

Selecting a Screw Shaft

Maximum Manufacturing Length of the Screw Shaft

Table15 shows the maximum manufacturing lengths of precision ball screws by accuracy grade, Table16 shows the maximum manufacturing lengths of precision ball screws compliant with DIN standards by accuracy grade, and Table17 shows the maximum manufacturing lengths of rolled ball screws by accuracy grade.

If the shaft dimensions exceed the maximum manufacturing lengths in Table15, Table16, or Table17, contact THK.

Table15 Maximum Manufacturing Length of Precision Ball Screws by Accuracy Grade

Unit: mm

Screw shaft outer diameter	Overall screw shaft length					
	C0	C1	C2	C3	C5	C7
4	90	110	120	120	120	120
6	150	170	210	210	210	210
8	230	270	340	340	340	340
10	350	400	500	500	500	500
12	440	500	630	680	680	680
13	440	500	630	680	680	680
14	530	620	770	870	890	890
15	570	670	830	950	980	1100
16	620	730	900	1050	1100	1400
18	720	840	1050	1220	1350	1600
20	820	950	1200	1400	1600	1800
25	1100	1400	1600	1800	2000	2400
28	1300	1600	1900	2100	2350	2700
30	1450	1700	2050	2300	2570	2950
32	1600	1800	2200	2500	2800	3200
36	2000	2100	2550	2950	3250	3650
40	2000	2400	2900	3400	3700	4300
45	2000	2750	3350	3950	4350	5050
50	2000	3100	3800	4500	5000	5800
55	2000	3450	4150	5300	6050	6500
63	2000	4000	5200	5800	6700	7700
70	2000	4000	6300	6450	7650	9000
80	2000	4000	6300	7900	9000	11000
100	2000	4000	6300	11000	11000	11000

*For ball screw models HBN-V, HBN-K (KA), HBN, and SBKH, the standard maximum length of the screw shaft is 3000 mm.
For lengths greater than this, please contact THK.
For details, refer to **A15-294**.

Table16 Maximum Manufacturing Length of Precision Ball Screws (DIN Standard-Compliant Ball Screws)

Unit: mm

Shaft diameter	Ground shaft			CES shaft			
	C3	C5	C7	Cp3	Cp5	Ct5	Ct7
16	1050	1100	1400	1050	1100	1100	1400
20	1400	1600	1800	1400	1600	1600	1800
25	1800	2000	2400	1800	2000	2000	2400
32	2500	2800	3200	2500	2800	2800	3200
40	3400	3700	4300	3400	3700	3700	4300
50	4500	5000	5800	—	—	—	—
63	5800	6700	7700	—	—	—	—

Table17 Maximum Manufacturing Length of Rolled Ball Screws
by Accuracy Grade

Unit: mm

Screw shaft outer diameter	Overall screw shaft length		
	C7	C8	C10
6 to 8	320	320	—
10 to 12	500	1000	—
14 to 15	1500	1500	1500
16 to 18	1500	1800	1800
20	2000	2200	2200
25	2000	3000	3000
28	3000	3000	3000
30	3000	3000	4000
32 to 36	3000	4000	4000
40	3000	5000	5000
45	3000	5500	5500
50	3000	6000	6000

For details, refer to **A15-294**.

Combinations of Shaft Diameter and Lead for the Precision Ball Screw

Table18 shows combinations of shaft diameters and leads of precision ball screws, and Table19 shows combinations of shaft diameters and leads of precision ball screws compliant with DIN standards.

If a ball screw not covered by the table is required, contact THK.

Table18 Combinations of Screw Shaft Diameter and Lead (Precision Ball Screw)

Unit: mm

Screw shaft outer diameter	Lead																			
	1	1.5	2	2.5	3	4	5	6	8	10	12	15	16	20	24	25	30	32	35	36
4	●																			
5	●																			
6	●		●	●																
8	●	●	●	●	●	●			●	●	●									
10	●	●	●	●	●	●	●		●	●	●	●								
12			●	●	●	●	●	●	●	●	●	●	●				●			
13														●						
14			●			●	●		●											
15						●	●		●					●						
16						●	●		●				●							
18								●	●											
20					●	●	●	●	●	●				●		●	●			
25					●	●	●	●	●	●	●			●		●	●			
28						●	●			●										
30																			●	
31									●	●			●	●				●		
32					●	●	●	●	●	●	●		●	●				●		
36									●	●	●	●	●	●	●					
38									●	●	●	●	●	●	●	●	●			
40								●	●	●	●	●	●	●	●	●	●			
45									●	●	●	●	●	●	●	●	●	●		
50									●	●	●	●	●	●	●	●	●	●	●	
55									●	●	●	●	●	●	●	●	●	●	●	
63									●	●	●	●	●	●	●	●	●	●	●	
70									●	●				●						
80									●	●				●	●				●	
100													●	●					●	
120														●	●				●	
140																●		●		

Table19 Standard Combinations of Outer Diameters and Leads of the Screw Shafts (DIN Standard-Compliant Ball Screws)

Unit: mm

Shaft diameter	Lead		
	5	10	20
16	●	—	—
20	●	—	—
25	●	●	—
32	●	●	—
40	○	●	○*
50	—	○	○*
63	—	○	○*

●: Ground shaft, CES shaft

○: Ground shaft only

*: Model EB (no preload) only

Combinations of Shaft Diameter and Lead for the Rolled Ball Screw

Table20 shows the combinations of shaft diameter and lead for the rolled ball screw.

Table20 Combinations of Screw Shaft Diameter and Lead (Rolled Ball Screw)

Unit: mm

Screw shaft outer diameter	Lead															
	1	2	4	5	6	8	10	12	16	20	24	25	30	32	36	40
6	●															
8	●	●		●		●										
10		●	●		●		●									
12		●				●										
14		●	●	●												
15							●			●			●			
16				●					●							
18						●										
20				●			●			●					●	
25				●			●					●				●
28				●	●											
30																●
32							●							●		
36							●			●	●				●	
40							●									●
45								●								
50									●							●