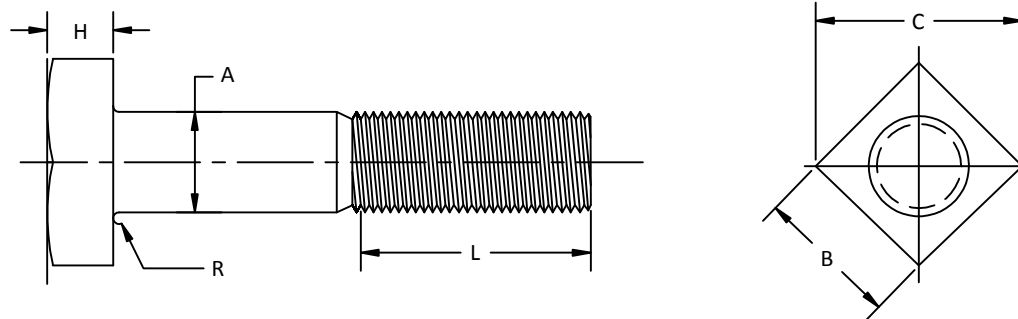


HEADED PARTS

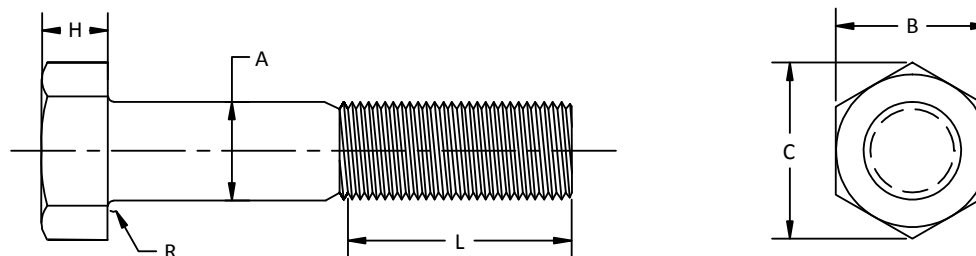
Square Bolt

Nominal Size	Full Size Body Diameter		Width Across Flats		Width Across Corners		Head Height			Radius of Fillet		Thread Length for Bolt Lengths	
	Max	Min	Basic and Max	Min	Max	Min	Basic	Max	Min	Max	Min	6 in. and Shorter	Over 6 in.
	A											B	
												L	
1/4	0.260	0.237	0.375	0.362	0.530	0.498	0.172	0.188	0.156	0.030	0.010	0.750	1.000
5/16	0.324	0.298	0.500	0.484	0.707	0.665	2.078	0.220	0.186	0.030	0.010	0.875	1.125
3/8	0.388	0.360	0.563	0.544	0.795	0.747	0.250	0.268	0.232	0.030	0.010	1.000	1.250
7/16	0.452	0.421	0.625	0.603	0.884	0.828	0.297	0.316	0.278	0.030	0.010	1.125	1.375
1/2	0.515	0.482	0.750	0.725	1.061	0.995	0.328	0.348	0.308	0.030	0.010	1.250	1.500
5/8	0.642	0.605	0.938	0.906	1.326	1.244	0.422	0.444	0.400	0.060	0.020	1.500	1.750
3/4	0.768	0.729	1.125	1.088	1.591	1.494	0.500	0.524	0.476	0.060	0.020	1.750	2.000
7/8	0.895	0.852	1.313	1.269	1.856	1.742	0.594	0.620	0.568	0.060	0.020	2.000	2.250
1	1.022	0.976	1.500	1.450	2.121	1.991	0.656	0.684	0.628	0.090	0.030	2.250	2.500
1 1/8	1.149	1.098	1.688	1.631	2.386	2.239	0.750	0.780	0.720	0.090	0.030	2.500	2.750
1 1/4	1.277	1.223	1.875	1.812	2.652	2.489	0.844	0.876	0.812	0.090	0.030	2.750	3.000
1 3/8	1.404	1.345	2.063	1.994	2.917	2.738	0.906	0.940	0.872	0.090	0.030	3.000	3.250
1 1/2	1.531	1.470	2.250	2.175	3.182	2.986	1.000	1.036	0.964	0.090	0.030	3.250	3.500



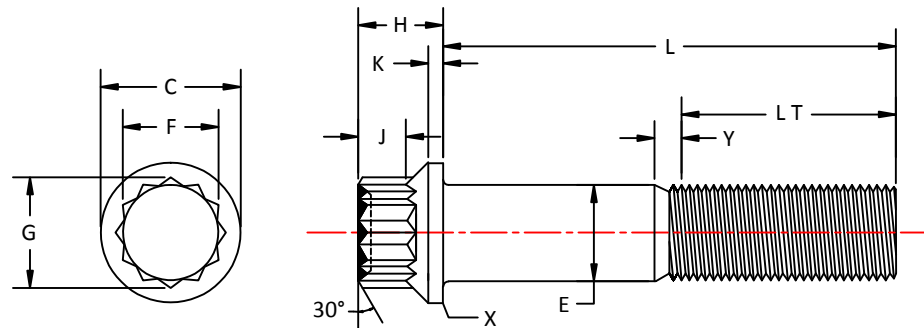
Hex Bolt

Nominal Size	Full Size Body Diameter		Width Across Flats		Width Across Corners		Head Height			Radius of Fillet		Thread Length for Bolt Lengths	
	Max	Min	Basic and Max	Min	Max	Min	Basic	Max	Min	Max	Min	6 in. and Shorter	Over 6 in.
	A		B		C		H			R		L	
	Nom.	Min.	Nom.	Min.	Nom.	Min.	Nom.	Max.	Min.	Nom.	Min.	Nom.	Min.
1/4	0.260	0.237	0.438	0.425	0.505	0.484	0.172	0.188	0.150	0.030	0.010	0.750	1.000
5/16	0.324	0.298	0.500	0.484	0.577	0.552	0.219	0.235	0.195	0.030	0.010	0.875	1.125
3/8	0.388	0.360	0.562	0.544	0.650	0.620	0.250	0.268	0.226	0.030	0.010	1.000	1.250
7/16	0.452	0.421	0.625	0.603	0.722	0.687	0.297	0.316	0.272	0.030	0.010	1.125	1.375
1/2	0.515	0.482	0.750	0.725	0.866	0.826	0.344	0.364	0.302	0.030	0.010	1.250	1.500
5/8	0.642	0.605	0.938	0.906	1.083	1.033	0.422	0.444	0.378	0.060	0.020	1.500	1.750
3/4	0.768	0.729	1.125	1.088	1.299	1.240	0.500	0.524	0.455	0.060	0.020	1.750	2.000
7/8	0.895	0.852	1.312	1.269	1.516	1.447	0.578	0.604	0.531	0.060	0.020	2.000	2.250
1	1.022	0.976	1.500	1.450	1.732	1.653	0.672	0.700	0.591	0.090	0.030	2.250	2.500
1 1/8	1.149	1.098	1.688	1.631	1.949	1.859	0.750	0.780	0.658	0.090	0.030	2.500	2.750
1 1/4	1.277	1.223	1.875	1.812	2.165	2.066	0.844	0.876	0.749	0.090	0.030	2.750	3.000
1 3/8	1.404	1.345	2.062	1.994	2.382	2.273	0.906	0.940	0.810	0.090	0.030	3.000	3.250
1 1/2	1.531	1.470	2.250	2.175	2.598	2.480	1.000	1.036	0.902	0.090	0.030	3.250	3.500
1 3/4	1.785	1.716	2.625	2.538	3.031	2.893	1.156	1.196	1.054	0.120	0.040	3.750	4.000
2	2.039	1.964	3.000	2.900	3.464	3.306	1.344	1.388	1.175	0.120	0.040	4.250	4.500
2 1/4	2.305	2.214	3.375	3.262	3.897	3.719	1.500	1.548	1.327	0.190	0.060	2.750	5.000
2 1/2	2.559	2.461	3.750	3.625	4.330	4.133	1.656	1.708	1.479	0.190	0.060	5.250	5.500
2 3/4	2.827	2.711	4.125	3.988	4.763	4.546	1.813	1.869	1.632	0.190	0.060	5.750	6.000
3	3.081	2.961	4.500	4.350	5.196	4.959	2.000	2.060	1.815	0.190	0.060	6.250	6.500
3 1/4	3.335	3.210	4.875	4.712	5.629	5.372	2.188	2.251	1.936	0.190	0.060	6.750	7.000
3 1/2	3.589	3.461	5.250	5.075	6.062	5.786	2.313	2.380	2.057	0.190	0.060	7.250	7.500
3 3/4	3.858	3.726	5.625	5.437	6.495	6.198	2.500	2.572	2.241	0.190	0.060	7.750	8.000
4	4.111	3.975	6.000	5.800	6.928	6.612	2.688	2.764	2.424	0.190	0.060	8.250	8.800



Flange 12 Point Screw

Nominal Size	Body Diameter E	Flange Diameter		Width Across Flats		Width Across Corners	Head Height	Wrenching Height	Flange Thickness	Chamfer (Radius)	Thread Length	Transition Thread Length
		Max	Min	Max	Min	Min	Max	Min	Min	Max	Basic	Max
		C		F		G	H	J	K	X	LT	Y
1/4	0.244	0.375	0.365	0.252	0.244	0.278	0.260	0.150	0.058	0.020	1.000	0.250
5/16	0.305	0.469	0.457	0.315	0.306	0.348	0.312	0.180	0.074	0.020	1.125	0.280
3/8	0.368	0.562	0.550	0.377	0.368	0.420	0.375	0.210	0.095	0.020	1.250	0.310
7/16	0.429	0.656	0.642	0.438	0.429	0.489	0.438	0.260	0.109	0.030	1.375	0.360
1/2	0.492	0.750	0.735	0.502	0.493	0.562	0.500	0.290	0.129	0.030	1.500	0.380
9/16	0.554	0.844	0.828	0.564	0.555	0.633	0.563	0.330	0.145	0.030	1.625	0.420
5/8	0.616	0.938	0.921	0.627	0.618	0.705	0.625	0.360	0.166	0.040	1.750	0.460
3/4	0.741	1.125	1.107	0.725	0.743	0.847	0.750	0.440	0.200	0.040	2.000	0.500
7/8	0.865	1.312	1.293	0.877	0.866	0.987	0.875	0.510	0.234	0.040	2.250	0.560
1	0.989	1.500	1.479	1.003	0.991	1.130	1.000	0.600	0.268	0.040	2.500	0.620
1 1/8	1.109	1.688	1.665	1.128	1.115	1.271	1.125	0.660	0.310	0.050	2.750	0.710
1 1/4	1.234	1.875	1.852	1.253	1.240	1.414	1.250	0.730	0.350	0.050	3.000	0.710
1 3/8	1.357	2.062	2.038	1.378	1.365	1.556	1.375	0.800	0.392	0.050	3.250	0.830
1 1/2	1.482	2.250	2.224	1.503	1.489	1.697	1.500	0.870	0.433	0.050	3.500	0.830



Hexagon Socket Head Cap Screw



Sealing Global - Servicing Local

Nominal Size (Basic Screw Diameter)	Body Diameter		Head Diameter		Head Height		Chamfer (Radius)	Hexagon Socket Size	Key Engagement	Wall Thickness	Chamfer (Radius)
	Max	Min	Max	Min	Max	Min	Max	Nom.	Min	Min	Max
	D		A		H		C	J	T	G	K
0 (0.060)	0.060	0.057	0.096	0.091	0.060	0.057	0.004	0.050	0.025	0.020	0.007
1 (0.073)	0.073	0.070	0.118	0.112	0.073	0.070	0.005	0.063	0.031	0.025	0.007
2 (0.086)	0.086	0.082	0.140	0.134	0.086	0.083	0.008	0.078	0.038	0.029	0.007
3 (0.099)	0.099	0.095	0.161	0.154	0.099	0.095	0.008	0.078	0.044	0.034	0.007
4 (0.112)	0.112	0.108	0.183	0.176	0.112	0.108	0.009	0.094	0.051	0.038	0.008
5 (0.125)	0.125	0.120	0.205	0.198	0.125	0.121	0.012	0.094	0.057	0.043	0.008
6 (0.138)	0.138	0.133	0.226	0.218	0.138	0.134	0.013	0.109	0.064	0.047	0.008
8 (0.164)	0.164	0.159	0.270	0.262	0.164	0.159	0.014	0.141	0.077	0.056	0.008
10 (0.190)	0.190	0.184	0.312	0.303	0.190	0.185	0.018	0.156	0.090	0.065	0.008
1/4	0.250	0.244	0.375	0.365	0.250	0.244	0.025	0.188	0.120	0.095	0.010
5/16	0.313	0.305	0.469	0.457	0.312	0.306	0.033	0.250	0.151	0.119	0.010
3/8	0.375	0.368	0.562	0.550	0.375	0.368	0.040	0.313	0.182	0.143	0.010
7/16	0.438	0.429	0.656	0.642	0.438	0.430	0.047	0.375	0.213	0.166	0.015
1/2	0.500	0.492	0.750	0.735	0.500	0.492	0.055	0.375	0.245	0.190	0.015
5/8	0.625	0.616	0.938	0.921	0.625	0.616	0.070	0.500	0.307	0.238	0.015
3/4	0.750	0.741	1.125	1.107	0.750	0.740	0.085	0.625	0.370	0.285	0.015
7/8	0.875	0.865	1.312	1.293	0.875	0.864	0.100	0.750	0.432	0.333	0.020
1	1.000	0.989	1.500	1.479	1.000	0.988	0.114	0.750	0.495	0.380	0.020
1 1/8	1.125	1.109	1.688	1.665	1.125	1.111	0.129	0.875	0.557	0.428	0.020
1 1/4	1.250	1.234	1.875	1.852	1.250	1.236	0.144	0.875	0.620	0.475	0.020
1 3/8	1.375	1.357	2.062	2.038	1.375	1.360	0.160	1.000	0.682	0.523	0.020
1 1/2	1.500	1.482	2.250	2.224	1.500	1.485	0.176	1.000	0.745	0.570	0.020
1 3/4	1.750	1.730	2.625	2.597	1.750	1.734	0.200	1.250	0.870	0.665	0.020
2	2.000	1.978	3.000	2.970	2.000	1.983	0.238	1.500	0.995	0.760	0.020
2 1/4	2.250	2.228	3.375	3.344	2.250	2.232	0.269	1.750	1.120	0.855	0.036
2 1/2	2.500	2.476	3.750	3.717	2.500	2.481	0.300	1.750	1.245	0.950	0.036
2 3/4	2.750	2.726	4.125	4.090	2.750	2.730	0.332	2.000	1.370	1.045	0.036
3	3.000	2.976	4.500	4.464	3.000	2.979	0.363	2.250	1.495	1.140	0.036
3 1/4	3.250	3.226	4.875	4.837	3.250	3.228	0.394	2.250	1.620	1.235	0.036
3 1/2	3.500	3.476	5.250	5.211	3.500	3.478	0.426	2.750	1.745	1.330	0.036
3 3/4	3.750	3.726	5.625	5.584	3.750	3.727	0.458	2.750	1.870	1.425	0.036
4	4.000	3.976	6.000	5.958	4.000	3.976	0.489	3.000	1.995	1.520	0.036

