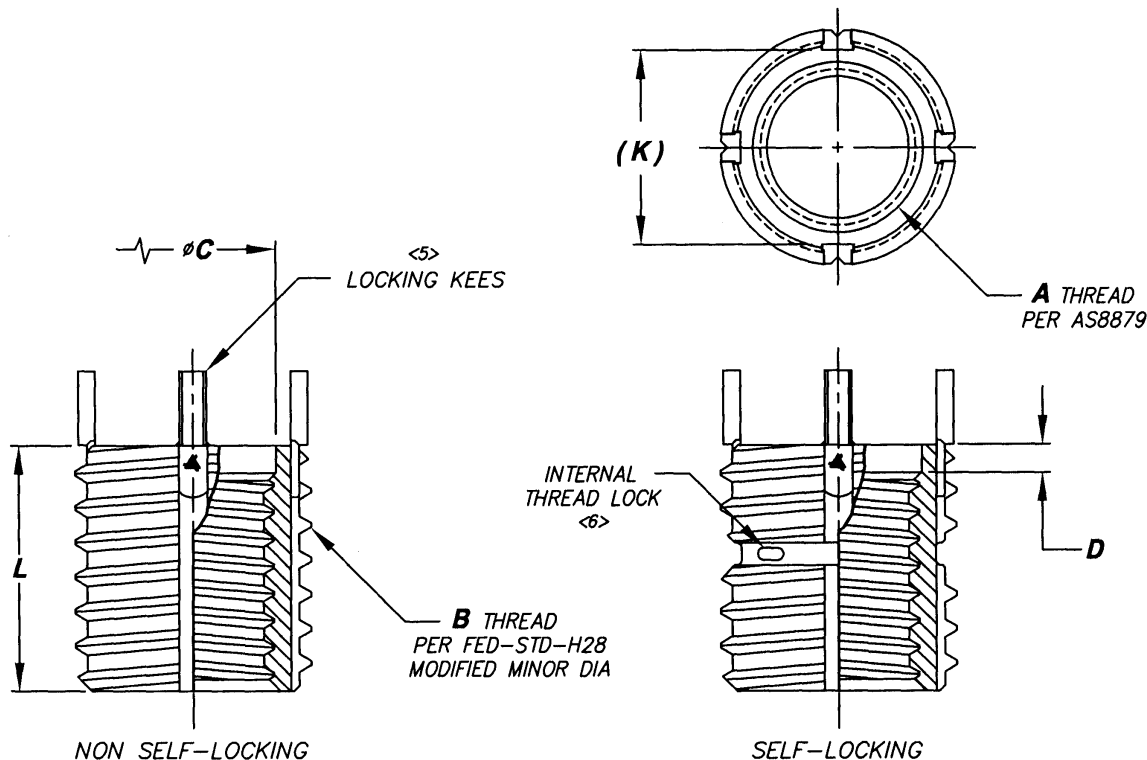


Camloc . Delron . Deutsch . Huck . K-Fast . Kaynar . Microdot . RAM . Rosan . Screwcorp . Tridair . Voi-Shan

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT IS ABSOLUTELY PROHIBITED



NOTES:

<1> MATERIAL CODES:

1.1 STANDARD MATERIAL IS 303 CRES PER AMS 5640 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 = ARMCO, NITRONIC 60 CRES PER ASTM-A-479 OR AMS 5848. PASSIVATE PER AMS 2700, TYPE 2. 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, TYPE 2.
- TX = A286 CRES PER AMS 5731. 160 KSI MINIMUM TENSILE STRENGTH. PASSIVATE PER AMS 2700, TYPE 2.
- MONEL R = MONEL R405 PER QQ-N-281

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.

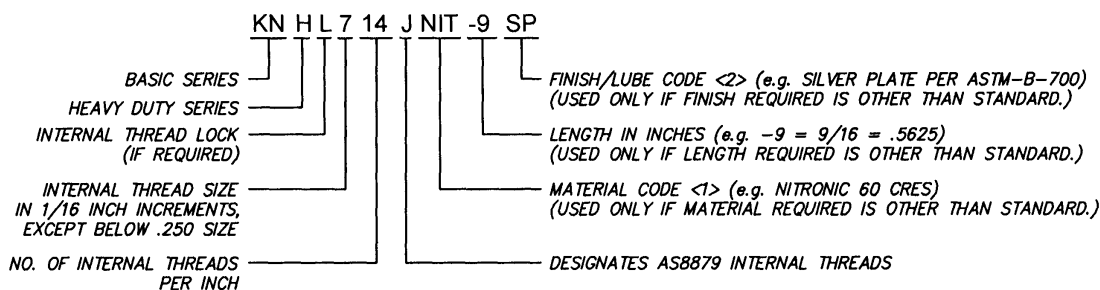
<2> FINISH CODES:

- NO CODE= PASSIVATE PER AMS 2700, TYPE 2.
- 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.

INTERIM DOCUMENT REVISION		
Rev.	Date	DAF#
MI	10/8/2018	117431

3. PART NUMBER EXAMPLE: KNHL714JNIT-9SP



THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

APPROVED DATE 18 FEB 99	CURRENT DESIGN ACTIVITY: ARCONIC Arconic Fastening Systems	TITLE: -KEENSERT INSERT- HEAVY DUTY INSERTS KNH SERIES	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER AND DATE M 3/6/12	Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO. KNH(L)
DAF NUMBER 100004		ANGLES = ±3' DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 1 OF 4

TABLE 1

PART NUMBER	DIMENSIONS							
	A INTERNAL THREAD CLASS 3B	B EXTERNAL THREAD		MIN. SHEAR ENGAG. AREA in ²	C DIA ±.005	D	(K)	L ±.015
		CLASS 2A	MOD. MINOR DIA.					
KNH0832J	.1640-32 UNJC	.3125-18 UNC	.256 .249	.1517 .0945	.172	.040	.220	
KNHL0832J								
KNH1032J	.1900-32 UNJF	.3750-16 UNC	.320 .312	.1901 .1156 .1901 .1156	.196		.284	.312
KNHL1032J								
KNH1024J	.1900-24 UNJC							
KNHL1024J								
KNH428J	.2500-28 UNJF	.4375-14 UNC	.383 .375	.2842 .1970 .2842 .1970	.257		.344	.375
KNHL428J								
KNH420J	.2500-20 UNJC							
KNHL420J								
KNH524J	.3125-24 UNJF	.5000-13 UNC	.440 .432	.3588 .2608 .3588 .2608	.316		.407	.437
KNHL524J								
KNH518J	.3125-18 UNJC							
KNHL518J								
KNH624J	.3750-24 UNJF	.5625-12 UNC	.503 .495	.4975 .3843 .4975 .3843	.380		.469	.500
KNHL624J								
KNH616J	.3750-16 UNJC							
KNHL616J								
KNH720J	.4375-20 UNJF	.6250-11 UNC	.565 .551	.7172 .5831 .7172 .5831	.445		.532	.625
KNHL720J								
KNH714J	.4375-14 UNJC							
KNHL714J								
KNH820J	.5000-20 UNJF	.6875-11 NS	.625 .615	.8884 .7368 .8884 .7368	.507		.595	.688
KNHL820J								
KNH813J	.5000-13 UNJC							
KNHL813J								
KNH918J	.5625-18 UNJF	.8125-16 UN	.752 .744	1.2493 1.0247 1.2493 1.0247	.580		.720	.812
KNHL918J								
KNH912J	.5625-12 UNJC							
KNHL912J								
KNH1018J	.6250-18 UNJF	.8750-14 UNF	.815 .807	1.4866 1.2415 1.4866 1.2415	.640	.100	.782	.875
KNHL1018J								
KNH1011J	.6250-11 UNJC							
KNHL1011J								
KNH1216J	.7500-16 UNJF	1.1250-12 UNF	1.050 1.040	2.4901 2.4478 2.4901 2.4478	.763		.975	1.125 1.250 1.125 1.250
KNHL1216J								
KNH1210J	.7500-10 UNJC							
KNHL1210J								
KNH1414J	.8750-14 UNJF	1.2500-12 UNF	1.175 1.165	3.1370 3.0775 3.1370 3.0775	.888		1.100	1.250 1.375 1.250 1.375
KNHL1414J								
KNH1409J	.8750-9 UNJC							
KNHL1409J								
KNH1612J	1.0000-12 UNJF	1.3750-12 UNF	1.300 1.290	3.8381 3.7929 3.8381 3.7929	1.015		1.225	1.375 1.500 1.375 1.500
KNHL1612J								
KNH1608J	1.0000-8 UNJC							
KNHL1608J								
KNH1812J	1.125-12 UNJF	1.500-12 UNF	1.423 1.417	5.0514 5.1516 5.0519 5.1516	1.140		1.346	1.625 1.750 1.625 1.750
KNHL1812J								
KNH1807J	1.125-7 UNJC							
KNHL1807J								

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT IS ABSOLUTELY PROHIBITED

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

INTERIM DOCUMENT REVISION		
Rev.	Date	DAF#
M	10/8/2018	117431


APPROVED DATE 18 FEB 99	CURRENT DESIGN ACTIVITY:  ARCONIC Arconic Fastening Systems	TITLE: -KEENSERT INSERT- HEAVY DUTY INSERTS KNH SERIES	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER AND DATE M 3/6/12 A	Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO. KNH(L)
DAF NUMBER 100064		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 2 OF 4


TABLE II

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
KNH0832J	.276	.323	.3125-18 UNC		THD 0832L	7/32	1/8
KNHL0832J	.271						
KNH1032J	.336 .331	.385	.3750-16 UNC	.37	THD 1032L	9/32	
KNHL1032J							
KNH1024J							
KNHL1024J					THD 1024L		
KNH428J	.401 .396	.447	.4375-14 UNC	.43	THD 428L	11/32	
KNHL428J							
KNH420J							
KNHL420J					THD 420L		
KNH524J	.457 .452	.510	.5000-13 UNC	.50	THD 524L	13/32	
KNHL524J							
KNH518J							
KNHL518J					THD 518L		
KNH624J	.521 .515	.572	.5625-12 UNC	.56	THD 624L	15/32	
KNHL624J							
KNH616J							
KNHL616J					THD 616L		
KNH720J	.583 .577	.635	.6250-11 UNC	.68	THD 720L	17/32	
KNHL720J							
KNH714J							
KNHL714J					THD 714L		
KNH820J	.646 .640	.700	.6875-11 NS	.75	THD 820L	19/32	
KNHL820J							
KNH813J							
KNHL813J					THD 813L		
KNH918J	.771 .765	.822	.8125-16 UN	.94	THD 918L	23/32	
KNHL918J							
KNH912J							
KNHL912J					THD 912L		
KNH1018J	.833 .827	.885	.8750-14 UNF	1.00	THD 1018L	25/32	
KNHL1018J							
KNH1011J							
KNHL1011J					THD 1011L		
KNH1216J	1.067 1.061	1.145	1.1250-12 UNF	1.31	THD 1216L	31/32	
KNHL1216J				1.44			
KNH1210J				1.31	THD 1210L		
KNHL1210J				1.44			
KNH1414J	1.192 1.186	1.270	1.2500-12 UNF	1.44	THD 1414L	1-3/32	
KNHL1414J				1.56			
KNH1409J				1.44	THD 1409L		
KNHL1409J	1.56						
KNH1612J	1.317 1.311	1.395	1.3750-12 UNF	1.56	THD 1612L	1-7/32	
KNHL1612J				1.68			
KNH1608J				1.56	THD 1608L		
KNHL1608J	1.68						
KNH1812J	1.443 1.437	1.520	1.500-12 UNF	1.80	THD 1812L	1-11/32	
KNHL1812J				1.93			
KNH1807J				1.80	THD 1807L		
KNHL1807J				1.93			

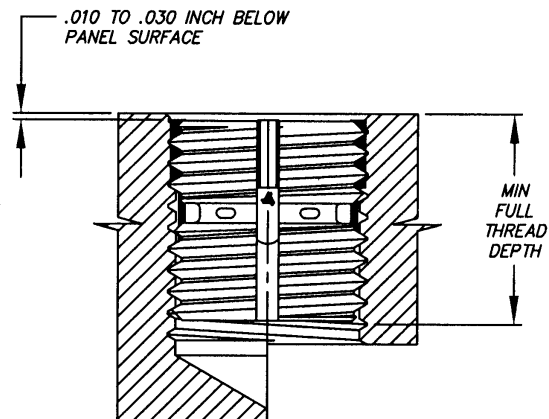
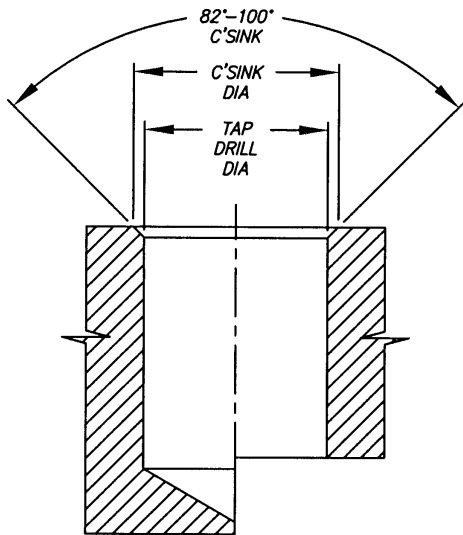
MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT IS ABSOLUTELY PROHIBITED

THIS DRAWING EMBODIES A CONFIDENTIAL PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.

INTERIM DOCUMENT REVISION	
Rev.	DAF#
M1	117431
Date	
10/8/2018	

APPROVED DATE 18 FEB 99	CURRENT DESIGN ACTIVITY:  ARCONIC Arconic Fastening Systems	TITLE: -KEENSERT INSERT- HEAVY DUTY INSERTS KNH SERIES	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER AND DATE M 3/6/12	Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO. KNH(L)
DAF NUMBER 100004		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	SHEET 3 OF 4

MANUFACTURE OF THE PROPRIETARY PARTS SHOWN HERE WITHOUT WRITTEN CONSENT IS ABSOLUTELY PROHIBITED




BLIND HOLE INSTALLATION

THRU HOLE INSTALLATION

4. REFER TO SPECIFICATION S-70248 FOR ADDITIONAL INFORMATION REGARDING MATERIAL, FINISH, ETC CODES.
- <5> 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.
- <6> INTERNAL THREAD LOCK PERFORMANCE IS PER MIL-I-45914 SPECIFICATION.
7. ALL DIMENSIONS APPLY AFTER PLATING BUT PRIOR TO LUBRICATION.
8. INSTALLATION PROCEDURES:
 - 8.1 PREPARE PANEL PER THE DIMENSIONS SHOWN IN TABLE II.
 - 8.2 SCREW IN INSERT WITH FINGERS OR INSTALLATION TOOL. INSERT IS DESIGNED TO STOP AT CORRECT DEPTH.
 - 8.3 DRIVE LOCKING KEES DOWN USING THE INSTALLATION TOOL.
9. REMOVAL PROCEDURES:
 - 9.1 USE THE DRILL SIZES AND DEPTHS SPECIFIED IN TABLE II TO REMOVE MATERIAL BETWEEN THE KEES.
 - 9.2 DEFLECT KEES INWARD AND BREAK OFF.
 - 9.3 REMOVE INSERT WITH AN "EASY OUT" TYPE TOOL.

INTERIM DOCUMENT REVISION		
Rev.	Date	DAF#
M1	10/8/2018	117431

APPROVED DATE 18 FEB 99	 ARCONIC Arconic Fastening Systems Tridair Products 3000 W. Lomita Blvd. Torrance, California 90505	TITLE: -KEENSERT INSERT- HEAVY DUTY INSERTS KNH SERIES	CURRENT DESIGN ACTIVITY: CAGE CODE: 29372
REV. LETTER AND DATE M 3/6/12		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES & ASME Y14.5M TOLERANCES:	SALES DRAWING NO.
DAF NUMBER 100004		ANGLES = ±3° DECIMALS .XX = ±.02 .XXX = ±.010	KNH(L)
			SHEET 4 OF 4

THIS DRAWING EMBODIES A CONFIDENTIAL, PROPRIETARY DESIGN & ALL DESIGN, MANUFACTURING PRODUCTION, USE & SALE RIGHTS REGARDING SAME ARE EXPRESSLY RESERVED.