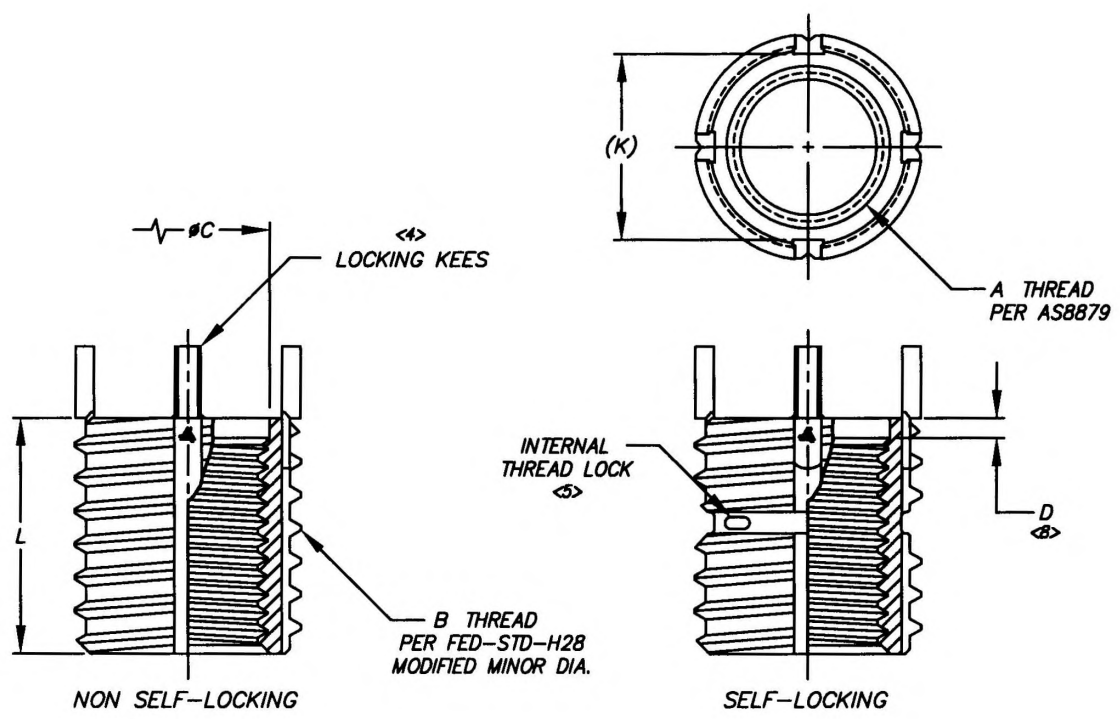




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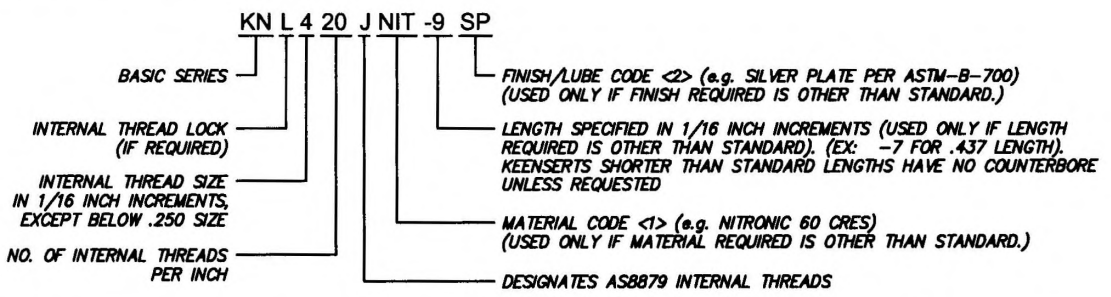
**NOTES:**

- <1> MATERIAL CODES:**  
 1.1 STANDARD MATERIAL IS 303 CRES PER AMS 5640 OR ASTM-A-582, OR 303SE PER AMS 5640, AMS 5738 OR ASTM-A-582.  
 1.2 OPTIONAL MATERIALS WITH THEIR DESIGNATED FINISH:  
 F = C1215 CARBON STEEL OR EQUIVALENT. COATED WITH PARKERIZE.  
 M = CHROME MOLY STEEL, TYPE 4140 PER AMS 6382 OR TYPE 8740 PER AMS 6322. 125 KSI MINIMUM TENSILE STRENGTH. IDENTIFIED BY TWO NON-PARALLEL DASH MARKS ON TOP OF INSERT. CAD PLATE PER AMS-QQ-P-416, TYPE I, CLASS 3.  
 MX = CHROME MOLY STEEL, TYPE 4140 PER AMS 6382 OR TYPE 8740 PER AMS 6322. 160 KSI MINIMUM TENSILE STRENGTH. IDENTIFIED BY TWO PARALLEL DASH MARKS ON TOP OF INSERT. CAD PLATE PER AMS-QQ-P-416, TYPE I, CLASS 3.  
 NIT = ARMCQ, NITRONIC 60 CRES PER ASTM-A-479 OR AMS 5848. PASSIVATE PER AMS 2700. IDENTIFIED BY FOUR (4) DASH MARKS APPROXIMATELY 90° APART.  
 T = A286 CRES PER AMS 5731, AMS 5732 OR AMS 5737. 140 KSI MINIMUM TENSILE STRENGTH. IDENTIFIED BY ONE DASH MARK ON TOP OF INSERT. PASSIVATE PER AMS 2700.  
 TX = A286 CRES PER AMS 5731. 160 KSI MINIMUM TENSILE STRENGTH. IDENTIFIED BY LETTER "H" ON TOP OF INSERT. PASSIVATE PER AMS 2700.  
 1.3 KEE MATERIAL FOR ALL STANDARD AND SPECIAL MATERIAL INSERTS IS 302 CRES PER ASTM-A-580 (CHEMISTRY ONLY) CONTACT ENGINEERING FOR OPTIONAL KEE MATERIALS.

- <2> FINISH CODES:**  
 NO CODE = PASSIVATE PER AMS 2700.  
 SP = SILVER PLATE PER ASTM-B-700, TYPE I, GRADE A, CLASS N.  
 SX = CAD PLATE PER AMS-QQ-P-416, TYPE I, CLASS 3.  
 SY = CAD PLATE PER AMS-QQ-P-416, TYPE II, CLASS 3.  
 SZ = CAD PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2.

DRY FILM LUBRICANT ON ALL LOCKING INSERTS UNLESS SPECIFIED BY ADDING "NE" TO FINISH CODE.

**3. PART NUMBER EXAMPLE: KNL420JNIT-9SP**



APPROVED DATE 17 FEB 99	CURRENT DESIGN ACTIVITY: Howmet Fastening Systems (HFS) TOLLANCE OPERATIONS	TITLE: - KEENSERT INSERT - LIGHTWEIGHT INSERTS KN SERIES	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER AND DATE K 03/31/2001	Tridair Products 3000 W. Lomita Blvd Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO.
DAF NUMBER 119225			KN(L)
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 1 OF 3



TABLE 1

PART NUMBER	DIMENSIONS													
	A INTERNAL THREAD CLASS 3B	B EXTERNAL THREAD		APPROX. MIN. SHEAR ENGAG. AREA in <sup>2</sup>	C DIA ±.005	D	(K)	L ±.015						
		CLASS 2A	MOD. MINOR DIA.											
KN1032J	.1900-32 UN.F	.3125-18 UNC	.256 .249	.1517	.196	.070	.220	.312						
KNL1032J				.0945										
KN1024J	.1900-24 UN.JC			.3750-16 UNC					.320 .312	.1517	.257	.070	.284	.375
KNL1024J										.0945				
KN428J	.2500-28 UN.F	.4375-14 UNC	.383 .375		.2371	.316	.070	.345		.437				
KNL428J					.1726									
KN420J	.2500-20 UN.JC			.5000-13 UNC	.440 .432				.2371		.380	.070	.407	.500
KNL420J									.1726					
KN524J	.3125-24 UN.F	.5625-12 UNC	.503 .495			.3049	.445	.070	.469	.562				
KNL524J						.2321								
KN518J	.3125-18 UN.JC			.6250-11 UNC	.565 .551	.3049					.507	.070	.532	.625
KNL518J						.2321								
KN624J	.3750-24 UN.F	.7175	.5906			.4299	.507	.070	.532	.625				
KNL624J						.3366								
KN616J	.3750-16 UN.JC			.7175	.5906	.4299					.507	.070	.532	.625
KNL616J						.3366								
KN720J	.4375-20 UN.F	.7175	.5906			.5665	.507	.070	.532	.625				
KNL720J						.4606								
KN714J	.4375-14 UN.JC			.7175	.5906	.5665					.507	.070	.532	.625
KNL714J						.4606								
KN820J	.5000-20 UN.F	.7175	.5906			.7175	.507	.070	.532	.625				
KNL820J						.5906								
KN813J	.5000-13 UN.JC			.7175	.5906	.7175					.507	.070	.532	.625
KNL813J						.5906								

NOTES: (CONTINUED)

- <4> INSERTS WITH INTERNAL THREAD SIZE .2500 AND UNDER ARE FURNISHED WITH TWO (2) LOCKING KEES. SIZE .3125 AND ABOVE ARE FURNISHED WITH FOUR (4) LOCKING KEES.
- <5> INTERNAL THREAD LOCK PERFORMANCE IS PER MIL-I-45914 SPECIFICATION.
- 6. ALL DIMENSIONS APPLY AFTER PLATING BUT PRIOR TO LUBRICATION.
- 7. REFER TO SPECIFICATION S-70248 FOR ADDITIONAL INFORMATION REGARDING MATERIAL FINISH, ETC CODES.
- <8> INSERTS SHORTER THAN THE STANDARD LENGTH HAVE NO C'BORE.

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REV. LETTER AND DATE K 03/31/20	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 119225	Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES	KN(L) SHEET 2 OF 3

ANGLES = ±3°  
DECIMALS .XX = ±.02  
.XXX = ±.010

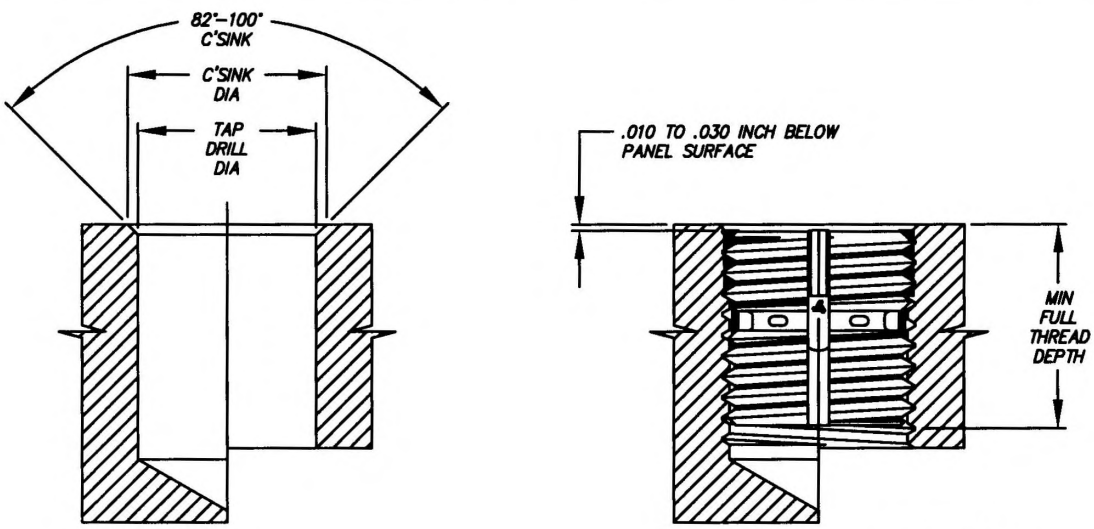


TABLE II  
BLIND HOLE INSTALLATION      THRU HOLE INSTALLATION

PART NUMBER	INSTALLATION DATA				REMOVAL DATA		
	TAP DRILL DIA	C'SINK DIA +.010 -.000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 2B	MIN. DEPTH		SIZE	DEPTH
KN1032J	.276 .271	.323	.3125-18 UNC	.37	TD 1032L	7/32	5/32
KNL1032J					TD 1024L		
KN1024J					TD 1024L		
KNL1024J	.336 .331	.385	.3750-16 UNC	.43	TD 428L	9/32	
KN428J					TD 420L		
KNL428J					TD 420L		
KN420J	.401 .396	.447	.4375-14 UNC	.50	TD 524L	11/32	
KNL524J					TD 518L		
KN518J					TD 518L		
KNL518J	.457 .452	.510	.5000-13 UNC	.56	TD 624L	13/32	3/16
KN624J					TD 616L		
KNL624J					TD 616L		
KN616J	.521 .515	.572	.5625-12 UNC	.62	TD 720L	15/32	
KN720J					TD 714L		
KNL720J					TD 714L		
KN714J	.583 .577	.635	.6250-11 UNC	.68	TD 820L	17/32	
KN820J					TD 813L		
KNL820J					TD 813L		
KN813J							
KNL813J							

9. **INSTALLATION PROCEDURES:**  
 9.1 PREPARE PANEL PER THE DIMENSIONS SHOWN IN TABLE II.  
 9.2 SCREW IN INSERT WITH FINGERS OR INSTALLATION TOOL. INSERT IS DESIGNED TO STOP AT CORRECT DEPTH.  
 9.3 DRIVE LOCKING KEES DOWN USING THE INSTALLATION TOOL.
10. **REMOVAL PROCEDURES:**  
 10.1 USE THE DRILL SIZES AND DEPTHS SPECIFIED IN TABLE II TO REMOVE MATERIAL BETWEEN THE KEES.  
 10.2 DEFLECT KEES INWARD AND BREAK OFF.  
 10.3 REMOVE INSERT WITH AN "EASY OUT" TYPE TOOL.

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REV. LETTER AND DATE K 03/31/2020	TORRANCE OPERATIONS		SALES DRAWING NO.
DAF NUMBER 119225	Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	KN(L)
		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 3 OF 3