INCH-POUND

MIL-DTL-13791/22A
31 March 2016
SUPERSEDING
MIL-DTL-13791/22
15 January 2009

DETAIL SPECIFICATION SHEET

MACHINE-PAN HEAD SCREW, CROSS-RECESSED, CARBON STEEL, PROPER PROTECTED COATING PLATED, UNC-2A

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification sheet and MIL-DTL-13791.

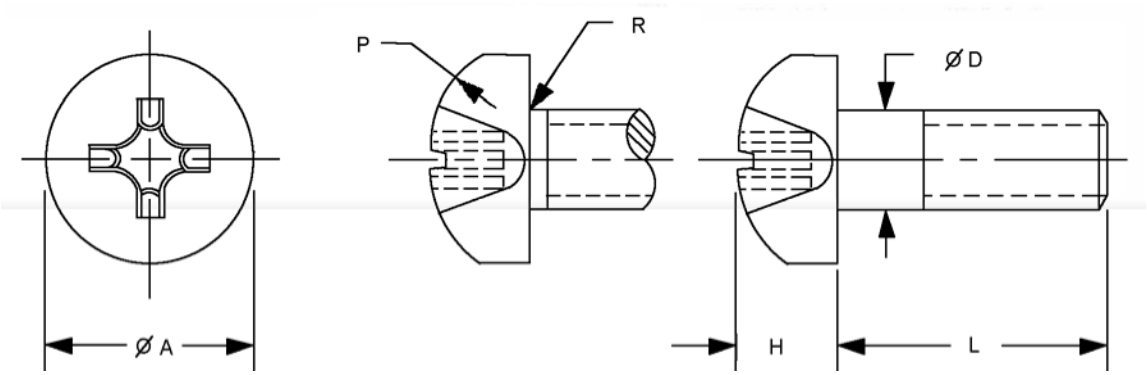

FIGURE 1. Machine-pan head screw, cross-recessed, carbon steel, with proper protected coating type plated, UNC-2A.

AMSC N/A

FSC 2920

TABLE I. Dash numbers and dimensions. 1/ 2/

SIZE		.086 (2.18)	.112 (2.84)	.138 (3.51)	.164 (4.17)	.190 (4.83)	.250 (6.35)	.3125 (7.94)	.375 (9.53)
THREADS PER INCH UNC-2A		56	40	32	32	24	20	18	16
D BODY	MAX	.0860 (2.18)	.1120 (2.84)	.1380 (3.51)	.1640 (4.17)	.1900 (4.83)	.2500 (6.35)	.3125 (7.94)	.3750 (9.53)
	MIN	.0717 (1.82)	.0925 (2.35)	.1141 (2.90)	.1399 (3.55)	.1586 (4.03)	.2127 (5.40)	.2712 (6.89)	.3287 (8.35)
A HEAD	MAX	.1670 (4.24)	.2190 (5.56)	.2700 (6.86)	.3220 (8.18)	.3730 (9.47)	.4920 (12.50)	.6150 (15.62)	.7400 (18.80)
	MIN	.1550 (3.94)	.2050 (5.21)	.2560 (6.50)	.3060 (7.77)	.3570 (9.07)	.4730 (12.01)	.5940 (15.09)	.7160 (18.19)
H HEAD HEIGHT	MAX	.0620 (1.57)	.0800 (2.03)	.0970 (2.46)	.1150 (2.92)	.1330 (3.38)	.1750 (4.45)	.2180 (5.54)	.2610 (6.63)
	MIN	.0530 (1.35)	.0700 (1.78)	.0870 (2.21)	.1050 (2.67)	.1220 (3.10)	.1620 (4.11)	.2030 (5.16)	.2440 (6.20)
P HEAD RADIUS	MIN	.0100 (.25)	.0100 (.25)	.0150 (.38)	.0150 (.38)	.0200 (.51)	.0350 (.89)	.0400 (1.02)	.0400 (1.02)
R FILLET RADIUS	MAX	.0130 (.33)	.0170 (.43)	.0210 (.53)	.0250 (.64)	.0290 (.74)	.0380 (.97)	.0470 (1.19)	.0560 (1.42)
TENSILE STRENGTH LUS	MIN	220	360	545	840	1,050	1,900	3,140	4,65
L LENGTH	TOLERANCE	DASH NUMBER	DASH NUMBER	DASH NUMBER	DASH NUMBER	DASH NUMBR	DASH NUMBER	DASH NUMBR	DASH NUMBER
.125 (3.18)	+.000 (.00) -.031 (.79)	201	211	224	239				
.188 (4.78)		202	212	225	240	258			
.250 (6.35)		203	213	226	241	259			
.312 (7.92)		204	214	227	242	260	276		
.375 (9.53)		205	215	228	243	261	277	292	
.438 (11.13)		206	216	229	244	262	278	293	
.500 (12.70)		207	217	230	245	263	279	294	307
.562 (14.27)		320 3/	323 3/	327 3/	331 3/	337 3/	343 3/	349 3/	355 3/
.625 (15.88)		208	218	231	246	264	280	295	308
.750 (19.05)		209	219	232	247	265	281	296	309
.875 (22.23)		210	220	233	248	266	282	297	310
1.000		321 3/	221	234	249	267	283	298	311
			324 3/	328	332	338	344	350	356
			222	235	250	268	284	299	312
			325 3/	329 3/	333 3/	339 3/	245 3/	351 3/	357 3/
			223	236	251	269	285	300	313
		322 3/							
1.125 (28.58)	+.000 (.00) -.062 (1.57)		326 3/	237	252	270	286	301	314
1.250 (31.75)				361 3/	334 3/	340 3/	246 3/	352 3/	358 3/
1.375 (34.93)				238	253	271	287	302	315
1.500 (38.10)									
1.750 (44.45)				330 3/	254	272	289	303	316
1.875 (47.63)				362	255	273	289	304	317
2.000 (50.80)					255	274	290	305	318
2.250 (57.15)	+.000 (.00) -.094 (2.39)				257	275	291	306	319
2.500 (63.50)					335 3/	341 3/	347 3/	353 3/	359 3/
2.750 (69.85)					336 3/	342 3/	348 3/	354 3/	360 3/
3.000 (76.20)									
3.250 (82.55)									
3.500 (88.90)									

1/ Dimensions are in inches.
2/ Metric equivalents are given for information only.
3/ Indicates manufacturer's non-stock production items.

REQUIREMENTS

Cadmium is not recommended. It is recommended that the use of carbon steel material with cadmium plating is used only when the other materials and plating finishes specified cannot meet performance requirements. (See table ll, NASM35206 and MIL-DTL-13791) It should be a proper protected coating type, and there are many alternative materials, which are Zinc, Zinc/Nickel, Zinc/Cobalt, Tin/Zinc, for cadmium plating applications. Proper protected coating type plating shall be in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II class 2. Fluid passages, other openings and internal threads shall not be subject to the plating thickness requirement and may have bare areas provided they are protected with a light film of oil.

Dash numbers: See table l.

Dimensions and configurations: See figure 1.

Part or Identifying Number (PIN) example: M13791/22-Q.

See table ll for dash number code.

TABLE ll. Material and finish. 1/

Dash number	Material	Finish
Q	Carbon steel	Cadmium plating in accordance with SAE-AMS-C-81562, type II, class 3 or SAE-AMS-QQ-P-416, type II, class. 2/
Z	Carbon steel	Zinc plating in accordance with ASTM B633; type II or III, Fe/Zn 25, or ASTM B695, type II, class 5. 3/
S	300 series stainless steel	No additional finish. Passivation in accordance with SAE-AMS2700, type 6 or 7.

1/ Must be capable of withstanding 96 hours salt spray.
2/ Not recommended for use where severe abrasion conditions exist. Max service temperature 120°C.
3/ Embitterment test need not be run.

Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website http://www.epa.gov/osw/hazard/wastemin/priority.htm. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein.

Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

Referenced documents. In addition to MIL-DTL-13791, this document references the following:

ASTM B633
ASTM B695
NASM35206
SAE-AMS2700
SAE-AMS-C-81562
SAE-AMS-QQ-P-416

CONCLUDING MATERIAL

Custodians:
Army - AT
Navy - SH
DLA - CC

Preparing activity:
DLA - CC

(Project 2920-2016-011)

Review activities:
Army - CR, CR4
Navy - MC

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.