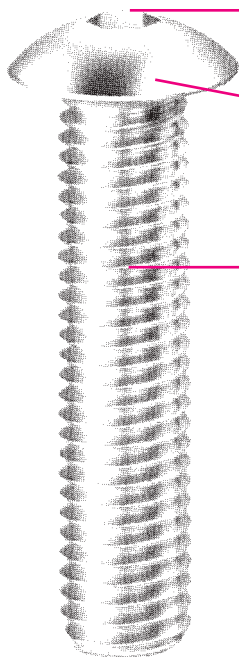


BUTTON HEAD CAP SCREWS

Dimensions



Precision hex socket for maximum key engagement

Low head height for modern streamline design

Fully formed threads rolled under extreme pressure provide greater strength

Continuous grain flow makes the whole screw stronger

Heat treated alloy steel for maximum strength without brittleness or decarburization

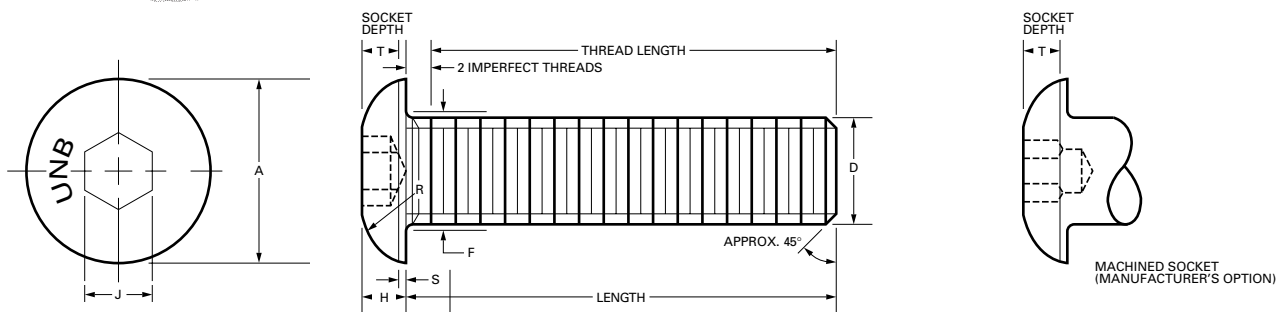
See page 16 for mechanical properties and applications.

LENGTH TOLERANCE

Diameter	to 1" incl.	over 1" to 2" incl.
To 1" incl.	-.03	-.04
Over 1" to 2"	-.03	-.06

Dimensions: ANSI/ASME B18.3

Thread Class: 3A



DIMENSIONS and APPLICATION DATA

nom. size	basic screw dia.	threads per inch		A head diameter		D body diameter		T	H head height		thd-to-hd max. ref.	S max.	R ref.	F fillet dia. max.	J min.
		UNRC	UNRF	max.	min.	max.	min.		max.	min.					
#0	.060	-	80	.114	.104	.060	.0568	.020	.032	.026	.500	.010	.070	.080	.035
#1	.073	64	72	.139	.129	.073	.0695	.028	.039	.033	.500	.010	.080	.093	.050
#2	.086	56	64	.164	.154	.086	.0822	.028	.046	.038	.500	.010	.099	.106	.050
#3	.099	48	56	.188	.176	.099	.0949	.035	.052	.044	.500	.010	.110	.119	.0625
#4	.112	40	48	.213	.201	.112	.1075	.035	.059	.051	.500	.015	.135	.132	.0625
#5	.125	40	44	.238	.226	.125	.1202	.044	.066	.058	.500	.015	.141	.145	.0781
#6	.138	32	40	.262	.250	.138	.1329	.044	.073	.063	.625	.015	.158	.158	.0781
#8	.164	32	36	.312	.298	.164	.1585	.052	.087	.077	.750	.015	.185	.194	.0937
#10	.190	24	32	.361	.347	.190	.1840	.070	.101	.091	1.000	.020	.213	.220	.1250
1/4	.250	20	28	.437	.419	.250	.2435	.087	.132	.122	1.000	.031	.249	.290	.1562
5/16	.312	18	24	.547	.527	.3125	.3053	.105	.166	.152	1.000	.031	.309	.353	.1875
3/8	.375	16	24	.656	.636	.375	.3678	.122	.199	.185	1.250	.031	.368	.415	.2187
1/2	.500	13	20	.875	.851	.500	.4919	.175	.265	.245	2.000	.046	.481	.560	.3125
5/8	.625	11	18	1.000	.970	.625	.6163	.210	.331	.311	2.000	.062	.523	.685	.3750

FLAT HEAD AND BUTTON HEAD SOCKET SCREWS

Mechanical Properties

NOTES

Material: ASTM F835 – alloy steel
ASTM F879 – stainless

Hardness: Rc 38–43 for alloy steel
Rb 96–Rc 33 for stainless steel

Tensile Strength: 160,000 PSI min. ultimate tensile strength for alloy steel
90,000 PSI min. ultimate tensile strength for stainless steel

Heat Treatment: Stainless steel is in cold-worked (CW) condition unless otherwise requested.

GENERAL NOTE

Flat, countersunk head cap screws and button head cap screws are designed and recommended for moderate fastening applications: machine guards, hinges, covers, etc. They are not suggested for use in critical high strength applications where socket head cap screws should be used.

MECHANICAL PROPERTIES

nom. size	ALLOY STEEL					STAINLESS STEEL				
	ultimate strength lbs.		single shear strength of body lbs. min.	seating torque inch-lbs.*		ultimate tensile strength lbs.		single shear strength of body lbs. min.	seating torque inch-lbs.*	
	UNRC	UNRF		UNRC	UNRF	UNRC	UNRF		UNRC	UNRF
#0	–	265	271	–	1.5	–	162	93	–	1.0
#1	390	390	402	2.5	2.5	237	250	137	1.7	1.8
#2	555	555	556	4.5	4.5	333	355	191	2.8	3.0
#3	725	725	739	7	7	438	471	253	4.3	4.6
#4	1,040	1,040	946	8	8	544	595	325	6.0	6.6
#5	1,260	1,310	1,180	12	13	716	747	403	8.9	9.3
#6	1,440	1,620	1,440	15	17	818	913	491	11	12
#8	2,220	2,240	2,030	30	31	1,260	1,327	693	20	21
#10	2,780	3,180	2,770	40	45	1,575	1,800	931	30	34
1/4	5,070	5,790	4,710	100	110	2,862	3,276	1,610	71	81
5/16	8,350	9,250	7,360	200	220	4,716	5,220	2,520	123	136
3/8	12,400	14,000	10,600	350	400	6,975	7,900	3,620	218	247
7/16	16,900	18,900	14,400	560	625	9,570	10,680	4,930	349	388
1/2	22,800	25,600	18,850	850	1,000	12,770	14,390	6,440	532	600
9/16	28,900	32,300	23,900	1,200	1,360	16,300	18,300	8,150	767	856
5/8	36,000	40,800	29,450	1,700	1,900	20,300	23,000	10,100	1,060	1,200
3/4	53,200	59,300	42,400	3,000	3,200	30,100	33,600	14,500	1,880	2,100
7/8	73,500	81,000	57,700	5,000	5,400	41,500	45,800	19,700	3,030	3,340
1	96,300	106,000	75,400	7,200	7,600	54,500	59,700	25,800	4,550	5,000

*Torques values listed are for plain screws to induce 65,000 psi stress in alloy steel and 30,000 psi tensile stress in stainless steel screw threads. For cadmium plated screws, multiply recommended seating torque by .75; for zinc plated screws multiply by 1.40. See Note, page 1.

METRIC SOCKET BUTTON HEAD CAP SCREWS

Dimensions

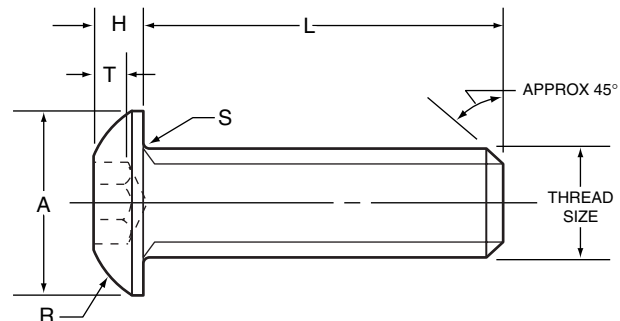
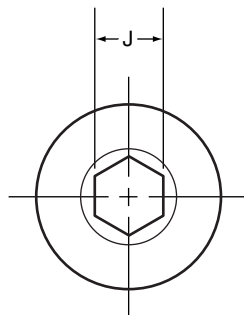
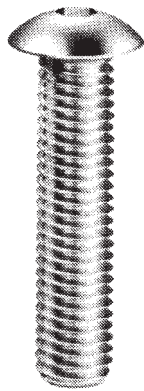
Threads: ANSI B1.13M, ISO 262(coarse series only)

Similar Specifications: ISO 7380

General Note: Flat, countersunk head cap screws and button head cap screws are designed and recommended for moderate fastening applications: machine guards, hinges, covers, etc. They are not suggested for use in critical high strength applications where socket head cap screws should be used.

NOTES

- 1. Material:** ASTM F835M
- 2. Dimensions:** ANSI B18.3.4M
- 3. Property Class:** 12.9
- 4. Hardness:** Rc 38-43
- 5. Tensile Stress:** 1040 MPa
- 6. Shear Stress:** 630 MPa
- 7. Yield Stress:** 945 MPa
- 8.** Bearing surface of head square with body within 2°.
- 9. Thread Class:** 5g 6g



LENGTH TOLERANCE

nominal screw length	nominal screw diameter
	M3 thru M16
	tolerance on lgth., mm
Up to 16 mm, incl.	±0.3
Over 16 to 60 mm, incl.	±0.5
Over 60 mm	±0.8

DIMENSIONS

APPLICATION DATA

nom. thread size	pitch	A max.	H max.	T min.	R ref.	S ref.	J nom.	recommended seating torque**	
								plain	
								N-m	in-lbs.
M3	0.5	5.70	1.65	1.05	2.95	.35	2.0	1.2	11
M4	0.7	7.60	2.20	1.35	4.10	.35	2.5	2.8	25
M5	0.8	9.50	2.75	1.92	5.20	.45	3.0	5.5	50
M6	1.0	10.50	3.30	2.08	5.60	.45	4.0	9.5	85
M8	1.285	14.00	4.40	2.75	7.50	.45	5.0	24.0	210
M10	1.50	18.00	5.50	3.35	10.00	.60	6.0	47.0	415
M12	1.75	21.00	6.60	4.16	11.00	.60	8.0	82.0	725
*M16	2.0	28.00	8.60	5.20	15.00	.60	10.0	205.0	1800

All dimensions in millimeters.

*Non-stock Diameter

**Torque calculated to induce 420 MPa in the screw threads.

Torque values are for plain screws. (See Note, page 1.)