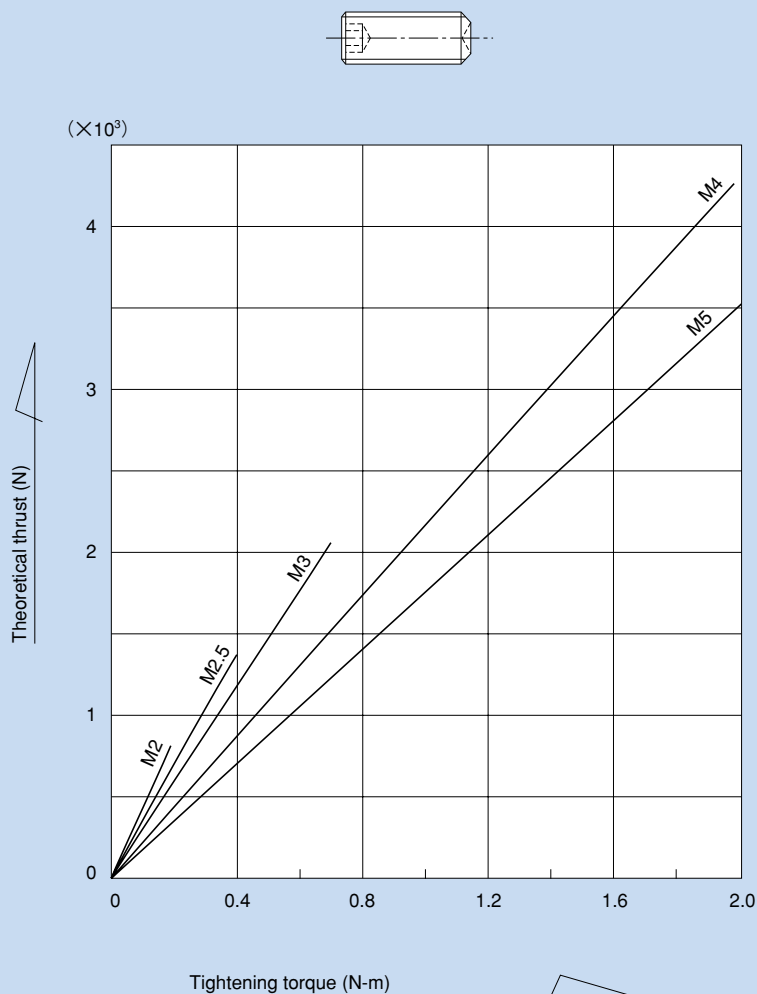


Appendix Tables

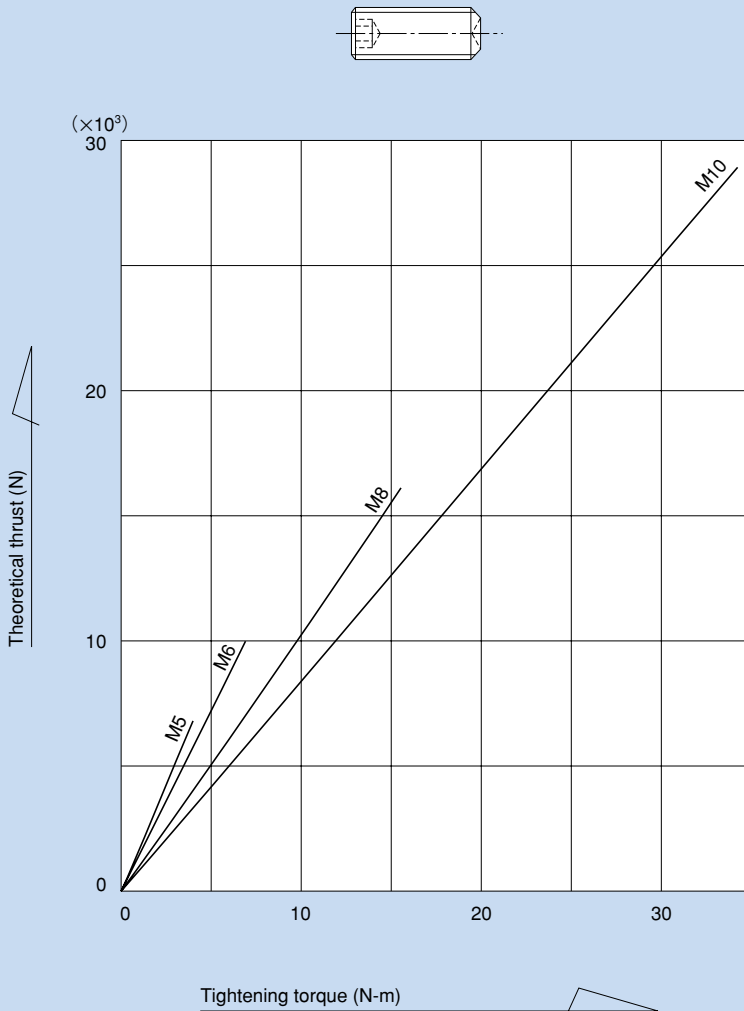
Tightening Torques and Theoretical Thrusts for Hexagon Socket Setscrews

● M2 to M5, Cut-point



Note: The theoretical thrust may differ depending on the lubrication and the conditions of the surfaces of the setscrew or the reference surface ($\mu = 0.13$).

● M5 to M10, Cut-point



Note: The theoretical thrust may differ depending on the lubrication and the conditions of the surfaces of the setscrew or the reference surface ($\mu = 0.13$).

Dimensional Tolerances of Shafts

Unit: $\mu\text{m}=0.001\text{mm}$

Dimension classification (mm)		e	f			g		h						js			j		k			m		n		p		Dimension classification (mm)	
Above	Or less	e6	f5	f6	g5	g6	h5	h6	h7	h8	h9	h10	js5	js6	js7	j5	j6	k5	k6	k7	m5	m6	n5	n6	p5	p6	Above	Or less	
3	6	-20 -28	-10 -15	-10 -18	-4 -9	-4 -12	0 -5	0 -8	0 -12	0 -18	0 -30	0 -48	± 2.5	± 4	± 6	+ 3 - 2	+ 6 - 2	+ 6 + 1	+ 9 + 1	+ 13 + 1	+ 9 + 4	+ 12 + 4	+ 13 + 8	+ 16 + 8	+ 17 + 12	+ 20 + 12	3	6	
6	10	-25 -34	-13 -19	-13 -22	-5 -11	-5 -14	0 -6	0 -9	0 -15	0 -22	0 -36	0 -58	± 3	± 4.5	± 7.5	+ 4 - 2	+ 7 - 2	+ 7 + 1	+ 10 + 1	+ 16 + 1	+ 12 + 6	+ 15 + 6	+ 16 + 10	+ 19 + 10	+ 21 + 15	+ 24 + 15	6	10	
10	14	-32 -43	-16 -24	-16 -27	-6 -14	-6 -17	0 -8	0 -11	0 -18	0 -27	0 -43	0 -70	± 4	± 5.5	± 9	+ 5 - 3	+ 8 - 3	+ 9 + 1	+ 12 + 1	+ 19 + 1	+ 15 + 7	+ 18 + 7	+ 20 + 12	+ 23 + 12	+ 26 + 18	+ 29 + 18	10	14	
14	18	-40 -53	-20 -29	-20 -33	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	0 -84	± 4.5	± 6.5	±10.5	+ 5 - 4	+ 9 - 4	+ 11 + 2	+ 15 + 2	+ 23 + 2	+ 17 + 8	+ 21 + 8	+ 24 + 15	+ 28 + 15	+ 31 + 22	+ 35 + 22	14	18	
18	24	-40 -53	-20 -29	-20 -33	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	0 -84	± 4.5	± 6.5	±10.5	+ 5 - 4	+ 9 - 4	+ 11 + 2	+ 15 + 2	+ 23 + 2	+ 17 + 8	+ 21 + 8	+ 24 + 15	+ 28 + 15	+ 31 + 22	+ 35 + 22	18	24	
24	30	-40 -53	-20 -29	-20 -33	-7 -16	-7 -20	0 -9	0 -13	0 -21	0 -33	0 -52	0 -84	± 4.5	± 6.5	±10.5	+ 5 - 4	+ 9 - 4	+ 11 + 2	+ 15 + 2	+ 23 + 2	+ 17 + 8	+ 21 + 8	+ 24 + 15	+ 28 + 15	+ 31 + 22	+ 35 + 22	24	30	
30	40	-50 -66	-25 -36	-25 -41	-9 -20	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	0 -100	± 5.5	± 8	±12.5	+ 6 - 5	+ 11 - 5	+ 13 + 2	+ 18 + 2	+ 27 + 2	+ 20 + 9	+ 25 + 9	+ 28 + 17	+ 33 + 17	+ 37 + 26	+ 42 + 26	30	40	
40	50	-50 -66	-25 -36	-25 -41	-9 -20	-9 -25	0 -11	0 -16	0 -25	0 -39	0 -62	0 -100	± 5.5	± 8	±12.5	+ 6 - 5	+ 11 - 5	+ 13 + 2	+ 18 + 2	+ 27 + 2	+ 20 + 9	+ 25 + 9	+ 28 + 17	+ 33 + 17	+ 37 + 26	+ 42 + 26	40	50	
50	65	-60 -79	-30 -43	-30 -49	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	0 -120	± 6.5	± 9.5	±15	+ 6 - 7	+ 12 - 7	+ 15 + 2	+ 21 + 2	+ 32 + 2	+ 24 + 11	+ 30 + 11	+ 33 + 20	+ 39 + 20	+ 45 + 32	+ 51 + 32	50	65	
65	80	-60 -79	-30 -43	-30 -49	-10 -23	-10 -29	0 -13	0 -19	0 -30	0 -46	0 -74	0 -120	± 6.5	± 9.5	±15	+ 6 - 7	+ 12 - 7	+ 15 + 2	+ 21 + 2	+ 32 + 2	+ 24 + 11	+ 30 + 11	+ 33 + 20	+ 39 + 20	+ 45 + 32	+ 51 + 32	65	80	
80	100	-72 -94	-36 -51	-36 -58	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	0 -140	± 7.5	±11	±17.5	+ 6 - 9	+ 13 - 9	+ 18 + 3	+ 25 + 3	+ 38 + 3	+ 28 + 13	+ 35 + 13	+ 38 + 23	+ 45 + 23	+ 52 + 37	+ 59 + 37	80	100	
100	120	-72 -94	-36 -51	-36 -58	-12 -27	-12 -34	0 -15	0 -22	0 -35	0 -54	0 -87	0 -140	± 7.5	±11	±17.5	+ 6 - 9	+ 13 - 9	+ 18 + 3	+ 25 + 3	+ 38 + 3	+ 28 + 13	+ 35 + 13	+ 38 + 23	+ 45 + 23	+ 52 + 37	+ 59 + 37	100	120	
120	140	-85 -110	-43 -61	-43 -68	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	0 -160	± 9	±12.5	±20	+ 7 - 11	+ 14 - 11	+ 21 + 3	+ 28 + 3	+ 43 + 3	+ 33 + 15	+ 40 + 15	+ 45 + 27	+ 52 + 27	+ 61 + 43	+ 68 + 43	120	140	
140	160	-85 -110	-43 -61	-43 -68	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	0 -160	± 9	±12.5	±20	+ 7 - 11	+ 14 - 11	+ 21 + 3	+ 28 + 3	+ 43 + 3	+ 33 + 15	+ 40 + 15	+ 45 + 27	+ 52 + 27	+ 61 + 43	+ 68 + 43	140	160	
160	180	-85 -110	-43 -61	-43 -68	-14 -32	-14 -39	0 -18	0 -25	0 -40	0 -63	0 -100	0 -160	± 9	±12.5	±20	+ 7 - 11	+ 14 - 11	+ 21 + 3	+ 28 + 3	+ 43 + 3	+ 33 + 15	+ 40 + 15	+ 45 + 27	+ 52 + 27	+ 61 + 43	+ 68 + 43	160	180	
180	200	-100 -129	-50 -70	-50 -79	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	0 -185	±10	±14.5	±23	+ 7 - 13	+ 16 - 13	+ 24 + 4	+ 33 + 4	+ 50 + 4	+ 37 + 17	+ 46 + 17	+ 51 + 31	+ 60 + 31	+ 70 + 50	+ 79 + 50	180	200	
200	225	-100 -129	-50 -70	-50 -79	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	0 -185	±10	±14.5	±23	+ 7 - 13	+ 16 - 13	+ 24 + 4	+ 33 + 4	+ 50 + 4	+ 37 + 17	+ 46 + 17	+ 51 + 31	+ 60 + 31	+ 70 + 50	+ 79 + 50	200	225	
225	250	-100 -129	-50 -70	-50 -79	-15 -35	-15 -44	0 -20	0 -29	0 -46	0 -72	0 -115	0 -185	±10	±14.5	±23	+ 7 - 13	+ 16 - 13	+ 24 + 4	+ 33 + 4	+ 50 + 4	+ 37 + 17	+ 46 + 17	+ 51 + 31	+ 60 + 31	+ 70 + 50	+ 79 + 50	225	250	
250	280	-110 -142	-56 -79	-56 -88	-17 -40	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	0 -210	±11.5	±16	±26	+ 7 - 16	+ 16 - 16	+ 27 + 4	+ 36 + 4	+ 56 + 4	+ 43 + 20	+ 52 + 20	+ 57 + 34	+ 66 + 34	+ 79 + 56	+ 88 + 56	250	280	
280	315	-110 -142	-56 -79	-56 -88	-17 -40	-17 -49	0 -23	0 -32	0 -52	0 -81	0 -130	0 -210	±11.5	±16	±26	+ 7 - 16	+ 16 - 16	+ 27 + 4	+ 36 + 4	+ 56 + 4	+ 43 + 20	+ 52 + 20	+ 57 + 34	+ 66 + 34	+ 79 + 56	+ 88 + 56	280	315	
315	355	-125 -161	-62 -87	-62 -98	-18 -43	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	0 -230	±12.5	±18	±28.5	+ 7 - 18	+ 18 - 18	+ 29 + 4	+ 40 + 4	+ 61 + 4	+ 46 + 21	+ 57 + 21	+ 62 + 37	+ 73 + 37	+ 87 + 62	+ 98 + 62	315	355	
355	400	-125 -161	-62 -87	-62 -98	-18 -43	-18 -54	0 -25	0 -36	0 -57	0 -89	0 -140	0 -230	±12.5	±18	±28.5	+ 7 - 18	+ 18 - 18	+ 29 + 4	+ 40 + 4	+ 61 + 4	+ 46 + 21	+ 57 + 21	+ 62 + 37	+ 73 + 37	+ 87 + 62	+ 98 + 62	355	400	
400	450	-135 -175	-68 -95	-68 -108	-20 -47	-20 -60	0 -27	0 -40	0 -63	0 -97	0 -155	0 -250	±13.5	±20	±31.5	+ 7 - 20	+ 20 - 20	+ 32 + 5	+ 45 + 5	+ 68 + 5	+ 50 + 23	+ 63 + 23	+ 67 + 40	+ 80 + 40	+ 95 + 68	+108 + 68	400	450	
450	500	-135 -175	-68 -95	-68 -108	-20 -47	-20 -60	0 -27	0 -40	0 -63	0 -97	0 -155	0 -250	±13.5	±20	±31.5	+ 7 - 20	+ 20 - 20	+ 32 + 5	+ 45 + 5	+ 68 + 5	+ 50 + 23	+ 63 + 23	+ 67 + 40	+ 80 + 40	+ 95 + 68	+108 + 68	450	500	
500	560	-145 -189	-76 -106	-76 -120	-22 -52	-22 -66	0 -30	0 -44	0 -70	0 -110	0 -175	0 -280	±15	±22	±35	—	—	+ 30 0	+ 44 0	+ 70 0	+ 56 + 26	+ 70 + 26	+ 74 + 44	+ 88 + 44	+108 + 78	+122 + 78	500	560	
560	630	-145 -189	-76 -106	-76 -120	-22 -52	-22 -66	0 -30	0 -44	0 -70	0 -110	0 -175	0 -280	±15	±22	±35	—	—	+ 30 0	+ 44 0	+ 70 0	+ 56 + 26	+ 70 + 26	+ 74 + 44	+ 88 + 44	+108 + 78	+122 + 78	560	630	
630	710	-160 -210	-80 -115	-80 -130	-24 -59	-24 -74	0 -35	0 -50	0 -80	0 -125	0 -200	0 -320	±17.5	±25	±40	—	—	+ 35 0	+ 50 0	+ 80 0	+ 65 + 30	+ 80 + 30	+ 85 + 50	+100 + 50	+123 + 88	+138 + 88	630	710	
710	800	-160 -210	-80 -115	-80 -130	-24 -59	-24 -74	0 -35	0 -50	0 -80	0 -125	0 -200	0 -320	±17.5	±25	±40	—	—	+ 35 0	+ 50 0	+ 80 0	+ 65 + 30	+ 80 + 30	+ 85 + 50	+100 + 50	+123 + 88	+138 + 88	710	800	
800	900	-170 -226	-86 -126	-86 -142	-26 -66	-26 -82	0 -40	0 -56	0 -90	0 -140	0 -230	0 -360	±20	±28	±45	—	—	+ 40 0	+ 56 0	+ 90 0	+ 74 + 34	+ 90 + 34	+ 96 + 56	+112 + 56	+140 + 100	+156 + 100	800	900	
900	1000	-170 -226	-86 -126	-86 -142	-26 -66	-26 -82	0 -40	0 -56	0 -90	0 -140	0 -230	0 -360	±20	±28	±45	—	—	+ 40 0	+ 56 0	+ 90 0	+ 74 + 34	+ 90 + 34	+ 96 + 56	+112 + 56	+140 + 100	+156 + 100	900	1000	
1000	1120	-195 -261	-98 -144	-98 -164	-28 -74	-28 -94	0 -46	0 -66	0 -105	0 -165	0 -260	0 -420	±23	±33	±52.5	—	—	+ 46 0	+ 66 0	+105 0	+ 86 + 40	+106 + 40	+112 + 66	+132 + 66	+166 + 120	+186 + 120	1000	1120	
1120	1250	-195 -261	-98 -144	-98 -164	-28 -74	-28 -94	0 -46	0 -66	0 -105	0 -165	0 -260	0 -420	±23	±33	±52.5	—	—	+ 46 0	+ 66 0	+105 0	+ 86 + 40	+106 + 40	+						

Dimensional Tolerances of Housing Holes

Unit: $\mu\text{m}=0.001\text{mm}$

Dimension classification (mm)		E		F			G		H						Js		J		K		M		N		P		Dimension classification (mm)	
Above	Or less	E6	E7	F6	F7	F8	G6	G7	H5	H6	H7	H8	H9	H10	Js6	Js7	J6	J7	K6	K7	M6	M7	N6	N7	P6	P7	Above	Or less
3	6	+28 +20	+32 +20	+18 +10	+22 +10	+28 +10	+12 +4	+16 +4	+5 0	+8 0	+12 0	+18 0	+30 0	+48 0	±4	±6	+5 -3	+6 -6	+2 -6	+3 -9	-1 -9	0 -12	-5 -13	-4 -16	-9 -17	-8 -20	3	6
6	10	+34 +25	+40 +25	+22 +13	+28 +13	+35 +13	+14 +5	+20 +5	+6 0	+9 0	+15 0	+22 0	+36 0	+58 0	±4.5	±7.5	+5 -4	+8 -7	+2 -7	+5 -10	-3 -12	0 -15	-7 -16	-4 -19	-12 -21	-9 -24	6	10
10	14	+43 +32	+50 +32	+27 +16	+34 +16	+48 +16	+17 +6	+24 +6	+8 0	+11 0	+18 0	+27 0	+43 0	+70 0	±5.5	±9	+6 -5	+10 -8	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29	10	14
14	18	+32 +40	+32 +40	+16 +20	+16 +20	+16 +20	+6 +7	+6 +7	0 0	0 0	0 0	0 0	0 0	0 0	±5.5	±9	+6 -5	+10 -8	+2 -9	+6 -12	-4 -15	0 -18	-9 -20	-5 -23	-15 -26	-11 -29	14	18
18	24	+53 +40	+61 +40	+33 +20	+41 +20	+53 +20	+20 +7	+28 +7	+9 0	+13 0	+21 0	+33 0	+52 0	+84 0	±6.5	±10.5	+8 -5	+12 -9	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35	18	24
24	30	+40 +50	+40 +50	+20 +25	+20 +25	+20 +25	+7 +9	+7 +9	0 0	0 0	0 0	0 0	0 0	0 0	±6.5	±10.5	+8 -5	+12 -9	+2 -11	+6 -15	-4 -17	0 -21	-11 -24	-7 -28	-18 -31	-14 -35	24	30
30	40	+66 +50	+75 +50	+41 +25	+50 +25	+64 +25	+25 +9	+34 +9	+11 0	+16 0	+25 0	+39 0	+62 0	+100 0	±8	±12.5	+10 -6	+14 -11	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42	30	40
40	50	+50 +65	+50 +65	+25 +30	+25 +30	+25 +30	+9 +10	+9 +10	0 0	0 0	0 0	0 0	0 0	0 0	±8	±12.5	+10 -6	+14 -11	+3 -13	+7 -18	-4 -20	0 -25	-12 -28	-8 -33	-21 -37	-17 -42	40	50
50	65	+79 +60	+90 +60	+49 +30	+60 +30	+76 +30	+29 +10	+40 +10	+13 0	+19 0	+30 0	+46 0	+74 0	+120 0	±9.5	±15	+13 -6	+18 -12	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51	50	65
65	80	+60 +80	+60 +80	+30 +30	+30 +30	+30 +30	+10 +10	+10 +10	0 0	0 0	0 0	0 0	0 0	0 0	±9.5	±15	+13 -6	+18 -12	+4 -15	+9 -21	-5 -24	0 -30	-14 -33	-9 -39	-26 -45	-21 -51	65	80
80	100	+94 +72	+107 +72	+58 +36	+71 +36	+90 +36	+34 +12	+47 +12	+15 0	+22 0	+35 0	+54 0	+87 0	+140 0	±11	±17.5	+16 -6	+22 -13	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -52	-24 -59	80	100
100	120	+72 +120	+72 +120	+36 +36	+36 +36	+36 +36	+12 +12	+12 +12	0 0	0 0	0 0	0 0	0 0	0 0	±11	±17.5	+16 -6	+22 -13	+4 -18	+10 -25	-6 -28	0 -35	-16 -38	-10 -45	-30 -52	-24 -59	100	120
120	140	+110 +85	+125 +85	+68 +43	+83 +43	+106 +43	+39 +14	+54 +14	+18 0	+25 0	+40 0	+63 0	+100 0	+160 0	±12.5	±20	+18 -7	+26 -14	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	120	140
140	160	+85 +160	+85 +160	+43 +43	+43 +43	+43 +43	+14 +14	+14 +14	0 0	0 0	0 0	0 0	0 0	0 0	±12.5	±20	+18 -7	+26 -14	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	140	160
160	180	+160 +180	+160 +180	+43 +43	+43 +43	+43 +43	+14 +14	+14 +14	0 0	0 0	0 0	0 0	0 0	0 0	±12.5	±20	+18 -7	+26 -14	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	160	180
180	200	+180 +225	+180 +225	+43 +50	+43 +50	+43 +50	+14 +15	+14 +15	0 0	0 0	0 0	0 0	0 0	0 0	±12.5	±20	+18 -7	+26 -14	+4 -21	+12 -28	-8 -33	0 -40	-20 -45	-12 -52	-36 -61	-28 -68	180	200
200	225	+129 +100	+146 +100	+79 +50	+96 +50	+122 +50	+44 +15	+61 +15	+20 0	+29 0	+46 0	+72 0	+115 0	+185 0	±14.5	±23	+22 -7	+30 -16	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	200	225
225	250	+100 +250	+100 +250	+50 +50	+50 +50	+50 +50	+15 +15	+15 +15	0 0	0 0	0 0	0 0	0 0	0 0	±14.5	±23	+22 -7	+30 -16	+5 -24	+13 -33	-8 -37	0 -46	-22 -51	-14 -60	-41 -70	-33 -79	225	250
250	280	+142 +110	+162 +110	+88 +56	+108 +56	+137 +56	+49 +17	+69 +17	+23 0	+32 0	+52 0	+81 0	+130 0	+210 0	±16	±26	+25 -7	+36 -16	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88	250	280
280	315	+110 +315	+110 +315	+56 +56	+56 +56	+56 +56	+17 +17	+17 +17	0 0	0 0	0 0	0 0	0 0	0 0	±16	±26	+25 -7	+36 -16	+5 -27	+16 -36	-9 -41	0 -52	-25 -57	-14 -66	-47 -79	-36 -88	280	315
315	355	+161 +125	+182 +125	+98 +62	+119 +62	+151 +62	+54 +18	+75 +18	+25 0	+36 0	+57 0	+89 0	+140 0	+230 0	±18	±28.5	+29 -7	+39 -18	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98	315	355
355	400	+125 +400	+125 +400	+62 +62	+62 +62	+62 +62	+18 +18	+18 +18	0 0	0 0	0 0	0 0	0 0	0 0	±18	±28.5	+29 -7	+39 -18	+7 -29	+17 -40	-10 -46	0 -57	-26 -62	-16 -73	-51 -87	-41 -98	355	400
400	450	+175 +135	+198 +135	+108 +68	+131 +68	+165 +68	+60 +20	+83 +20	+27 0	+40 0	+63 0	+97 0	+155 0	+250 0	±20	±31.5	+33 -7	+43 -20	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108	400	450
450	500	+135 +500	+135 +500	+68 +68	+68 +68	+68 +68	+20 +20	+20 +20	0 0	0 0	0 0	0 0	0 0	0 0	±20	±31.5	+33 -7	+43 -20	+8 -32	+18 -45	-10 -50	0 -63	-27 -67	-17 -80	-55 -95	-45 -108	450	500
500	560	+189 +145	+215 +145	+120 +76	+146 +76	+186 +76	+66 +22	+92 +22	+30 0	+44 0	+70 0	+110 0	+175 0	+280 0	±22	±35	—	—	—	—	-26 -70	-26 -96	-44 -88	-44 -114	-78 -122	-78 -148	500	560
560	630	+145 +630	+145 +630	+76 +76	+76 +76	+76 +76	+22 +22	+22 +22	0 0	0 0	0 0	0 0	0 0	0 0	±22	±35	—	—	—	—	-26 -70	-26 -96	-44 -88	-44 -114	-78 -122	-78 -148	560	630
630	710	+210 +160	+240 +160	+130 +80	+160 +80	+205 +80	+74 +24	+104 +24	+35 0	+50 0	+80 0	+125 0	+200 0	+320 0	±25	±40	—	—	—	—	-30 -80	-30 -110	-50 -100	-50 -130	-88 -138	-88 -168	630	710
710	800	+160 +800	+160 +800	+80 +80	+80 +80	+80 +80	+24 +24	+24 +24	0 0	0 0	0 0	0 0	0 0	0 0	±25	±40	—	—	—	—	-30 -80	-30 -110	-50 -100	-50 -130	-88 -138	-88 -168	710	800
800	900	+226 +170	+260 +170	+142 +86	+176 +86	+226 +86	+82 +26	+116 +26	+40 0	+56 0	+90 0	+140 0	+230 0	+360 0	±28	±45	—	—	—	—	-34 -90	-34 -124	-56 -112	-56 -146	-100 -156	-100 -190	800	900
900	1000	+170 +1000	+170 +1000	+86 +86	+86 +86	+86 +86	+26 +26	+26 +26	0 0	0 0	0 0	0 0	0 0	0 0	±28	±45	—	—	—	—	-34 -90	-34 -124	-56 -112	-56 -146	-100 -156	-100 -190	900	1000
1000	1120	+261 +195	+300 +195	+164 +98	+203 +98	+263 +98	+94 +28	+133 +28	+46 0	+66 0	+105 0	+165 0	+260 0	+420 0	±33	±52.5	—	—	—	—	-40 -106	-40 -145	-66 -132	-66 -171	-120 -186	-120 -225	1000	1120
1120	1250	+195 +1250	+195 +1250	+98 +98	+98 +98	+98 +98	+28 +28	+28 +28	0 0	0 0	0 0	0 0	0 0	0 0	±33	±52.5	—	—	—	—	-40 -106	-40 -145	-66 -132	-66 -171	-120 -186	-120 -225	1120	1250
1250	1400	+298 +220	+345 +220	+188 +110	+235 +110	+305 +110	+108 +30	+155 +30	+54 0	+78 0	+125 0	+195 0	+310 0	+500 0	±39	±62.5	—	—	—	—	-48 -126	-48 -173	-78 -156	-78 -203	-140 -218	-140 -265	1250	1400
1400	1600	+220 +1600	+220 +1600	+110 +110	+110 +110	+110 +110	+30 +30	+30 +30	0 0	0 0	0 0	0 0	0 0	0 0	±39	±62.5	—	—	—	—	-48 -126	-48 -173	-78 -156	-78 -203	-140 -218	-140 -265	1400	1600

SI Unit Conversion Table

● Conversion to SI Units

Amount	Name of unit	Symbol	Factor of conversion to SI	Name of SI unit	Symbol
Angle	Degree	°	$\pi/180$	Radian	rad
	Minute	'	$\pi/10800$		
	Second	"	$\pi/648000$		
Length	Meter	m	10^{-10} $\approx 1.00208 \times 10^{-13}$	Meter	m
	Angstrom	Å			
	X-ray unit				
	Nautical mile	n mile			
Area	Square meter	m ²	1	Square meter	m ²
	Are	a	10 ²		
	Hectare	ha	10 ⁴		
Volume	Cubic meter	m ³	1	Cubic meter	m ³
	Liter	ℓ (L)	10 ⁻³		
Mass	Kilogram	kg	1	Kilogram	kg
	Ton	t	10 ³		
	Atomic mass unit	u	$\approx 1.66057 \times 10^{-27}$		
Time	Second	s	1	Second	S
	Minute	min	60		
	Hour	h	3600		
	Day	d	86400		
Speed	Meter per second	m/s	1	Meter per second	m/s
	Knot	kn	1852/3600		
Frequency	Cycle	s ⁻¹	1	Hertz	Hz
Rotation speed	Revolution per minute	rpm	1	Per minute	min ⁻¹
Angular speed	Radian per minute	rad/s	1	Radian per minute	rad/s
Acceleration	Meter per second per second	m/s ²	1	Meter per second per second	m/s ²
	G	G	9.80665		
Force	Weight kilogram	kgf	9.80665	Newton	N
	Weight ton	tf	9806.65		
	Dyne	dyn	10 ⁻⁵		
Moment of force	Weight kilogram meter	kgf-m	9.80665	Newton meter	N-m
Stress and pressure	Weight kilogram per square meter	kgf/m ²	9.80665	Pascal	Pa
	Weight kilogram per square centimeter	kgf/cm ²	9.80665×10^4		
	Weight kilogram per square millimeter	kgf/mm ²	9.80665×10^6		
Pressure	Water column meter	mH ₂ O	9806.65	Pascal	Pa
	Mercury column meter	mmHg	101325/760		
	Torr	Torr	101325/760		
	Atmospheric pressure	atm	101325		
	Bar	bar	10 ⁵		
Energy	Erg	erg	10 ⁻⁷	Joule	J
	IT calorie	cal _{IT}	4.1868		
	Weight kilogram meter	kgf-m	9.80665		
	Kilowatt hour	kW-h	3.600×10^6		
	French horsepower hour	PS-h	$\approx 2.64779 \times 10^6$		
Power	Electronic volt	eV	$\approx 1.60219 \times 10^{-19}$	Watt	W
	Watt	W	1		
	French horsepower	PS	≈ 735.5		
	Weight kilogram meter per second	kgf-m/s	9.80665		

Amount	Name of unit	Symbol	Factor of conversion to SI	Name of SI unit	Symbol
Viscosity	Poise	P	10^{-1}	Pascal second	Pa·s
	Centipoise	cP	10^{-3}		
	Weight kilogram second per square meter	kgf·s/m ²	9.80665		
Kinematic viscosity	Stokes	St	10^{-1}	Square meter per second	m ² /s
	Centistokes	cSt	10^{-6}		
Temperature	Degree	°C	+273.15	Kelvin	K
Radioactivity	Currie	Ci	3.7×10^{10}	Becquerel	Bq
Exposure	Roentgen	R	2.58×10^{-4}	Coulomb per kilogram	C/kg
Absorbed dose	Rad	rad	10^{-2}	Gray	Gy
Dose equivalent	Rem	rem	10^{-2}	Sievert	Sv
Magnetic flux	Maxwell	Mx	10^{-8}	Weber	Wb
Magnetic flux density	Gamma	γ	10^{-9}	Tesla	T
	Gauss	Gs	10^{-4}		
Magnetic-field intensity	Oersted	Oe	$10^3/4\pi$	Ampere per meter	A/m
Quantity of electricity	Coulomb	C	1	Coulomb	C
Potential difference	Volt	V	1	Volt	V
Capacitance	Farad	F	1	Farad	F
(Electric) resistance	Ohm	Ω	1	Ohm	Ω
(Electric) conductance	Siemens	S	1	Siemens	S
Inductance	Henry	H	1	Henry	H
Electric current	Ampere	A	1	Ampere	A

●Comparative Table of SI, CGS System and Gravitational System Units

Amount Unit system	Length L	Mass M	Time T	Acceleration	Force	Stress	Pressure	Energy
SI	m	kg	s	m/s ²	N	Pa	Pa	J
CGS system	cm	g	s	Gal	dyn	dyn/cm ²	dyn/cm ²	erg
Gravitational system	m	kgf-s ² /m	s	m/s ²	kgf	kgf/m ²	kgf/m ²	kgf-cm

Amount Unit system	Power	Temperature	Viscosity	Kinematic viscosity	Magnetic flux	Magnetic flux density	Magnetic-field intensity
SI	W	K	Pa-s	m ² /s	Wb	T	A/m
CGS system	erg/s	°C	P	St	Mx	Gs	Oe
Gravitational system	kgf-m/s	°C	kgf-s/m ²	m ² /s	—	—	—

●Integer Multipliers of 10 of SI Units

Number of digits multiplied to unit	Prefix		Number of digits multiplied to unit	Prefix	
	Name	Symbol		Name	Symbol
10 ¹⁸	Exa	E	10 ⁻¹	Deci	d
10 ¹⁵	Peta	P	10 ⁻²	Centi	c
10 ¹²	Tera	T	10 ⁻³	Milli	m
10 ⁹	Giga	G	10 ⁻⁶	Micro	μ
10 ⁶	Mega	M	10 ⁻⁹	Nano	n
10 ³	Kilo	k	10 ⁻¹²	Pico	p
10 ²	Hecto	h	10 ⁻¹⁵	Femto	f
10	Deca	da	10 ⁻¹⁸	Atto	a

● Hardness Conversion Table

Rockwell C-scale hardness HRC (load: 1471 N)	Vickers hardness HV	Brinell hardness HB		Rockwell hardness		Shore hardness
		Standard ball	Tungsten carbide ball	HRA A scale Load: 588.4N Barle indenter	HRB B scale Load: 980.7N Ball with diam. of 1/16 in.	HS
68	940	—	—	85.6	—	97
67	900	—	—	85.0	—	95
66	865	—	—	84.5	—	92
65	832	—	739	83.9	—	91
64	800	—	722	83.4	—	88
63	772	—	705	82.8	—	87
62	746	—	688	82.3	—	85
61	720	—	670	81.8	—	83
60	697	—	654	81.2	—	81
59	674	—	634	80.7	—	80
58	653	—	615	80.1	—	78
57	633	—	595	79.6	—	76
56	613	—	577	79.0	—	75
55	595	—	560	78.5	—	74
54	577	—	543	78.0	—	72
53	560	—	525	77.4	—	71
52	544	500	512	76.8	—	69
51	528	487	496	76.3	—	68
50	513	475	481	75.9	—	67
49	498	464	469	75.2	—	66
48	484	451	455	74.7	—	64
47	471	442	443	74.1	—	63
46	458	432	432	73.6	—	62
45	446	421	421	73.1	—	60
44	434	409	409	72.5	—	58
43	423	400	400	72.0	—	57
42	412	390	390	71.5	—	56
41	402	381	381	70.9	—	55
40	392	371	371	70.4	—	54
39	382	362	362	69.9	—	52
38	372	353	353	69.4	—	51
37	363	344	344	68.9	—	50
36	354	336	336	68.4	(109.0)	49
35	345	327	327	67.9	(108.5)	48
34	336	319	319	67.4	(108.0)	47
33	327	311	311	66.8	(107.5)	46
32	318	301	301	66.3	(107.0)	44
31	310	294	294	65.8	(106.0)	43
30	302	286	286	65.3	(105.5)	42
29	294	279	279	64.7	(104.5)	41
28	286	271	271	64.3	(104.0)	41
27	279	264	264	63.8	(103.0)	40
26	272	258	258	63.3	(102.5)	38
25	266	253	253	62.8	(101.5)	38
24	260	247	247	62.4	(101.0)	37
23	254	243	243	62.0	100.0	36
22	248	237	237	61.5	99.0	35
21	243	231	231	61.0	98.5	35
20	238	226	226	60.5	97.8	34
(18)	230	219	219	—	96.7	33
(16)	222	212	212	—	95.5	32
(14)	213	203	203	—	93.9	31
(12)	204	194	194	—	92.3	29
(10)	196	187	187	—	90.7	28
(8)	188	179	179	—	89.5	27
(6)	180	171	171	—	87.1	26
(4)	173	165	165	—	85.5	25
(2)	166	158	158	—	83.5	24
(0)	160	152	152	—	81.7	24