



TABLE I - DIMENSIONS

ø DASH NUMBER /13/	THREAD SIZE /9/	øA /1/	øD MAX	F /4/	H	J /5/	R RAD	P RAD MIN	(S) RAD	U MAX	RECESS SIZE
-04	.1120-40	.219 .205	.112	.125	.070 .060	.075	.005 .010	.010	.252	.031	MT-00
-06	.1380-32	.270 .256	.138	.156	.088 .078	.094	.005 .010	.015	.345	.039	MT-00
-08	.1640-32	.322 .306	.164	.156	.099 .089	.094	.010 .020	.015	.354	.039	MT-0
-3	.1900-32	.373 .357	.190	.156	.115 .104	.094	.010 .020	.020	.322	.039	MT-1
-4	.2500-28	.492 .473	.250	.178	.151 .138	.107	.010 .020	.035	.477	.045	MT-1
-5	.3125-24	.615 .594	.312	.208	.188 .173	.125	.010 .020	.040	.673	.052	MT-2
-6	.3750-24	.740 .716	.375	.208	.224 .207	.125	.015 .025	.040	.800	.052	MT-3

MATERIAL:

CRES - A286 (UNS S66286) CONFORMING TO THE CHEMISTRY OF AMS5731, AMS5732, AMS5737 OR AMS5853.

HEAT TREATMENT:

DEVELOP BASIC MATERIAL PROPERTIES AS FOLLOWS, WITH CONTROLS PER AMS2759 160-190 KSI FTU /20/

FINISH:

CADMIUM PLATE PER AMS-QQ-P-416, TYPE II, CLASS 2. IDENTIFY WITH GREEN DYE OR PAINT ON THE THREAD END. MAXIMUM COVERAGE MAY INCLUDE CHAMFER PLUS ONE FULL THREAD.

UNPLATED - PASSIVATED PER AMS2700, METHOD I, CLASS 4

ALUMINUM COATED - ALUMINUM COAT PER NAS4006

BLACK OXIDE COATED - BLACK OXIDE COAT IN ACCORDANCE WITH MIL-DTL-13924, CLASS 3

SHEET	1	2	3	4	5
REV	1	-	-	-	-

REVISION
REV 1: 5-18-18

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TITLE: SCREW, PAN HEAD, FULL THREAD, MORTORQ[®] SPIRAL DRIVE RECESS A286 CRES, SELF-LOCK AND NON-LOCK

DRAWN G.DILLING	DATE 2-19-14	DRAWING NUMBER PMT-744
CHECKED: G.DILLING	DATE 2-19-14	SHEET 1 OF 5
PHILLIPS SCREW CO. 301 EDGEWATER DRIVE, SUITE 320, WAKEFIELD, MA 01880 U.S.A. PHONE: 781-213-3521 FAX: 781-224-9753		

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CODE:

NO FINISH CODE AFTER BASIC NUMBER FOR CADMIUM PLATED SCREW.
 ADD "A" AFTER BASIC NUMBER FOR ALUMINUM COATED SCREW, MAY BE USED WITH "L" OR "P" CODE
 ADD "B" AFTER BASIC NUMBER FOR BLACK OXIDE COATED SCREW. MAY BE USED WITH "L" OR "P" CODE.
 ADD "L" AFTER BASIC NUMBER FOR SELF-LOCKING SCREW WITH LOCKING ELEMENT TYPE OPTIONAL.
 ADD "P" AFTER BASIC NUMBER FOR SELF-LOCKING SCREW WITH PATCH TYPE LOCKING ELEMENT ONLY.
 ADD "U" AFTER BASIC NUMBER FOR UNPLATED SCREW. MAY BE USED WITH "L" OR "P" CODE.
 WHEN MULTIPLE LETTER CODES ARE USED, SEQUENCE SHALL BE IN ALPHABETICAL ORDER.

EXAMPLE OF PART NUMBER:

- PMT-744-3-IO = SCREW, .1900-32 THREAD, .62 LONG, NONLOCKING, CADMIUM PLATED.
- PMT-744-3AIO = SCREW, .1900-32 THREAD, .62 LONG, NONLOCKING, ALUMINUM COATED.
- PMT-744-3LIO = SCREW, .1900-32 THREAD, .62 LONG, SELF-LOCKING, (LOCKING TYPE OPTIONAL), CADMIUM PLATED.
- PMT-744-3LUIO = SCREW, .1900-32 THREAD, .62 LONG, SELF-LOCKING, (LOCKING TYPE OPTIONAL), UNPLATED.
- PMT-744-3PIO = SCREW, .1900-32 THREAD, .62 LONG, SELF-LOCKING, (PATCH TYPE ONLY), CADMIUM PLATED.
- PMT-744-3BIO = SCREW, .1900-32 THREAD, .62 LONG, NONLOCKING, BLACK OXIDE COATED.

NOTES:

- /1/ CONCENTRICITY: "øA" TO THREAD PITCH DIAMETER WITHIN .008 FIM.
- /2/ BEARING SURFACE SQUARENESS: WITHIN .003 FIM OF øD.
- /3/ PROTRUSION OF LOCKING ELEMENT SHALL BE CONTROLLED SO THAT IT WILL PASS FREELY, OR WITH FINGER PRESSURE, THROUGH A RING GAGE WITH ø.010 (+.001,-.000) GREATER THAN MAXIMUM MAJOR DIAMETER OF SCREW THREAD.
- /4/ "F" MINIMUM (5 THREAD PITCHES) = REGION OF MINIMUM ENGAGEMENT WITH FEMALE THREAD REQUIRED TO MEET MIL-DTL-18240 REQUIREMENTS. LOCKING ELEMENT WITHIN "F" REGION MUST DEVELOP REQUIRED TORQUE WHEN TESTED PER MIL-DTL-18240.
- /5/ FOR EASE OF STARTING, LOCKING ELEMENT SHALL NOT BE EFFECTIVE IN "J" AREA (3 THREAD PITCHES).
- /6/ MORTORQ SPIRAL DRIVE SCREW SHALL WITHSTAND MINIMUM TORQUE VALUES LISTED IN TABLE III WITHOUT DAMAGE TO RECESS OR DRIVER. SCREW RECESS SHALL BE TORQUE TESTED IN BOTH INSTALLATION AND REMOVAL DIRECTIONS. APPLY TABULATED TORQUE IN CW DIRECTION WITH MAXIMUM END LOAD OF 20 POUNDS. PARTS ARE ACCEPTABLE IF RAISED METAL AT EDGE OF RECESS DOES NOT EXCEED TABULATED VALUES. APPLY TABULATED TORQUE IN CCW DIRECTION WITH MAXIMUM END LOAD OF 40 POUNDS. PARTS ARE ACCEPTABLE IF TORQUE IS ATTAINED WITHOUT RESTRICTION ON RAISED METAL.
- (7) MAGNETIC PERMEABILITY SHALL BE LESS THAN 2.0 (AIR = 1.0) FOR A FIELD STRENGTH H = 200 OERSTEDS USING A MAGNETIC PERMEABILITY INDICATOR PER ASTM A342/A342M, TEST METHOD 3.
- /8/ HEAD MARKING SHALL BE RAISED OR DEPRESSED (.010 MAX) AND ARRANGED AS FOLLOWS:
 MARK WITH BASIC NUMBER ("PMT" OPTIONAL) EXCEPT MARK .112-40 SIZE WITH "4", .1380-32 SIZE WITH "6", .1640-32 SIZE WITH "8". THESE THREE SMALLER SIZES ALSO TO BE MARKED WITH "C" FOR A286.
 MARK WITH MANUFACTURER'S SYMBOL, LENGTH DASH NUMBER, "L" OR "P" WHEN APPLICABLE AND RECESS NUMBER ENCIRCLED. RECESS NUMBER TO BE APPROXIMATELY 25% LARGER THAN OTHER NUMBERS.
 "L" IDENTIFIES SCREW WITH OPTIONAL LOCKING ELEMENT.
 "P" IDENTIFIES SCREW WITH PATCH TYPE LOCKING ELEMENT ONLY.
- /9/ UNJF-3A (EXCEPT UNJC-3A FOR .1640-32 AND SMALLER) PER AS8879.

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 THREAD, MORTORQ[®] SPIRAL DRIVE RECESS
 A286 CRES, SELF-LOCK AND NON-LOCK

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- (10) DIAMETER OF UNTHREADED PORTION OF SHANK SHALL NOT BE LESS THAN MIN PITCH DIAMETER NOR MORE THAN MAX MAJOR DIAMETER OF THREAD.
- (11) THREAD LENGTH:
 SCREWS LESS THAN 2 x "ØD" IN LENGTH - COMPLETE THREADS SHALL EXTEND TO WITHIN 2 PITCHES OF BEARING SURFACE OF HEAD AND INCOMPLETE THREADS MAY EXTEND UP TO BEARING SURFACE.
 SCREWS 2 x "ØD" THROUGH 2" IN LENGTH - COMPLETE THREADS SHALL EXTEND TO WITHIN 2 PITCHES OF TANGENCY OF "R" AND INCOMPLETE THREADS MAY EXTEND UP TO "R" FILLET AREA.
 SCREWS LONGER THAN 2" - COMPLETE THREADS SHALL EXTEND 1.75 MIN FROM END OF SCREW AND INCOMPLETE THREADS MAY EXTEND UP TO "R" FILLET AREA.
- (12) INCOMPLETE THREADS: SEE PROCUREMENT SPECIFICATION.
- /13/ "DASH NUMBER" OF THE BASIC NUMBER DESIGNATES THE SIZE. SEE SHEET 2 FOR "L", "P" AND "B" CODES.
- (14) SURFACE ROUGHNESS: HEAD TO SHANK FILLET, THREAD FLANKS AND THREAD ROOT: 32 MICROINCHES R_a; BEARING SURFACE OF HEAD: 63 MICROINCHES R_a; ALL OTHER SURFACES: 125 MICROINCHES R_a PER ASME B46.1.
- (15) DIMENSIONS IN INCHES AND APPLY AFTER FINISH UNLESS OTHERWISE SPECIFIED.
- (16) THIS STANDARD TAKES PRECEDENCE OVER DOCUMENTS REFERENCED HEREIN.
- (17) UNLESS OTHERWISE SPECIFIED, PART INVENTORY MANUFACTURED TO PREVIOUS REVISIONS OF THE APPLICABLE DRAWING OR SPECIFICATION MAY BE PROCURED AND USED UNTIL STOCK IS DEPLETED.
- (18) UNLESS OTHERWISE SPECIFIED HEREIN, REFERENCED DOCUMENTS SHALL BE THE ISSUE IN EFFECT ON DATE OF MANUFACTURE, HOWEVER, EXISTING MATERIAL INVENTORY CERTIFIED TO A PREVIOUS REVISION OF THE APPLICABLE MATERIAL SPECIFICATION(S) IS ACCEPTABLE FOR USE UNTIL DEPLETION.
- (19) DIMENSIONING AND TOLERANCING PER ANSI Y14.5M-1982.
- /20/ THE EFFECT OF COLD WORK AND AGING INDUCED DURING THE MANUFACTURING CYCLE MAY INCREASE THE ULTIMATE TENSILE STRENGTH OF THE FINISHED PART, BUT ANY PART (TYPE I, II OR III AS LISTED IN NAS4003) SHALL NOT EXCEED 1.3 TIMES THE SPECIFIED TYPE I MINIMUM TENSILE VALUES AS LISTED IN NAS4003 TABLE III.

PROCUREMENT SPECIFICATION:

NAS4003, EXCEPT AS NOTED. RECESS TORQUE VALUES AS NOTED IN TABLE III. COLD WORKING OF HEAD TO SHANK FILLET IS NOT REQUIRED. LOCKING ELEMENT FOR SELF-LOCKING SCREWS PER NASMI598I AND MIL-DTL-18240. ANY TYPE OF LOCKING ELEMENT OPTION INCLUDING PATCH TYPE IS OPTIONAL WHEN "L" CODE IS SPECIFIED. PATCH TYPE (WITH NO METAL REMOVED) IS REQUIRED WHEN "P" CODE IS SPECIFIED. CERTIFICATION SHALL IDENTIFY SUPPLIER OF SCREW AND LOCKING ELEMENT SEPARATELY.

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SHEET 3 OF 5

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TABLE II

	DASH NUMBER FOR PREFERRED LENGTH																						
DASH NO.	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18	20	22	24	26	28	30	32	34 TO 96
LENGTH	.19	.25	.31	.38	.44	.50	.56	.62	.69	.75	.81	.88	.94	1.00	1.12	1.25	1.38	1.50	1.62	1.75	1.88	2.00	2.12 TO 6.00
LENGTH TOL.	+.00 -.03														+.00 -.06				+.00 -.09				

DASH NUMBER INDICATES LENGTH IN .0625 INCREMENTS (ROUNDED TO TWO DECIMAL PLACES). USE OF .25 INCH INCREMENTS IS RECOMMENDED FOR SCREWS OVER 3 INCHES LONG. INTERMEDIATE OR LONGER LENGTHS MAY BE SPECIFIED BY USE OF WHOLE DASH NUMBER ONLY.

TABLE III - RECESS DIMENSIONS

Ø DASH NUMBER	THREAD SIZE	RECESS SIZE	T REF	ØM REF	GAGE PENETRATION		TORQUE IN-LBS MIN /6/	RAISED METAL MAX /6/
					MAX.	MIN.		
-04	.1120-40	MT-00	.051	.1210	.027	.019	13	.005
-06	.1380-32	MT-00	.059	.1210	.037	.029	30	.005
-08	.1640-32	MT-0	.071	.1704	.039	.031	50	.005
-3	.1900-32	MT-1	.092	.2405	.041	.032	60	.005
-4	.2500-28	MT-1	.103	.2405	.057	.048	140	.005
-5	.3125-24	MT-2	.157	.3080	.080	.071	220	.005
-6	.3750-24	MT-3	.160	.3537	.087	.078	520	.006

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SHEET 4 OF 5

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**ROLLS-ROYCE APPROVED SOURCES OF MORTORQ[®] PMT-744 BOLTS
 ADDITIONAL SOURCES FOR OTHER END USERS AVAILABLE FROM
 PHILLIPS SCREW COMPANY UPON REQUEST**

APPROVED SOURCES OF SUPPLY	ADDRESS	IDENTITY CODE
A F FASTENERS, LTD	UNIT 14-15 GLOSSOP BROOK BUSINESS PARK GLOSSOP DERBYSHIRE SK13 7AJ ENGLAND	J
ALCOA, REDDITCH	CROSSGATE ROAD PARK FARM, REDDITCH WORCESTERSHIRE B98 7TD ENGLAND	↳
SPS TECHNOLOGIES, LTD T. J. BROOKS DIV.	191 BARKBY ROAD TROON INDUSTRIAL AREA LEICESTER LE4 9HX ENGLAND	TBJ
MONOGRAM AEROSPACE FASTENERS	3423 SOUTH GARFIELD AVENUE P.O. BOX 6847 LOS ANGELES, CA 90022-0547	M1
HEARTLAND PRECISION FASTENERS	301 PRAIRIE VILLAGE DRIVE NEW CENTURY KANSAS 66031	♥

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