

Commonly Used Hole-basis Fits

Hole	Tolerance Zone Class of Hole															
	Clearance Fit				Transition Fit				Interference Fit							
H6				g5	h5	js5	k5	m5								
				f6	g6	h6	js6	k6	m6	n6*	p6					
H7				f6	g6	h6	js6	k6	m6	n6	p6*	r6*	s6	t6	u6	x6
			e7	f7	h7	js7										
H8				f8		h7										
			e8		h8											
H9			d9	e9												
			d8	e8	h8											
H10		c9	d9	e9		h9										
	b9	c9	d9													

Commonly Used Shaft-basis Fits

Shaft	Tolerance Zone Class of Shaft															
	Clearance Fit				Transition Fit				Interference Fit							
h5					H6	JS6	K6	M6	N6*	P6						
h6				F6	G6	H6	JS6	K6	M6	N6	P6*					
				F7	G7	H7	JS7	K7	M7	N7	P7	R7	S7	T7	U7	X7
h7			E7	F8		H7										
				F8		H8										
h8		D8	E8	F8		H8										
		D9	E9			H9										
h9		D8	E8			H8										
		C9	D9	E9		H9										
	B10	C10	D10													

* Some exceptions for these fits may occur depending on the dimension.

Some Tolerances Value without in Tables

Basic Step Dimension from to (mm)	Tolerance Zone Class of Hole			Tolerance Zone Class of Shaft			
	H3	H4	H5	h3	h4	h5	js4
1 3	+2 +2	+3 0	+4 0	0 -2	0 -3	0 -4	+1.5 -1.5
3 6	+2.5 0	+4 0	+5 0	0 -2.5	0 -4	0 -5	+2 -2
6 10	+2.5 0	+4 0	+6 0	0 -2.5	0 -4	0 -6	+2 -2
10 18	+3 0	+5 0	+8 0	0 -3	0 -5	0 -8	+2.5 -2.5
18 30	+4 0	+6 0	+9 0	0 -4	0 -6	0 -9	+3 -3
30 50	+4 0	+7 0	+11 0	0 -4	0 -7	0 -11	+3.5 -3.5
50 80	+5 0	+8 0	+13 0	0 -5	0 -8	0 -13	+4 -4
80 120	+6 0	+10 0	+15 0	0 -6	0 -10	0 -15	+5 -5
120 180	+8 0	+12 0	+18 0	0 -8	0 -12	0 -18	+6 -6
180 250	+10 0	+14 0	+20 0	0 -10	0 -14	0 -20	+7 -7
250 315	+12 0	+16 0	+23 0	0 -12	0 -18	0 -23	+8 -8
315 400	+13 0	+18 0	+25 0	0 -13	0 -18	0 -25	+9 -9
400 500	+15 0	+20 0	+27 0	0 -15	0 -20	0 -27	+10 -10

Tightening Torques & Tension Loads for Hex-Socket Head Cap Screws

Nominal Diameter (metric)	Hex Key (mm)	Thread Pitch (mm)	Class 12.9	
			Tension Load (kgf.m)	Tightening Torque (N.m)
M2	1.5	0.40	from 1649 to 1517	from 0.52 to 0.63
M2.5	2	0.45	2746 2531	1.06 1.30
M3	2.5	0.50	4117 3800	1.84 2.26
M3.5	-	0.60	5529 5100	2.84 3.47
M4	3	0.70	7140 6585	4.22 5.16
M5	4	0.80	11683 10789	8.32 10.2
M6	5	1.00	16452 15185	14.30 17.51
M7	-	1.00	24079 22274	23.52 29.04
M8	6	1.25	30197 27897	34.44 42.31
M10	8	1.50	48075 44440	67.87 83.56
M12	10	1.75	70087 64814	116.20 143.18
M14	12	2.00	95816 88632	184.84 228.03
M16	14	2.00	132442 122729	287.36 357.10
M18	14	2.50	160424 148453	396.50 489.90
M20	17	2.50	206678 191522	560.50 969.60
M22	17	2.50	257530 238923	766.85 957.80
M24	19	3.00	297784 275946	969.15 1204.33
M27	19	3.00	390753 362615	1417.63 1772.15
M30	22	3.50	475873 441351	1933.30 2411.40
M33	24	3.50	592711 550321	2614.50 3275.20
M36	27	4.00	695526 645441	3370.30 4213.40
M39	-	4.00	835380 775921	4359.90 5470.80
M42	32	4.50	955884 887420	5404.20 6768.50
M45	-	4.50	1123036 1043387	6768.60 8503.50
M48	36	5.00	1256949 1167287	8122.00 10186.10
M52	-	5.00	1512368 1405684	10462.40 13164.30
M56	41	5.50	1742185 1618931	12953.70 16882.40
M60	-	5.50	2033432 1890903	16046.90 16282.40
M64	46	6.00	2306271 2144137	19393.30 24418.60
M68	-	6.00	2641950 2457681	23421.30 29559.10

1 kgf.m = 9.81 N.m

1 N.m = 0.102 kgf.m