

AEROSPACE INDUSTRIES ASSOCIATION OF AMERICA, INC.
1000 WILSON BLVD.
ARLINGTON, VA 22209

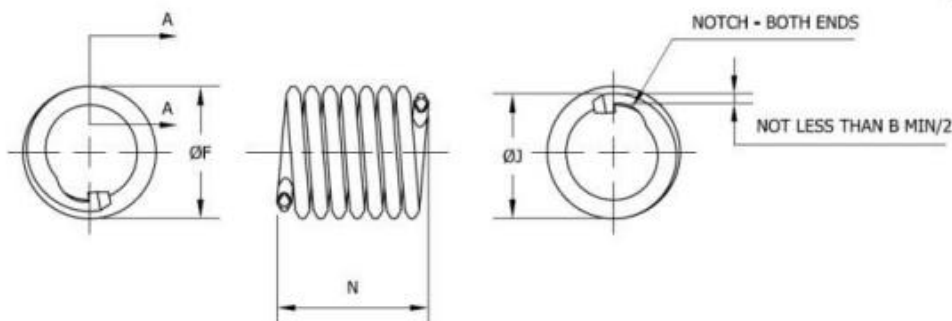


FIGURE 1: INSERT, TANGLESS, FREE RUNNING

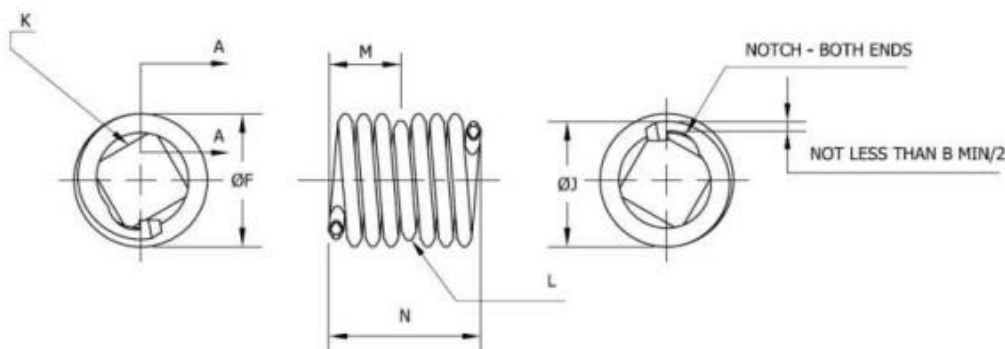
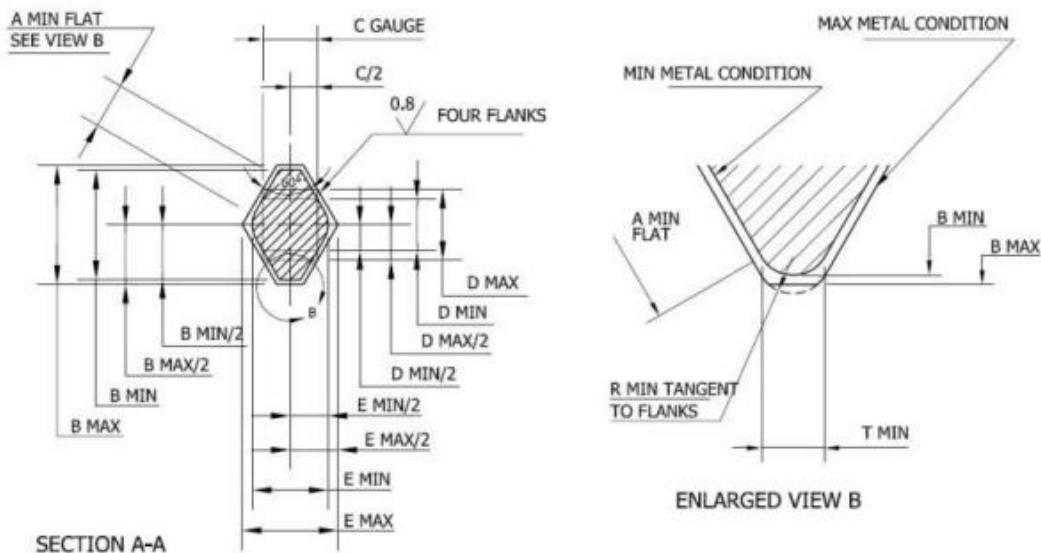
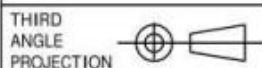


FIGURE 2: INSERT, TANGLESS, SELF-LOCKING



SECTION A-A

ENLARGED VIEW B



THIRD
ANGLE
PROJECTION

CUSTODIAN
NATIONAL AEROSPACE STANDARDS COMMITTEE

REVISION
NEW

PROCUREMENT
SPECIFICATION

MA1565

TITLE

**INSERT, SCREW THREAD, HELICAL COIL, FREE RUNNING
AND SELF-LOCKING, TANGLESS, METRIC**

CLASSIFICATION
PART STANDARD

NA0276
SHEET 1 OF 5

THIS DRAWING SUPERSEDES ALL ANTECEDENT STANDARD DRAWINGS FOR THE SAME
PRODUCT AND SHALL BECOME EFFECTIVE NO LATER THAN SIX MONTHS FROM THE LAST
REVISION DATE.

FORM 09-01

TABLE 1 - DIMENSIONS, THREAD CODE AND LENGTH

1.0 DIAMETER NOMINAL LENGTH

NOMINAL THREAD SIZE	THREAD & LENGTH CODE	NOMINAL LENGTH	REF WEIGHT kg/100	M ± 1 COIL NUMBER OF COILS FROM END OF INSERT TO CENTER OF GRIP COIL(S)	N ± 0.250 COIL NUMBER OF FREE COILS
M2.5X0.45	M2A-10	2.5	0.003	1.688	3.375
M3X0.5	M3-10	3	0.006	1.875	3.750
M4X0.7	M4-10	4	0.014	1.813	3.625
M5X0.8	M5-10	5	0.025	2.063	4.125
M6X1	M6-10	6	0.044	2.000	4.000
M8X1.25	M8-10	8	0.100	2.250	4.500
M10X1.5	M10-10	10	0.188	2.438	4.875
M12X1.75	M12-10	12	0.318	2.500	5.000

1.5 DIAMETER NOMINAL LENGTH

NOMINAL THREAD SIZE	THREAD & LENGTH CODE	NOMINAL LENGTH	REF WEIGHT kg/100	M ± 1 COIL NUMBER OF COILS FROM END OF INSERT TO CENTER OF GRIP COIL(S)	N ± 0.250 COIL NUMBER OF FREE COILS
M2.5X0.45	M2A-15	3.75	0.006	2.875	5.750
M3X0.5	M3-15	4.5	0.009	3.188	6.375
M4X0.7	M4-15	6	0.022	3.063	6.125
M5X0.8	M5-15	7.5	0.040	3.438	6.875
M6X1	M6-15	9	0.072	3.375	6.750
M8X1.25	M8-15	12	0.160	3.688	7.375
M10X1.5	M10-15	15	0.302	4.000	8.000
M12X1.75	M12-15	18	0.509	4.125	8.250

2.0 DIAMETER NOMINAL LENGTH

NOMINAL THREAD SIZE	THREAD & LENGTH CODE	NOMINAL LENGTH	REF WEIGHT kg/100	M ± 1 COIL NUMBER OF COILS FROM END OF INSERT TO CENTER OF GRIP COIL(S)	N ± 0.250 COIL NUMBER OF FREE COILS
M2.5X0.45	M2A-20	5	0.008	4.063	8.125
M3X0.5	M3-20	6	0.012	4.438	8.875
M4X0.7	M4-20	8	0.031	4.313	8.625
M5X0.8	M5-20	10	0.055	4.813	9.625
M6X1	M6-20	12	0.099	4.750	9.500
M8X1.25	M8-20	16	0.221	5.125	10.250
M10X1.5	M10-20	20	0.416	5.563	11.125
M12X1.75	M12-20	24	0.700	5.750	11.500

2.5 DIAMETER NOMINAL LENGTH

NOMINAL THREAD SIZE	THREAD & LENGTH CODE	NOMINAL LENGTH	REF WEIGHT kg/100	M ± 1 COIL NUMBER OF COILS FROM END OF INSERT TO CENTER OF GRIP COIL(S)	N ± 0.250 COIL NUMBER OF FREE COILS
M2.5X0.45	M2A-25	6.25	0.010	5.250	10.500
M3X0.5	M3-25	7.5	0.016	5.688	11.375
M4X0.7	M4-25	10	0.039	5.563	11.125
M5X0.8	M5-25	12.5	0.070	6.188	12.375
M6X1	M6-25	15	0.126	6.063	12.125
M8X1.25	M8-25	20	0.281	6.625	13.250
M10X1.5	M10-25	25	0.530	7.125	14.250
M12X1.75	M12-25	30	0.890	7.313	14.625

REVISION

NEW

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SHEET 2

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TABLE 1 – CONTINUED

3.0 DIAMETER NOMINAL LENGTH

NOMINAL THREAD SIZE	THREAD CODE & LENGTH CODE	NOMINAL LENGTH	REF WEIGHT kg/100	M ± 1 COIL NUMBER OF COILS FROM END OF INSERT TO CENTER OF GRIP COIL(S)	N ± 0.250 COIL NUMBER OF FREE COILS
M2.5X0.45	M2A-30	7.5	0.012	6.375	12.750
M3X0.5	M3-30	9	0.019	6.938	13.875
M4X0.7	M4-30	12	0.048	6.813	13.625
M5X0.8	M5-30	15	0.085	7.563	15.125
M6X1	M6-30	18	0.153	7.438	14.875
M8X1.25	M8-30	24	0.342	8.063	16.125
M10X1.5	M10-30	30	0.643	8.688	17.375
M12X1.75	M12-30	36	1.081	8.938	17.875

TABLE 2 – INSERT DIMENSIONS

NOMINAL THREAD SIZE	A	B		C	D		E	
	MIN	MIN	MAX	GAGE	MIN	MAX	MIN	MAX
M2.5X0.45	0.08	0.437	0.487	0.225	0.2820	0.2920	0.318	0.394
M3X0.5	0.11	0.482	0.541	0.250	0.3145	0.3250	0.362	0.438
M4X0.7	0.16	0.683	0.758	0.350	0.4445	0.4550	0.510	0.612
M5X0.8	0.21	0.775	0.866	0.400	0.5085	0.5200	0.598	0.700
M6X1	0.27	0.975	1.083	0.500	0.6370	0.6500	0.748	0.875
M8X1.25	0.42	1.251	1.353	0.625	0.7990	0.8120	0.967	1.094
M10X1.5	0.51	1.522	1.624	0.750	0.9615	0.9740	1.160	1.312
M12X1.75	0.65	1.792	1.894	0.875	1.1240	1.1370	1.379	1.531

NOMINAL THREAD SIZE	F FREE OUTER DIAMETER		J END COIL DIAMETER- TYP. BOTH ENDS	K NUMBER OF SIDES PER GRIP COIL		L NUMBER OF GRIP COILS	R MIN TANGENT TO FLANKS	T
	MIN	MAX	MIN	MIN	MAX	MAX	MIN	MIN
M2.5X0.45	3.20	3.70	3.03	4	5	2	0.081	0.141
M3X0.5	3.80	4.35	3.59	4	5	2	0.090	0.156
M4X0.7	5.05	5.60	4.82	4	5	2	0.126	0.219
M5X0.8	6.25	6.80	5.93	4	5	2	0.144	0.250
M6X1	7.40	7.95	7.16	4	5	2	0.180	0.312
M8X1.25	9.80	10.35	9.43	5	6	2	0.226	0.391
M10X1.5	11.95	12.50	11.71	5	6	2	0.271	0.469
M12X1.75	14.30	15.00	13.99	5	6	2	0.316	0.547

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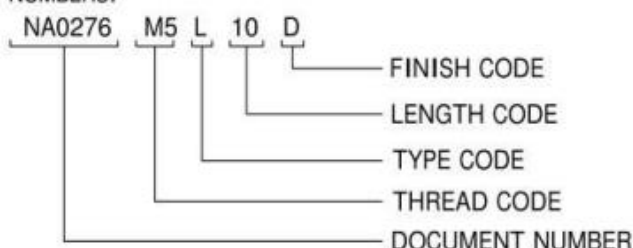
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NA0276

SHEET 3

- MATERIAL:** - TYPE 304 (UNS S30400) CORROSION RESISTANT STEEL PER AS7245.
- FINISH:** - NONE.
- DRY FILM LUBRICANT IN ACCORDANCE WITH AS5272, TYPE I.
- CADMIUM PLATED IN ACCORDANCE WITH AMS-QQ-P-416, TYPE II, THICKNESS SHALL BE A MAXIMUM OF 0.003 mm. AS A MINIMUM ALL SURFACES SHALL SHOW EVIDENCE OF CADMIUM PLATING.
- CODE:** - FIRST DASH NUMBER DESIGNATES INSERT THREAD SIZE AS TABULATED UNDER THREAD CODE.
- DASH '-' AFTER THE FIRST NUMBER DESIGNATES FREE RUNNING.
- ADD 'L' AFTER THE FIRST NUMBER TO DESIGNATE SELF-LOCKING.
- SECOND NUMBER DESIGNATES LENGTH AS TABULATED.
- NO LETTER AFTER THE SECOND NUMBER DESIGNATES NO FINISH.
- ADD 'D' AFTER THE SECOND NUMBER TO DESIGNATE DRY FILM LUBRICANT.
- ADD 'P' AFTER THE SECOND NUMBER TO DESIGNATE CADMIUM PLATE.

EXAMPLE OF PART NUMBERS:



- NA0276M5-10 =** TANGLESS, FREE RUNNING, CORROSION RESISTANT STEEL INSERT, THREAD SIZE M5 X 0.8, 1 X DIAMETER NOMINAL LENGTH
- NA0276M5L20 =** TANGLESS, LOCKING, CORROSION RESISTANT STEEL INSERT, THREAD SIZE M5 X 0.8, 2 X DIAMETER NOMINAL LENGTH
- NA0276M5L25D =** TANGLESS, LOCKING, CORROSION RESISTANT STEEL INSERT WITH DRY FILM LUBRICANT, THREAD SIZE M5 X 0.8, 2.5 X DIAMETER NOMINAL LENGTH
- NA0276M5L10P =** TANGLESS, LOCKING, CORROSION RESISTANT STEEL INSERT WITH CADMIUM PLATE, THREAD SIZE M5 X 0.8, 1 X DIAMETER NOMINAL LENGTH

- NOTES:**
- (1) NOMINAL LENGTH EQUALS MINIMUM THROUGH HOLE LENGTH WITHOUT COUNTERSINK AND WITH INSERT LOCATED $\frac{1}{4}$ TO $\frac{1}{2}$ THREAD PITCH BELOW THE TOP SURFACE.
 - (2) THE NUMBER OF FREE COILS OF THE INSERT ARE COUNTED FROM NOTCH TO NOTCH.
 - (3) THE INSERTS WHEN ASSEMBLED INTO THREADED HOLES CONFORMING TO MA1567, SHALL FORM THREADS CONFORMING TO ASME B1.13M, EXCEPT FOR THE LOCKING FEATURE, WHERE PRESENT, WHICH SHALL CONFORM TO THE RELEVANT INSERT SPECIFICATION. THE ASSEMBLED INSERTS (BOTH TYPES) SHALL ACCEPT AND FUNCTION WITH PARTS EXTERNALLY THREADED TO MA1370, ASME B1.13M AND ASME B1. 21M.
 - (4) INSERT COLOR IDENTIFICATION:
 - NO FINISH, FREE RUNNING: NONE
 - NO FINISH, LOCKING: RED DYE
 - DRY FILM LUBRICATED, FREE RUNNING: DARK GREY
 - DRY FILM LUBRICATED, LOCKING: DARK GREY
 - CADMIUM PLATED, FREE RUNNING : IRIDESCENT BRONZE OR YELLOW (CHROMATE)
 - CADMIUM PLATED, LOCKING: OLIVE DRAB (CHROMATE)
 - (5) THE DIMENSIONAL SPECIFICATION OF THE ASSEMBLY IS GIVEN IN MA1567.
 - (6) UNLESS OTHERWISE INDICATED DIMENSIONS APPLY BEFORE PLATING
 - (7) DIMENSIONS ARE IN MILLIMETERS.
 - (8) THIS STANDARD TAKES PRECEDENCE OVER DOCUMENTS REFERENCED HEREIN.
 - (9) REMOVE ALL BURRS AND SHARP EDGES.

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SHEET 4



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- (10) REFERENCED DOCUMENTS SHALL BE THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.
- (11) DIMENSIONING AND TOLERANCING PER ASME Y14.5M-1994.
- (12) TOLERANCES UNLESS OTHERWISE SPECIFIED: DECIMALS ± 0.25 ANGLES ± 5 DEG.
- (13) SURFACE TEXTURE SHALL BE IN ACCORDANCE WITH ASME B46.1 AND SURFACE TEXTURE SYMBOLS SHALL BE IN ACCORDANCE WITH ASME Y14.36M.
- (14) SURFACE ROUGHNESS TO BE 0.8 MICROMETERS ARITHMETIC AVERAGE MAXIMUM, UNLESS OTHERWISE SPECIFIED.

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SHEET 5

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