | 14.75                | 16.25                              | M16-1.5          | 18.5         | 13.50   | 4.75  |
| KNHM10x1.25                         | KNHML10x1.25  | M10-1.25                       |                                |               |                      |                                    |                  |              |         |       |
| KNHM12x1.75                         | KNHML12x1.75  | M12-1.75                       | M18-1.5                        | 18.0          | 16.75                | 18.25                              | M18-1.5          | 20.5         | 15.50   | 4.75  |
| KNHM12x1.25                         | KNHML12x1.25  | M12-1.25                       |                                |               |                      |                                    |                  |              |         |       |
| KNHM14x2.0                          | KNHML14x2.0   | M14-2.0                        | M20-1.5                        | 20.0          | 18.75                | 20.25                              | M20-1.5          | 22.5         | 17.50   | 4.75  |
| KNHM14x1.5                          | KNHML14x1.5   | M14-1.5                        |                                |               |                      |                                    |                  |              |         |       |
| KNHM16x2.0                          | KNHML16x2.0   | M16-2.0                        | M22-1.5                        | 22.0          | 20.50                | 22.25                              | M22-1.5          | 24.5         | 17.75   | 6.35  |
| KNHM16x1.5                          | KNHML16x1.5   | M16-1.5                        |                                |               |                      |                                    |                  |              |         |       |
| KNHM18x1.5                          | KNHML18x1.5   | M18-1.5                        | M24-15                         | 24.0          | 22.50                | 24.25                              | M24-1.5          | 26.5         | 19.75   | 6.35  |
| KNHM20x2.5                          | KNHML20x2.5   | M20-2.5                        | M30-2                          | 30.0          | 28.00                | 30.25                              | M30-2            | 34.5         | 25.75   | 6.35  |
| KNHM20x1.5                          | KNHML20x1.5   | M20-1.5                        |                                |               |                      |                                    |                  |              |         |       |
| KNHM22x1.5                          | KNHML22x1.5   | M22-1.5                        | M32-2                          | 32.0          | 30.00                | 32.25                              | M32-2            | 36.5         | 27.75   | 6.35  |
| KNHM24x3.0                          | KNHML24x3.0   | M24-3.0                        | M33-2                          | 33.0          | 31.00                | 33.25                              | M33-2            | 37.5         | 28.75   | 6.35  |
| KNHM24x2.0                          | KNHML24x2.0   | M24-2.0                        |                                |               |                      |                                    |                  |              |         |       |
| Thin wall — Inch Series             |               |                                |                                |               |                      |                                    |                  |              |         |       |
| Key Locking Insert                  |               |                                |                                | Installation  |                      |                                    |                  |              | Removal |       |

| Part No.                 |              | Internal<br>Thread<br>Class3B | External<br>Thread<br>Class 2A | Length<br>inch. | Tap Drill<br>Size | C' Sink<br>Diameter<br>+.010/- .000 | Thread Tap       |           | Drill   |       |
|--------------------------|--------------|-------------------------------|--------------------------------|-----------------|-------------------|-------------------------------------|------------------|-----------|---------|-------|
| Standard                 | Self-locking |                               |                                |                 |                   |                                     | Size Class<br>2B | Min Depth | Size    | Depth |
| KN1024J                  | KNL1024J     | 10-24                         | 5/16-18                        | 0.31            | I                 | 0.32                                | 5/16-18          | 0.37      | 7/32    | 1/8   |
| KN1032J                  | KNL1032J     | 10-32                         |                                |                 |                   |                                     |                  |           |         |       |
| KN420J                   | KNL420J      | 1/4-20                        | 3/8-16                         | 0.37            | Q                 | 0.38                                | 3/8-16           | 0.43      | 9/32    | 3/16  |
| KN428J                   | KNL428J      | 1/4-28                        |                                |                 |                   |                                     |                  |           |         |       |
| KN518J                   | KNL518J      | 5/16-18                       | 7/16-14                        | 0.43            | X                 | 0.44                                | 7/16-14          | 0.50      | 11/32   | 3/16  |
| KN524J                   | KNL524J      | 5/16-24                       |                                |                 |                   |                                     |                  |           |         |       |
| KN616J                   | KNL616J      | 3/8-16                        | 1/2-13                         | 0.50            | 29/64             | 0.51                                | 1/2-13           | 0.56      | 13/32   | 3/16  |
| KN624J                   | KNL624J      | 3/8-24                        |                                |                 |                   |                                     |                  |           |         |       |
| KN714J                   | KNL714J      | 7/16-14                       | 9/16-12                        | 0.56            | 33/64             | 0.57                                | 9/16-12          | 0.62      | 15/32   | 3/16  |
| KN720J                   | KNL720J      | 7/16-20                       |                                |                 |                   |                                     |                  |           |         |       |
| KN813J                   | KNL813J      | 1/2-13                        | 5/8-11                         | 0.62            | 37/64             | 0.63                                | 5/8-11           | 0.68      | 17/32   | 3/16  |
| KN820J                   | KNL820J      | 1/2-20                        |                                |                 |                   |                                     |                  |           |         |       |
| Heavy Duty — Inch Series |              |                               |                                |                 |                   |                                     |                  |           |         |       |
| Key Locking Insert       |              |                               |                                |                 | Installation      |                                     |                  |           | Removal |       |
| Part No.                 |              | Internal<br>Thread<br>Class3B | External<br>Thread<br>Class 2A | Length<br>inch. | Tap Drill<br>Size | C' Sink<br>Diameter<br>+.010/- .000 | Thread Tap       |           | Drill   |       |
| Standard                 | Self-locking |                               |                                |                 |                   |                                     | Size Class<br>2B | Min Depth | Size    | Depth |
| KNH0832J                 | KNHL0832J    | 8-32                          | 5/16-18                        | 0.31            | I                 | 0.32                                | 5/16-18          | 0.37      | 7/32    | 1/8   |
| KNH1024J                 | KNHL1024J    | 10-24                         | 3/8-16                         | 0.31            | Q                 | 0.38                                | 3/8-16           | 0.37      | 9/32    | 1/8   |
| KNH1032J                 | KNHL1032J    | 10-32                         |                                |                 |                   |                                     |                  |           |         |       |
| KNH420J                  | KNHL420J     | 1/4-20                        | 7/16-14                        | 0.37            | X                 | 0.44                                | 7/16-14          | 0.43      | 11/32   | 3/16  |
| KNH428J                  | KNHL428J     | 1/4-28                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH518J                  | KNHL518J     | 5/16-18                       | 1/2-13                         | 0.43            | 29/64             | 0.51                                | 1/2-13           | 0.50      | 13/32   | 3/16  |
| KNH524J                  | KNHL524J     | 5/16-24                       |                                |                 |                   |                                     |                  |           |         |       |
| KNH616J                  | KNHL616J     | 3/8-16                        | 9/16-12                        | 0.50            | 33/64             | 0.57                                | 9/16-12          | 0.56      | 15/32   | 3/16  |
| KNH624J                  | KNHL624J     | 3/8-24                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH714J                  | KNHL714J     | 7/16-14                       | 5/8-11                         | 0.62            | 37/64             | 0.63                                | 5/8-11           | 0.68      | 17/32   | 3/16  |
| KNH720J                  | KNHL720J     | 7/16-20                       |                                |                 |                   |                                     |                  |           |         |       |
| KNH813J                  | KNHL813J     | 1/2-13                        | 3/4-16                         | 0.62            | 45/64             | 0.76                                | 3/4-16           | 0.68      | 21/32   | 3/16  |
| KNH820J                  | KNHL820J     | 1/2-20                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH912J                  | KNHL912J     | 9/16-12                       | 3/4-16                         | 0.81            | 45/64             | 0.76                                | 3/4-16           | 0.94      | 21/32   | 3/16  |
| KNH918J                  | KNHL918J     | 9/16-18                       |                                |                 |                   |                                     |                  |           |         |       |
| KNH1011J                 | KNHL1011J    | 5/8-11                        | 7/8-14                         | 0.87            | 53/64             | 0.88                                | 7/8-14           | 1.00      | 25/32   | 5/16  |
| KNH1018J                 | KNHL1018J    | 5/8-18                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH1210J                 | KNHL1210J    | 3/4-10                        | 11/8-12                        | 1.12            | 1 1/16            | 1.14                                | 1 1/8-12         | 1.31      | 31/32   | 5/16  |
| KNH1216J                 | KNHL1216J    | 3/4-16                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH1409J                 | KNHL1409J    | 7/8-9                         | 11/4-12                        | 1.25            | 1 3/16            | 1.27                                | 1 1/4-12         | 1.44      | 13/32   | 5/16  |
| KNH1414J                 | KNHL1414J    | 7/8-14                        |                                |                 |                   |                                     |                  |           |         |       |
| KNH1608J                 | KNHL1608J    | 1-8                           | 13/8-12                        | 1.37            | 1 5/16            | 1.39                                | 1 3/8-12         | 1.56      | 17/32   | 5/16  |
| KNH1612J                 | KNHL1612J    | 1-12                          |                                |                 |                   |                                     |                  |           |         |       |