

FED. SUP CLASS
5305

USER ACTIVITIES:

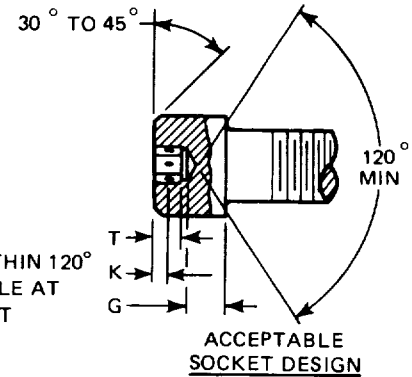
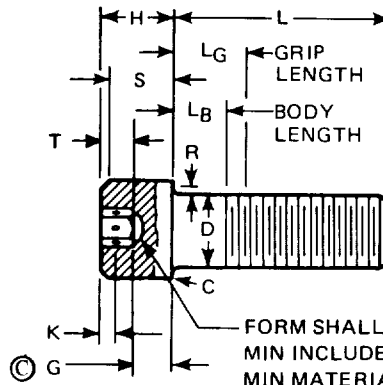
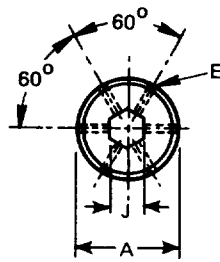
Army - AT, ME
Navy - AS, SH

REVIEWER ACTIVITIES:

Army - MI
Navy - MC
Air Force - 11
DLA - IS

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

AMSC N/A

FOR NUMBER OF HOLES
SEE NOTE 7

Nominal size Threads per inch (UNC-3A)			#4 (.112)	#6 (.138)	#8 (.164)	#10 (.190)
D	Body diameter	Max Min	0.1120 0.1075	0.1380 0.1329	0.1640 0.1585	0.1900 0.1840
A	Head diameter	Max Min	0.183 0.176	0.226 0.218	0.270 0.262	0.312 0.303
H	Head height	Max Min	0.112 0.108	0.138 0.134	0.164 0.159	0.190 0.185
S	Head side height	Min	0.101	0.124	0.148	0.171
J	Socket width across flats	Max Min	0.0952 0.0937	0.1111 0.1094	0.1426 0.1406	0.1587 0.1562
T	Key engagement	Min	0.051	0.064	0.077	0.090
G	Wall thickness	Min	0.038	0.047	0.056	0.065
C	Chamfer or radius	Max	0.005	0.005	0.005	0.005
R	Fillet extension	Max Min	0.009 0.005	0.010 0.006	0.012 0.007	0.014 0.009
K	Hole location	Max Min	0.040 0.026	0.050 0.035	0.060 0.040	0.065 0.045
E	Hole diameter	Max Min	0.039 0.033	0.039 0.033	0.050 0.044	0.050 0.044
	Recommended wire diameter	Max Min	0.028 0.020	0.028 0.020	0.040 0.032	0.040 0.032
*	Alignment plug diameter		0.025	0.025	0.030	0.030
**	Tensile strength, lbs	Min	1,090	1,640	2,520	3,150

L Length	Tolerance	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min
0.250		-1			6			-13					
0.375		-2			7			-14			-22		
0.500	+0.00	-3			8			-15			-23		
0.625	-0.03	-4			-9			-16			-24		
0.750		5			-10			-17			25		
0.875					-11			-18			-26		
1.000					12			-19			-27		
1.250								20	0.38	0.22	-28	0.38	0.17
1.500	+0.00							21	0.38	0.22	-29	0.38	0.17
1.750	-0.04										-30	0.88	0.67
2.000											-31	0.88	0.67

For NOTES see SHEET 5.

© denotes changes

P.A.	OS	INTERNATIONAL INTEREST	TITLE © SCREW, CAP, SOCKET HEAD, HEXAGON, DRILLED ALLOY STEEL (UNC-3A)	MILITARY STANDARD
Other Cust	AR 99			MS 24677
Procurement Specification FF-S-86	SUPERSEDES:	MS 24676	SHEET	1 OF 5

DD FORM 1 MAY 73 672 (COORDINATED)

DISTRIBUTION STATEMENT A.

PREVIOUS EDITIONS OF THIS FORM ARE OBSOLETE

5305-1429

Approved for public release; distribution is unlimited.

5 March 1986

7 July 1975

27 January 1961

7 April 1960

APPROVED

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Nominal size			1/4 (.250)			5/16 (.3125)			3/8 (.375)			7/16 (.4375)***		
Threads per inch (UNC-3A)			20			18			16			14		
D	Body diameter	Max	0.2500			0.3125			0.3750			0.4375		
		Min	0.2435			0.3053			0.3678			0.4294		
A	Head diameter	Max	0.375			0.469			0.562			0.656		
		Min	0.365			0.457			0.550			0.642		
H	Head height	Max	0.250			0.312			0.375			0.438		
		Min	0.244			0.306			0.368			0.430		
S	Head side height	Min	0.225			0.281			0.337			0.394		
J	Socket width across flats	Max	0.1900			0.2530			0.3160			0.3790		
		Min	0.1875			0.2500			0.3125			0.3750		
T	Key engagement	Min	0.120			0.151			0.182			0.213		
G	Wall thickness	Min	0.095			0.119			0.143			0.166		
C	Chamfer or radius	Max	0.008			0.008			0.008			0.010		
R	Fillet extension	Max	0.014			0.017			0.020			0.023		
		Min	0.009			0.012			0.015			0.018		
K	Hole location	Max	0.085			0.104			0.123			0.141		
		Min	0.065			0.084			0.103			0.121		
E	Hole diameter	Max	0.050			0.050			0.067			0.067		
		Min	0.044			0.044			0.061			0.061		
	Recommended wire diameter	Max	0.040			0.040			0.057			0.057		
		Min	0.032			0.032			0.045			0.045		
*	Alignment plug diameter		0.030			0.030			0.051			0.051		
**	Tensile strength, lbs	Min	5,400			8,900			13,200			18,100		
I. Length	Tolerance		Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min
	Size													
	.375 or under	.4375 and over												
0.375	+0.00 -0.03	+0.00 -0.03	32			46						80		
0.500			33			47			62			81		
0.625			34			48			63			82		
0.750			35			49			64			83		
0.875			36			50			65			84		
1.000			37			51			66			85		
1.250	+0.00 0.04	+0.00 0.06	38			52			67			86		
1.500			39	0.50	0.25	53			68			87		
1.750			40	0.50	0.25	54	0.62	0.35	69	0.50	0.19			
2.000			41	1.00	0.75	55	0.62	0.35	70	0.50	0.19	88	0.62	0.27
2.250			42	1.00	0.75	56	1.12	0.85	71	1.00	0.69	89	0.62	0.27
2.500			43	1.50	1.25	57	1.12	0.85	72	1.00	0.69	90	1.12	0.77
2.750	+0.00 0.06	+0.00 0.08	44	1.50	1.25	58	1.62	1.35	73	1.50	1.19	91	1.12	0.77
3.000			45	2.00	1.75	59	1.62	1.35	74	1.50	1.19	92	1.62	1.27
3.250						60	2.12	1.85	75	2.00	1.69	93	1.62	1.27
3.500						61	2.12	1.85	76	2.00	1.69	94	2.12	1.77
4.000									77	2.50	2.19	95	2.62	2.27
4.500									78	3.00	2.69			
5.000								79	3.50	3.19				

For NOTES see SHEET 5.

*** Inactive for
new design

This military standard is approved for use by all Departments and Agencies of the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

P.A.	OS	INTERNATIONAL INTEREST	TITLE SCREW, CAP, SOCKET HEAD, HEXAGON, DRILLED ALLOY STEEL (UNC-3A)	MILITARY STANDARD
Other Cust	AR 99			MS 24677
Procurement Specification FF-S-86	SUPERSEDES:	MS 24676	SHEET	2 OF 5

FED. SUP CLASS
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Nominal size			1/2 (.500)	5/8 (.625)			3/4 (.750)			7/8 (.875)***						
Threads per inch (UNC-3A)			13	11			10			9						
D	Body diameter	Max	0.5000	0.6250			0.7500			0.8750						
		Min	0.4919	0.6163			0.7406			0.8647						
A	Head diameter	Max	0.750	0.938			1.125			1.312						
		Min	0.735	0.921			1.107			1.293						
H	Head height	Max	0.500	0.625			0.750			0.875						
		Min	0.492	0.616			0.740			0.864						
S	Head side height	Min	0.450	0.562			0.675			0.787						
J	Socket width across flats	Max	0.3790	0.5050			0.6310			0.7570						
		Min	0.3750	0.5000			0.6250			0.7500						
T	Key engagement	Min	0.245	0.307			0.370			0.432						
G	Wall thickness	Min	0.190	0.238			0.285			0.333						
C	Chamfer or radius	Max	0.010	0.010			0.010			0.015						
R	Fillet extension	Max	0.026	0.032			0.039			0.044						
		Min	0.020	0.024			0.030			0.034						
K	Hole location	Max	0.160	0.198			0.235			0.273						
		Min	0.140	0.178			0.215			0.253						
E	Hole diameter	Max	0.067	0.067			0.097			0.097						
		Min	0.061	0.061			0.091			0.091						
	Recommended wire diameter	Max	0.057	0.057			0.080			0.080						
		Min	0.045	0.045			0.064			0.064						
*	Alignment plug diameter		0.051	0.051			0.081			0.081						
**	Tensile strength, lbs	Min	24,100	38,400			56,800			78,500						
L Length	Tolerance		Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min	Dash no.	L _G Max	L _B Min		
	Size															
	.750 or under	.875 and over														
0.500	+0.00 -0.03	+0.00 -0.05	-96													
0.625			-97													
0.750			-98													
0.875			-99													
1.000			-100				-116									
1.250	+0.00 -0.06	+0.00 -0.10	-101						-132							
1.500			-102					-133								
1.750			-103					-134								
2.000			-104					-135								
2.250			-105	0.75	0.36			-136								
2.500			-106	0.75	0.36			-137								
2.750			-107	0.75	0.36			-138								
3.000			-108	1.50	1.12					-139	1.00	0.50				
3.250			-109	1.50	1.12			125	1.50	1.04	-140	1.00	0.50	-152	1.00	0.44
3.500			-110	1.50	1.12			-126	1.50	1.04	-141	1.00	0.50	-153	1.00	0.44
4.000	+0.00 -0.08	+0.00 -0.14	-111	2.25	1.86			-127	2.25	1.80	-142	2.00	1.50	-154	1.00	0.44
4.500			-112	3.00	2.62			-128	2.25	1.80	-143	2.00	1.50	-155	2.00	1.44
5.000			-113	3.00	2.62			-129	3.00	2.54	-144	3.00	2.50	-156	2.00	1.44
5.500			-114	3.75	3.36			-130	3.75	3.30	-145	3.00	2.50	-157	3.00	2.44
6.000			-115	4.50	4.12			-131	3.75	3.30	-146	4.00	3.50	-158	3.00	2.44

For NOTES see SHEET 5.

***Inactive for
new design

APPROVED 7 April 1960 REVISED For changes see sheets 1 and 5.

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P. A.	OS	INTERNATIONAL INTEREST	TITLE	MILITARY STANDARD
Other Cust	AR		SCREW, CAP, SOCKET HEAD, HEXAGON, DRILLED ALLOY STEEL (UNC-3A)	MS 24677
Procurement Specification	FF-S-86	SUPERSEDES:	MS 24676	SHEET 3 OF 5

FED. SUP CLASS
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Nominal size			1.0
Threads per inch (UNC-3A)			8
D	Body diameter	Max Min	1.0000 0.9886
A	Head diameter	Max Min	1.500 1.479
H	Head height	Max Min	1.000 0.988
S	Head side height	Min	0.900
J	Socket width across flats	Max Min	0.7570 0.7500
T	Key engagement	Min	0.495
G	Wall thickness	Min	0.380
C	Chamfer or radius	Max	0.015
R	Fillet extension	Max Min	0.050 0.040
K	Hole location	Max Min	0.310 0.290
E	Hole diameter	Max Min	0.097 0.091
Recommended wire diameter			Max Min 0.080 0.064
* Alignment plug diameter			0.081
** Tensile strength, lbs			Min 103,000
L Length	Tolerance	Dash no.	L _G Max L _B Min
2.000	+0.00	159	
2.250	0.10	160	
2.500		161	
2.750		162	
3.000		163	
3.250		164	
3.500		165	1.00 0.38
4.000	+0.00	166	1.00 0.38
4.500	0.14	167	2.00 1.38
5.000		168	2.00 1.38
5.500		169	3.00 2.38
6.000		170	3.00 2.38

For NOTES see SHEET 5.

INTERCHANGEABILITY DATA

Effective 7 July 1975, MS 24676 was cancelled and superseded by MS 24677

MS 24676 and the screws covered by the part numbers listed in the standard are cancelled after the date indicated on this document.

Use only the part numbers from MS 24677 for design and replacement.

Cancelled MS 24676 screws cannot always replace MS 24577 screws and should be used only where applicable until existing stock is depleted.

MS 24677 screws shall be used in lieu of the cancelled MS 24676 screws of the same dash numbers. For example:

Screws MS 24676-1 through MS 24676-170
are cancelled and superseded by
Screws MS 24677-1 through MS 24677-170

APPROVED 7 April 1960 REVISED For changes see sheets 1 and 5.

P. A.	OS	INTERNATIONAL INTEREST	TITLE SCREW, CAP, SOCKET HEAD, HEXAGON, DRILLED ALLOY STEEL (UNC-3A)	MILITARY STANDARD
Other Cust	AR 99			MS 24677
Procurement Specification FF-S-86	SUPERSEDES:	MS 24676	SHEET	4 OF 5

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NOTES:

1. MATERIAL: Alloy steel of chemical composition which can be heat treated in accordance with MIL-H-6875.
- ② 2. PROTECTIVE COATING: Uncoated, cadmium plate in accordance with QQ-P-416, Type II, Class 3, or aluminum ion vapor deposited in accordance with MIL-C-83488, Type II, Class 3
 - (a) Do not use cadmium plated screws for temperatures above 450° F.
 - (b) Aluminum ion vapor deposited coating can be used for temperatures up to 850° F.
3. HARDNESS: Rockwell, C38-45.
4. THREADS: Threads shall be in accordance with MIL-S-7742.
5. THREAD LENGTH: Screws above heavy line shall have complete (full form) threads extending within two threads of the head as measured with a thread ring gage.
6. HEAD: Head may or may not be knurled at manufacturer's option. Type of knurling optional. Diameter of knurled head shall not exceed the maximum head diameter specified.
7. DRILLED HOLE DATA:
 - (a) Screws #4 (.112) and #6 (.138) shall have one (1) hole drilled through the head. Screws #8 (.164) and larger shall have three (3) holes drilled through the head.
 - (b) On Screws smaller than #8 (.164) the drilled hole shall be centered as close as practicable on the flat of the hexagon socket. On Screws #8 (.164) and larger the drilled holes shall be within the flats on the hexagon socket and shall not break the corners of the hexagon socket.
 - (c) Edges of the holes on the outside of the head shall be chamfered 45° by 0.010 to 0.020 deep.
- *8. ALIGNMENT PLUG: Plug shall pass completely through the head without deflection.
- **9. TENSILE STRENGTH: Based on minimum ultimate tensile strength of 180,000 PSI for sizes #4 (.112) thru #10 (.190) and 170,000 PSI for sizes over #10 (.190). Load pounds calculated by the stress areas indicated in FED-STD-H28.
10. DIMENSIONS: Dimensions are in inches, unless otherwise specified.
11. PART NUMBER: The MS part number consists of the MS number, plus the dash number. If aluminum coated, an "A" is added after the dash number. If cadmium plated, a "C" is added.

③ Example: MS24677-1C is the part number for a screw .112-40UNC-3A by 0.250 long of cadmium plated alloy steel.
12. OTHER NOTES:
 - (a) Referenced documents shall be of the issue in effect on date of invitation for bids.
 - (b) For design feature purposes, this standard takes precedence over procurement documents referenced herein.

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Other Cust	AR 99		SCREW, CAP, SOCKET HEAD, HEXAGON, DRILLED ALLOY STEEL (UNC-3A)	MS 24677
Procurement Specification	SUPERSEDES:			SHEET 5 OF 5
FF-S-86		MS 24676		