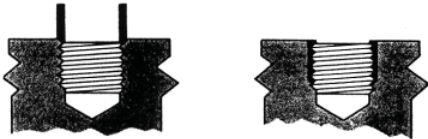


"KEENSERT" STYLE (MS51830-31-32) INSERTS: INCH & METRIC

These universally popular inserts provide strong, permanent metal threads in virtually any material: ferrous or non-ferrous. Standard insert material is type 303 stainless steel.

Positive mechanical lock against rotation.



KEES are driven down into the tapped threads of the parent material during installation to securely lock the insert against rotation.

Featuring an exclusive external thread design, **KEENSERTS** provide maximum pull-out strength with a minimum outside diameter.

- Installed with standard taps and drills.
- Available from stock in many sizes and types.



*Securely
locked
against
rotation.*

Internal thread lock feature available.

Inserts with this feature are designed to securely lock a bolt when it is entered into the insert only a few turns. The locking torque values are consistent and well within the range established by MIL-I-45914A.

Even after repeated installations and removals of the bolt, the lock maintains sufficient locking torque to prevent the bolt from vibrating out.

These one piece inserts are supplied with KEES pre-assembled into dove-tailed slots at the factory, to eliminate the problems of selecting, stocking and assembling separate parts. The prepositioned KEES automatically set the insert at the proper depth below the surface of the parent material.

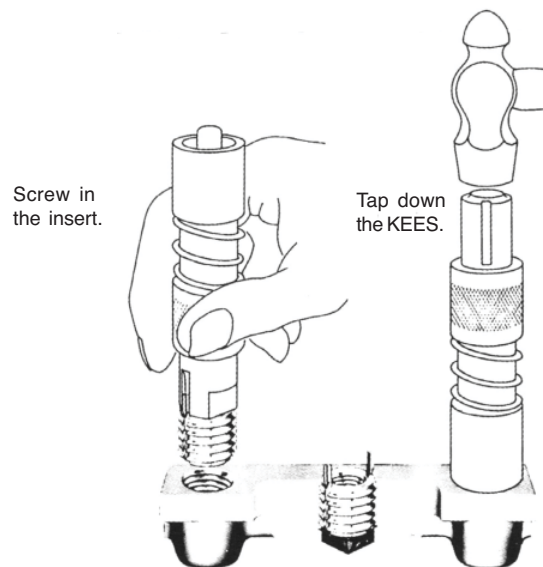
Unlike conventional inserts, there is no need to maintain critical depth tolerances . . . no chance of inadequate locking or deformation of internal threads due to miscalculations of depth.

- DRILL with a STANDARD drill.
- COUNTERSINK with a STANDARD countersink (82 ° to 100°).
- TAP with a STANDARD Unified Thread Series tap.

Screw in insert with fingers or installation tool. Insert is designed to stop at the correct depth below the surface of the casting.

Using the installation tool, drive in the KEES. The tool may be used with a hammer or held in an arbor press. The correct insert tool is tabulated with each type of insert in this catalogue.

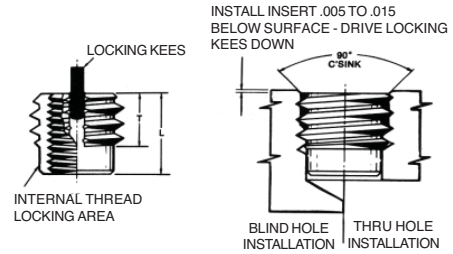
-
- For Miniature Series inserts, screw the insert onto the threaded mandrel and turn the insert into the tapped hole.
 - When the tool handle is depressed, a special spring-loaded trip mechanism within the tool will drive the KEES into the parent material.
 - The replacement of inserts is accomplished without reworking the parent material, and the same size insert is used in the original hole.



INCH SIZE INSERTS

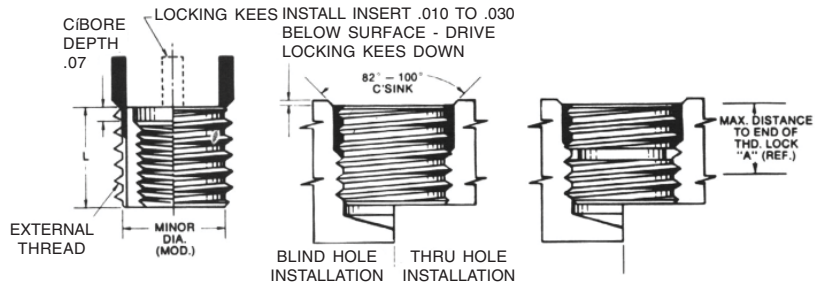
Miniature and Lightweight Inserts
(MS51830)

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 UNF-2B	DEPTH MIN.		SIZE	DEPTH
MS51830-101	MS51830-101L	2-56 UNJC-3B	8 - 32 UNC-3A	.0157	.12	.088	.134	.166	† 8 - 32	.140	TKNC 02	#33 (.113)	1/16
MS51830-102	MS51830-102L	4 - 40 UNJC-3B	10 - 32 UNF-2A	.0302	.17	.125	.161	.194	10 - 32	.160	TKNC 04	#29 (.136)	3/32
MS51830-103	MS51830-103L	6 - 32 UNJC-3B	12 - 28 UNF-2A	.0329	.17	.125	.187	.220	12 - 28	.160	TKNC 06	#21 (.159)	
MS51830-104	MS51830-104L	8 - 32 UNJC-3B	1/4 - 28 UNF-2A	.0669	.22	.175	.228	.255	1/4 - 28	.210	TKNC 08	#8 (.199)	1/8

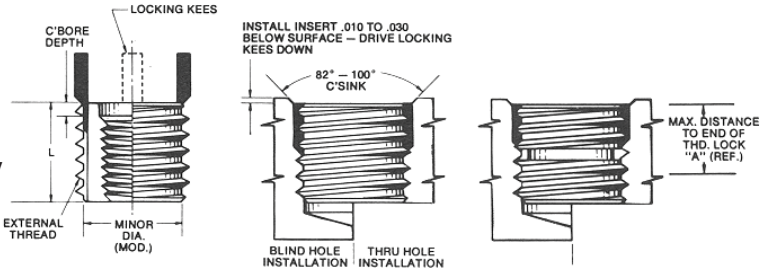
Lightweight Inserts



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
MS51830-201	MS51830-201L	10 - 32	5/16 - 18	.1517	.31	.31	.272	.323	5/16 - 18	.37	TD 1032L	7/32	5/32
MS51830-105				.0945									
MS51830-202	MS51830-202L	1/4 - 28	3/8 - 16	.2371	.37	.33	.332	.385	3/8 - 16	.43	TD 428L	9/32	
MS51830-106				.1726									
MS51830-203	MS51830-203L	5/16 - 24	7/16 - 14	.3049	.43	.34	.397	.447	7/16 - 14	.50	TD 524L	11/32	
MS51830-107				.2321									
MS51830-204	MS51830-204L	3/8 - 24	1/2 - 13	.4299	.50	.36	.453	.510	1/2 - 13	.56	TD 624L	13/32	3/16
MS51830-108				.3366									
MS51830-205	MS51830-205L	7/16 - 20	9/16 - 12	.5665	.56	.41	.516	.572	9/16 - 12	.62	TD 720L	15/32	
MS51830-109				.466									
MS51830-206	MS51830-206L	1/2 - 20	5/8 - 11	.7175	.62	.42	.578	.635	5/8 - 11	.68	TD 820L	17/32	
MS51830-110				.596									

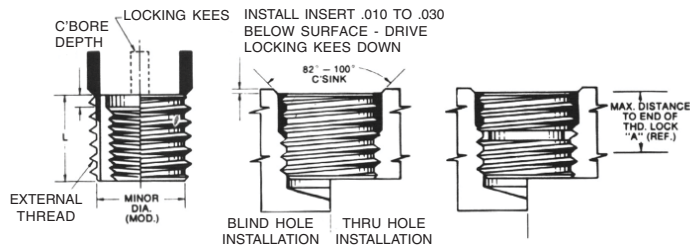
Heavy Duty and Extra Heavy Duty Inserts (MS51831/MS51832)

Heavy Duty (MS51831)



PART NO.		DIMENSIONS					INSTALLATION					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 -0.000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			* SIZE CLASS 2A	SHEAR ENGAG.						SIZE UNC-2B	MIN. DEPTH		SIZE	DEPTH
NAS1395C08		8 - 32	5/16 - 18	.1517	.31	.04	.29	.272	.323	5/16 - 18	.37	THD 0832L	7/32	1/8
	NAS1395C08L			.0945										
MS51831-201		10 - 32	3/8 - 16	.1901	.31	.07	.31	.332	.385	3/8 - 16	.37	THD 1032L	9/32	1/8
	MS51831-201L			.1156										
MS51831-101		10 - 24	3/8 - 16	.1901	.31	.07	.31	.332	.385	3/8 - 16	.37	THD 1024L	9/32	1/8
	MS51831-101L			.1156										
MS51831-202		1/4 - 28	7/16 - 14	.2842	.37	.07	.33	.397	.447	7/16 - 14	.43	THD 428L	11/32	3/16
	MS51831-202L			.1970										
MS51831-102		1/4 - 20	7/16 - 14	.2842	.37	.07	.36	.397	.447	7/16 - 14	.43	THD 420L	11/32	3/16
	MS51831-102L			.1970										
MS51831-203		5/16 - 24	1/2 - 13	.3588	.43	.07	.34	.453	.510	1/2 - 13	.50	THD 524L	13/32	3/16
	MS51831-203L			.2608										
MS51831-103		5/16 - 18	1/2 - 13	.3588	.43	.07	.34	.453	.510	1/2 - 13	.50	THD 518L	13/32	3/16
	MS51831-103L			.2608										
MS51831-204		3/8 - 24	9/16 - 12	.4975	.50	.07	.37	.516	.572	9/16 - 12	.56	THD 624L	15/32	3/16
	MS51831-204L			.3843										
MS51831-104		3/8 - 16	9/16 - 12	.4975	.50	.07	.41	.516	.572	9/16 - 12	.56	THD 616L	15/32	3/16
	MS51831-104L			.3843										
MS51831-205		7/16 - 20	5/8 - 11	.7172	.62	.07	.42	.578	.635	5/8 - 11	.68	THD 720L	17/32	3/16
	MS51831-205L			.5831										
MS51831-105		7/16 - 14	5/8 - 11	.7172	.62	.07	.46	.578	.635	5/8 - 11	.68	THD 714L	17/32	3/16
	MS51831-105L			.5831										
MS51831-206		1/2 - 20	11/16 - 11 NS	.8884	.68	.07	.42	.641	.700	11/16 - 11 NS	.75	THD 820L	19/32	3/16
	MS51831-206L			.7368										
MS51831-106		1/2 - 13	11/16 - 11 NS	.8884	.68	.07	.47	.641	.700	11/16 - 11 NS	.75	THD 813L	19/32	3/16
	MS51831-106L			.7368										
MS51831-207		9/16 - 18	13/16 - 16	1.2493	.81	.07	.48	.766	.822	13/16 - 16 UN	.94	THD 918L	23/32	3/16
	MS51831-207L			1.0247										
MS51831-107		9/16 - 12	13/16 - 16	1.2493	.81	.07	.54	.766	.822	13/16 - 16 UN	.94	THD 912L	23/32	3/16
	MS51831-107L			1.0247										
MS51831-208		5/8 - 18	7/8 - 14	1.4866	.87	.07	.49	.828	.885	7/8 - 14 UNF	1.00	THD 1018L	25/32	3/16
	MS51831-208L			1.2415										
MS51831-108		5/8 - 11	7/8 - 14	1.4866	.87	.07	.57	.828	.885	7/8 - 14 UNF	1.00	THD 1011L	25/32	3/16
	MS51831-108L			1.2415										

Extra Heavy Duty Inserts (MS51832)



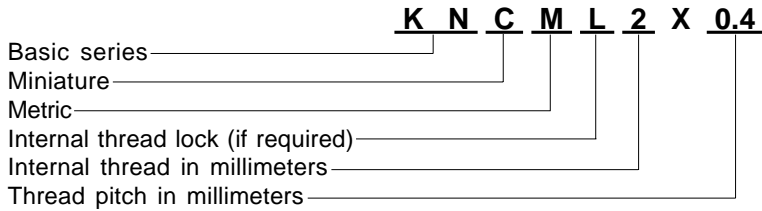
PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA		
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 3B	EXTERNAL THREAD		L	C' BORE DEPTH	A	TAP DRILL DIA.	C'SNK DIA. ±.010 -0.000	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			* SIZE CLASS 2A	SHEAR ENGAG.						SIZE UNC-2B	MIN. DEPTH		SIZE	DEPTH
MS51832-201		10-32	7/16-14	.2299	.31	.07	.31	.397	.447	7/16-14	.37	THXHD	11/32	3/16
	MS51832-201L			.1403										
MS51832-101		10-24	7/16-14	.2299	.31	.07	.31	.397	.447	7/16-14	.37	THXHD	11/32	3/16
	MS51832-101L			.1403										
MS51832-202		1/4-28	1/2-13	.2997	.37	.07	.33	.453	.510	1/2-13	.44	THXHD	15/32	3/16
	MS51832-202L			.2005										
MS51832-102		1/4-20	1/2-13	.2997	.37	.07	.36	.453	.510	1/2-13	.44	THXHD	15/32	3/16
	MS51832-102L			.2005										
MS51832-203		5/16-24	9/16-12	.4163	.43	.07	.34	.516	.572	9/16-12	.50	THXHD	17/32	3/16
	MS51832-203L			.3029										
MS51832-103		5/16-18	9/16-12	.4163	.43	.07	.37	.516	.572	9/16-12	.50	THXHD	17/32	3/16
	MS51832-103L			.3029										

NOTES ON METRIC INSERTS

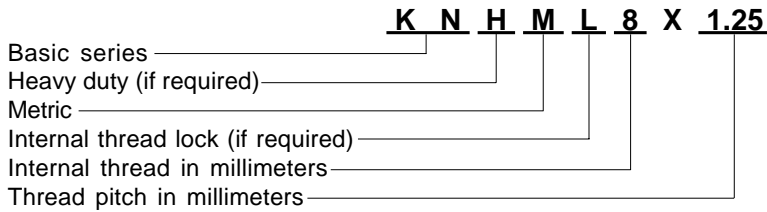
These inserts are used in the same way and have the same design features as the MS style inserts detailed in the proceeding pages. Since there are no military or aerospace part numbers or specifications governing them, parts are typically referenced by AFS (Keensert) part number. Parts supplied may be either AFS or ACME manufacture.

Basic part numbers

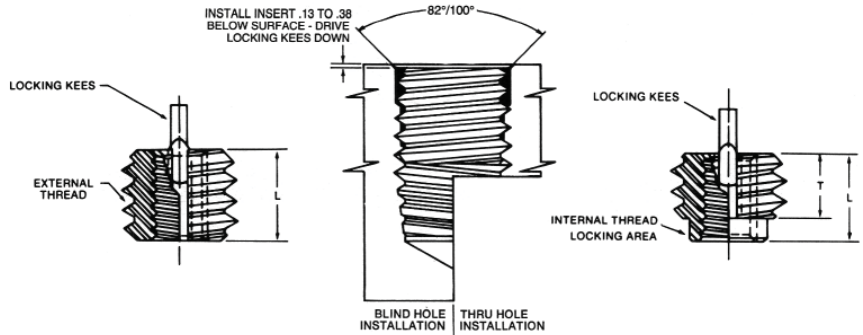
Miniature metric inserts



Lightweight and heavy duty metric inserts

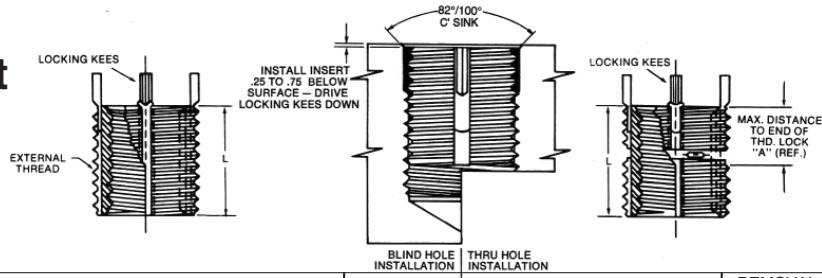


Miniature Metric Inserts



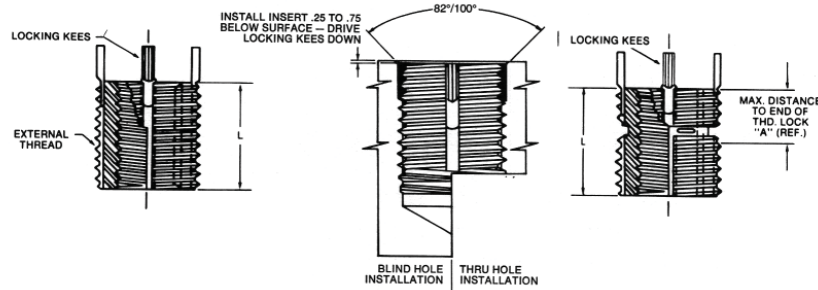
PART NO.		DIMENSIONS					INSTALLATION DATA					REMOVAL DATA	
NON-LOCKING	INTERNAL THREAD LOCKING	INTERNAL THREAD CLASS 5H	EXTERNAL THREAD		L ±0.25	T	TAP DRILL DIA.	C'SINK DIA. +.25 -.00	THREAD TAP		INSTALLATION TOOL PART NUMBER	DRILL	
			SIZE CLASS 4h	SHEAR ENGAG.					SIZE CLASS 6h	MIN. DEPTH		SIZE	DEPTH
KNCM 2x0.4		M 2x0.4	M 4x0.7	16.5	3.0		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		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		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		5.5	6.1	M 6x0.75	6.5	TKNCM 4x0.7	4.6	2.50
	KNCML 4x0.7			42.9									

Lightweight Metric Inserts



PART NO.		DIMENSIONS				INSTALLATION DATA						REMOVAL DATA	
NON-LOCKING INTERNAL	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.					SIZE CLASS 6H	MIN. DEPTH		SIZE	DEPTH
KNM 5x0.8	KNML 5x0.8	M 5x0.8	M 8x1.25	104.9	8.0	-	6.9	8.25	M 8x1.25	9.5	TM - 5	5.50	4.00
				83.1									
KNM 5x0.5	KNML 5x0.5	M 5x0.5	M 8x1.25	104.9	8.0	-	6.9	8.25	M 8x1.25	9.5	TM - 5	5.50	4.00
				83.1									
KNM 6x1.0	KNML 6x1.0	M 6x1.0	M 10x1.25	177.7	10.0	-	8.8	10.25	M 10x1.25	11.5	TM - 6	7.50	4.75
				152.7									
KNM 6x0.75	KNML 6x0.75	M 6x0.75	M 10x1.25	177.7	10.0	-	8.8	10.25	M 10x1.25	11.5	TM - 6	7.50	4.75
				152.7									
KNM 8x1.25	KNML 8x1.25	M 8x1.25	M 12x1.25	266.7	12.0	-	10.8	12.25	M 12x1.25	13.5	TM - 8	9.50	4.75
				242.5									
KNM 8x1.0	KNML 8x1.0	M 8x1.0	M 12x1.25	266.7	12.0	-	10.8	12.25	M 12x1.25	13.5	TM - 8	9.50	4.75
				242.5									
KNM 10x1.5	KNML 10x1.5	M 10x1.5	M 14x1.5	341.6	14.0	-	12.8	14.25	M 14x1.5	15.5	TM - 10	11.50	4.75
				316.4									
KNM 10x1.25	KNML 10x1.25	M 10x1.25	M 14x1.5	341.6	14.0	-	12.8	14.25	M 14x1.5	15.5	TM - 10	11.50	4.75
				316.4									
KNM 12x1.75	KNML 12x1.75	M 12x1.75	M 16x1.5	470.2	16.0	-	14.75	16.25	M 16x1.5	17.5	TM - 12	13.50	4.75
				441.4									
KNM 12x1.25	KNML 12x1.25	M 12x1.25	M 16x1.5	470.2	16.0	-	14.75	16.25	M 16x1.5	17.5	TM - 12	13.50	4.75
				441.4									

Heavy Duty Metric 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)*					SIZE CLASS 6H	MIN. DEPTH		SIZE	DEPTH
KNHM 4x0.7	KNHML 4x0.7	M 4x0.7	M 8x1.25	104.9	8.0	8.0	6.9	8.25	M 8x1.25	9.5	THM - 4	5.50	4.00
				83.1									
KNHM 5x0.8	KNHML 5x0.8	M 5x0.8	M 10x1.25	177.7	10.0	8.7	8.8	10.25	M 10x1.25	12.5	THM - 5	7.50	4.75
				152.7									
KNHM 6x1.0	KNHML 6x1.0	M 6x1.0	M 12x1.25	266.7	12.0	9.5	10.8	12.25	M 12x1.25	14.5	THM - 6	9.50	4.75
				242.5									
KNHM 8x1.25	KNHML 8x1.25	M 8x1.25	M 14x1.5	341.6	14.0	10.0	12.8	14.25	M 14x1.5	16.5	THM - 8	11.50	4.75
				316.4									
KNHM 8x1.0	KNHML 8x1.0	M 8x1.0	M 14x1.5	341.6	14.0	10.0	12.8	14.25	M 14x1.5	16.5	THM - 8	11.50	4.75
				316.4									
KNHM 10x1.5	KNHML 10x1.5	M 10x1.5	M 16x1.5	470.2	16.0	10.0	14.75	16.25	M 16x1.5	18.5	THM - 10	13.50	4.75
				441.4									
KNHM 10x1.25	KNHML 10x1.25	M 10x1.25	M 16x1.5	470.2	16.0	10.0	14.75	16.25	M 16x1.5	18.5	THM - 10	13.50	4.75
				441.4									
KNHM 12x1.75	KNHML 12x1.75	M 12x1.75	M 18x1.5	608.5	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
				561.8									
KNHM 12x1.5	KNHML 12x1.5	M 12x1.5	M 18x1.5	608.5	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
				561.8									
KNHM 12x1.25	KNHML 12x1.25	M 12x1.25	M 18x1.5	608.5	18.0	10.7	16.75	18.25	M 18x1.5	20.5	THM - 12	15.50	4.75
				561.8									
KNHM 14x2.0	KNHML 14x2.0	M 14x2.0	M 20x1.5	770.5	20.0	12.4	18.75	20.25	M 20x1.5	22.5	THM - 14	17.50	4.75
				724.4									
KNHM 14x1.5	KNHML 14x1.5	M 14x1.5	M 20x1.5	770.5	20.0	12.4	18.75	20.25	M 20x1.5	22.5	THM - 14	17.50	4.75
				724.4									