Axial Clearance

Axial Clearance of Precision Ball Screws

Table 10 shows the axial clearance of the precision ball screw. If the manufacturing length exceeds the value in Table 11, the resultant clearance may partially be negative (preload applied).

The manufacturing limit lengths of the ball screws compliant with the ISO standard are provided in Table 12.

For the axial clearance of precision Caged Ball ball screws, see **A15-76** to **A15-93**, **A15-112** to **A15-119**, **A15-246** to **A15-257**.

Table 10: Axial Clearance of the Precision Ball Screw

Unit: mm

Clearance symbol	G0	GT	G1	G2	G3
Axial clearance	0 or less	0 to 0.005	0 to 0.01	0 to 0.02	0 to 0.05

Table 11: Maximum Manufacturing Length of Precision Ball Screws by Axial Clearance and Accuracy Grade

Unit: mm

Screw shaft outer diameter	GT clearance				G1 clearance				G2 clearance					
	C0	C1	C2, C3	C5	C0	C1	C2, C3	C5	C0	C1	C2	C3	C5	C7
4, 6	80	80	80	100	80	80	80	100	80	80	80	80	100	120
8	230	250	250	200	230	250	250	250	230	250	250	250	300	300
10	250	250	250	200	250	250	250	250	250	250	250	250	300	300
12, 13	440	500	500	400	440	500	500	500	440	500	630	680	600	500
14	500	500	500	400	500	500	500	500	530	620	700	700	600	500
15	500	500	500	400	500	500	500	500	570	670	700	700	600	500
16	500	500	500	400	500	500	500	500	620	700	700	700	600	500
18	720	800	800	700	720	800	800	700	720	840	1,000	1,000	1,000	1,000
20	800	800	800	700	800	800	800	700	820	950	1,000	1,000	1,000	1,000
25	800	800	800	700	800	800	800	700	1,000	1,000	1,000	1,000	1,000	1,000
28	900	900	900	800	1,100	1,100	1,100	900	1,300	1,400	1,400	1,400	1,200	1,200
30, 32	900	900	900	800	1,100	1,100	1,100	900	1,400	1,400	1,400	1,400	1,200	1,200
36, 40, 45	1,000	1,000	1,000	800	1,300	1,300	1,300	1,000	2,000	2,000	2,000	2,000	1,500	1,500
50, 55, 63, 70	1,200	1,200	1,200	1,000	1,600	1,600	1,600	1,300	2,000	2,500	2,500	2,500	2,000	2,000
80, 100	—	—	—	—	1,800	1,800	1,800	1,500	2,000	4,000	4,000	4,000	3,000	3,000

Notes: When manufacturing a ball screw of accuracy grade C7 with clearance GT or G1, the resultant clearance is partially negative.
G0 clearance is not available for models HBN-V, HBN-K (KA), HBN, and SBKH.
Accuracy grade C7 is not available when manufacturing a miniature ball screw (screw shaft outer diameter ϕ14 mm or less) with a G0 clearance.

Table 12: Manufacturing Limit Lengths of Precision Ball Screws with Axial Clearances (ISO Standard-Compliant Ball Screws)

Unit: mm

Shaft diameter	GT clearance		G1 clearance		G2 clearance		
	C3, Cp3	C5, Cp5, Ct5	C3, Cp3	C5, Cp5, Ct5	C3, Cp3	C5, Cp5, Ct5	C7, Cp7
16	500	400	500	500	700	600	500
20, 25	800	700	800	700	1,000	1,000	1,000
32	900	800	1,100	900	1,400	1,200	1,200
40	1,000	800	1,300	1,000	2,000	1,500	1,500
50, 63	1,200	1,000	1,600	1,300	2,500	2,000	2,000

Note: When manufacturing a ball screw of accuracy grade C7 (Ct7) with clearance GT or G1, the resultant clearance is partially negative.

Axial Clearance of Rolled Ball Screws

Table 13 shows axial clearance of rolled ball screws.

Table 13: Axial Clearance of Rolled Ball Screws

Unit: mm

Screw shaft outer diameter	Axial clearance (maximum)
6 to 12	0.05
14 to 28	0.1
30 to 32	0.14
36 to 45	0.17
50	0.2