

키인서트

KEENSERTS[®]



General Information

개요

Keensert는 강하고 영구적인 체결력을 금속이건 비철 금속이건 상관없이 어떠한 재질에도 효과적으로 부여합니다.

장점

- Locking Key가 장착되어 있으므로 헛도는 현상에 대해 기계적 잠금효과를 기대할 수 있습니다.
- 알루미늄, 마그네슘, 주철, 냉간압연 등 어떠한 재질의 모재에도 제한없이 사용 가능합니다.
- 파손등급이 8bolt로써 최대한의 Pullout Strength를 부여합니다.
- 본 제품을 사용하시는데 특별한 기술이 필요치 않으며, 몇분이면 삽입방법을 익히실 수 있습니다.
- 표준 드릴과 탭을 사용하기 때문에 추가적인 특수 목적의 툴과 탭을 구매하실 필요가 없습니다.
- 삽입중에 산과 산이 영킬 일이 없습니다.
- 제거하지 않는 이상 영구적으로 삽입이 되어 있습니다.
- 쉽게 제거할 수 있으며 제거시 준비된 구멍은 영향이 없으므로 새 제품을 그대로 교환 가능합니다.

다음과 같이 고객분들의 필요사항에 맞추어 다양한 재질의 인서트를 제공해 드리고 있습니다.

Materials (Inserts) -

303 Stainless
304 Stainless
316 Stainless
17-4 PH Stainless
A286 Stainless
Nitronic 60 Stainless
4140 Alloy
Inconel 718
Carbon Steel

Materials (Keys) -

302 Stainless
420 Stainless (Self-Broaching)

Finishes -

Zinc Phosphate
Passivate
Cadmium
Dry-Film Lube
Silver
Nickel



특징

- 강하고 높은 체결력을 제공합니다.
- 키가 회전에 대한 기계적 잠금기능을 합니다.
- 삽입방법이 간단합니다.
- 전용툴 없이도 삽입 가능합니다.
- 탭을 제거할 필요가 없습니다.
- MS/NAS 스타일의 인서트는 다음을 기준으로 생산됩니다.

MS51830	NAS1395	NA0149
MS51831	NA0146	NA0150
MS51832	NA0147	NA0151
NAS1394	NA0148	

- Miniature, Lightweight, Heavy Duty, Extra Heavy Duty 등 다양한 외경사이즈의 키인서트에는 내부 나사산이 볼트잠금기능을 하는 Self-locking 버전도 있습니다.
- 모든 Inch와 Metric 사이즈에 일반 나사산과 가는 나사산이 제공되고 있습니다.
- 일반산업용 기준의 인서트도 주문 하실 수 있습니다.

C o n t e n t s

General Information 2

SECTION 1

CROSS REFERENCE

Miniature Inserts / Lightweight Inserts 4

Heavy Duty Inserts 5

Extra Heavy Duty Inserts 6

SECTION 2

INCH INSERTS 7

Miniature Inserts / Lightweight Inserts 8

Heavy Duty Inserts 9

Extra Heavy Duty Inserts 10

Carbon Steel Inserts 11

SECTION 3

METRIC INSERTS 12

Carbon Steel Inserts 12

Miniature Inserts / Lightweight Inserts 13

Heavy Duty Inserts 14

SECTION 4

INSTALLATION 15



CROSS REFERENCE

Miniature Inserts / Lightweight Inserts

Cross Reference MS 51830 Series and NAS 1394 Series.

Coarse Threads

Fine Threads

MATERIAL		
303 CRES	4140/160 KSI	A286/140 KSI
KNCA(L) 0256J	KNCA(L) 0256JMXXSY	KNCA(L) 0256JT
MS 51830-101(L)	MS 51830A101(L)	MS 51830CA101(L)
—	—	—
KNCA(L) 0440J	KNCA(L) 0440JMXXSY	KNCA(L) 0440JT
MS 51830-102(L)	MS 51830A102(L)	MS 51830CA102(L)
—	—	—
KN(L) 0632J	KN(L) 0632JMXXSY	KN(L) 0632JT
MS 51830-103(L)	MS 51830A103(L)	MS 51830CA103(L)
—	—	—
KNCA(L) 0832J	KNCA(L) 0832JMXXSY	KNCA(L) 0832JT
MS 51830-104(L)	MS 51830A104(L)	MS 51830CA104(L)
—	—	—
KN(L) 0832J	KN(L) 0832JMXXSY	KN(L) 0832JT
—	—	—
NAS 1394C08(L)	NAS 1394-08(L)	NAS 1394CA08(L)
KN(L) 1024J	KN(L) 1024JMXXSY	KN(L) 1024JT
MS 51830-105(L)	MS 51830A105(L)	MS 51830CA105(L)
—	—	—
KN(L) 420J	KN(L) 420JMXXSY	KN(L) 420JT
MS 51830-106(L)	MS 51830A106(L)	MS 51830CA106(L)
—	—	—
KN(L) 518J	KN(L) 518JMXXSY	KN(L) 518JT
MS 51830-107(L)	MS 51830A107(L)	MS 51830CA107(L)
—	—	—
KN(L) 616J	KN(L) 616JMXXSY	KN(L) 616JT
MS 51830-108(L)	MS 51830A108(L)	MS 51830CA108(L)
—	—	—
KN(L) 714J	KN(L) 714JMXXSY	KN(L) 714JT
MS 51830-109(L)	MS 51830A109(L)	MS 51830CA109(L)
—	—	—
KN(L) 813J	KN(L) 813JMXXSY	KN(L) 813JT
MS 51830-110(L)	MS 51830A110(L)	MS 51830CA110(L)
—	—	—

MATERIAL		
303 CRES	4140/160 KSI	A286/140 KSI
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
—	—	—
KN(L) 1032J	KN(L) 1032JMX**	KN(L) 1032JT
MS 51830-201(L)	MS 51830A201(L)	MS 51830CA201(L)
NAS 1394C3(L)	NAS 1394-3(L)	NAS 1394CA3(L)
KN(L) 428J	KN(L) 428JMX**	KN(L) 428JT
MS 51830-202(L)	MS 51830A202(L)	MS 51830CA202(L)
NAS 1394C4(L)	NAS 1394-4(L)	NAS 1394CA4(L)
KN(L) 524J	KN(L) 524JMX**	KN(L) 524JT
MS 51830-203(L)	MS 51830A203(L)	MS 51830CA203(L)
NAS 1394C5(L)	NAS 1394-5(L)	NAS 1394CA5(L)
KN(L) 624J	KN(L) 624JMX**	KN(L) 624JT
MS 51830-204(L)	MS 51830A204(L)	MS 51830CA204(L)
NAS 1394C6(L)	NAS 1394-6(L)	NAS 1394CA6(L)
KN(L) 720J	KN(L) 720JMX**	KN(L) 720JT
MS 51830-205(L)	MS 51830A205(L)	MS 51830CA205(L)
NAS 1394C7(L)	NAS 1394-7(L)	NAS 1394CA7(L)
KN(L) 820J	KN(L) 820JMX**	KN(L) 820JT
MS 51830-206(L)	MS 51830A206(L)	MS 51830CA206(L)
NAS 1394C8(L)	NAS 1394-8(L)	NAS 1394CA8(L)

- NOTES:
1. When Dry Film is not required on locking parts, add the suffix, N on NAS Part No., or NE on KN Part No.
 2. The suffix, SPNAS added to KN Part No. or S added to NAS Part No. indicates Silver Plate per AMS 2410.
 3. Use (L) in Part No. ONLY if Internal Thread Locking feature is required.
 4. "J" code as in KNCA0256J designates threads manufactured to MIL-S-8879.
 5. Replace "***" with one of the following suffixes:
 "SY" for MS parts
 "SZ" for NAS parts

SECTION 1

CROSS REFERENCE

Extra Heavy Duty Inserts

Cross Reference MS 51832 Series.

Coarse Threads

MATERIAL		
303 CRES	4140/160 KSI	A286/140 KSI
KNHXH(L) 1024J	KNHXH(L) 1024JMXSY	KNHXH(L) 1024JT
MS 51832-101(L)	MS 51832A101(L)	MS 51832CA101(L)
—	—	—
KNHXH(L) 420J	KNHXH(L) 420JMXSY	KNHXH(L) 420JT
MS 51832-102(L)	MS 51832A102(L)	MS 51832CA102(L)
—	—	—
KNHXH(L) 518J	KNHXH(L) 518JMXSY	KNHXH(L) 518JT
MS 51832-103(L)	MS 51832A103(L)	MS 51832CA103(L)
—	—	—
KNHXH(L) 616J	KNHXH(L) 616JMXSY	KNHXH(L) 616JT
MS 51832-104(L)	MS 51832A104(L)	MS 51832CA104(L)
—	—	—
KNHXH(L) 714J	KNHXH(L) 714JMXSY	KNHXH(L) 714JT
MS 51832-105(L)	MS 51832A105(L)	MS 51832CA105(L)
—	—	—
KNHXH(L) 813J	KNHXH(L) 813JMXSY	KNHXH(L) 813JT
MS 51832-106(L)	MS 51832A106(L)	MS 51832CA106(L)
—	—	—
KNHXH(L) 912J	KNHXH(L) 912JMXSY	KNHXH(L) 912JT
MS 51832-107(L)	MS 51832A107(L)	MS 51832CA107(L)
—	—	—
KNHXH(L) 1011J	KNHXH(L) 1011JMXSY	KNHXH(L) 1011JT
MS 51832-108(L)	MS 51832A108(L)	MS 51832CA108(L)
—	—	—
KNHXH(L) 1210J	KNHXH(L) 1210JMXSY	KNHXH(L) 1210JT
MS 51832-109(L)	MS 51832A109(L)	MS 51832CA109(L)
—	—	—
KNHXH(L) 1409J	KNHXH(L) 1409JMXSY	KNHXH(L) 1409JT
MS 51832-110(L)	MS 51832A110(L)	MS 51832CA110(L)
—	—	—
KNHXH(L) 1606J	KNHXH(L) 1606JMXSY	KNHXH(L) 1606JT
MS 51832-111(L)	MS 51832A111(L)	MS 51832CA111(L)
—	—	—

Fine Threads

MATERIAL		
303 CRES	4140/160 KSI	A286/140 KSI
KNHXH(L) 1032J	KNHXH(L) 1032JMXSY	KNHXH(L) 1032JT
MS 51832-201(L)	MS 51832A201(L)	MS 51832CA201(L)
—	—	—
KNHXH(L) 428J	KNHXH(L) 428JMXSY	KNHXH(L) 428JT
MS 51832-202(L)	MS 51832A202(L)	MS 51832CA202(L)
—	—	—
KNHXH(L) 524J	KNHXH(L) 524JMXSY	KNHXH(L) 524JT
MS 51832-203(L)	MS 51832A203(L)	MS 51832CA203(L)
—	—	—
KNHXH(L) 624J	KNHXH(L) 624JMXSY	KNHXH(L) 624JT
MS 51832-204(L)	MS 51832A204(L)	MS 51832CA204(L)
—	—	—
KNHXH(L) 720J	KNHXH(L) 720JMXSY	KNHXH(L) 720JT
MS 51832-205(L)	MS 51832A205(L)	MS 51832CA205(L)
—	—	—
KNHXH(L) 820J	KNHXH(L) 820JMXSY	KNHXH(L) 820JT
MS 51832-206(L)	MS 51832A206(L)	MS 51832CA206(L)
—	—	—
KNHXH(L) 918J	KNHXH(L) 918JMXSY	KNHXH(L) 918JT
MS 51832-207(L)	MS 51832A207(L)	MS 51832CA207(L)
—	—	—
KNHXH(L) 1016J	KNHXH(L) 1016JMXSY	KNHXH(L) 1016JT
MS 51832-208(L)	MS 51832A208(L)	MS 51832CA208(L)
—	—	—
KNHXH(L) 1216J	KNHXH(L) 1216JMXSY	KNHXH(L) 1216JT
MS 51832-209(L)	MS 51832A209(L)	MS 51832CA209(L)
—	—	—
KNHXH(L) 1414J	KNHXH(L) 1414JMXSY	KNHXH(L) 1414JT
MS 51832-210(L)	MS 51832A210(L)	MS 51832CA210(L)
—	—	—
KNHXH(L) 1612J	KNHXH(L) 1612JMXSY	KNHXH(L) 1612JT
MS 51832-211(L)	MS 51832A211(L)	MS 51832CA211(L)
—	—	—

Use (L) in Part No. ONLY if Internal Thread Locking feature is required.

INCH INSERTS

제품설명

Miniature size inserts는 크기와 강도가 중요한 전자부품 또는 항공부품 사용에 적합한 제품입니다.

Miniature타입은 군사표준규격의 인장강도를 만족 시키고 있으며, Self Locking Type 인서트는 MIL-N-25027규격을 따릅니다.

Lightweight, heavy duty and extra heavy duty inserts는 고객분들의 필요사항에 맞게 다양한 외경의 인서트를 주문하실 수 있으며, 각 사이즈별로 Self-Locking Type 인서트로 주문하실 수 있습니다.

Carbon steel inserts는 일반 산업분야 또는 NAS 및 MS규격이 요구되지 않는 분야에 사용되고 있습니다.

인서트의 내부 나사산이 규격표보다 큰 사이즈는 피앤피컴포넌츠로 문의바랍니다.

※ 제품선정시 참고사항

모든 치수는 인치사이즈이며, 허용오차는 ±.010입니다.

이외 규격의 인서트는 피앤피컴포넌츠로 문의바랍니다.

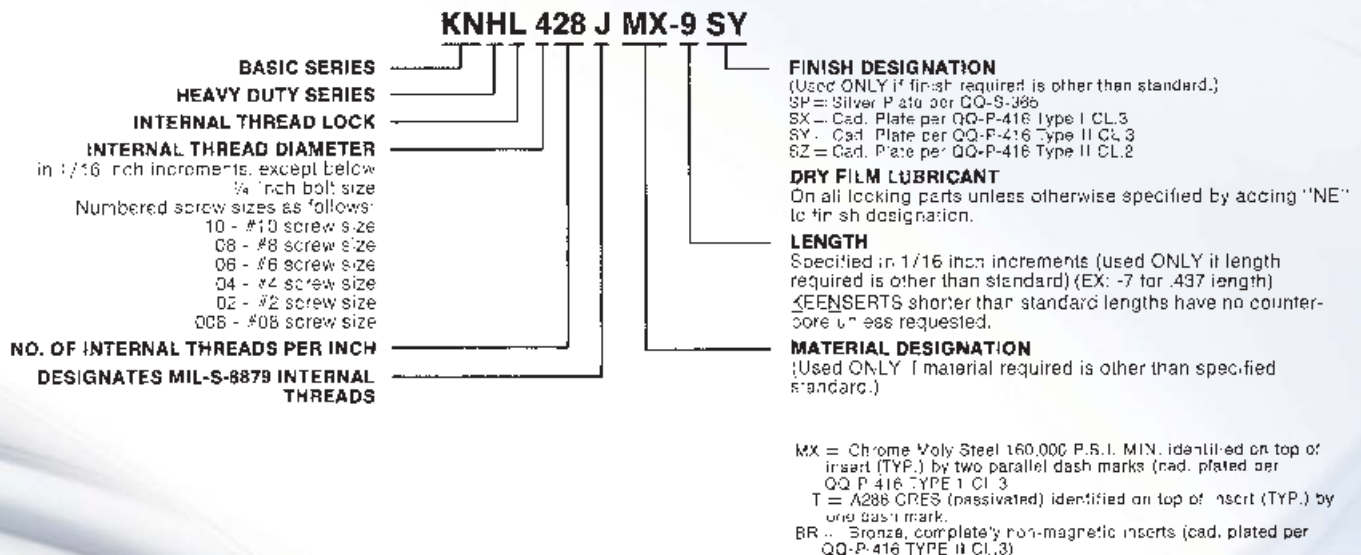
NOTE : 모든 Keenserts의 내부 나사산은 별도의 요구사항이 없을시 MIL-S-8879규격으로 제작됩니다.

INSTALLATION TAP-DRILL HOLE TOLERANCE

.120 TO .233 = -.001 + .002

.234 TO .500 = -.001 + .004

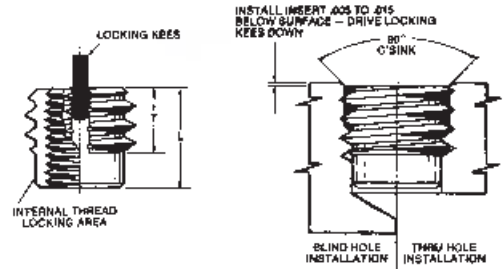
Above .500 = -.001 + .005



SECTION 2

INCH INSERTS

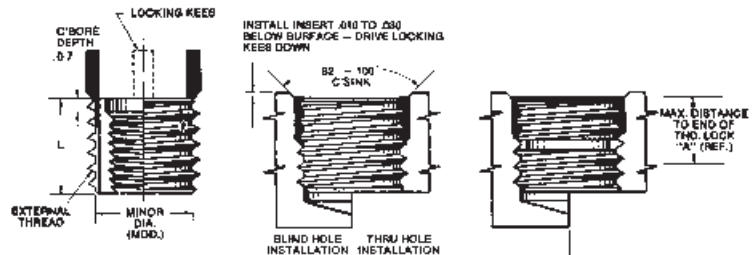
Miniature Inserts



PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA	
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD SIZE	EXTERNAL THREAD		L	T	TAP DRILL SIZE + .003 - .001	C'SINK DIA. + .010 - .000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE	SHEAR ENGAG.					+ SIZE	DEPTH MIN.		SIZE	DEPTH
KNC0080J		0 - 80 UNJF-3B	6 - 40 UNF-3A	.0132	.10	.085	.120*	.140	6 - 40	.130	TKNC 008	#38 (.101)	1/16
*KNCC0256J	*KNCC0256J	2 - 56 UNJC-3B	6 - 40 UNF-3A	.0132	.10	.085	.120*	.140	6 - 40	.130	TKNCC02	#38 (.101)	
*KNCA0256J	*KNCAL0256J	2 - 56 UNJC-3B	8 - 32 UNC-3A	.0157	.12	.088	.134	.166	+8 - 32	.140	TKNC 02	#33 (.113)	3/32
*KNCA0440J	*KNCA0440J	4 - 40 UNJC-3B	10 - 32 UNF-2A	.0302	.17	.125	.161	.194	10 - 32	.160	TKNC 04	#29 (.136)	
*KNCA0632J	*KNCL0632J	6 - 32 UNJC-3B	12 - 28 UNF-2A	.0329	.17	.125	.187	.220	12 - 28	.160	TKNC 06	#21 (.159)	
*KNCA0832J	*KNCA0832J	8 - 32 UNJC-3B	1/4 - 28 UNF-2A	.0669	.22	.175	.228	.255	1/4 - 28	.210	TKNC 08	#8 (.199)	1/8

*Indicates that parts are normally available from stock **MODIFIED MINOR DIAMETER + .002 - .001 STANDARD MATERIALS: Insert: 303 CRES (passivated) KEES: 302 CRES
1/8-32 is UNC-2B See "How to Order," Page 12 for more information.

Lightweight Inserts

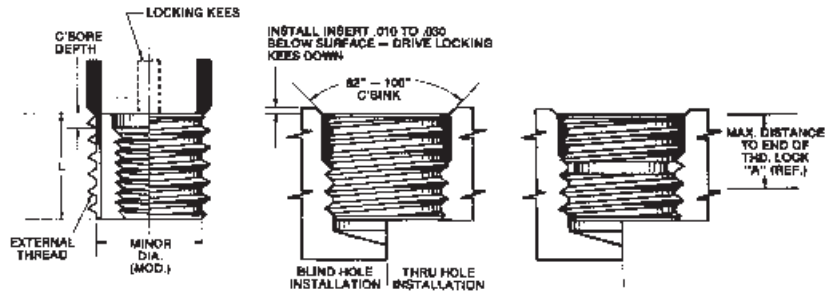


PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA	
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 3B	EXTERNAL THREAD		L	A	TAP DRILL DIA.	C'SINK DIA. + .010 - .000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 2A (MOD.)	SHEAR ENGAG.					SIZE CLASS 2B	MIN. DEPTH		SIZE	DEPTH
*KN1032J	*KNL1032J	10 - 32	5/16 - 18	.1517	.31	.31	.272	.323	5/16 - 18	.37	TD 1032L	7/32	5/32
*KN1024J	*KNL1024J	10 - 24		.0945									
*KN428J	*KNL428J	1/4 - 28	3/8 - 16	.2371	.37	.33	.332	.385	3/8 - 16	.43	TD 428L	9/32	
*KN420J	*KNL420J	1/4 - 20		.1726									
*KN524J	*KNL524J	5/16 - 24	7/16 - 14	.3049	.43	.34	.397	.447	7/16 - 14	.50	TD 524L	11/32	
*KN518J	*KNL518J	5/16 - 18		.2321									
*KN624J	*KNL624J	3/8 - 24	1/2 - 13	.4299	.50	.36	.453	.510	1/2 - 13	.56	TD 624L	13/32	9/16
*KN616J	*KNL616J	3/8 - 16		.3366									
KN720J	KNL720J	7/16 - 20	9/16 - 12	.5665	.56	.41	.516	.572	9/16 - 12	.62	TD 720L	15/32	
KN714J	KNL714J	7/16 - 14		.4606									
KN820J	KNL820J	1/2 - 20	5/8 - 11	.7175	.62	.42	.578	.635	5/8 - 11	.68	TD 820L	17/32	
KN813J	KNL813J	1/2 - 13		.5906									

*Indicates that parts are normally available from stock. Inserts with internal thread size 5/16 and above furnished with 4 locking KEES. STANDARD MATERIALS: Insert: 303 CRES (passivated) KEES: 302 CRES
See "How to Order," Page 4 for more information.

INCH INSERTS

Heavy Duty Inserts



PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA		
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 3B	EXTERNAL THREAD		L	C'BORE DEPTH	A	TAP DRILL DIA.	C'SINK DIA. +.010 - .000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			* SIZE CLASS 2A	SHEAR ENGAG.						SIZE UNC-2B	MIN. DEPTH		SIZE	DEPTH
*KNH0832J	*KNHL0832J	8 - 32	5/16 - 18	.1517 .0945	.31	.04	.29	.272	.323	5/16 - 18	.37	THD 0832L	7/32	1/8
*KNH1032J	*KNHL1032J	10 - 32	3/8 - 16	.1901 .1156								.31	.332	
KNH1024J	KNHL1024J	10 - 24			.1901 .1156		.31				THD 1024L			
*KNH428J	*KNHL428J	1/4 - 28	7/16 - 14	.2842 .1970	.37	.07	.33	.397	.447	7/16 - 14	.43	THD 428L	11/32	
*KNH420J	*KNHL420J	1/4 - 20		.2842 .1970								.36		
*KNH524J	*KNHL524J	5/16 - 24	1/2 - 13	.3588 .2608	.43	.07	.34	.453	.510	1/2 - 13	.50	THD 524L	13/32	
*KNH518J	*KNHL518J	5/16 - 18		.3588 .2608								.37		
*KNH624J	*KNHL624J	3/8 - 24	9/16 - 12	.4975 .3843	.50	.07	.37	.518	.572	9/16 - 12	.56	THD 624L	15/32	
*KNH616J	*KNHL616J	3/8 - 16		.4975 .3843								.41		
KNH720J	KNHL720J	7/16 - 20	5/8 - 11	.7172 .5831	.62	.07	.42	.578	.635	5/8 - 11	.68	THD 720L	17/32	3/16
KNH714J	KNHL714J	7/16 - 14		.7172 .5831								.46		
*KNH820J	*KNHL820J	1/2 - 20	11/16 - 11 NS	.8884 .7368	.68	.07	.42	.641	.700	11/16 - 11 NS	.75	THD 820L	19/32	
*KNH813J	*KNHL813J	1/2 - 13		.8884 .7368								.47		
KNH918J	KNHL918J	9/16 - 18	13/16 - 16	1.2493 1.0247	.81	.07	.48	.766	.822	13/16 - 16 UN	.94	THD 918L	23/32	
KNH912J	KNHL912J	9/16 - 12		1.2493 1.0247								.54		
KNH1018J	KNHL1018J	5/8 - 18	7/8 - 14	1.4866 1.2415	.87	.07	.49	.828	.885	7/8 - 14 UNF	1.00	THD 1018L	25/32	
KNH1011J	KNHL1011J	5/8 - 11		1.4866 1.2415								.57		
KNH1216J	KNHL1216J	3/4 - 16	1-1/8 - 12	2.4901 2.4478	1.12 1.25	.07	.68	1.062	1.145	1-1/8 - 12 UNF	1.31 1.44	THD 1216L	31/32	
KNH1210J	KNHL1210J	3/4 - 10		2.4901 2.4478								1.12 1.25	.75	
KNH1414J	KNHL1414J	7/8 - 14	1-1/4 - 12	3.1370 3.0775	1.25 1.37	.07	.69	1.187	1.270	1-1/4 - 12 UNF	1.44 1.56	THD 1414L	1-3/32	5/16
KNH1409J	KNHL1409J	7/8 - 9		3.1370 3.0775								1.25 1.37	.77	
KNH1612J	KNHL1612J	1 - 12	1-3/8 - 12	3.8381 3.7929	1.37 1.50	.07	.78	1.312	1.395	1-3/8 - 12 UNF	1.56 1.68	THD 1612L	1-7/32	
KNH1608J	KNHL1608J	1 - 8		3.8381 3.7929								1.37 1.50	.86	

* Indicates that parts are normally available from stock.

*MODIFIED MINOR DIAMETER

Inserts with internal thread size 5/16 and above furnished with 4 locking KEES.

STANDARD MATERIALS: Insert: 303 CRES (passivated)

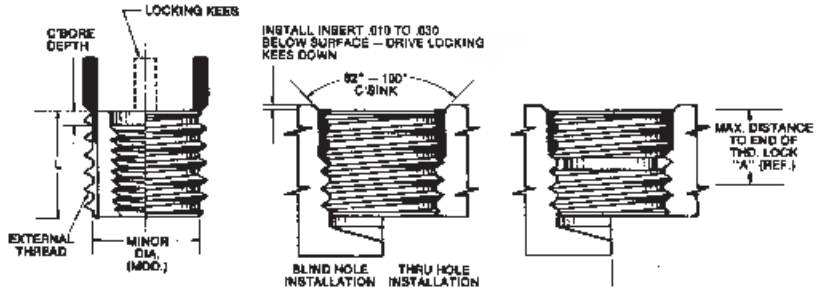
KEES: 302 CRES

See "How To Order," Page 4 for more information.

SECTION 2

INCH INSERTS

Extra Heavy
Duty Inserts



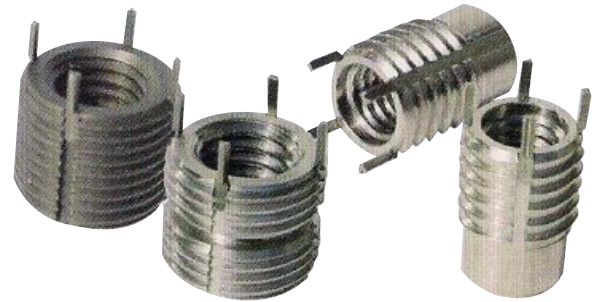
PART NO.		DIMENSIONS				INSTALLATION DATA						REMOVAL DATA		
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 3B	EXTERNAL THREAD		L	C'BORE DEPTH	A	TAP DRILL DIA.	C'SINK DIA. $\pm .010$ - .000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			* SIZE CLASS 2A	SHEAR ENGAG.						SIZE UNC-2B	MIN. DEPTH		SIZE	DEPTH
KNHXH0632J	KNHXHL0632J	6 - 32	5/16 - 18	.0855 .0642	.25		.25	.272	.323	5/16 - 18	.31	THXHD 0632L	7/32	1/8
KNHXH0832J	KNHXHL0832J	8 - 32	3/8 - 16	.1901 .1156			.31	.332	.385	3/8 - 16		THXHD 0832L	9/32	
KNHXH1032J	KNHXHL1032J	10 - 32	7/16 - 14	.2299 .1403	.31		.31	.397	.447	7/16 - 14	.37		THXHD 1032L	11/32
KNHXH1024J	KNHXHL1024J	10 - 24		.2299 .1403		THXHD 1024L								
KNHXH428J	KNHXHL428J	1/4 - 28	1/2 - 13	.2997 .2005	.37		.33	.453	.510	1/2 - 13	.44		THXHD 428L	13/32
KNHXH420J	KNHXHL420J	1/4 - 20		.2997 .2005		THXHD 420L								
KNHXH524J	KNHXHL524J	5/16 - 24	9/16 - 12	.4163 .3029	.43		.34	.516	.572	9/16 - 12	.50		THXHD 524L	15/32
KNHXH518J	KNHXHL518J	5/16 - 18		.4163 .3029		THXHD 518L								
KNHXH624J	KNHXHL624J	3/8 - 24	5/8 - 11	.5584 .4243	.50		.37	.578	.635	5/8 - 11	.56		THXHD 624L	17/32
KNHXH616J	KNHXHL616J	3/8 - 16		.5584 .4243		THXHD 616L								
KNHXH720J	KNHXHL720J	7/16 - 20	11/16 - 11 NS	.8000 .6498	.62		.42	.641	.700	11/16 - 11 NS	.68		THXHD 720L	19/32
KNHXH714J	KNHXHL714J	7/16 - 14		.8000 .6498		THXHD 714L								
KNHXH820J	KNHXHL820J	1/2 - 20	13/16 - 16	1.0293 .8642	.68		.42	.766	.822	13/16 - 16 UNF	.75		THXHD 820L	23/32
KNHXH813J	KNHXHL813J	1/2 - 13		1.0293 .8642		THXHD 813L								
KNHXH918J	KNHXHL918J	9/16 - 18	7/8 - 14	1.3761 1.1131	.81		.48	.828	.885	7/8 - 14 UNF	.94		THXHD 918L	25/32
KNHXH912J	KNHXHL912J	9/16 - 12		1.3761 1.1131		THXHD 912L								
KNHXH1018J	KNHXHL1018J	5/8 - 18	1 - 12	1.6420 1.2770	.87	.10	.51	.937	1.020	1 - 12 UNF	1.00		THXHD 1018L	27/32
KNHXH1011J	KNHXHL1011J	5/8 - 11		1.6420 1.2770									THXHD 1011L	
KNHXH1216J	KNHXHL1216J	3/4 - 16	1-1/4 - 12	2.7966 1.12	1.25		.57	1.187	1.270	1-1/4 - 12 UNF	1.31 1.44		THXHD 1216L	1-3/32
KNHXH1210J	KNHXHL1210J	3/4 - 10		2.7966 1.12		THXHD 1210L								
KNHXH1414J	KNHXHL1414J	7/8 - 14	1-3/8 - 12	2.5505 1.25	1.25		.64	1.312	1.395	1-3/8 - 12 UNF	1.31 1.44		THXHD 1414L	1-7/32
KNHXH1409J	KNHXHL1409J	7/8 - 9		2.5505 1.25		THXHD 1409L								
KNHXH1612J	KNHXHL1612J	1 - 12	1-1/2 - 12	3.2769 1.37	1.37		.63	1.437	1.520	1-1/2 - 12 UNF	1.44 1.56		THXHD 1612L	1-11/32
KNHXH1608J	KNHXHL1608J	1 - 8		3.2769 1.37		THXHD 1608L								
				4.2374 1.37			.70				1.56			
				4.2374 1.37			.78				1.68			
				4.2135 1.50							1.68			

Inserts with internal thread size 1/4 and above furnished with 4 locking KEES.
*MODIFIED MINOR DIAMETER

STANDARD MATERIALS:
Insert: 303 CRES (passivated)
KEES: 302 CRES
See "How To Order," Page 4 for more information.

INCH INSERTS

Carbon Steel Inserts



	PART NO.	DIMENSIONS			INSTALLATION DATA				REMOVAL DATA	
		INTERNAL THREAD SIZE CLASS 2B	EXTERNAL THREAD SIZE (MOD.) CLASS 2A	LENGTH	TAP DRILL DIA.	C'SINK DIA.	TAP SIZE CLASS 2B	INSERT TOOL PART NUMBER	DRILL	
									SIZE	DEPTH
THINWALL	▲ RKKA 10 - 24	10 - 24	5/16 - 18	.31	"I"	.32	5/16 - 18	TRKA 10	7/32	5/32
	▲ RKKA 10 - 32	10 - 32								
	▲ RKKA 1/4 - 20	1/4 - 20	3/8 - 16	.37	"Q"	.38	3/8 - 16	TRKA 1/4	9/32	3/16
	▲ RKKA 1/4 - 28	1/4 - 28								
	▲ RKKA 5/16 - 18	5/16 - 18	7/16 - 14	.43	"X"	.44	7/16 - 14	TRKA 5/16	11/32	
	▲ RKKA 5/16 - 24	5/16 - 24								
	▲ RKKA 3/8 - 18	3/8 - 16	1/2 - 13	.50	29/64	.51	1/2 - 13	TRKA 3/8	13/32	
	▲ RKKA 3/8 - 24	3/8 - 24								
	▲ RKKA 7/16 - 14	7/16 - 14	9/16 - 12	.56	33/64	.57	9/16 - 12	TRKA 7/16	15/32	
	▲ RKKA 7/16 - 20	7/16 - 20								
▲ RKKA 1/2 - 13	1/2 - 13	5/8 - 11	.62	37/64	.63	5/8 - 11	TRKA 1/2	17/32		
▲ RKKA 1/2 - 20	1/2 - 20									
HEAVY DUTY	▲ RKK 8 - 32	8 - 32	5/16 - 18	.31	"I"	.32	5/16 - 18	TRK 08	7/32	1/8
	▲ RKK 10 - 24	10 - 24	3/8 - 16	.31	"Q"	.38	3/8 - 16	TRK 10	9/32	
	▲ RKK 10 - 32	10 - 32	7/16 - 14	.37	"X"	.44	7/16 - 14	TRK 1/4	11/32	3/16
	▲ RKK 1/4 - 20	1/4 - 20								
	▲ RKK 1/4 - 28	1/4 - 28								
	▲ RKK 5/16 - 18	5/16 - 18	1/2 - 13	.43	29/64	.51	1/2 - 13	TRK 5/16	13/32	
	▲ RKK 5/16 - 24	5/16 - 24								
	▲ RKK 3/8 - 16	3/8 - 16	9/16 - 12	.50	33/64	.57	9/16 - 12	TRK 3/8	15/32	
	▲ RKK 3/8 - 24	3/8 - 24								
	▲ RKK 7/16 - 14	7/16 - 14	5/8 - 11	.62	37/64	.63	5/8 - 11	TRK 7/16	17/32	
	▲ RKK 7/16 - 20	7/16 - 20								
	▲ RKK 1/2 - 13	1/2 - 13	3/4 - 16	.81	45/64	.76	3/4 - 16	TRK 1/2	21/32	
	▲ RKK 1/2 - 20	1/2 - 20								
	▲ RKK 9/16 - 12	9/16 - 12	3/4 - 16	.81	45/64	.76	3/4 - 16	TRK 9/16	21/32	
	▲ RKK 9/16 - 18	9/16 - 18								
	▲ RKK 5/8 - 11	5/8 - 11	7/8 - 14	.87	53/64	.88	7/8 - 14	TRK 5/8	25/32	
	▲ RKK 5/8 - 18	5/8 - 18								
	▲ RKK 3/4 - 10	3/4 - 10	1-1/8 - 12	1.12	1-1/16	1.14	1-1/8 - 12	TRK 3/4	31/32	5/16
	▲ RKK 3/4 - 16	3/4 - 16								
	▲ RKK 7/8 - 9	7/8 - 9	1-1/4 - 12	1.25	1-3/16	1.27	1-1/4 - 12	TRK 7/8	1-3/32	
	▲ RKK 7/8 - 14	7/8 - 14								
	▲ RKK 1 - 8	1 - 8	1-3/8 - 12	1.37	1-5/16	1.39	1-3/8 - 12	TRK 1	1-7/32	
	▲ RKK 1 - 12	1 - 12								
	▲ RKK 1 - 14	1 - 14	1-1/2 - 12	1.62	1-7/16	1.52	1-1/2 - 12	TRK 1-1/8	1-11/32	
▲ RKK 1-1/8 - 7	1-1/8 - 7									
▲ RKK 1-1/8 - 12	1-1/8 - 12	1-5/8 - 12	1.81	1-9/16	1.64	1-5/8 - 12	TRK 1-1/4	1-15/32		
▲ RKK 1-1/8 - 18	1-1/8 - 18									
▲ RKK 1-1/4 - 7	1-1/4 - 7	1-7/8 - 12	2.00	1-13/16	1.89	1-7/8 - 12	TRK 1-1/2	1-23/32		
▲ RKK 1-1/4 - 12	1-1/4 - 12									
▲ RKK 1-1/2 - 6	1-1/2 - 6	2-1/8 - 12	2.12	2-1/16	2.14	2-1/8 - 12	TRK 1-3/4	1-31/32		
▲ RKK 1-1/2 - 12	1-1/2 - 12									
▲ RKK 1-3/4 - 5	1-3/4 - 5									
▲ RKK 1-3/4 - 12	1-3/4 - 12									

▲ indicates that parts are normally available from stock.

THREADS ARE MANUFACTURED TO MIL-S-7742.

Inserts with internal thread size 5/16 and above furnished with 4 locking KEES.

Material: C1215 Steel or equivalent.

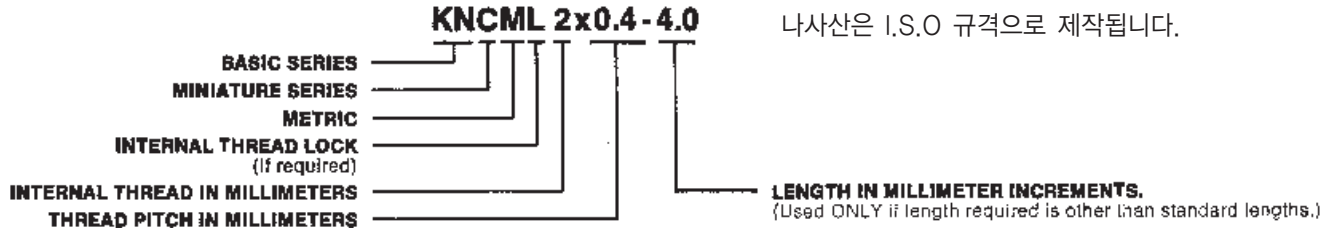
Finish: Parkerize.

SECTION 3

METRIC INSERTS

How To Order:

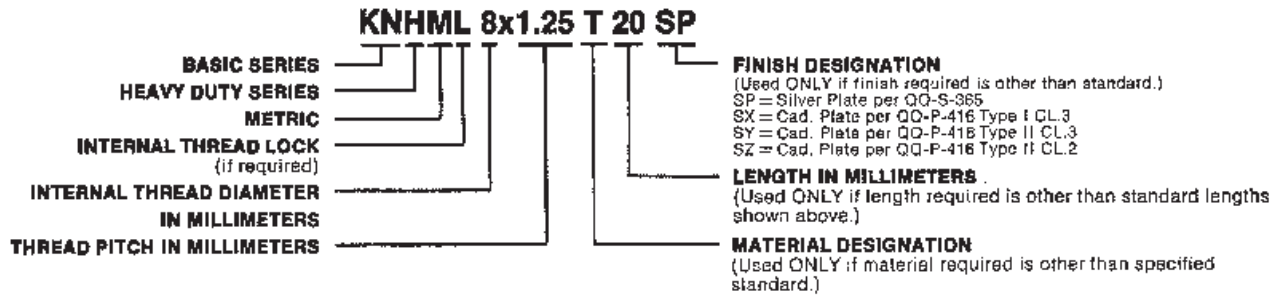
Miniature Insert Series:



※ 제품선택시 참고사항

모든 치수는 밀리미터이며,
이외 규격의 인서트는 피앤피컴포넌츠로 문의바랍니다.
나사산은 I.S.O 규격으로 제작됩니다.

Lightweight and Heavy Duty Series:



VX = Chrome Moly Steel 160,000 P.S.I. MIN. identified on top of insert (TYP.) by two parallel dash marks (cad. plated per QQ-P-416 TYPE I CL.3)
T = A286 CRES (passivated) identified on top of insert (TYP.) by one dash mark
BR = Bronze, completely non-magnetic inserts (cad. plated per QQ-P-416 TYPE II CL.3)

Carbon Steel Inserts

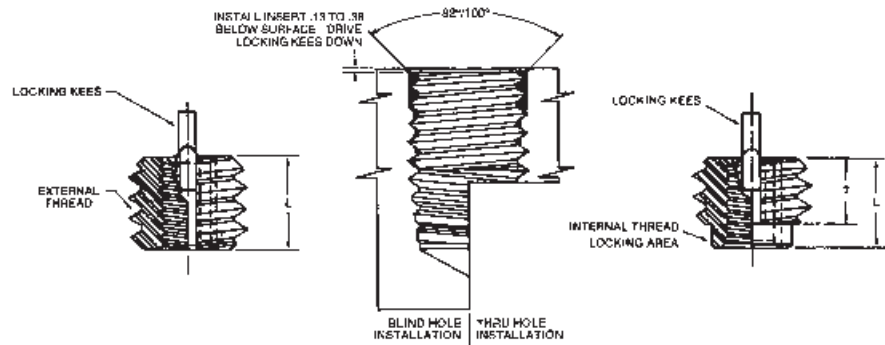
PART NO.	INSTALLATION DATA							REMOVAL DATA	
	INTERNAL THREAD SIZE	EXTERNAL THREAD SIZE	LENGTH	TAP DRILL DIA.	C'SINK DIA.	TAP SIZE	INSERT TOOL PART NO.	DRILL	
								SIZE	DEPTH
▲ KNM 5x0.8F	M 5x0.8	M 8x1.25	8	6.9	8.25	M 8x1.25	TRKM 5	5.50	4.00
▲ KNM 6x1F	M 6x1.0	M 10x1.25	10	8.8	10.25	M 10x1.25	TRKM 6	7.50	4.75
KNM 7x1F	M 7x1.0	M 11x1.0	11	9.8	11.25	M 11x1.0	TRKM 7	8.50	
▲ KNM 8x1F	M 8x1.0	M 12x1.25	12	10.8	12.25	M 12x1.25	TRKM 8	9.50	
▲ KNM 8x1.25F	M 8x1.25	M 12x1.25							
▲ KNM 10x1.25F	M 10x1.25	M 14x1.5	14	12.8	14.25	M 14x1.5	TRKM 10	11.50	
▲ KNM 10x1.5F	M 10x1.5	M 14x1.5							
▲ KNM 12x1.25F	M 12x1.25	M 16x1.5	16	14.75	16.25	M 16x1.5	TRKM 12	13.50	
▲ KNM 12x1.75F	M 12x1.75	M 16x1.5							
KNHM 14x1.5F	M 14x1.5	M 20x1.5	20	18.75	20.25	M 20x1.5	TRKHM 14	17.50	
KNHM 14x2F	M 14x2.0	M 20x1.5							
KNHM 18x1.5F	M 16x1.5	M 22x1.5	22	20.5	22.25	M 22x1.5	TRKHM 16	17.75	
KNHM 18x1.5F	M 18x1.5	M 24x1.5	24	22.5	24.25	M 24x1.5	TRKHM 18	19.75	
KNHM 20x1.5F	M 20x1.5	M 30x2.0	30	28.0	30.25	M 30x2	TRKHM 20	25.75	6.35
KNHM 22x1.5F	M 22x1.5	M 32x2.0	32	30.0	32.25	M 32x2	TRKHM 22	27.75	
KNHM 24x2F	M 24x2.0	M 33x2.0	33	31.0	33.25	M 33x2	TRKHM 24	28.75	

▲ indicates that parts are normally available from stock.
Other sizes are available on request.
Material: C1215 Steel or equivalent.

Countersink diameters are optional providing KEENSEERTS insert installs below flush of surface.

METRIC INSERTS

Miniature Inserts

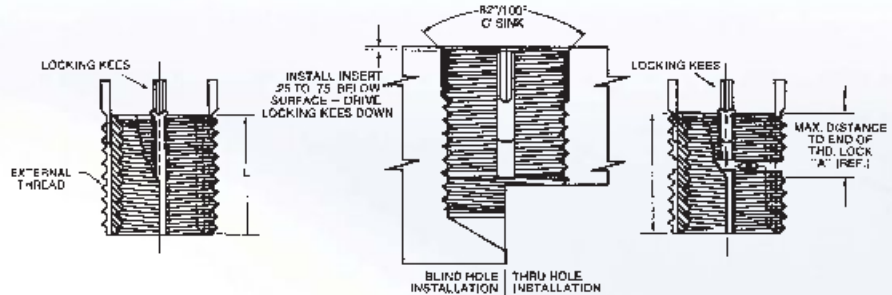


PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA	
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 5H	EXTERNAL THREAD		L	T	TAP DRILL DIA.	C'SINK DIA. -.25 .00	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 4h	SHEAR ENGAG.	±0.25				SIZE CLASS 6H	MIN. DEPTH		SIZE	DEPTH
KNCM 2x0.4		M 2x0.4	M 4x0.7	16.5	3.0	2.2	3.4	4.1	M 4x0.7	4.0	TKNCM 2x0.4	2.8	2.00
	KNCML 2x0.4			10.3									
KNCM 2.5x0.45		M 2.5x0.45	M 4.5x0.75	26.5	3.8	2.7	3.9	4.6	M 4.5x0.75	5.0	TKNCM 2.5x0.45	3.0	2.00
	KNCML 2.5x0.45			15.9									
KNCM 3x0.5		M 3x0.5	M 5x0.8	33.1	4.25	3.1	4.4	5.1	M 5x.8	5.5	TKNCM 3x0.5	3.5	2.25
	KNCML 3x0.5			21.4									
KNCM 4x0.7		M 4x0.7	M 6x0.75	58.4	5.25	4.1	5.5	6.1	M 6x0.75	6.5	TKNCM 4x0.7	4.8	2.50
	KNCML 4x0.7			42.9									

EXTERNAL THREAD FURNISHED STANDARD MATERIALS: Insert: 303 CRES (passivated) KEES: 302 CRES INSTALLATION TAP-DRILL TOLERANCE 2.0 TO 5.5 -- -.025 + .08 WITH 2 LOCKING KEES.

See "How To Order," Page 25 for more information.

Lightweight Inserts



INSTALLATION TAP-DRILL TOLERANCE
4.0 TO 12.70 -- -.025 + .100
ABOVE 12.70 -- -.025 + .130

PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA	
NON-LOCKING INTERNAL	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 5H	EXTERNAL THREAD		L	A	TAP DRILL DIA.	C'SINK DIA. +.25 -.00	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 4h	SHEAR ENGAG.	±0.3				SIZE CLASS 6H	MIN. DEPTH		SIZE	DEPTH
KNM 5x0.8		M 5x0.8	M 8x1.25	104.9	8.0	7.5	6.9	8.25	M 8x1.25	9.5	TM - 5	5.50	4.00
	KNML 5x0.8			83.1									
KNM 5x0.5		M 5x0.5	M 8x1.25	104.9	8.0	7.0	6.9	8.25	M 8x1.25	9.5	TM - 5	5.50	4.00
	KNML 5x0.5			83.1									
KNM 6x1.0		M 6x1.0	M 10x1.25	177.7	10.0	8.2	8.8	10.25	M 10x1.25	11.5	TM - 6	7.50	4.75
	KNML 6x1.0			152.7									
KNM 6x0.75		M 6x0.75	M 10x1.25	177.7	10.0	7.3	8.8	10.25	M 10x1.25	11.5	TM - 6	7.50	4.75
	KNML 6x0.75			152.7									
KNM 8x1.25		M 8x1.25	M 12x1.25	266.7	12.0	9.5	10.8	12.25	M 12x1.25	13.5	TM - 8	9.50	4.75
	KNML 8x1.25			242.5									
KNM 8x1.0		M 8x1.0	M 12x1.25	266.7	12.0	9.0	10.8	12.25	M 12x1.25	13.5	TM - 8	9.50	4.75
	KNML 8x1.0			242.5									
KNM 10x1.5		M 10x1.5	M 14x1.5	341.6	14.0	10.0	12.8	14.25	M 14x1.5	15.5	TM - 10	11.50	4.75
	KNML 10x1.5			316.4									
KNM 10x1.25		M 10x1.25	M 14x1.5	341.6	14.0	9.5	12.8	14.25	M 14x1.5	15.5	TM - 10	11.50	4.75
	KNML 10x1.25			316.4									
KNM 12x1.75		M 12x1.75	M 16x1.5	470.2	16.0	11.20	14.75	16.25	M 16x1.5	17.5	TM - 12	13.50	4.75
	KNML 12x1.75			441.4									
KNM 12x1.25		M 12x1.25	M 16x1.5	470.2	16.0	10.20	14.75	16.25	M 16x1.5	17.5	TM - 12	13.50	4.75
	KNML 12x1.25			441.4									

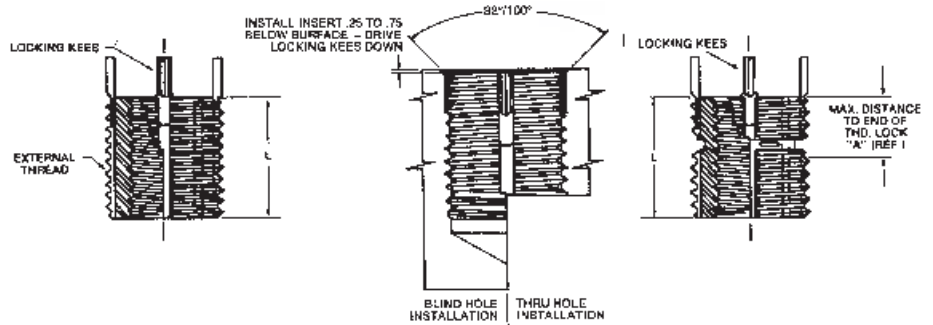
STANDARD MATERIALS: Insert: 303 CRES (passivated) KEES: 302 CRES See "How To Order," Page 13 for more information.

INSERTS WITH INTERNAL THREAD SIZES OF KNM 6 AND UNDER ARE FURNISHED WITH 2 LOCKING KEES. KNM 8 AND ABOVE SIZES ARE FURNISHED WITH 4 LOCKING KEES.

SECTION 3

METRIC INSERTS

Heavy Duty Inserts



PART NO.		DIMENSIONS				INSTALLATION DATA						REMOVAL DATA	
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 5H	EXTERNAL THREAD		L ±0.3	A	TAP DRILL DIA.	C'SINK DIA. +.25 - .00	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 4h	SHEAR ENGAG. (MM) ² *					SIZE CLASS 6H	MIN. DEPTH		SIZE	DEPTH
KNHM 4x0.7	KNHML 4x0.7	M 4x0.7	M 8x1.25	104.9 83.1	8.0	8.0	6.9	8.25	M 8x1.25	9.5	THM - 4	5.50	4.00
KNHM 5x0.8	KNHML 5x0.8	M 5x0.8	M 10x1.25	177.7 152.7	10.0	8.7	8.8	10.25	M 10x1.25	12.5	THM - 5	7.50	4.75
KNHM 6x1.0	KNHML 6x1.0	M 6x1.0	M 12x1.25	266.7 242.5	12.0	9.5	10.8	12.25	M 12x1.25	14.5	THM - 6	9.50	4.75
KNHM 8x1.25	KNHML 8x1.25	M 8x1.25	M 14x1.5	341.6 316.4	14.0	10.0	12.8	14.25	M 14x1.5	16.5	THM - 8	11.50	4.75
KNHM 8x1.0	KNHML 8x1.0	M 8x1.0	M 14x1.5	341.6 316.4	14.0	10.0	12.8	14.25	M 14x1.5	16.5	THM - 8	11.50	4.75
KNHM 10x1.5	KNHML 10x1.5	M 10x1.5	M 16x1.5	470.2 441.4	18.0	10.0	14.75	16.25	M 16x1.5	18.5	THM - 10	13.50	4.75
KNHM 10x1.25	KNHML 10x1.25	M 10x1.25	M 16x1.5	470.2 441.4	18.0	10.0	14.75	16.25	M 16x1.5	18.5	THM - 10	13.50	4.75
KNHM 12x1.75	KNHML 12x1.75	M 12x1.75	M 18x1.5	608.5 561.8	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
KNHM 12x1.5	KNHML 12x1.5	M 12x1.5	M 18x1.5	608.5 561.8	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
KNHM 12x1.25	KNHML 12x1.25	M 12x1.25	M 18x1.5	608.5 561.8	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
KNHM 14x2.0	KNHML 14x2.0	M 14x2.0	M 20x1.5	770.5 724.4	20.0	12.4	18.75	20.25	M 20x1.5	22.5	THM - 14	17.50	4.75
KNHM 14x1.5	KNHML 14x1.5	M 14x1.5	M 20x1.5	770.5 724.4	20.0	12.4	18.75	20.25	M 20x1.5	22.5	THM - 14	17.50	4.75
KNHM 16x2.0	KNHML 16x2.0	M 16x2.0	M 22x1.5	896.8 855.2	22.0	12.4	20.5	22.25	M 22x1.5	24.5	THM - 16	17.75	6.35
KNHM 16x1.5	KNHML 16x1.5	M 16x1.5	M 22x1.5	896.8 855.2	22.0	12.4	20.5	22.25	M 22x1.5	24.5	THM - 16	17.75	6.35
KNHM 18x1.5	KNHML 18x1.5	M 18x1.5	M 24x1.5	1084.4 1061.5	24.0	16.8	22.5	24.25	M 24x1.5	26.5	THM - 18	19.75	6.35
KNHM 20x2.5	KNHML 20x2.5	M 20x2.5	M 30x2.0	1774.3 1736.4	30.0	17.5	28.0	30.25	M 30x2.0	34.5	THM - 20	25.75	6.35
KNHM 20x1.5	KNHML 20x1.5	M 20x1.5	M 30x2.0	1774.3 1736.4	30.0	17.5	28.0	30.25	M 30x2.0	34.5	THM - 20	25.75	6.35
KNHM 22x1.5	KNHML 22x1.5	M 22x1.5	M 32x2.0	2046.9 2014.7	32.0	18.3	30.0	32.25	M 32x2.0	36.5	THM - 22	27.75	6.35
KNHM 24x3.0	KNHML 24x3.0	M 24x3.0	M 33x2.0	2189.4 2161.9	33.0	19.0	31.0	33.25	M 33x2.0	37.5	THM - 24	28.75	6.35
KNHM 24x2.0	KNHML 24x2.0	M 24x2.0	M 33x2.0	2189.4 2161.9	33.0	19.0	31.0	33.25	M 33x2.0	37.5	THM - 24	28.75	6.35

INSERTS WITH INTERNAL THREAD SIZES OF KNM 6 AND UNDER ARE FURNISHED WITH 2 LOCKING KEES. KNM 8 AND ABOVE SIZES ARE FURNISHED WITH 4 LOCKING KEES.

*TO CONVERT MM² TO IN² MULTIPLY MM² BY .001550

INSTALLATION TAP-DRILL TOLERANCE
4.0 TO 12.70 = -.025 + .100
ABOVE 12.70 = -.025 + .130

STANDARD MATERIALS: Insert: 303 CRES (passivated)
KEES: 302 CRES
See "How To Order," Page 13 for more information

INSTALLATION



1 스탠다드 드릴로 구멍을 낸 후 82°에서 100°로 Countersink를 내주시기 바랍니다. (Miniature Insert의 경우 100°)-구체적인 치수는 Dimension을 참조 바랍니다.



2 스탠다드 탭으로 산을 내시기 바랍니다. - 구체적인 치수는 Dimension을 참조 바랍니다.



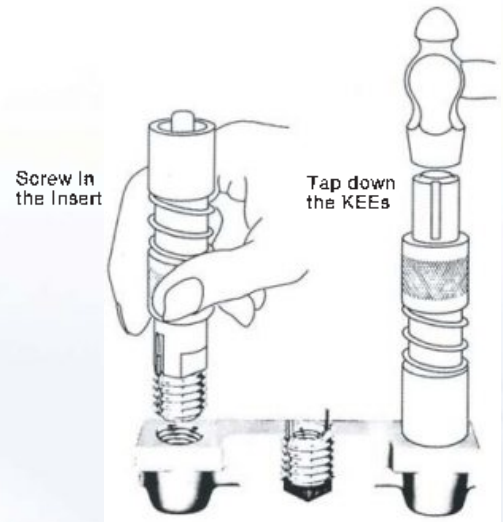
3 표면으로부터 0.0120에서 0.030인치(Miniature Insert는 0.005에서 0.015)아래까지 손이나 삽입공구로 인서트를 돌려 끼우십시오. Key가 적정위치에 자리하게 됩니다.



4 적정 삽입공구를 망치로 쳐서 Key를 박아 넣어주시기 바랍니다.



5 인서트가 올바르게 삽입되었습니다.

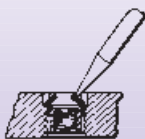


키인서트 제거

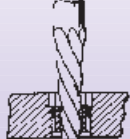
키인서트는 체결력이 강하기 때문에 쉽게 풀리지 않습니다. 단, 제거가 필요할 경우 다음과 같은 단계를 따르십시오.



1 스탠다드 드릴을 사용하여, 적정 깊이만큼, Key와 Key 사이의 내부를 뚫어냅니다.



2 Key를 안으로 구부려 떼어냅니다.



3 스crew 적출기 (Screw Extractor) 혹은 Easy-Out 공구로 제품을 빼냅니다.



4 그자리에 대체하는 새 제품을 끼워 넣으신 후 Key를 박아 넣으십시오. 기존 구멍에 대해 재산 작업은 전혀 필요치 않습니다.

Broaching Tool

for very hard materials.

When the parent material is very hard or tough, a special broach for the KEEs is available.



Broaching Tools are coded in the following manner:



NOTE: THE SMALLEST TAP DRILL DIAMETER FOR WHICH BROACHING TOOLS CAN BE MADE IS .213.

Consult Tidair for metric broaching tool information.

KEENSERTS®

