

# KEENSERTS®

## Solid inserts for solid joints

### Easy installation and assembly

For every application, the  
right tool for your  
installation: hand-installation

### Safe and durable

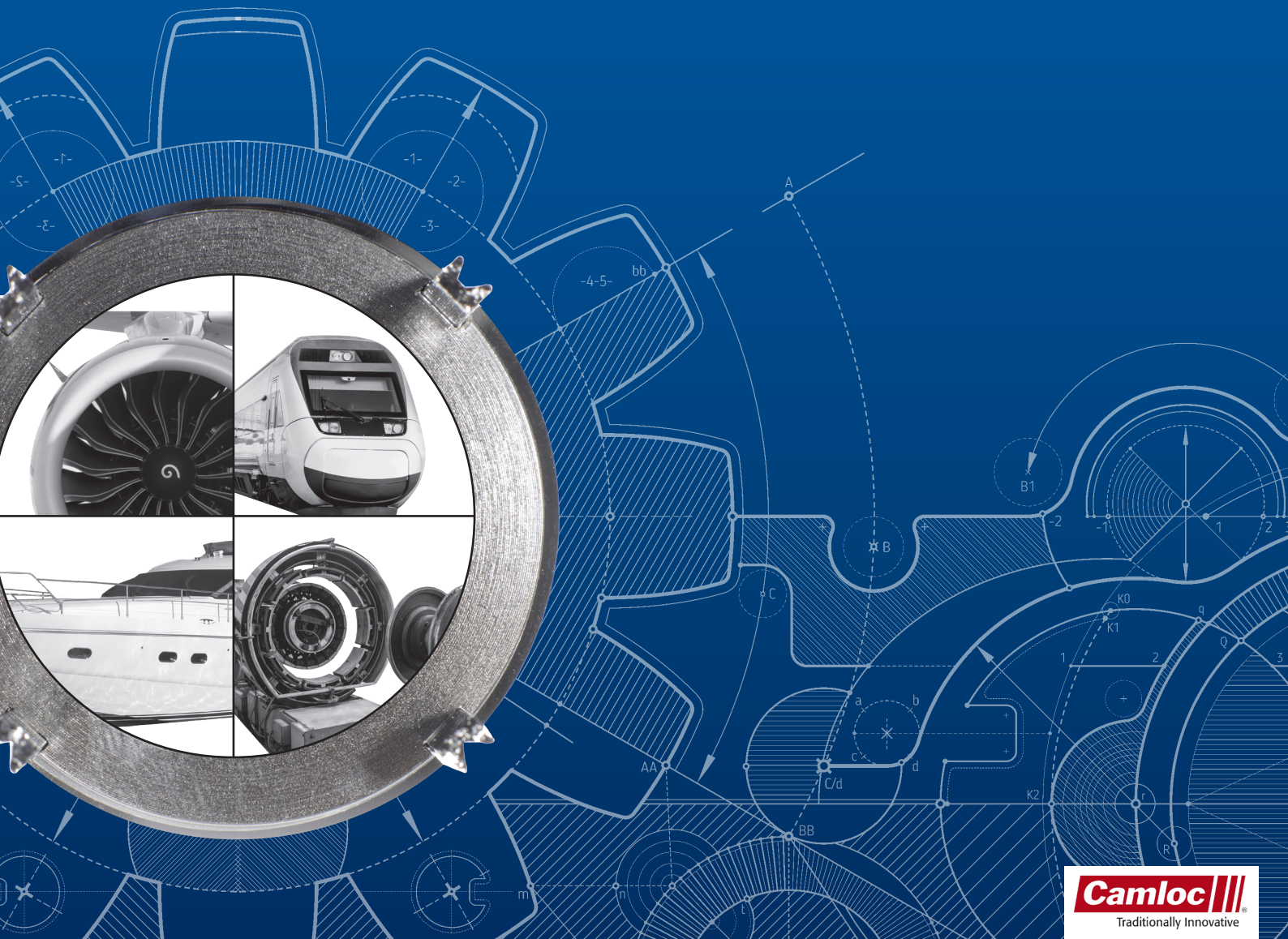
The ,KEE' locking  
principle enables a high  
level of safety with a  
maximum lifetime in all  
application areas.

### Demand of high quality

Our production in Germany  
conform to the highest  
standards. We support our  
customers all over the world  
with expertise and reliability.

### 80 years of experience

Benefit from our many  
years of experience in  
application and production.  
With us you get the  
original.





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electrical cabinets



laboratory equipment



machine Design



agriculture



Design



solar



truck



electronic equipment



lighting interior



mould making



automotive / racing



rail



trailer



wind

The Camloc brand was established in 1937. Since that time our fastening systems have been successfully integrated into numerous applications within many different industries.

Our customers benefit from more than 80 years of fastening experience.

We provide local support for innovative, high quality fastening systems supplied globally to the strictest environmental and working conditions.



**IATF 16949:2016**



**ISO 14001: 2015**

**Your Howmet Fastening Systems Team**

**Disclaimer**

Parts listed are subject to technical changes. All dimensions in mm. All information is correct to the best of our knowledge at the time of printing. No liability for disadvantages caused by printing errors or false application.

## Why KEENSERTS® inserts?

The functional concept of KEENSERTS inserts is based on an increase in the surface area of the thread to enable a higher screw force. This allows higher loadable threaded connections in workpieces with lower strength. Tests have shown that already a 20% higher pull-out value can be reached with the standard version of our KEENSERTS inserts. For all designs and variants of KEENSERTS inserts, pre-mounted „KEES“ are pressed into the surrounding material, thus creating a reliable rotation prevention. KEENSERTS inserts are vibration-resistant and highly loadable.

## KEENSERTS® inserts for maximum reliability for your screw connection

KEENSERTS inserts are solid precision threaded inserts and they offer high strength and reliability in their application.

They are used in the whole industry, from tooling, marine, train, defense technology, clean room applications to aerospace.

Especially for lightweight designs, they are increasingly a major factor for realizing connections with high strength despite lightweight design materials.

KEENSERTS inserts can be used in almost any material. Their bolted connection, prevents rotation of the nut body and overloading of the nut thread.

KEENSERTS inserts are pre-mounted so there are no loose parts to compromise safety. In a variety of applications from initial assembly to repair applications, KEENSERTS inserts have proven themselves millions times over.

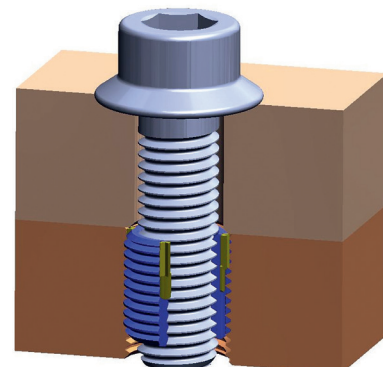
## Always a perfect installation

No special skills are required for the installation of KEENSERTS inserts. Installation can be learned in a very short time. Thread damages are impossible during the installation process.

There are hand tooling tools as well as hydro-pneumatic power tools available with adjustable process parameters.

### Click here:

[Here you can see the installation video.](#)



### **In case of replacement**

If a KEENSERTS insert needs to be replaced, this can be done in the same mounting thread. The existing thread does not have to be reworked.

### **The perfect material and the right coating for your application**

KEENSERTS inserts are in the standard version made of passivated V2A steel and are pre-assembled with locking chocks, the so-called „KEES“. Depending on your requirements, other materials are also available for the threaded bodies.

### **A standardized system for all types of threads**

In addition to the standard version, we offer a heavy variant with enlarged external thread for particularly high load cases. Almost all versions are also available with an additional threadlocker. KEENSERTS inserts are available in many different versions to meet the various requirements. There are KEENSERTS inserts as threaded studs or KEENSERTS inserts with a closed bottom. If you require radial tolerance compensation in your assembly, KEENSERTS inserts are available as a so-called „floating variant“.

KEENSERTS inserts are alternatively available with metric or imperial thread dimensions.

### **Do you have a particularly difficult application?**

Contact us via our website, our sales representatives or directly by phone. We are glad to assist you with your request.

Website: <https://www.hfsindustrial.com>

Mail: [enquiries@hfsindustrial.com](mailto:enquiries@hfsindustrial.com)

Phone +49 (0) 6195 805 0

## Information about KEENSERTS® materials

### General applications

As the standard KEENSERTS inserts and bolts are made of cold-drawn, austenitic steel according to DIN EN 10088-3 with strength class A2-70 and can be used up to +150°C. Above this temperature, the tensile strength decreases significantly because the strain hardening is eliminated. The KEES, are made of AISI 302 or optionally of 1.4310.

### High temperature and mechanical load applications

For applications at higher temperatures, as well as higher mechanical loads, we manufacture KEENSERTS inserts and bolts from the material AISI 660 - A286 (1.4980 / 1.4944). The aged austenite still has a yield strength of >450 MPa at +500°C and an Rp0.2 of >600 MPa at room temperature. A286 is scale-resistant up to +700°C and has very good corrosion resistance.

### Seawater resistant, non-magnetic applications

If maximum corrosion resistance with good mechanical properties is required, we manufacture our KEENSERTS inserts from aluminum bronze (2.0966). This material is seawater resistant and has good mechanical properties with an Rp0.2 of >330 MPa, as well as an Rm of >650 MPa and does not gall when screwed with stainless screws due to self-lubrication. These special thread inserts are provided with KEES made of V4A. Aluminum bronze is suitable for application temperatures up to +350°C. Alternatively, threaded bodies and KEES made of V4A can be combined.

## Information on KEENSERTS® coatings

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### Passivation

KEENSERTS inserts are passivated according to AMS 2700, method 2. This is a Cr-6 free passivation, which cleans the surface and accelerates Cr-oxide formation. The passivation is suitable for application temperatures up to +150°C.

### Dry lubricant film

KEENSERTS inserts with clamping screw locking are coated with a REACH compliant dry lubricant film. This sliding film is a thermosetting, lead-free MoS<sub>2</sub> anti-friction coating and is suitable for application temperatures from -150°C to +200°C.

### Special coatings

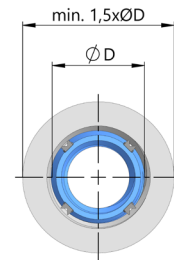
If your applications require the use of a barrier layer between the surrounding material and the thread insert, it is possible to apply a Cr-6-free ZnNi layer according to AMS 2417 or alternatively a tin coating.

It is also possible to apply other coating materials, such as wax dispersion.

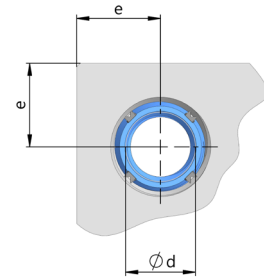
Due to increased demands on durability, contact corrosion is also a much-discussed topic. We are pleased to give advice.

## Design information

If KEENSERTS inserts are installed on the end face in round designs, the installation diameter should be 1.5 x external thread diameter „ $\varnothing D$ “ or larger.

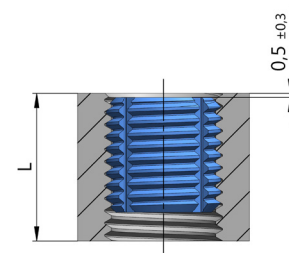


The edge or corner distance (e) of the thread inserts must be adapted to the application. Standards must be observed here if necessary. As a reference value,  $e \geq 1,2 \times \varnothing d$  can be used.



For full load capacity, the minimum thickness „L“ must at least equal to the length of the thread insert.

The depth of the KEENSERTS insert under the surface of the installation material is determined by the KEES as well as the diameter of the countersink of the installation thread (see installation data tables).



The threads must be produced according to DIN13-20/21/22 with modified core holes. Installation data as well as removal data are given in the following tables..

KEENSERTS inserts are available with metric and also with imperial thread dimensions according to SAE AS 8879. Threadlocking KEENSERTS inserts are coated with a dry lubricant film to prevent galling in the deformed thread area.



## Calculation of the tensile force

The tensile force of the KEENSERTS inserts depends on the shear strength of the installation material and is calculated as described below:

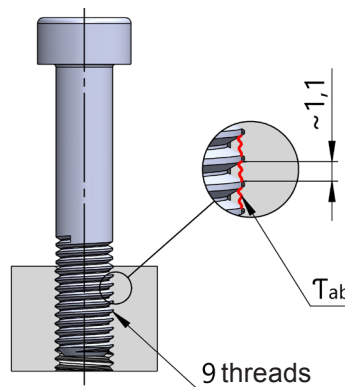
$$F_{\max} \leq A_F \times T_w$$

$F_{\max}$  = tensile force (ultimate)  
 $A_F$  = shear engagement (see tables)  
 $T_w$  = shear strength workpiece

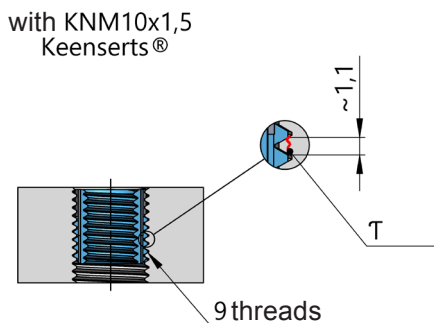
When  $F_{\max}$  is reached, the surrounding material begins to yield and shear off between the threads.

The values of the shear engagement areas are given in the dimension tables on the following pages and apply to fully screwed KEENSERTS inserts.

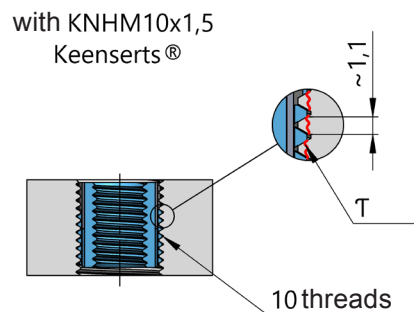
### „Surface Comparison“ Screw to KEENSERTS®



M10 - screw-in depth 1,5xD  
 $A_F = 282 \text{ mm}^2 \approx 100\%$



KNM10x1,5 - outer thread. M14x1,5  
 $A_F = 341 \text{ mm}^2 \approx 121\%$



KNHM10x1,5 - outer thread. M16x1,5  
 $A_F = 470 \text{ mm}^2 \approx 168\%$

Depending on the selection, the use of KEENSERTS inserts allows up to 68% higher screw force to be introduced into the surrounding material.

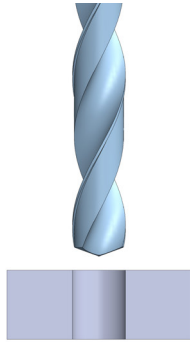
## Self-locking and screw pre-tensioning

Because the thread locking feature (type L) compensates a part of the tightening torque, this part must be added to the nominal tightening torque.

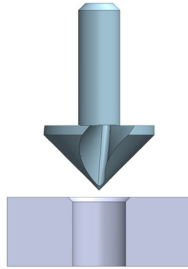
For this purpose, the locking torque is measured on two KEENSERTS inserts using a torque wrench and a lightly oiled screw. This value must be added to the tightening torque.

The thread locking torques are determined with lightly oiled screws of grade 8.8, with a standard tolerance of -6g. The thread locking torques of the KEENSERTS inserts with fine thread are set with lightly oiled bolts of grade -4h. If you have any questions, please do not hesitate to contact us.

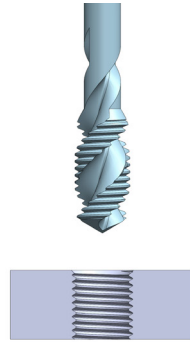
**KEENSERTS® inserts hole preparation**



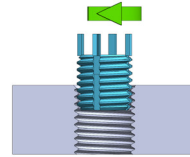
Drilling  
with standard drill  
(modified core diameter  
according to  
Table „Installation di-  
mensions“)



Sink  
with  
Countersink  
(80° - 100°)



Thread-  
cutting with  
Standard-  
Tap



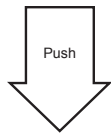
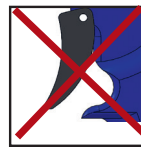
Screwing in/  
Locking:  
pneumatic or  
manually

## KEENSERTS® inserts installation

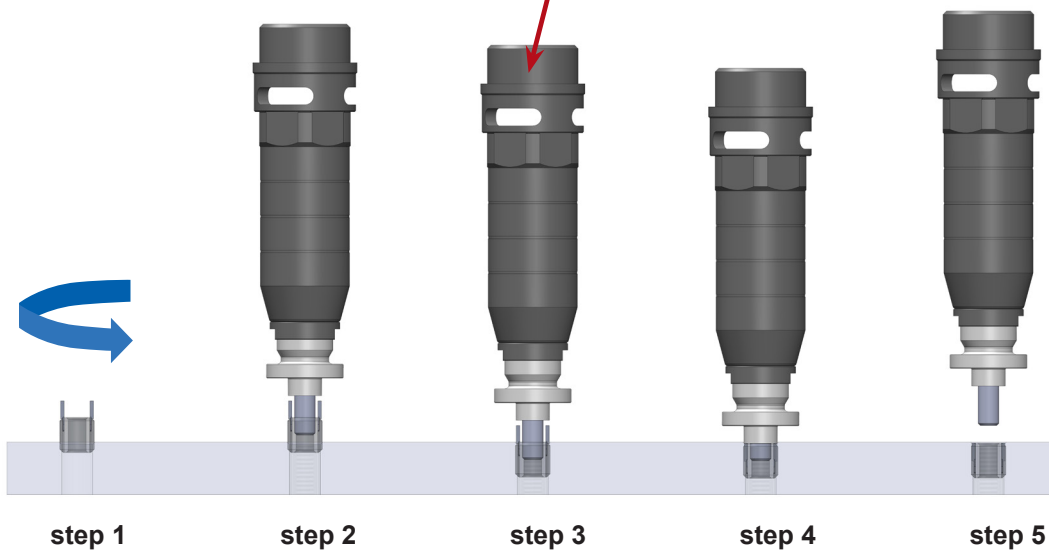
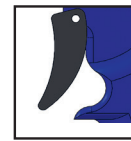
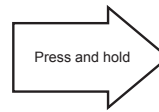
For medium and large quantities, but also for sensitive installation conditions, the use of a „Power Tool“ is the right choice. By using a Power Tool, the installation environment is maximally protected. No shocks and strong vibrations occur. Incorrect installation is almost impossible. In addition, valuable time can be saved by using a Power Tool.

Pneumatic Power Tool 3352PT1/2.

Click here:  
[Installation video](#)



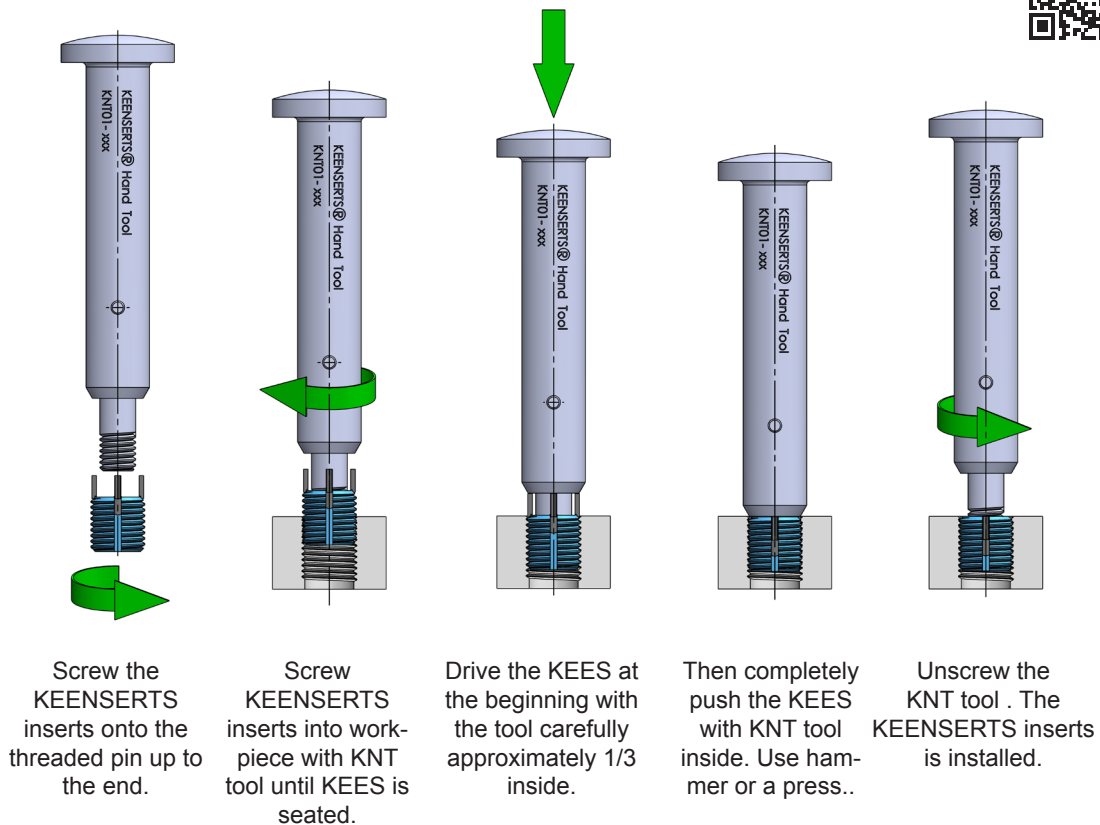
auto stop



step 1	step 2	step 3	step 4	step 5
Screw in the first pitches by hand (1-2 turns).	Screwing in the KEENSERT insert with the Power Tool by a push movement against the insert. No button operation necessary (self-activation).	Hold the tool horizontally, at a 90° angle. The screwing-in process stops automatically as soon as the KEES touch the surrounding material. The insert reaches its final screw-in depth.	Driving in the KEES by pressing the trigger.	Hold the trigger until the mandrel automatically rotates counter-clockwise and is completely rotated out of the KEENSERTS inserts.

If only a few inserts need to be installed, mounting with a hand installation tool is also possible. The series of KNT hand tools offers a repeatable and reliable installation process in addition to simple, safe and fast handling.

Click here:  
[Installation video KNT](#)



**Groove punches / pre-broaching**

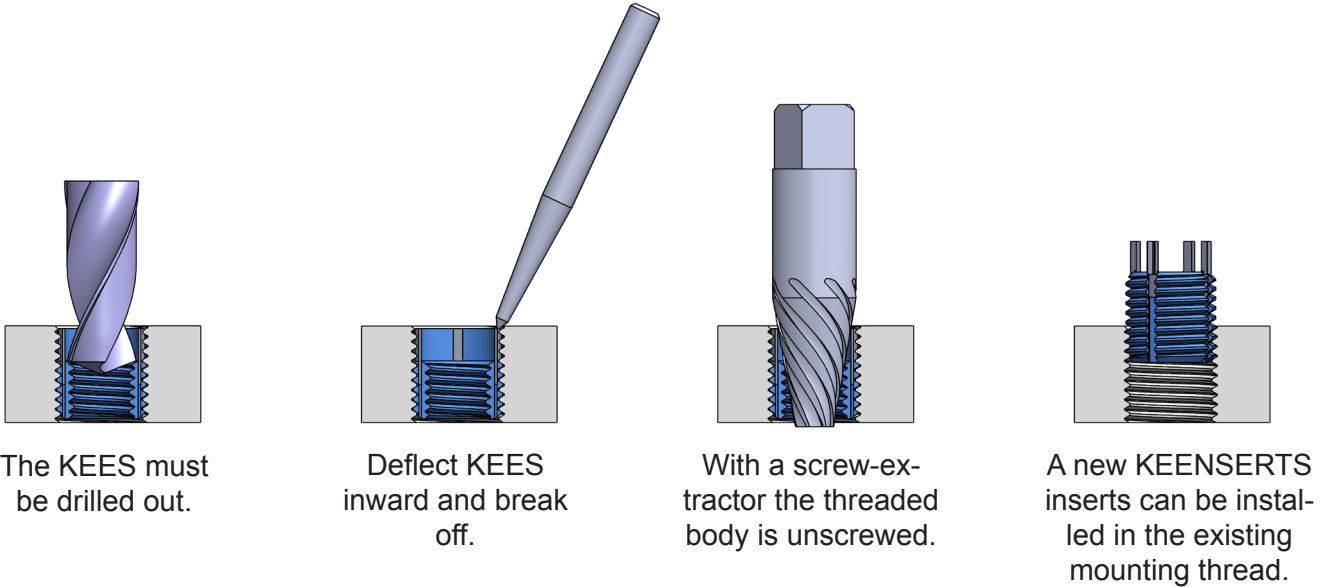
For installation materials with a strength of 30 HRC (980MPa) and more, the groove must be pre-broached. This is necessary to prevent buckling of the KEES during driving in, may also be necessary for anodized aluminum. Corresponding broaching tools are available.



Depending on the strength of the installation material, it is possible that the internal thread tolerance after the installation of the KEES is no longer -5H (the plug gauge is difficult to move). This does not influence on typical screw connections with 6g screws. The thread tolerances of the KEENSERTS insert apply to the unmounted delivery condition.

## KEENSERTS® expansion

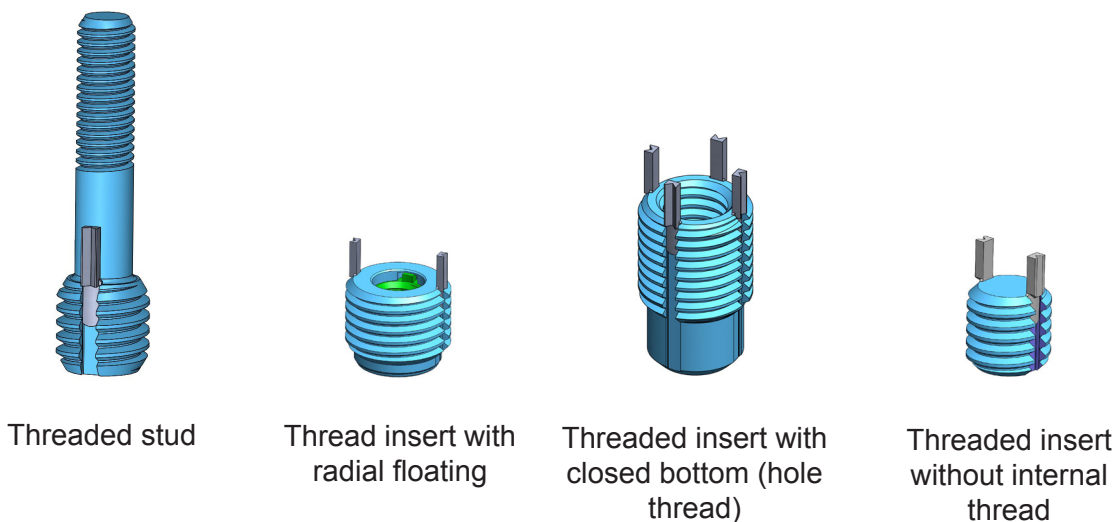
In case of damage, the Keenserts inserts can be replaced up to two times, depending on the damage, and a new insert can be mounted in the same mounting thread. Please note that shear surface is lost depending on the size of the insert.



The data for the expansion are given in the tables starting on page B-1.

## KEENSERTS® special designs

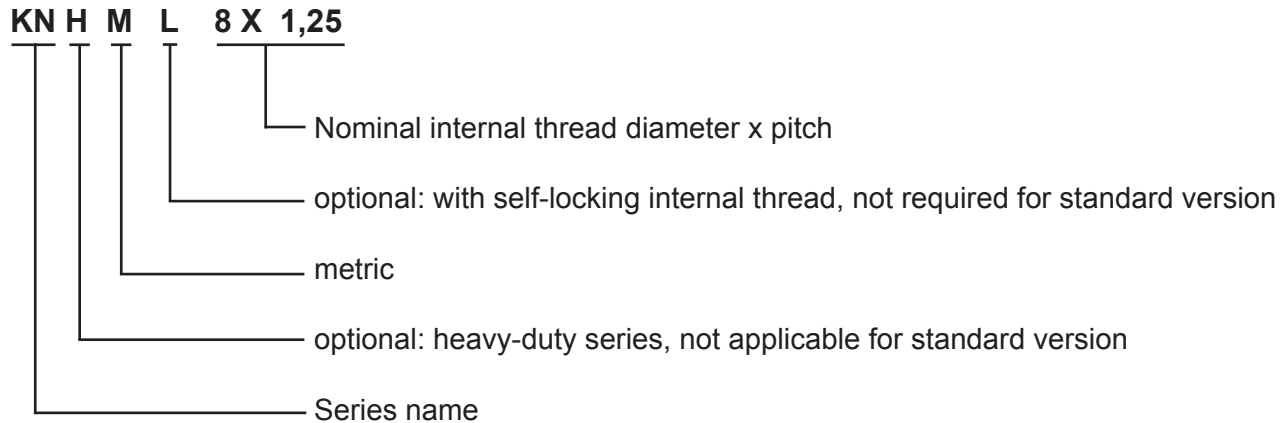
In addition to the standard KEENSERTS inserts, special designs are also available on request:



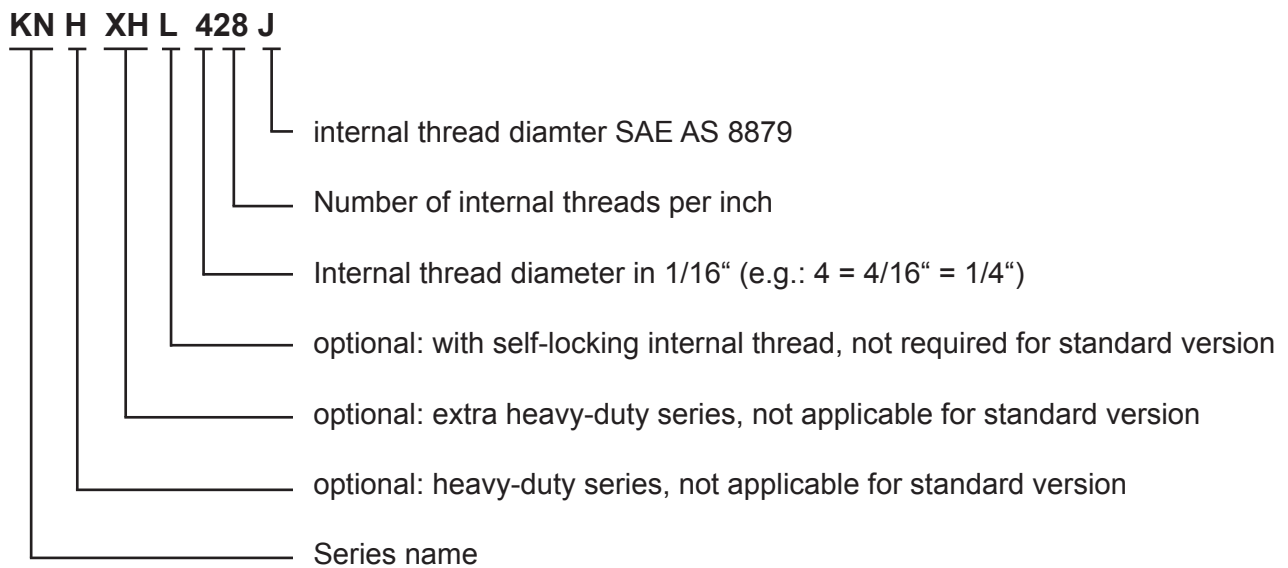
Other versions are available on request.

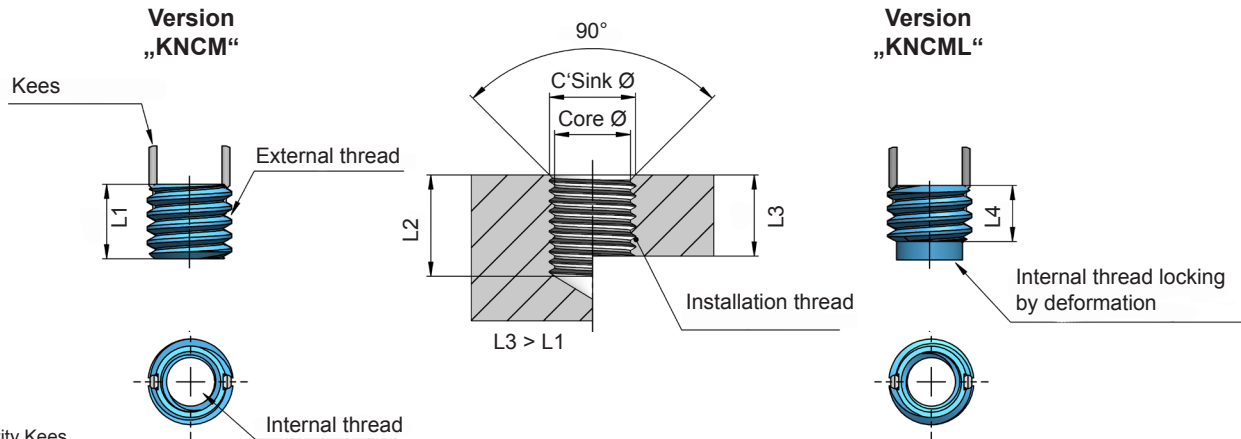
## Examples of KEENSERTS® inserts part numbers

The part no. for metric KEENSERTS inserts is composed as follows:



The part no. for inch KEENSERTS inserts is composed as follows:





**Quantity Kees**  
2 pieces up to internal thread M6  
4 pieces from internal thread M6

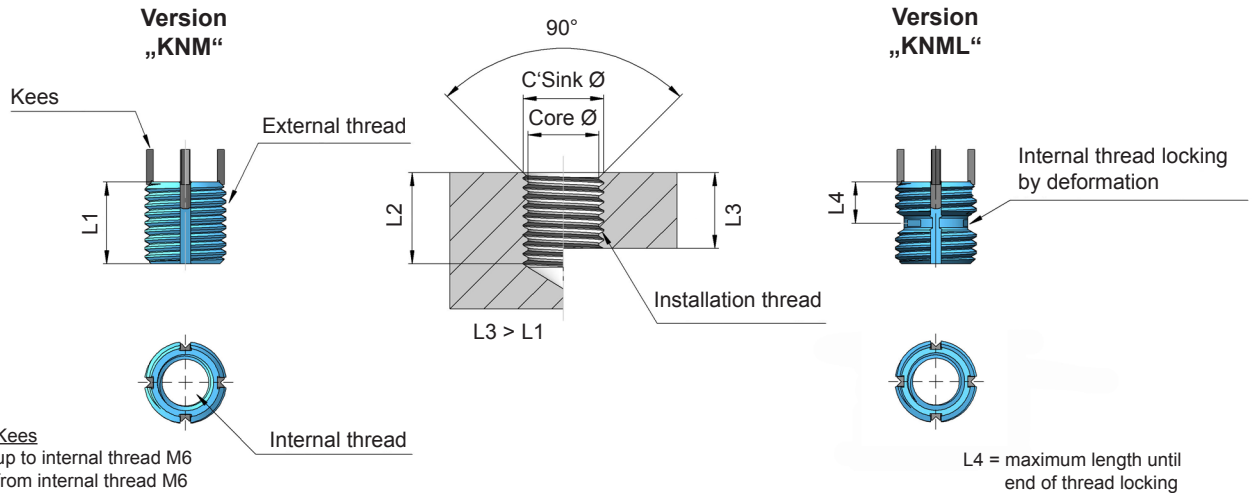
L4 = maximum length until end of thread locking

Part number		Dimensions				
Standard "KNCM"	Self-locking "KNCML"	Internal thread Ø Tol.- 5H	External thread Ø Tol.- 4h	Shear engagement mm <sup>2</sup>	L1 ± 0,25	L4
KNCM2X0,4		M2X0,4	M4X0,7	16,5	3	
	KNCML2X0,4			10,3		2,2
KNCM2,5X0,45		M2,5X0,45	M4,5X0,75	26,5	3,8	
	KNCML2,5X0,45			15,9		2,7
KNCM3X0,5		M3X0,5	M5X0,8	33,1	4,25	
	KNCML3X0,5			21,4		3,1
KNCM4X0,7		M4X0,7	M6X0,75	58,4	5,25	
	KNCML4X0,7			42,9		4,1

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø*	C'Sink-Ø +0,25	Installation thread			Drill	
			Thread Tol.- 6H	Depth L2 min.		Ø	Depth
KNCM2X0,4	3,4 +0,080 -0,025	4,1	M4X0,7	4,0	KRTM2-01	2,8	2,00
KNCML2X0,4							
KNCM2,5X0,45	3,9 +0,080 -0,025	4,6	M4,5X0,75	5,0	KRTM2,5-01	3,0	2,00
KNCML2,5X0,45							
KNCM3X0,5	4,4 +0,080 -0,025	5,1	M5X0,8	5,5	KRTM3-01	3,5	2,25
KNCML3X0,5							
KNCM4X0,7	5,5 +0,080 -0,025	6,1	M6X0,75	6,5	KRTM4-01	4,6	2,50
KNCML4X0,7							

\*the core Ø are different from DIN 13-20 / 21 / 22

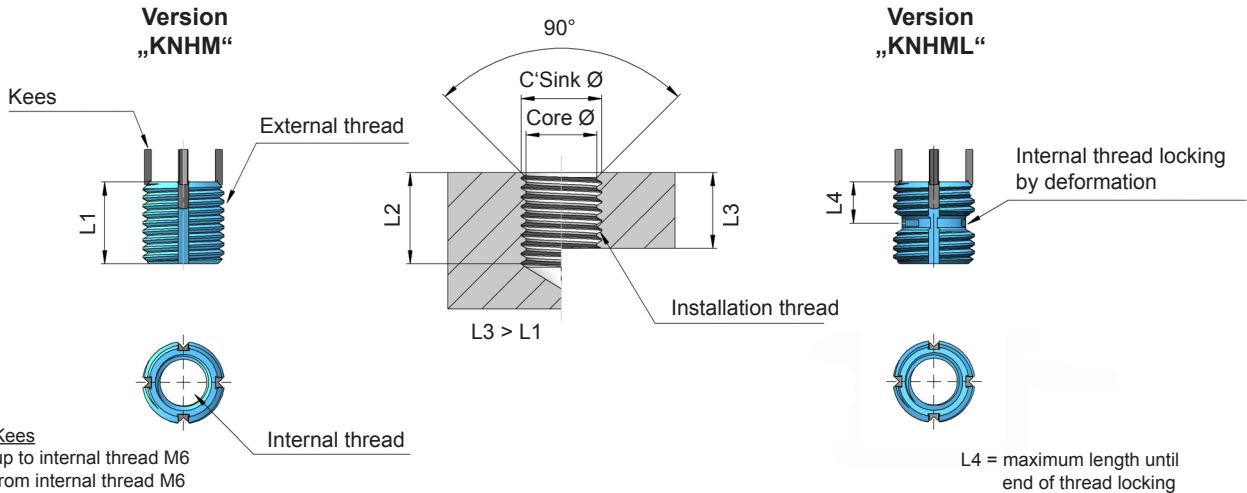




Part number		Dimensions				
Standard "KNM"	Self-locking "KNML"	Internal thread Ø Tol.- 5H	External thread Ø Tol.- 4h	Shear engagement mm <sup>2</sup>	L1 ± 0,3	L4
KNM5X0,8		M5X0,8	M8X1,25	104,9	8	
	KNML5X0,8			83,1		7,6
KNM6X1,0		M6X1,0	M10X1,25	177,7	10	
	KNML6X1,0			152,7		8,2
KNM8X1,25		M8X1,25	M12X1,25	266,7	12	
	KNML8X1,25			242,5		9,5
KNM10X1,5		M10X1,5	M14X1,5	341,6	14	
	KNML10X1,5			316,4		10,0
KNM12X1,75		M12X1,75	M16X1,5	470,2	16	
	KNML12X1,75			441,4		11,2

Part number	Installation dimensions					Removal dimensions	
	modified Core-Ø*	C'Sink-Ø +0,25	Installation thread		Hand installation tool part-no.	Drill	
			Thread Tol.- 6H	Depth L2 min.		Ø	Depth
KNM5X0,8	6,90 <sup>+0,100</sup> <sub>-0,025</sub>	8,25	M8X1,25	9,5	KRTM5-01/ KNT01-M5X0,8AU	5,5	4,00
KNML5X0,8							
KNM6X1,0	8,80 <sup>+0,100</sup> <sub>-0,025</sub>	10,25	M10X1,25	11,5	KRTM6-01/ KNT01-M6X1,0AU	7,5	4,75
KNML6X1,0							
KNM8X1,25	10,80 <sup>+0,100</sup> <sub>-0,025</sub>	12,25	M12X1,25	13,5	KRTM8-01/ KNT01-M8X1,25AU	9,5	4,75
KNML8X1,25							
KNM10X1,5	12,80 <sup>+0,130</sup> <sub>-0,025</sub>	14,25	M14X1,5	15,5	KRTM10-01/ KNT01-M10X1,5AU	11,5	4,75
KNML10X1,5							
KNM12X1,75	14,75 <sup>+0,130</sup> <sub>-0,025</sub>	16,25	M16X1,5	17,5	KRTM12-01/ KNT01-M12X1,75AU	13,5	4,75
KNML12X1,75							

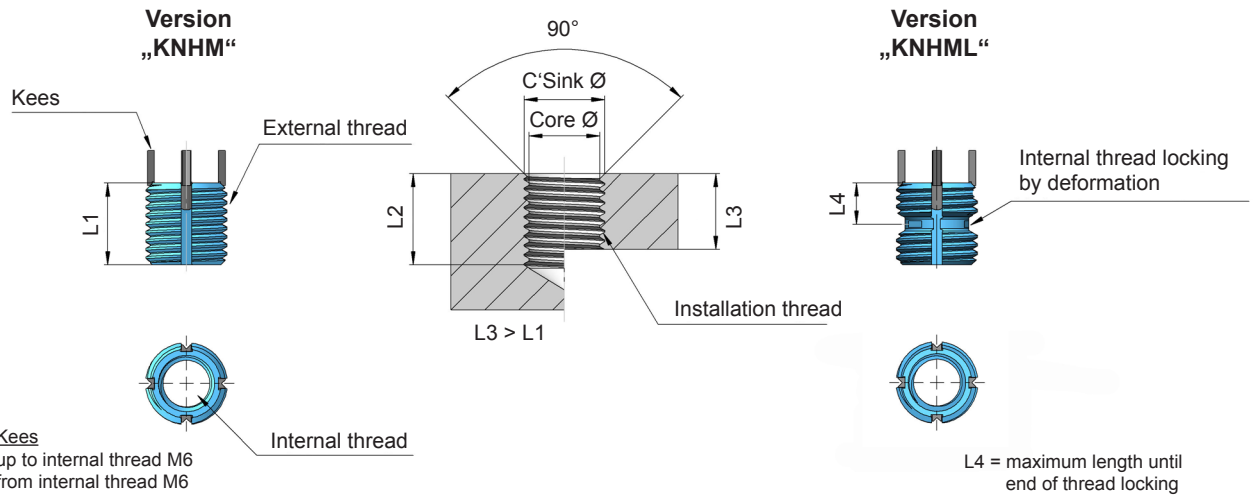
\*\*the core Ø are different from DIN 13-20 / 21 / 22



Part number		Dimensions				
Standard “KNHM”	Self-locking “KNHML”	Internal thread Ø Tol.- 5H	External thread Ø Tol.- 4h	Shear engagement mm <sup>2</sup>	L1 ± 0,3	L4
KNHM4X0,7		M4X0,7	M8X1,25	104,9	8	8,0
	KNHML4X0,7			83,1		
KNHM5X0,8		M5X0,8	M10X1,25	177,7	10	8,7
	KNHML5X0,8			152,7		
KNHM6X1,0		M6X1,0	M12X1,25	266,7	12	9,5
	KNHML6X1,0			242,5		
KNHM8X1,25		M8X1,25	M14X1,5	341,6	14	10,0
	KNHML8X1,25			316,4		
KNHM10X1,5		M10X1,5	M16X1,5	470,2	16	10,0
	KNHML10X1,5			441,4		
KNHM12X1,75		M12X1,75	M18X1,5	608,5	18	10,7
	KNHML12X1,75			561,8		

Part number	Installation dimensions					Removal dimensions	
	modified Core-Ø*	C'Sink-Ø +0,25	Installation thread		Hand installation tool part-no.	Drill	
			Thread Tol.- 6H	Depth L2 min.		Ø	Depth
KNHM4X0,7	6,90 <sup>+0,100</sup> <sub>-0,025</sub>	8,25	M8X1,25	9,5	KRTM4-02 / KNT01-HM4X0,7AU	5,5	4,00
KNHML4X0,7							
KNHM5X0,8	8,80 <sup>+0,100</sup> <sub>-0,025</sub>	10,25	M10X1,25	12,5	KRTM5-02 / KNT01-HM5X0,8AU	7,5	4,75
KNHML5X0,8							
KNHM6X1,0	10,80 <sup>+0,100</sup> <sub>-0,025</sub>	12,25	M12X1,25	14,5	KRTM6-02 / KNT01-HM6X1,0AU	9,5	4,75
KNHML6X1,0							
KNHM8X1,25	12,80 <sup>+0,130</sup> <sub>-0,025</sub>	14,25	M14X1,5	16,5	KRTM8-02 / KNT01-HM8X1,25AU	11,5	4,75
KNHML8X1,25							
KNHM10X1,5	14,75 <sup>+0,130</sup> <sub>-0,025</sub>	16,25	M16X1,5	18,5	KRTM10-02 / KNT01-HM10X1,5AU	13,5	4,75
KNHML10X1,5							
KNHM12X1,75	16,75 <sup>+0,130</sup> <sub>-0,025</sub>	18,25	M18X1,5	20,5	KRTM12-02 / KNT01-HM12X1,75AU	15,5	4,75
KNHML12X1,75							

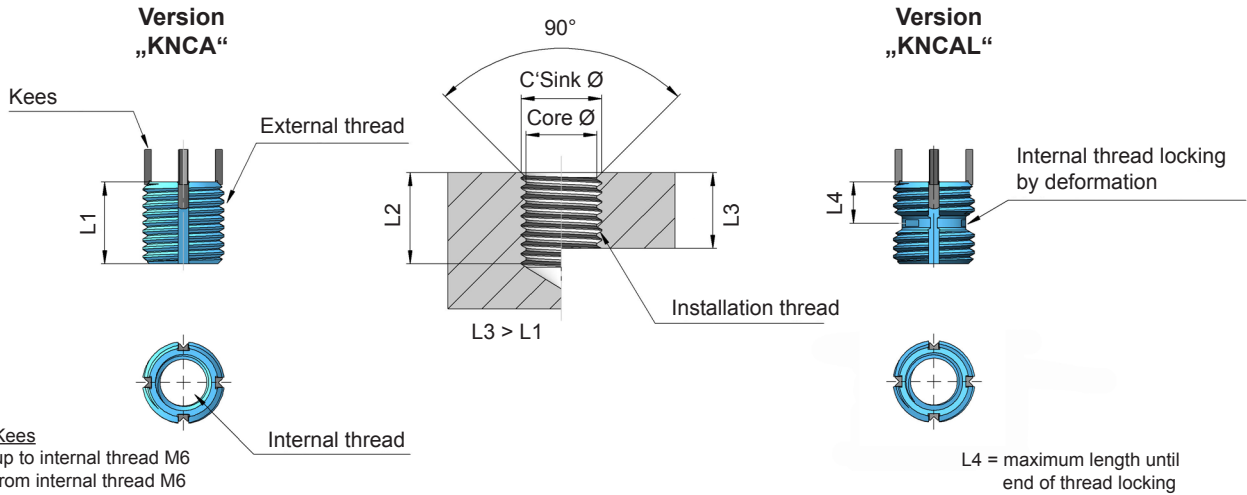
\*the core Ø are different from DIN 13-20 / 21 / 22



Part number		Dimensions				
Standard "KNHM"	Self-locking "KNHML"	Internal thread Ø Tol.- 5H	External thread Ø Tol.- 4h	Shear engagement mm <sup>2</sup>	L1 ± 0,3	L4
KNHM14X2,0		M14X2,0	M20X1,5	770,5	20	12,4
	KNHML14X2,0			724,4		
KNHM16X2,0		M16X2,0	M22X1,5	896,8	22	12,4
	KNHML16X2,0			855,2		
KNHM18X1,5		M18X1,5	M24X1,5	1084,4	24	16,8
	KNHML18X1,5			1051,5		
KNHM20X2,5		M20X2,5	M30X2,0	1774,3	30	17,5
	KNHML20X2,5			1736,4		
KNHM24X3,0		M24X3,0	M33X2,0	2189,4	33	19,0
	KNHML24X3,0			2161,9		

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø*	C'Sink-Ø +0,25	Installation thread			Drill	
			Thread Tol.- 6H	Depth L2 min.		Ø	Depth
KNHM14X2,0	18,75 <sup>+0,130</sup> -0,025	20,25	M20X1,5	22,5	KRTM14-02 / KNT03-HM14X2,0AU	17,50	4,75
KNHML14X2,0							
KNHM16X2,0	20,50 <sup>+0,130</sup> -0,025	22,25	M22X1,5	24,5	KRTM16-02 / KNT03-HM16X2,0AU	17,75	6,35
KNHML16X2,0							
KNHM18X1,5	22,50 <sup>+0,130</sup> -0,025	24,25	M24X1,5	26,5	KRTM18-02 / KNT03-HM18X1,5AU	19,75	6,35
KNHML18X1,5							
KNHM20X2,5	28,00 <sup>+0,130</sup> -0,025	30,25	M30X2,0	34,5	KRTM20-02 / KNT03-HM20X2,5AU	25,75	6,35
KNHML20X2,5							
KNHM24X3,0	31,00 <sup>+0,130</sup> -0,025	33,25	M33X2,0	37,5	KNT03-HM24X3,0AU	28,75	6,35
KNHML24X3,0							

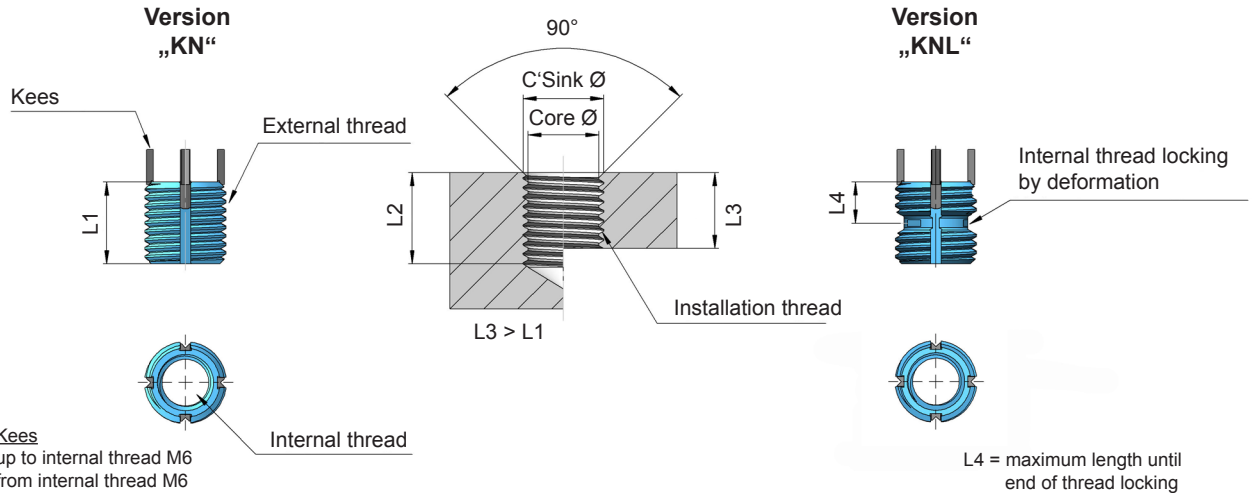
\*the core Ø are different from DIN 13-20 / 21 / 22



Part number		Dimensions				
Standard “KNCA”	Self-locking “KNCAL”	Internal thread Ø	External thread Ø	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KNCA0256J		2-56” UNJC-3B	8-32” UNC-3A	0,0157 (10,1)	0,12 (3,05)	0,088 (2,24)
	KNCAL0256J			0,0157 (10,1)		
KNCA0440J		4-40” UNJC-3B	10-32” UNF-2A	0,0302 (19,5)	0,17 (4,32)	0,125 (3,18)
	KNCAL0440J			0,0302 (19,5)		
KNC0632J		6-32” UNJC-3B	12-28” UNF-2A	0,0329 (21,2)	0,17 (4,32)	0,125 (3,18)
	KNCL0632J			0,0329 (21,2)		
KNCA0832J		8-32” UNJC-3B	1/4-28” UNF-2A	0,0669 (43,2)	0,22 (5,59)	0,175 (4,45)
	KNCAL0832J			0,0669 (43,2)		

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch	C'Sink-Ø inch	Installation thread			Drill	
			Thread	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNCA0256J	.134 <sup>+0,003</sup> -0,001	.166 <sup>+0,001</sup> - .000	8-32	0,140 (3,56)	TKNC02	0,113 (2,87)	1/16 (1,59)
KNCAL0256J			UNC-2B				
KNCA0440J	.161 <sup>+0,003</sup> -0,001	.194 <sup>+0,001</sup> - .000	10-32	0,160 (4,06)	TKNC04	0,136 (3,45)	3/32 (2,38)
KNCAL0440J			UNF-2B				
KNC0632J	.187 <sup>+0,003</sup> -0,001	.220 <sup>+0,001</sup> - .000	12-28	0,160 (4,06)	TKNC06	0,159 (4,04)	3/32 (2,38)
KNCL0632J			UNF-2B				
KNCA0832J	.228 <sup>+0,003</sup> -0,001	.255 <sup>+0,001</sup> - .000	1/4-28	0,210 (5,33)	TKNC08	0,199 (5,05)	1/8 (3,18)
KNCAL0832J			UNF-2B				

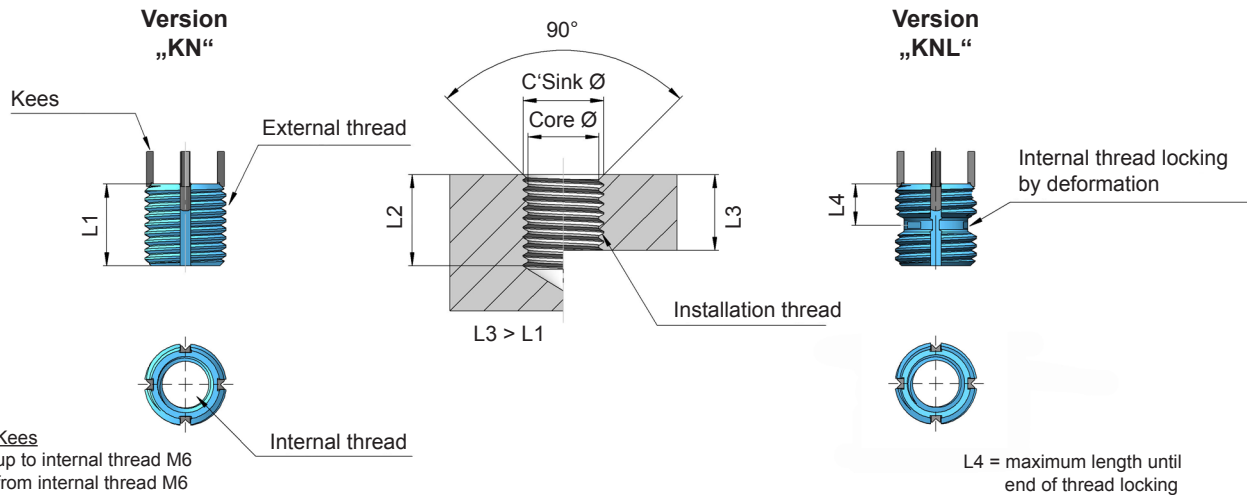
\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard "KN"	Self-locking "KNL"	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KN1032J		10-32	5/16-18	0,1517 (97,9)	0,31 (7,87)	
	KNL1032J			0,0945 (61,0)		0,31 (7,87)
KN1024J		10-24	5/16-18	0,1517 (97,9)	0,31 (7,87)	
	KNL1024J			0,0945 (61,0)		0,31 (7,87)
KN428J		1/4-28	3/8-16	0,2371 (153,0)	0,37 (9,40)	
	KNL428J			0,1726 (111,4)		0,33 (8,38)
KN420J		1/4-20	3/8-16	0,2371 (153,0)	0,37 (9,40)	
	KNL420J			0,1726 (111,4)		0,36 (9,14)
KN524J		5/16-24	7/16-14	0,3049 (196,7)	0,43 (10,9)	
	KNL524J			0,2321 (149,7)		0,34 (8,64)
KN518J		5/16-18	7/16-14	0,3049 (196,7)	0,43 (10,9)	
	KNL518J			0,2321 (149,7)		0,37 (9,40)

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol. - 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KN1032J	0,272 (6,91)	0,323 (8,20)	5/16-18	0,37 (9,4)	TD1032L	7/32 (5,56)	5/32 (3,97)
KNL1032J							
KN1024J	0,272 (6,91)	0,323 (8,20)	5/16-18	0,37 (9,4)	TD1024L	7/32 (5,56)	5/32 (3,97)
KNL1024J							
KN428J	0,332 (8,43)	0,385 (9,78)	3/8-16	0,43 (10,9)	TD428L	9/32 (7,14)	3/16 (4,76)
KNL428J							
KN420J	0,332 (8,43)	0,385 (9,78)	3/8-16	0,43 (10,9)	TD420L	9/32 (7,14)	3/16 (4,76)
KNL420J							
KN524J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,50 (12,7)	TD524L	11/32 (8,73)	3/16 (4,76)
KNL524J							
KN518J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,50 (12,7)	TD518L	11/32 (8,73)	3/16 (4,76)
KNL518J							

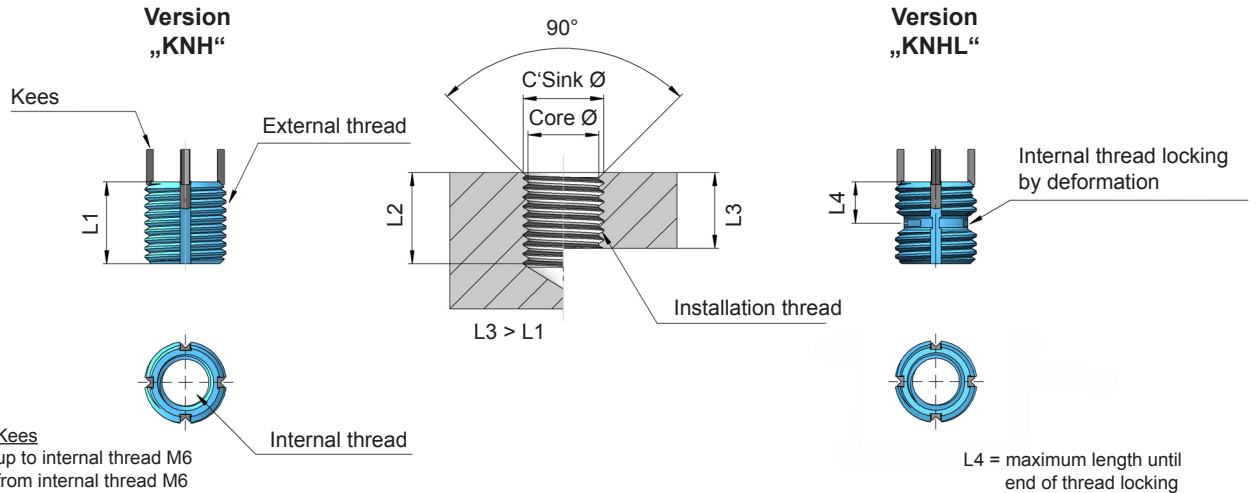
\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard "KN"	Self-locking "KNL"	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch² (mm²)	L1 inch (mm)	L4 inch (mm)
KN624J		3/8-24	1/2-13	0,4299 (277,4)	0,50 (12,7)	
	KNL624J			0,3366 (217,2)		0,36 (9,14)
KN616J		3/8-16	1/2-13	0,4299 (277,4)	0,50 (12,7)	
	KNL616J			0,3366 (217,2)		0,40 (10,16)
KN720J		7/16-20	9/16-12	0,5665 (365,5)	0,56 (14,2)	
	KNL720J			0,4606 (297,2)		0,41 (10,41)
KN714J		7/16-14	9/16-12	0,5665 (365,5)	0,56 (14,2)	
	KNL714J			0,4606 (297,2)		0,45 (11,43)
KN820J		1/2-20	5/8-11	0,7175 (462,9)	0,62 (15,8)	
	KNL820J			0,5906 (381,0)		0,42 (10,67)
KN813J		1/2-13	5/8-11	0,7175 (462,9)	0,62 (15,8)	
	KNL813J			0,5906 (381,0)		0,47 (11,94)

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol.- 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KN624J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,56 (14,2)	TD624L	13/32 (10,32)	3/16 (4,76)
KNL624J							
KN616J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,56 (14,2)	TD616L	13/32 (10,32)	3/16 (4,76)
KNL616J							
KN720J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,62 (15,7)	TD720L	15/32 (11,91)	3/16 (4,76)
KNL720J							
KN714J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,62 (15,7)	TD714L	15/32 (11,91)	3/16 (4,76)
KNL714J							
KN820J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,68 (17,3)	TD820L	17/32 (13,49)	3/16 (4,76)
KNL820J							
KN813J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,68 (17,3)	TD813L	17/32 (13,49)	3/16 (4,76)
KNL813J							

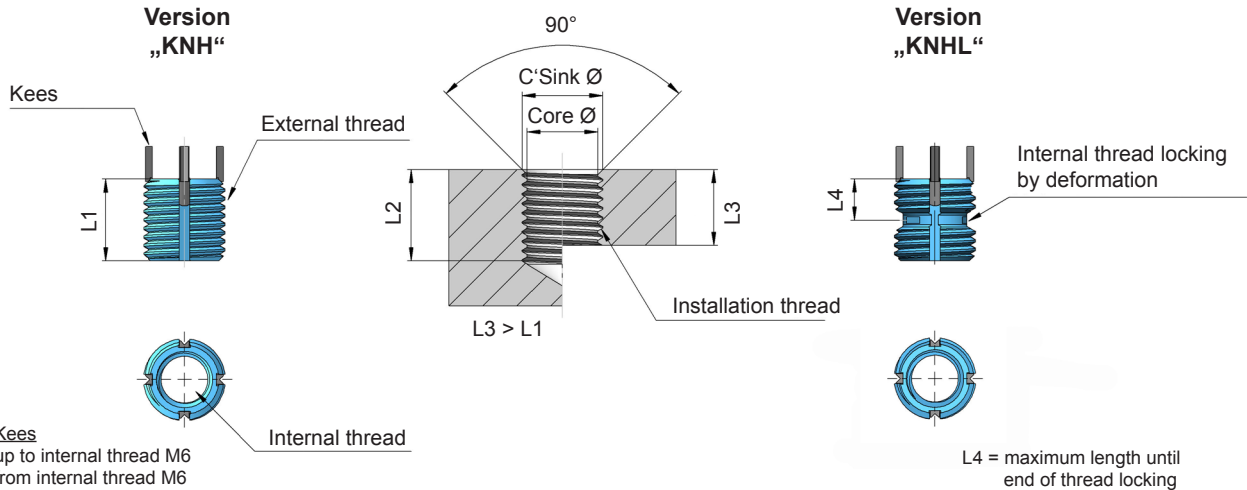
\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard "KNH"	Self-locking "KNHL"	internal-thread Ø Tol.- 3B	outer-thread Ø Tol.- 2A mod.	Shear engagement inch² (mm²)	L1 inch (mm)	L4 inch (mm)
KNH0832J		8-32	5/16-18	0,1517 (97,87)	0,31 (7,87)	0,29 (7,37)
	KNHL0832J			0,0945 (60,97)		
KNH1032J		10-32	3/8-16	0,1901 (122,7)	0,31 (7,87)	0,31 (7,87)
	KNHL1032J			0,1156 (74,6)		
KNH1024J		10-24	3/8-16	0,1901 (122,7)	0,31 (7,87)	0,31 (7,87)
	KNHL1024J			0,1156 (74,6)		
KNH428J		1/4-28	7/16-14	0,2842 (183,4)	0,37 (9,40)	0,33 (8,38)
	KNHL428J			0,1970 (127,1)		
KNH420J		1/4-20	7/16-14	0,2842 (183,4)	0,37 (9,40)	0,36 (9,14)
	KNHL420J			0,1970 (127,1)		
KNH524J		5/16-24	1/2-13	0,3588 (231,5)	0,43 (10,9)	0,34 (8,64)
	KNHL524J			0,2608 (168,3)		

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol. - UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNH0832J	0,272 (6,91)	0,323 (8,20)	5/16-18	0,37 (9,4)	THD0832L	7/32 (5,56)	1/8 (3,18)
KNHL0832J							
KNH1032J	0,332 (8,43)	0,385 (9,78)	3/8-16	0,37 (9,4)	THD1032L	9/32 (7,14)	1/8 (3,18)
KNHL1032J							
KNH1024J	0,332 (8,43)	0,385 (9,78)	3/8-16	0,37 (9,4)	THD1024L	9/32 (7,14)	1/8 (3,18)
KNHL1024J							
KNH428J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,43 (10,9)	THD428L	11/32 (8,73)	3/16 (4,76)
KNHL428J							
KNH420J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,43 (10,9)	THD420L	11/32 (8,73)	3/16 (4,76)
KNHL420J							
KNH524J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,50 (12,7)	THD524L	13/32 (10,32)	3/16 (4,76)
KNHL524J							

\*the core Ø are different from SAE AS 8879

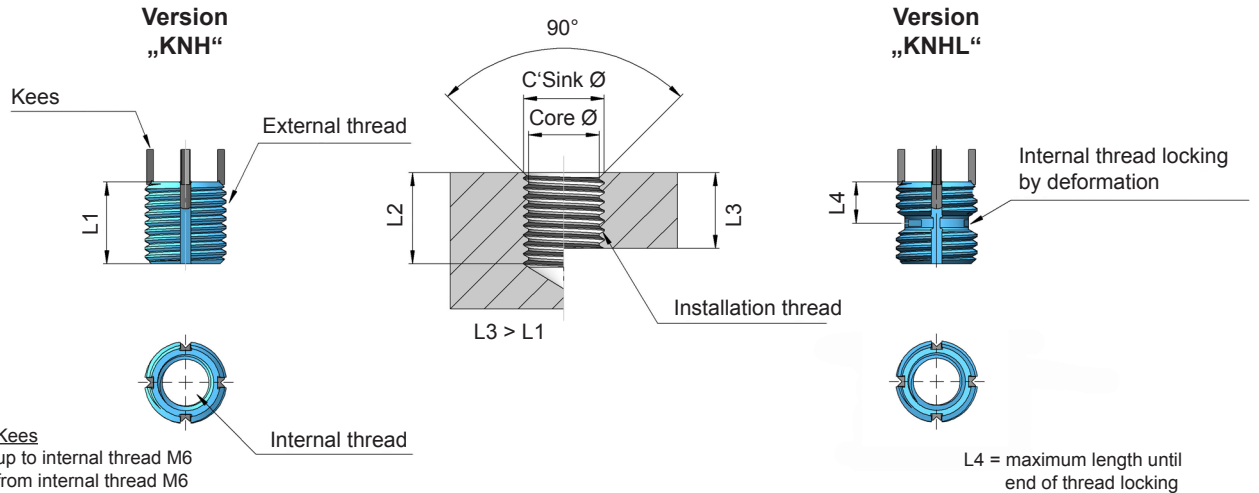


Part number		Dimensions				
Standard "KNH"	Self-locking "KNHL"	internal-thread Ø Tol.- 3B	outer-thread Ø Tol.- 2A mod.	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KNH518J		5/16-18	1/2-13	0,3588 (231,5)	0,43 (10,9)	0,37 (9,40)
	KNHL518J			0,2608 (168,3)		
KNH624J		3/8-24	9/16-12	0,4975 (321,0)	0,50 (12,7)	0,37 (9,40)
	KNHL624J			0,3843 (248,0)		
KNH616J		3/8-16	9/16-12	0,4975 (321,0)	0,50 (12,7)	0,41 (10,41)
	KNHL616J			0,3843 (248,0)		
KNH720J		7/16-20	5/8-11	0,7172 (462,7)	0,62 (15,8)	0,42 (10,67)
	KNHL720J			0,5831 (376,2)		
KNH714J		7/16-14	5/8-11	0,7172 (462,7)	0,62 (15,8)	0,46 (11,68)
	KNHL714J			0,5831 (376,2)		

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			thread Tol.- UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNH518J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,50 (12,7)	THD518L	13/32 (10,32)	3/16 (4,76)
KNHL518J							
KNH624J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,56 (14,2)	THD624L	15/32 (11,91)	3/16 (4,76)
KNHL624J							
KNH616J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,56 (14,2)	THD616L	15/32 (11,91)	3/16 (4,76)
KNHL616J							
KNH720J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,68 (17,27)	THD720L	17/32 (13,49)	3/16 (4,76)
KNHL720J							
KNH714J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,68 (17,27)	THD714L	17/32 (13,49)	3/16 (4,76)
KNHL714J							

\*the core Ø are different from SAE AS 8879

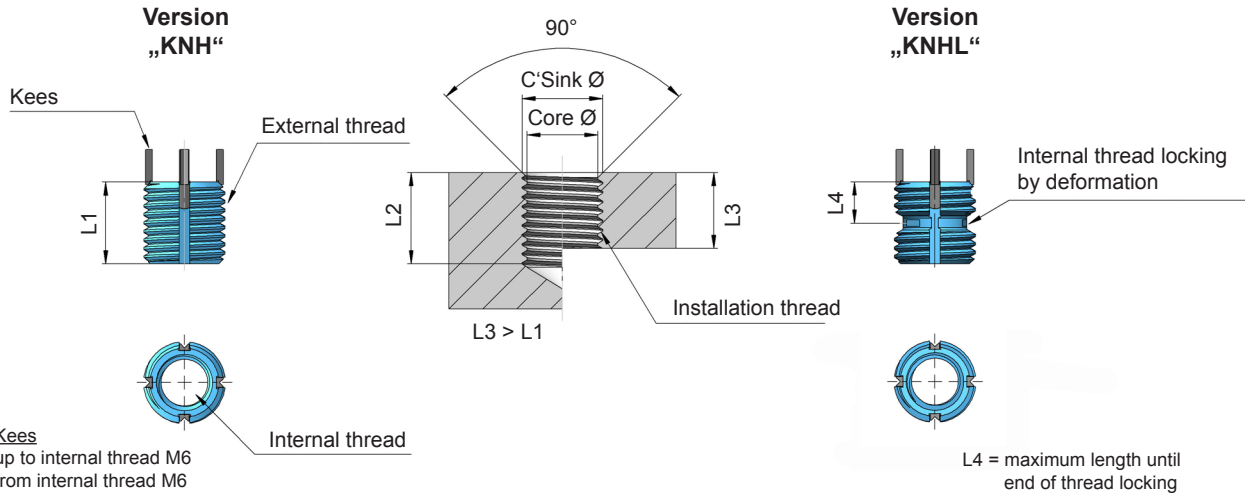




Part number		Dimensions				
Standard "KNH"	Self-locking "KNHL"	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KNH820J	KNHL820J	1/2-20	11/16-11NS	0,8884 (573,2)	0,68 (17,3)	0,42 (10,67)
				0,7368 (475,4)		
KNH813J	KNHL813J	1/2-13	11/16-11NS	0,8884 (573,2)	0,68 (17,3)	0,47 (11,94)
				0,7368 (475,4)		
KNH918J	KNHL918J	9/16-18	13/16-16	1,2493 (806,0)	0,81 (20,6)	0,48 (12,19)
				1,0247 (661,1)		
KNH912J	KNHL912J	9/16-12	13/16-16	1,2493 (806,0)	0,81 (20,6)	0,54 (13,72)
				1,0247 (661,1)		
KNH1018J	KNHL1018J	5/8-18	7/8-14	1,4866 (959,1)	0,87 (22,1)	0,49 (12,47)
				1,2415 (801,0)		
KNH1011J	KNHL1011J	5/8-11	7/8-14	1,4866 (959,1)	0,87 (22,1)	0,57 (14,48)
				1,2415 (801,0)		

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol. - UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNH820J	0,641 (16,28)	0,700 (17,80)	11/16-11NS	0,75 (19,06)	THD820L	19/32 (15,08)	3/16 (4,76)
KNHL820J							
KNH813J	0,641 (16,28)	0,700 (17,80)	11/16-11NS	0,75 (19,06)	THD813L	19/32 (15,08)	3/16 (4,76)
KNHL813J							
KNH918J	0,766 (19,46)	0,822 (20,88)	13/16-16UN	0,94 (23,88)	THD918L	23/32 (18,26)	3/16 (4,76)
KNHL918J							
KNH912J	0,766 (19,46)	0,822 (20,88)	13/16-16UN	0,94 (23,88)	THD912L	23/32 (18,26)	3/16 (4,76)
KNHL912J							
KNH1018J	0,828 (21,03)	0,885 (22,48)	7/8-14UNF	1,00 (25,40)	THD1018L	25/32 (19,84)	3/16 (4,76)
KNHL1018J							
KNH1011J	0,828 (21,03)	0,885 (22,48)	7/8-14 UNF	1,00 (25,40)	THD1011L	25/32 (19,84)	3/16 (4,76)
KNHL1011J							

\*the core Ø are different from SAE AS 8879



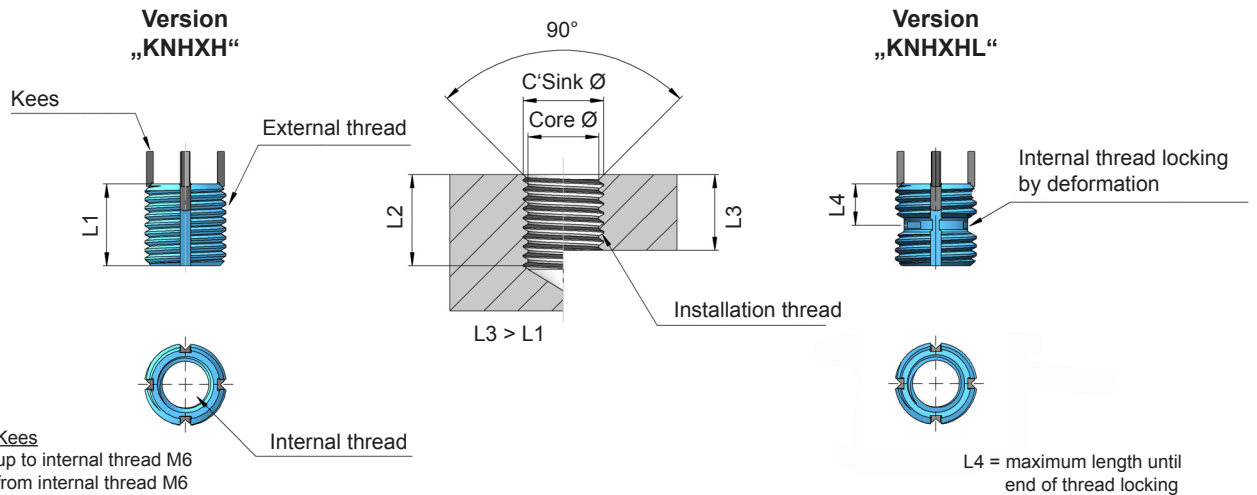
**Quantity Kees**  
2 pieces up to internal thread M6  
4 pieces from internal thread M6

L4 = maximum length until end of thread locking

Part number		Dimensions				
Standard "KNH"	Self-locking "KNHL"	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch² (mm²)	L1 inch (mm)	L4 inch (mm)
KNH1216J		3/4-16	1-1/8-12	2,4901 (1606,5)	1,12 (28,5)	
	KNHL1216J			2,4478 (1579,3)	1,25 (31,8)	0,68 (17,27)
KNH1210J		3/4-10	1-1/8-12	2,4901 (1606,5)	1,12 (28,5)	
	KNHL1210J			2,4478 (1579,3)	1,25 (31,8)	0,75 (19,05)
KNH1414J		7/8-14	1-1/4-12	3,1370 (2024,1)	1,25 (31,8)	
	KNHL1414J			3,0775 (1985,6)	1,37 (34,8)	0,69 (17,53)
KNH1409J		7/8-9	1-1/4-12	3,1370 (2024,1)	1,25 (31,8)	
	KNHL1409J			3,0775 (1985,6)	1,37 (34,8)	0,77 (19,56)
KNH1612J		1-12	1-3/8-12	3,8381 (2476,3)	1,37 (34,8)	
	KNHL1612J			3,7929 (2447,0)	1,50 (38,1)	0,78 (19,81)
KNH1608J		1-8	1-3/8-12	3,8381 (2476,3)	1,37 (34,8)	
	KNHL1608J			3,7929 (2447,0)	1,50 (38,1)	0,86 (21,84)

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol. - UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNH1216J	1,062 (26,97)	1,145 (29,08)	1-1/8-12 UNF	1,31 (33,27)	THD1216L	31/32 (24,61)	5/16 (7,94)
KNHL1216J				1,44 (36,58)			
KNH1210J	1,062 (26,97)	1,145 (29,08)	1-1/8-12 UNF	1,31 (33,27)	THD1210L	31/32 (24,61)	5/16 (7,94)
KNHL1210J				1,44 (36,58)			
KNH1414J	1,187 (30,15)	1,270 (32,26)	1-1/4-12 UNF	1,44 (36,58)	THD1414L	1-3/32 (27,78)	5/16 (7,94)
KNHL1414J				1,56 (39,62)			
KNH1409J	1,187 (30,15)	1,270 (32,26)	1-1/4-12 UNF	1,44 (36,58)	THD1409L	1-3/32 (27,78)	5/16 (7,94)
KNHL1409J				1,56 (39,62)			
KNH1612J	1,312 (33,32)	1,395 (35,43)	1-3/8-12 UNF	1,56 (39,62)	THD1612L	1-7/32 (30,96)	5/16 (7,94)
KNHL1612J				1,68 (42,67)			
KNH1608J	1,312 (33,32)	1,395 (35,43)	1-3/8-12 UNF	1,56 (39,62)	THD1608L	1-7/32 (30,96)	5/16 (7,94)
KNHL1608J				1,68 (42,67)			

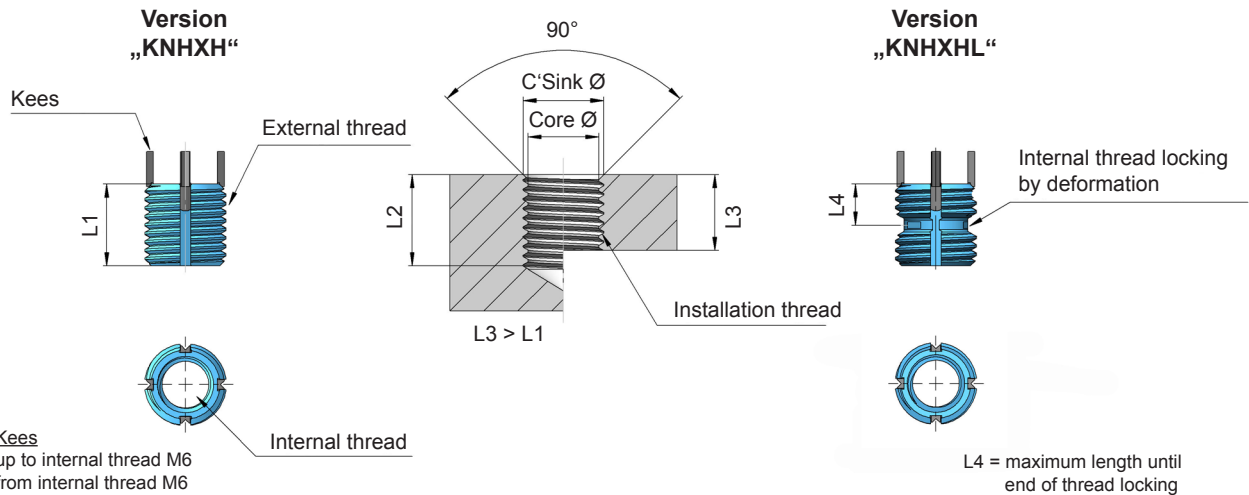
\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard “KNHXH”	Self-locking “KNHXHL”	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch² (mm²)	L1 inch (mm)	L4 inch (mm)
KNHXH1032J	KNHXHL1032J	10-32	7/16-14	0,2299 (148,3)	0,31 (7,9)	0,31 (7,90)
				0,1403 (90,5)		
KNHXH1024J	KNHXHL1024J	10-24	7/16-14	0,2299 (148,3)	0,31 (7,9)	0,31 (7,90)
				0,1403 (90,5)		
KNHXH428J	KNHXHL428J	1/4-28	1/2-13	0,2997 (193,4)	0,37 (9,4)	0,33 (8,38)
				0,2005 (129,4)		
KNHXH420J	KNHXHL420J	1/4-20	1/2-13	0,2997 (193,4)	0,37 (9,4)	0,36 (9,14)
				0,2005 (129,4)		
KNHXH524J	KNHXHL524J	5/16-24	9/16-12	0,4163 (268,6)	0,43 (10,9)	0,34 (8,64)
				0,3029 (195,4)		

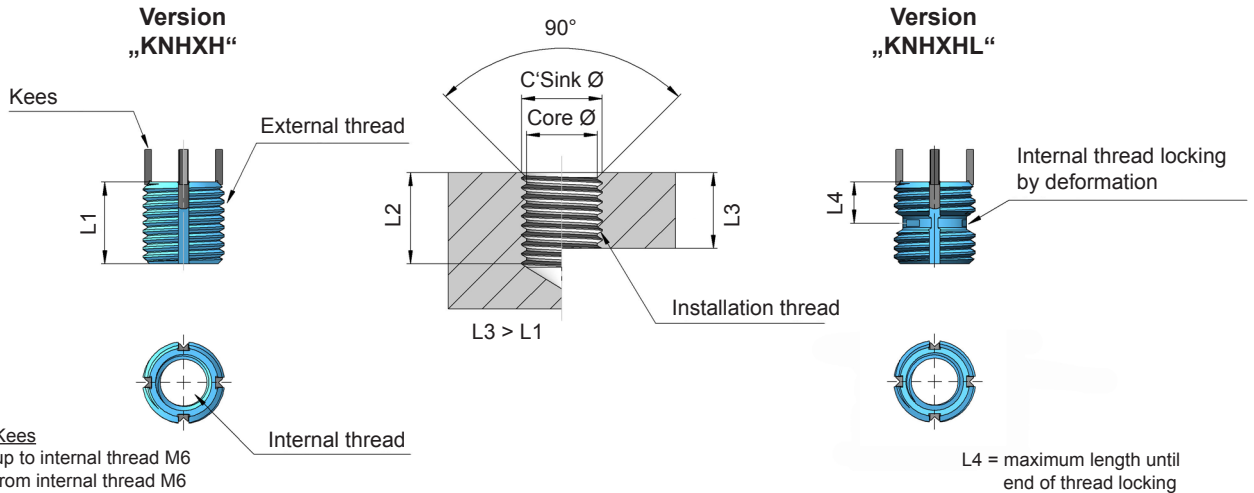
Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol.- UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNHXH1032J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,37 (9,40)	THXHD1032L	11/32 (8,73)	3/16 (4,76)
KNHXHL1032J							
KNHXH1024J	0,397 (10,08)	0,447 (11,35)	7/16-14	0,37 (9,40)	THXHD1024L	11/32 (8,73)	3/16 (4,76)
KNHXHL1024J							
KNHXH428J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,44 (11,18)	THXHD428L	13/32 (10,32)	3/16 (4,76)
KNHXHL428J							
KNHXH420J	0,453 (11,51)	0,510 (12,95)	1/2-13	0,44 (11,18)	THXHD420L	13/32 (10,32)	3/16 (4,76)
KNHXHL420J							
KNHXH524J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,50 (12,70)	THXHD524L	15/32 (11,91)	3/16 (4,76)
KNHXHL524J							

\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard “KNHXH”	Self-locking “KNHXHL”	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A mod.	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KNHXH518J		5/16-18	9/16-12	0,4163 (268,6)	0,43 (10,9)	
	KNHXHL518J			0,3029 (195,4)		0,37 (9,40)
KNHXH624J		3/8-24	5/8-11	0,5584 (360,3)	0,50 (12,7)	
	KNHXHL624J			0,4234 (273,8)		0,37 (9,40)
KNHXH616J		3/8-16	5/8-11	0,5584 (360,3)	0,50 (12,7)	
	KNHXHL616J			0,4234 (273,8)		0,41 (10,41)
KNHXH720J		7/16-20	11/16-11 NS	0,8000 (516,1)	0,62 (15,6)	
	KNHXHL720J			0,6498 (419,2)		0,42 (10,67)
KNHXH714J		7/16-14	11/16-11 NS	0,8000 (516,1)	0,62 (15,6)	
	KNHXHL714J			0,6498 (419,2)		0,46 (11,68)

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol.- UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNHXH518J	0,516 (13,11)	0,572 (14,53)	9/16-12	0,50 (12,70)	THXHD518L	15/32 (11,91)	3/16 (4,76)
KNHXHL518J							
KNHXH624J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,56 (14,22)	THXHD624L	17/32 (13,49)	3/16 (4,76)
KNHXHL624J							
KNHXH616J	0,578 (14,68)	0,635 (16,13)	5/8-11	0,56 (14,22)	THXHD616L	17/32 (13,49)	3/16 (4,76)
KNHXHL616J							
KNHXH720J	0,641 (16,28)	0,700 (17,80)	11/16-11 NS	0,68 (17,27)	THXHD720L	19/32 (15,08)	3/16 (4,76)
KNHXHL720J							
KNHXH714J	0,641 (16,28)	0,700 (17,80)	11/16-11 NS	0,68 (17,27)	THXHD714L	19/32 (15,08)	3/16 (4,76)
KNHXHL714J							

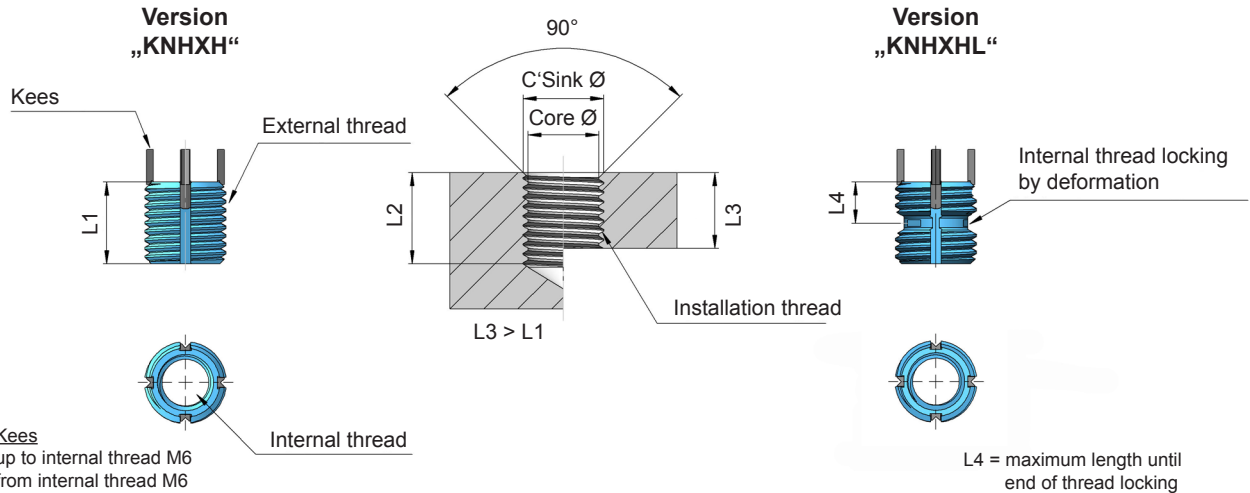


Quantity Kees  
2 pieces up to internal thread M6  
4 pieces from internal thread M6

Part number		Dimensions				
Standard "KNHXH"	Self-locking "KNHXHL"	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A	Shear engagement inch² (mm²)	L1 inch (mm)	L4 inch (mm)
KNHXH820J		1/2-20	13/16-16	1,0293 (664,1)	0,68 (17,3)	
	KNHXHL820J			0,8642 (557,6)		0,42 (10,67)
KNHXH813J		1/2-13	13/16-16	1,0293 (664,1)	0,68 (17,3)	
	KNHXHL813J			0,8642 (557,6)		0,47 (11,94)
KNHXH918J		9/16-18	7/8-14	1,3761 (887,8)	0,81 (20,6)	
	KNHXHL918J			1,1131 (718,1)		0,48 (12,19)
KNHXH912J		9/16-12	7/8-14	1,3761 (887,8)	0,81 (20,6)	
	KNHXHL912J			1,1131 (718,1)		0,54 (13,72)
KNHXH1018J		5/8-18	1-12	1,6420 (1059,4)	0,87 (22,1)	
	KNHXHL1018J			1,2770 (823,9)		0,51 (12,95)
KNHXH1011J		5/8-11	1-12	1,6420 (1059,4)	0,87 (22,1)	
	KNHXHL1011J			1,2770 (823,9)		0,59 (14,99)

Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol.- UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNHXH820J	0,766 (19,46)	0,822 (20,88)	13/16-16 UNF	0,75 (19,05)	THXHD820L	23/32 (18,26)	3/16 (4,76)
KNHXHL820J							
KNHXH813J	0,766 (19,46)	0,822 (20,88)	13/16-16 UNF	0,75 (19,05)	THXHD813L	23/32 (18,26)	3/16 (4,76)
KNHXHL813J							
KNHXH918J	0,828 (21,03)	0,885 (22,48)	7/8-14 UNF	0,94 (23,88)	THXHD918L	25/32 (19,84)	3/16 (4,76)
KNHXHL918J							
KNHXH912J	0,828 (21,03)	0,885 (22,48)	7/8-14 UNF	0,94 (23,88)	THXHD912L	25/32 (19,84)	3/16 (4,76)
KNHXHL912J							
KNHXH1018J	0,937 (23,80)	1,020 (25,91)	1-12 UNF	1,00 (25,40)	THXHD1018L	27/32 (21,43)	5/16 (7,94)
KNHXHL1018J							
KNHXH1011J	0,937 (23,80)	1,020 (25,91)	1-12 UNF	1,00 (25,40)	THXHD1011L	27/32 (21,43)	5/16 (7,94)
KNHXHL1011J							

\*the core Ø are different from SAE AS 8879



Part number		Dimensions				
Standard “KNHXH”	Self-locking “KNHXHL”	Internal thread Ø Tol.- 3B	External thread Ø Tol.- 2A	Shear engagement inch <sup>2</sup> (mm <sup>2</sup> )	L1 inch (mm)	L4 inch (mm)
KNHXH1216J		3/4-16	1-1/4-12	2,7966 (1804,2)	1,12 (28,5)	
	KNHXHL1216J			2,5505 (1645,5)	1,25 (31,8)	0,57 (14,48)
KNHXH1210J		3/4-10	1-1/4-12	2,7966 (1804,2)	1,12 (28,5)	
	KNHXHL1210J			2,5505 (1645,5)	1,25 (31,8)	0,64 (16,26)
KNHXH1414J		7/8-14	1-3/8-12	3,4652 (2235,6)	1,25 (31,8)	
	KNHXHL1414J			3,2769 (2114,1)	1,37 (34,8)	0,63 (16,00)
KNHXH1409J		7/8-9	1-3/8-12	3,4652 (2235,6)	1,25 (31,8)	
	KNHXHL1409J			3,2769 (2114,1)	1,37 (34,8)	0,71 (18,03)
KNHXH1612J		1-12	1-1/2-12	4,2374 (2733,8)	1,37 (34,8)	
	KNHXHL1612J			4,2135 (2718,4)	1,50 (38,1)	0,70 (17,78)
KNHXH1608J		1-8	1-1/2-12	4,2374 (2733,8)	1,37 (34,8)	
	KNHXHL1608J			4,2135 (2718,4)	1,50 (38,1)	0,78 (19,81)

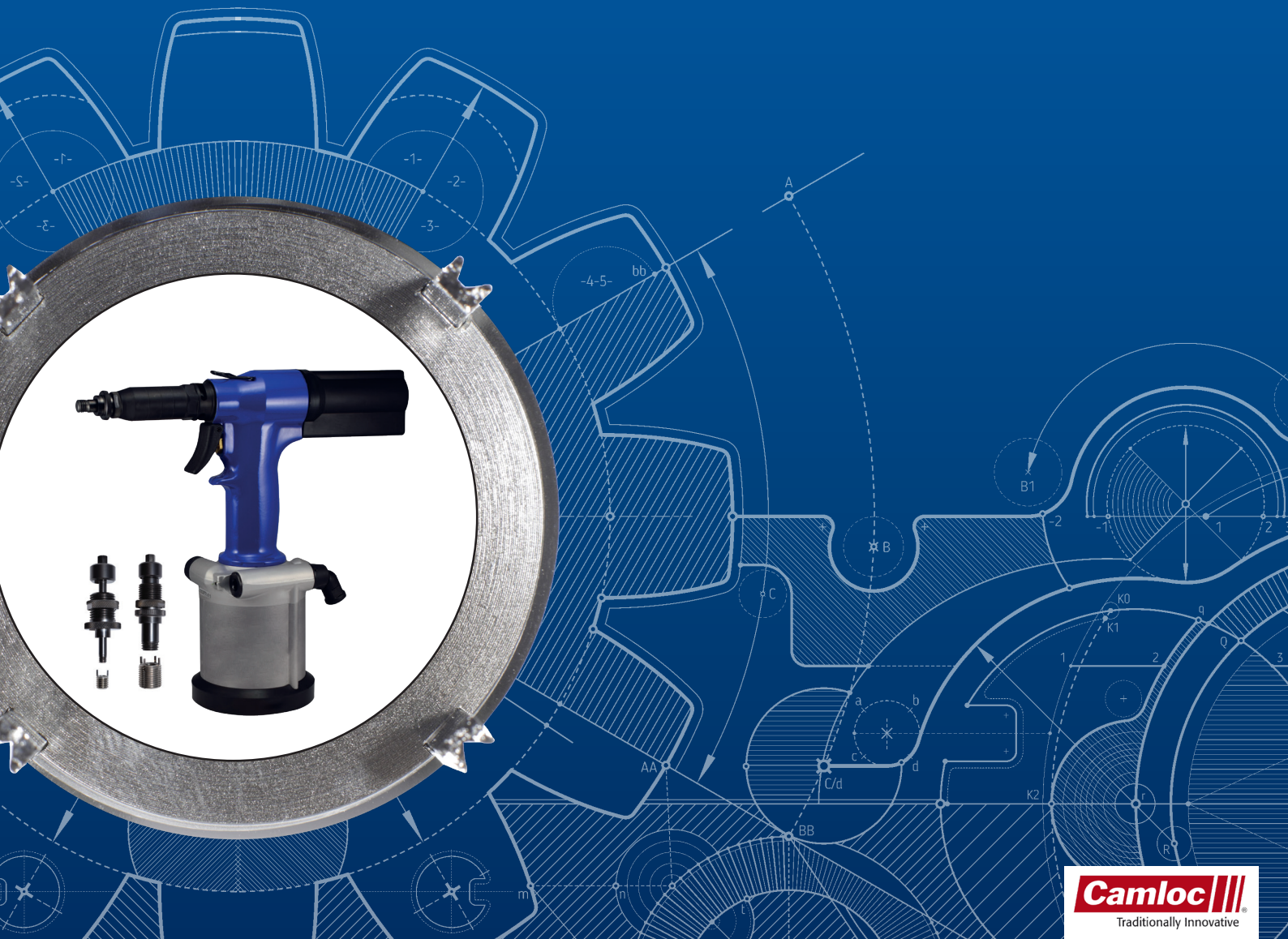
Part number	Installation dimensions				Hand installation tool part-no.	Removal dimensions	
	modified Core-Ø* inch (mm)	C'Sink-Ø inch +0,01 (mm) +0,25	Installation thread			Drill	
			Thread Tol. - UNC 2B	L2 min. inch (mm)		Ø inch (mm)	Depth inch (mm)
KNHXH1216J	1,187 (30,15)	1,270 (32,26)	1-1/4-12 UNF	1,31 (33,27)	THXHD1216L	1-3/32 (27,78)	5/16 (7,94)
KNHXHL1216J				1,44 (36,58)			
KNHXH1210J	1,187 (30,15)	1,270 (32,26)	1-1/4-12 UNF	1,31 (33,27)	THXHD1210L	1-3/32 (27,78)	5/16 (7,94)
KNHXHL1210J				1,44 (36,58)			
KNHXH1414J	1,312 (33,32)	1,395 (35,43)	1-3/8-12 UNF	1,44 (36,58)	THXHD1414L	1-7/32 (30,96)	5/16 (7,94)
KNHXHL1414J				1,56 (39,62)			
KNHXH1409J	1,312 (33,32)	1,395 (35,43)	1-3/8-12 UNF	1,44 (36,58)	THXHD1409L	1-7/32 (30,96)	5/16 (7,94)
KNHXHL1409J				1,56 (39,62)			
KNHXH1612J	1,437 (36,50)	1,520 (38,61)	1-1/2-12 UNF	1,56 (39,62)	THXHD1612L	1-11/32 (34,13)	5/16 (7,94)
KNHXHL1612J				1,68 (42,67)			
KNHXH1608J	1,437 (36,50)	1,520 (38,61)	1-1/2-12 UNF	1,56 (39,62)	THXHD1608L	1-11/32 (34,13)	5/16 (7,94)
KNHXHL1608J				1,68 (42,67)			

\*the core Ø are different from SAE AS 8879

# **KEENSERTS®**

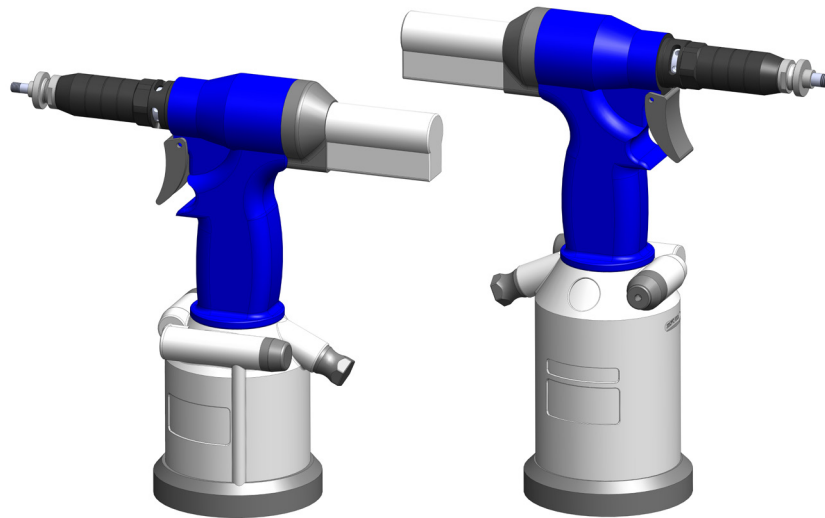
## **POWER TOOLS**

**HYDRO-PNEUMATIC TOOLS FOR KEENSERTS®**





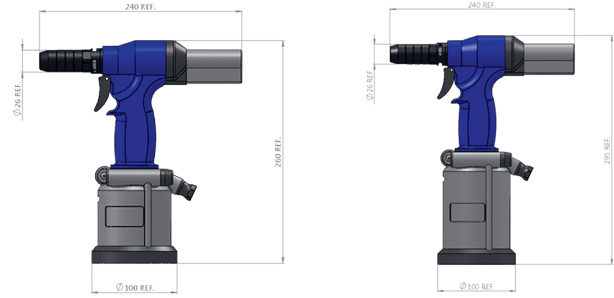




**KEENSERTS® PTC POWER TOOL**  
**HYDRO-PNEUMATIC TOOLS FOR CAMLOC® KEENSERTS® inserts**

## Features

- The hydro-pneumatic Power Tool 3352PTC-1 is designed to install metric KEENSERTS inserts from sizes M5 to M12 and imperial sizes from 1032/1024 to 813/820. The slightly larger Power Tool 3352PTC-2 has an extended spindle stroke. This allows even metric KEENSERTS inserts of sizes M5 to M24 to be installed quickly and efficiently.
- Due to the force control of the tools, individual adjustment is possible for the KEENSERTS inserts sizes or surrounding materials is possible.
- The one-button operation makes it easy to learn how to use the tools. The KEENSERTS inserts can be installed quickly and reliably.
- The hydro-pneumatic system is low maintenance, ergonomic and lightweight.
- Please note: Both the Power Tool 3352PTC-1 and the 3352PTC-2 are supplied in the basic version without Nosepieces has to be ordered separately.

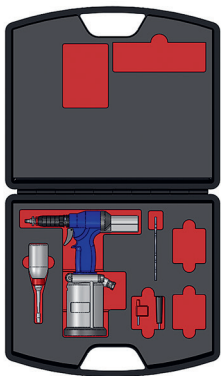


## Technical Data

Tool	3352PT1	3352PT2
Air working pressure	6 bar	6 bar
Min. – Max. air pressure	5 - 7 bar	5 - 7 bar
Air consumption per cycle at 6 bar	5 Liter / 1.3 gallons	5 Liter / 1.3 gallons
Max. stroke	6,5 mm / 0.26 inch	8 mm / 0.31 inch
Max. force	19.000 N / 4,300 lbf	19.000 N / 4,300 lbf
Weight (without Nosepieces)	1,800 Kg / 4 pounds	2,200 Kg / 4.85 pounds
Vibrations	< 2,5 m/s <sup>2</sup> / 8.2 ft/s <sup>2</sup>	< 2,5 m/s <sup>2</sup> / 8.2 ft/s <sup>2</sup>
Noise Level	76 dB (A)	76 dB (A)

## Standard Accessoires

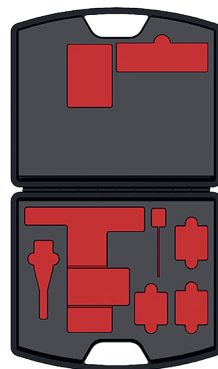
Ref.	Order Code	Quantity	Description
1	<b>3352PTC-1/ 3352PTC-2</b>	<b>1</b>	<b>Power Tool complete, consists of:</b>
	3352PT1/ 3352PT2	1	Power Tool
2	3352-3064400	1	Oil Bottle (Type ISO VG 32 100CC)
3	3352-1010	1	Plastic Tool Case
4	3352-0207300	1	Tool Wrench
5	3352-2533800	1	Removal Bolt
6	3352-4154200	1	Allen Wrench 3,0mm
	MNL-3352-1	1	Instruction Manual
	MNL-3352-2	1	Installation Manual



1



2



3



4



5



6

## Nosepieces

The power tool (3352PT1 or 3352PT2) is supplied without Nosepieces for installing the KEENSERTS inserts.

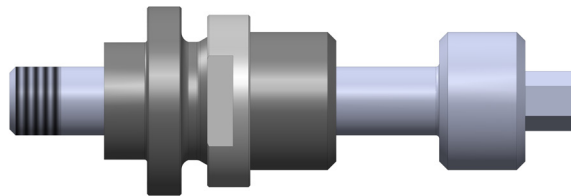
Please order the Nosepieces that is appropriate for your application in addition to the basic tool.

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## Nosepieces < M12

**Mandrel, driver and lock nut are part of a nosepiece set for KEENSERTS inserts installation.**

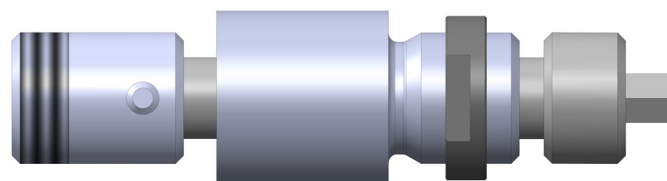
The Nosepiece for various KEENSERTS types are of modular design. In addition to each Nosepiece set, all components of the set are also available as individual parts. In addition to simplified spare parts ordering and reduced inventory, multiple use of components can be realized. For example, the same mandrel and lock nut can be used for both KEENSERTS inserts type KNM6 and KNHM6. Only a different driver piece is required. For the self-locking variant, the same nose piece can be used.



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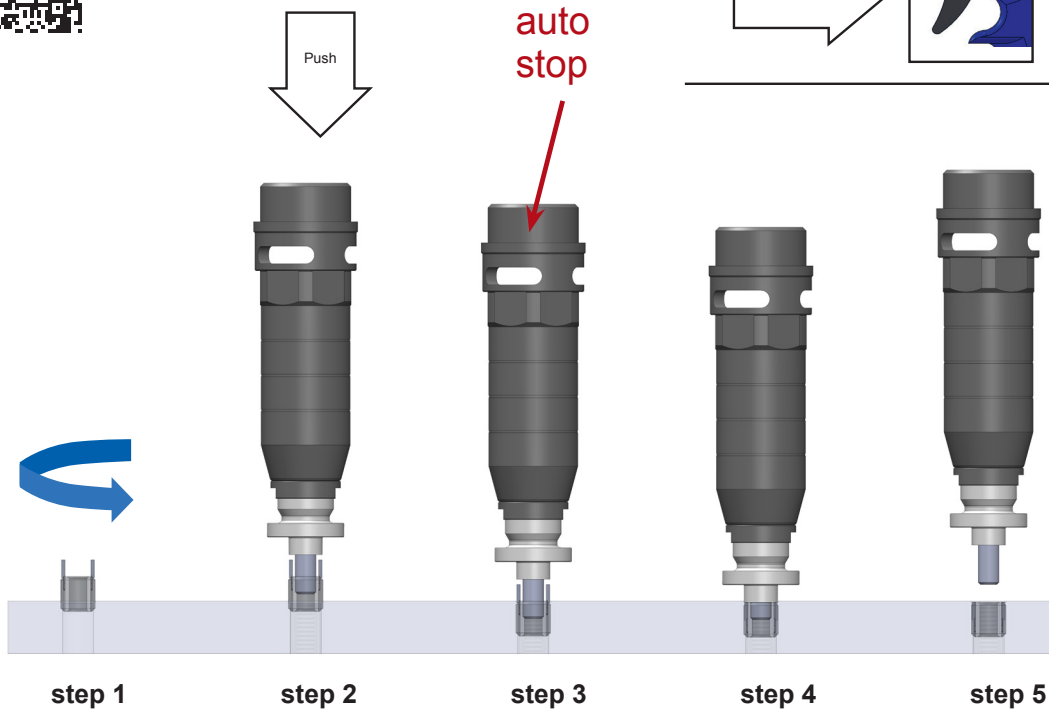
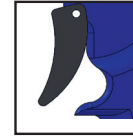
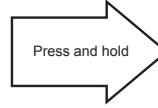
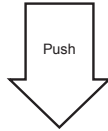
## Nosepieces > M16

For metric KEENSERTS inserts with an internal thread of M16 (KNHM16x2.0) and above, the Nosepieces are constructed differently and cannot be offered in a modular system.



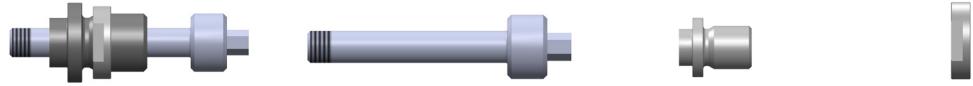
## Installation process

Click here:  
[Installation video](#)



step 1	step 2	step 3	step 4	step 5
Screw in the first pitches by hand (1-2 turns).	Screwing in the KEENSERT insert with the Power Tool by a push movement against the insert. No button operation necessary (self-activation).	Hold the tool horizontally, at a 90° angle. The screwing-in process stops automatically as soon as the KEES touch the surrounding material. The insert reaches its final screw-in depth.	Driving in the KEES by pressing the trigger.	Hold the trigger until the mandrel automatically rotates counter-clockwise and is completely rotated out of the KEENSERTS inserts.

**Available metric Nosepieces**



KEENSERTS Size	Nosepiece set	Spare Part Mandrel	Spare Part Driver	Spare Part Lock Nut
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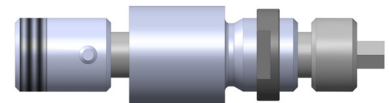
**KNM Series**

KNM(L)5x0,8	3352TM5x0,8AY	3352S04M5x0,8BY	3352S05M5AY	3352S03-1AY
KNM(L)6x1,0	3352TM6x1,0AY	3352S04M6x1,0BY	3352S05M6AY	
KNM(L)8x1,25	3352TM8x1,25AY	3352S04M8x1,25BY	3352S05M8AY	
KNM(L)10x1,5	3352TM10x1,5AY	3352S04M10x1,5BY	3352S05M10AY	
KNM(L)12x1,75	3352TM12x1,75AY	3352S04M12x1,75BY	3352S05M12AY	

**KNHM Series**

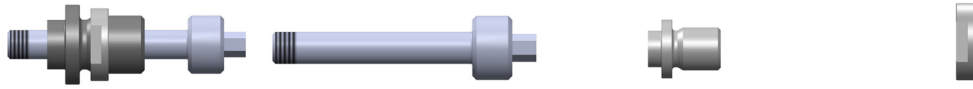
KNHM(L)5x0,8	3352THM5x0,8AY	3352S04M5x0,8BY	3352S05HM5AY	3352S03-1AY
KNHM(L)6x1,0	3352THM6x1,0AY	3352S04M6x1,0BY	3352S05HM6AY	
KNHM(L)8x1,25	3352THM8x1,25AY	3352S04M8x1,25BY	3352S05HM8AY	
KNHM(L)10x1,5	3352THM10x1,5AY	3352S04M10x1,5BY	3352S05HM10AY	
KNHM(L)12x1,75	3352THM12x1,75AY	3352S04M12x1,75BY	3352S05HM12AY	

**KNHM Series above M16, one-part nosepiece (3352PTC-2 required)**



KNHM16x2,0	3352THM16x2,0AY	No single components available
KNHM18x1,5	3352THM18x1,5AY	
KNHM20x2,5	3352THM20x2,5AY	
KNHM24x3,0	3352THM24x3,0AY	

## Available imperial Nosepieces



KEENSERTS Size	Nosepiece set	Spare Part Mandrel	Spare Part Driver	Spare Part Lock Nut
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### KNJ Series

KN(L)1032J	3352T1032AY	3352S01-1032BY	3352S02-10AY	3352S03-1AY
KN(L)1024J	3352T1024AY	3352S01-1024BY		
KN(L)428J	3352T428AY	3352S01-428BY	3352S02-1/4AY	
KN(L)420J	3352T420AY	3352S01-420BY		
KN(L)524J	3352T524AY	3352S01-524BY	3352S02-5/16AY	
KN(L)518J	3352T518AY	3352S01-518BY		
KN(L)624J	3352T624AY	3352S01-624BY	3352S02-3/8AY	
KN(L)616J	3352T616AY	3352S01-616BY		
KN(L)720J	3352T720AY	3352S01-720BY	3352S02-7/16AY	
KN(L)714J	3352T714AY	3352S01-714BY		
KN(L)820J	3352T820AY	3352S01-820BY	3352S02-1/2AY	
KN(L)813J	3352T813AY	3352S01-813BY		

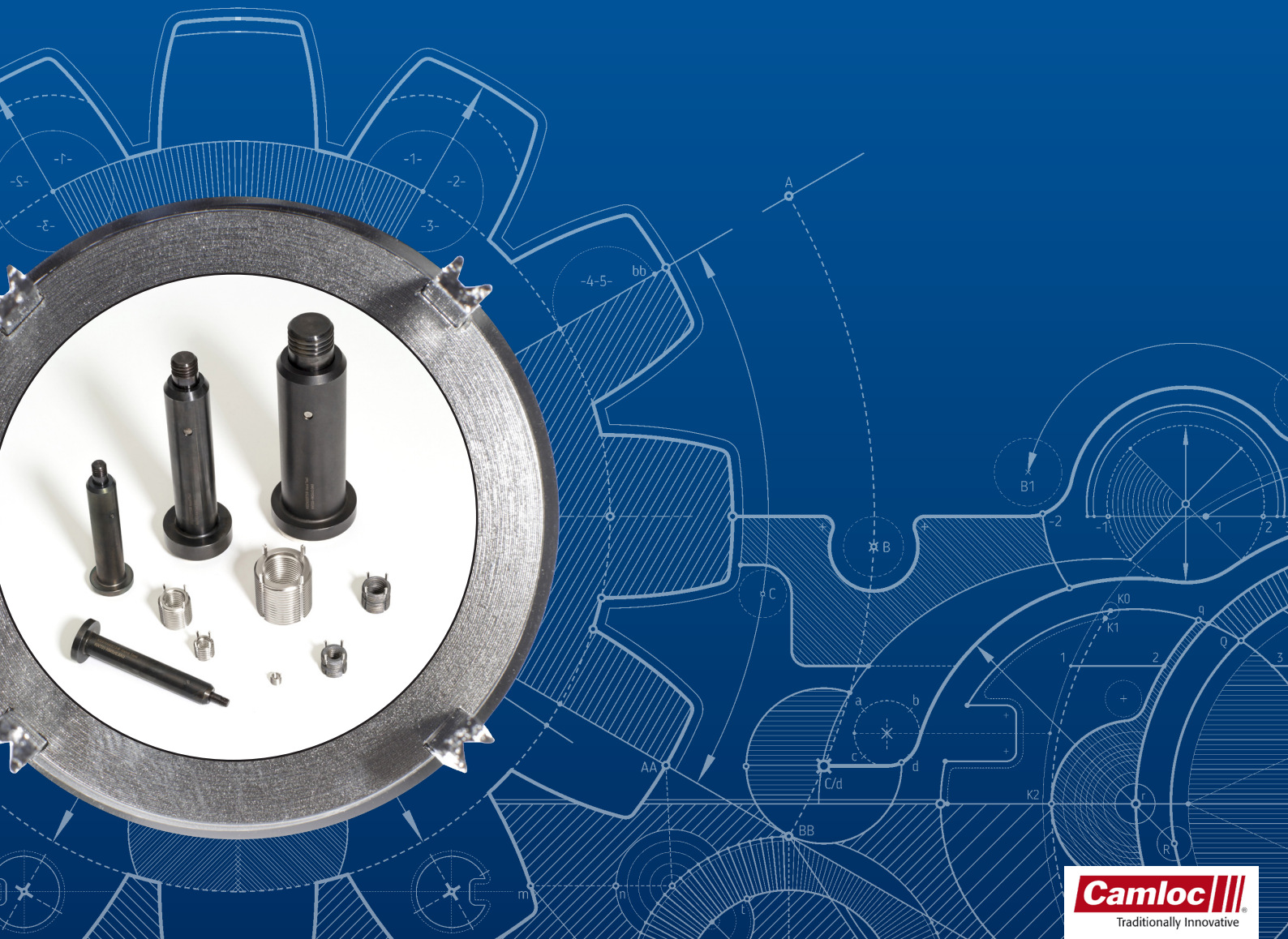
### KNHJ Series

KNH(L)1032J	3352TH1032AY	3352S01-1032BY	3352S02-H10AY	3352S03-1AY
KNH(L)1024J	3352TH1024AY	3352S01-1024BY		
KNH(L)428J	3352TH428AY	3352S01-428BY	3352S02-H1/4AY	
KNH(L)420J	3352TH420AY	3352S01-420BY		
KNH(L)524J	3352TH524AY	3352S01-524BY	3352S02-H5/16AY	
KNH(L)518J	3352TH518AY	3352S01-518BY		
KNH(L)624J	3352TH624AY	3352S01-624BY	3352S02-H3/8AY	
KNH(L)616J	3352TH616AY	3352S01-616BY		
KNH(L)720J	3352TH720AY	3352S01-720BY	3352S02-H7/16AY	
KNH(L)714J	3352TH714AY	3352S01-714BY		
KNH(L)820J	3352TH820AY	3352S01-820BY	3352S02-H1/2AY	
KNH(L)813J	3352TH813AY	3352S01-813BY		

# **KEENSERTS®**

## **Hand tool series**

### **Series KNT**







## The new KEENSERTS® hand tool series KNT

The new hand tool series KNT is an improved version of the existing tools. In addition to simpler and faster installation, process reliability has been improved.

The new tool has a two-part design and a telescopic guide, which prevents damage to the KEES during installation. A jamming of the tool and the associated bending or breaking of the KEES is reliably prevented.

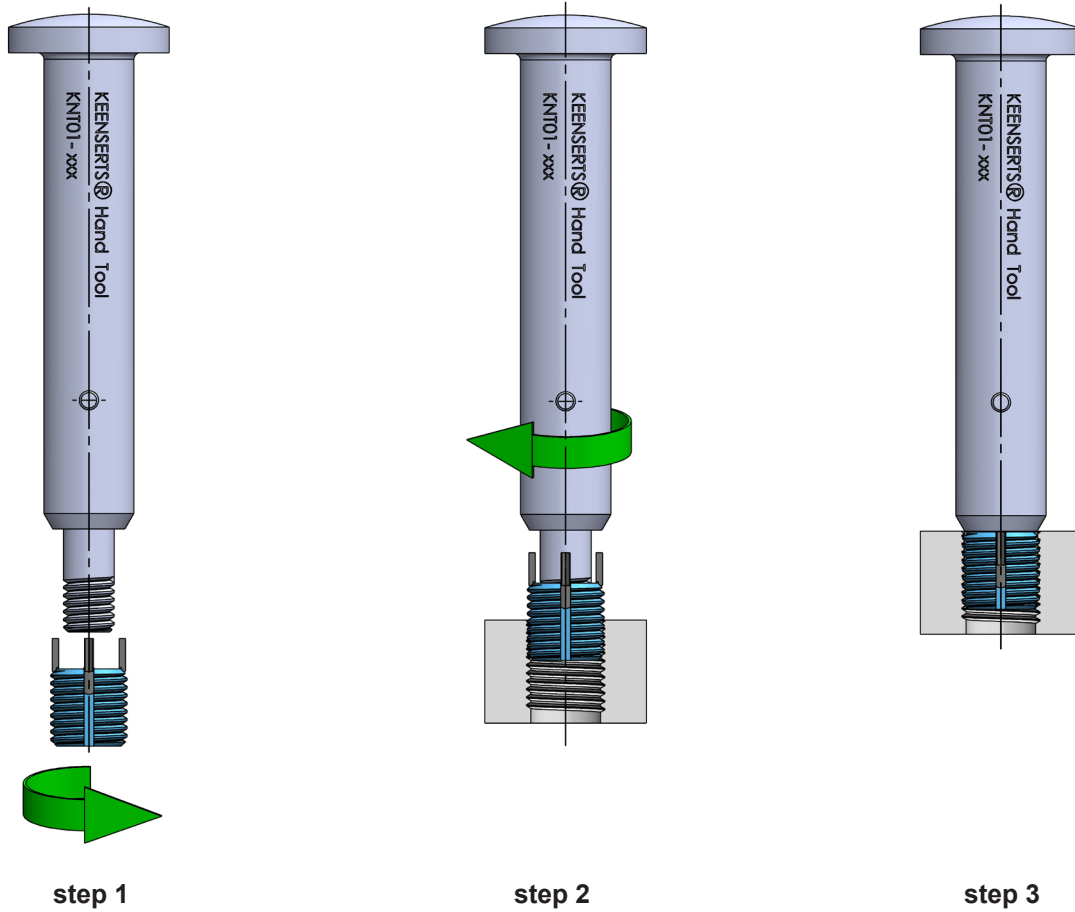


- > The hardened sleeve ensures high numbers of installation cycles.
- > Mushroom head style provides hand protection during hammering.
- > The slim diameter of the tip allows installation even into counter-sunk holes.
- > The KEES are installed flush to the KEENSERTS inserts surface.
- > The tool is made up of two parts providing easy guidance and eliminating any damage to the kees.

**Click here:**  
KEENSERTS -  
Hand Tool KNT Series



## Installation process



step 1	step 2	step 3
<p>Screw the KEENSERTS inserts onto the threaded pin up to the end.</p>	<p>Screw the KEENSERTS inserts into the workpiece until the KEES stop on the chamfer or the favored depth is reached (recommended hole preparation).</p>	<p>Drive in the KEES with short and precise hammer taps. KEES can controlled after each tap until the favored depth is reached or until the anvil stops on the chamfer (final position).</p>

## Available tool sizes

KEENSERTS Size	Part number
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### KNT01

KNHM(L)4X0,7	KNT01-HM4x0,7AU
KNM(L)5X0,8	KNT01-M5x0,8AU
KNHM(L)5X0,8	KNT01-HM5x0,8AU
KNM(L)6X1,0	KNT01-M6x1,0AU
KNHM(L)6X1,0	KNT01-HM6x1,0AU
KNM(L)8X1,25	KNT01-M8x1,25AU
KNHM(L)8X1,25	KNT01-HM8x1,25AU
KNM(L)10X1,5	KNT01-M10x1,5AU
KNHM(L)10X1,5	KNT01-HM10x1,5AU
KNM(L)12X1,75	KNT01-M12x1,75AU
KNHM(L)12X1,75	KNT01-HM12x1,75AU

### KNT03

KNHM(L)14x2,0	KNT03-HM14x2,0AU
KNHM(L)16x2,0	KNT03-HM16x2,0AU
KNHM(L)18x1,5	KNT03-HM18x1,5AU
KNHM(L)20x2,5	KNT03-HM20x2,5AU
KNHM(L)24x3,0	KNT03-HM24x3,0AU

