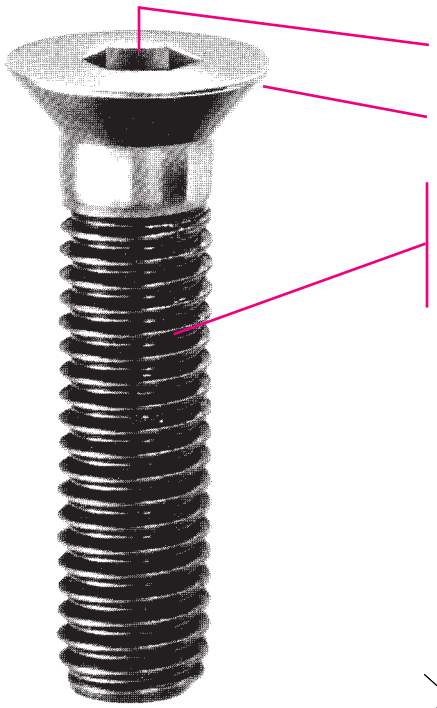
FLAT HEAD SOCKET SCREWS

Dimensions



Deep, accurate socket for maximum key engagement

Uniform 82° angle under head for maximum contact

Fully formed threads for greater strength and precision fit

Continuous grain flow throughout the screw for increased strength

Heat treated alloy steel for maximum strength without brittleness or decarburization

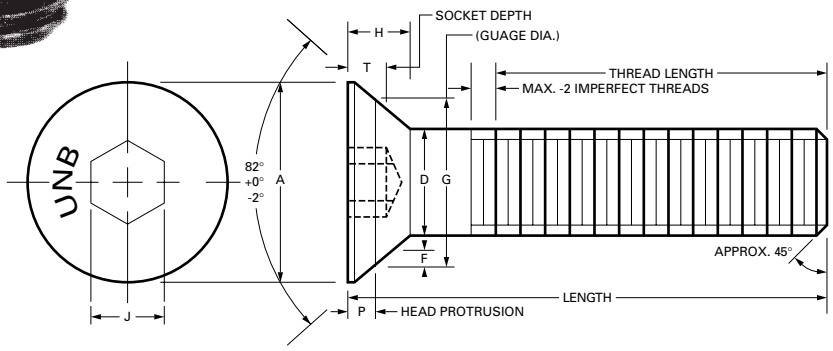
See page 16 for mechanical properties and applications.

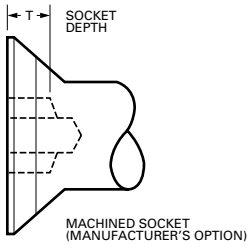
LENGTH TOLERANCE

Diameter	to 1″	over 1″ to 2 1/2″	over 2 1/2″ to 6″
#0 to 3/8″ incl.	–.03	–.04	–.06
7/16 to 3/4″ incl.	–.03	–.06	–.08
7/8 to 1″ incl.	–.05	–.10	–.14

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	G protrusion gage diameter		H	*** thd-to-hd	P protrusion		F	J
		UNRC	UNRF	max.*	min.**	max.	min.	min.	max.	min.	max. ref.	max. ref.	max.	min.	max.	nom.
#0	.060	–	80	.138	.117	.060	.0568	.025	.078	.077	.044	.500	.034	.029	.006	.035
#1	.073	64	72	.168	.143	.073	.0695	.031	.101	.100	.054	.750	.038	.032	.008	.050
#2	.086	56	64	.197	.168	.086	.0822	.038	.124	.123	.064	.750	.042	.034	.010	.050
#3	.099	48	56	.226	.193	.099	.0949	.044	.148	.147	.073	.750	.044	.035	.010	.0625
#4	.112	40	48	.255	.218	.112	.1075	.055	.172	.171	.083	.875	.047	.037	.012	.0625
#5	.125	40	44	.281	.240	.125	.1202	.061	.196	.195	.090	.875	.048	.037	.014	.0781
#6	.138	32	40	.307	.263	.138	.1329	.066	.220	.219	.097	.875	.049	.037	.015	.0781
#8	.164	32	36	.359	.311	.164	.1585	.076	.267	.266	.112	1.000	.051	.039	.015	.0937
#10	.190	24	32	.411	.359	.190	.1840	.087	.313	.312	.127	1.250	.054	.041	.015	.1250
1/4	.250	20	28	.531	.480	.250	.2435	.111	.424	.423	.161	1.250	.059	.046	.015	.1562
5/16	.312	18	24	.656	.600	.3125	.3053	.135	.539	.538	.198	1.500	.063	.050	.015	.1875
3/8	.375	16	24	.781	.720	.375	.3678	.159	.653	.652	.234	1.750	.069	.056	.015	.2187
7/16	.437	14	20	.844	.781	.4375	.4294	.159	.690	.689	.234	2.000	.084	.071	.015	.2500
1/2	.500	13	20	.937	.872	.500	.4919	.172	.739	.738	.251	2.250	.110	.096	.015	.3125
5/8	.625	11	18	1.188	1.112	.625	.6163	.220	.962	.961	.324	2.500	.123	.108	.015	.3750
3/4	.750	10	16	1.438	1.355	.750	.7406	.220	1.186	1.185	.396	3.000	.136	.121	.015	.5000
7/8	.875	9	14	1.688	1.605	.875	.8647	.248	1.411	1.410	.468	3.250	.149	.134	.015	.5625
1	1.000	8	12	1.938	1.855	1.000	.9886	.297	1.635	1.634	.540	3.750	.162	.146	.015	.6250

* maximum – to theoretical sharp corners
** minimum – absolute with A flat
*** maximum product length, thread to head

NOTE: Performance data listed are for standard production items only. Non-stock items may vary due to variables in methods of manufacture. It is suggested that the user verify performance on any non-standard parts for critical application.

METRIC SOCKET FLAT HEAD CAP SCREWS

Dimensions

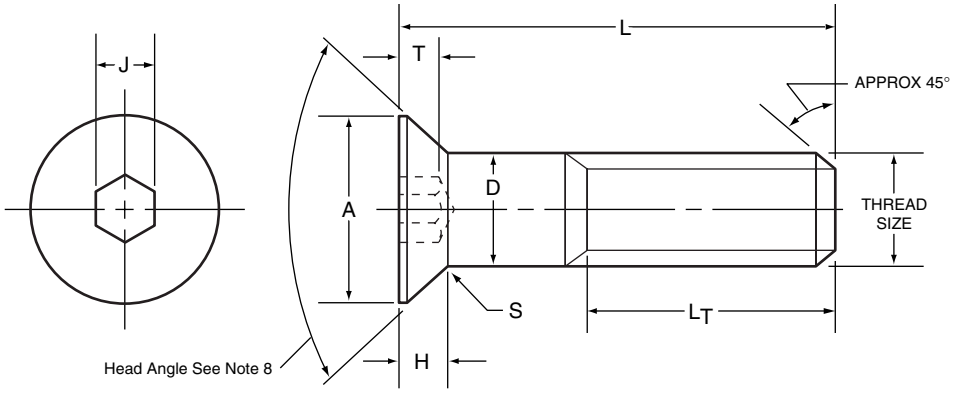
Threads: ANSI B1.13M, ISO 262 (coarse series only)

Applicable or Similar Specification: DIN ENISO10642

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:** B18.3.5M
3. **Property Class:** 12.9
4. **Hardness:** Rc 38-43 (alloy steel)
5. **Tensile Stress:** 1040MPa
6. **Shear Stress:** 630 MPa
7. **Yield Stress:** 945 MPa
8. **Sizes:** For sizes up to and including M20, head angle shall be 92°/90°. For larger sizes head angle shall be 62°/60°.
9. **Thread Class:** 5g 6g



LENGTH TOLERANCE

nominal screw length	nominal screw diameter M3 thru M24 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.***	D max.	H ref.	T min.	S ref.	L_T min.	J nom.	recommended seating torque** plain N-m	recommended seating torque** plain in-lbs.
M3	0.5	6.72	3	1.7	1.10	0.50	18	2	1.2	11
M4	0.7	8.96	4	2.3	1.55	0.70	20	2.5	2.8	25
M5	0.8	11.20	5	2.8	2.05	0.70	22	3	5.5	50
M6	1.0	13.44	6	3.3	2.25	0.85	24	4	9.5	85
M8	1.25	17.92	8	4.4	3.20	1.20	28	5	24	210
M10	1.50	22.40	10	5.5	3.80	1.50	32	6	47	415
M12	1.75	26.88	12	6.5	4.35	1.85	36	8	82	725
M16	2.00	33.60	16	7.5	4.89	1.85	44	10	205	1800
M20	2.50	40.32	20	8.5	5.45	1.85	52	12	400	3550
*M24	3.00	40.42	24	14.0	10.15	2.20	60	14	640	5650

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.)
***Maximum to theoretical sharp corner