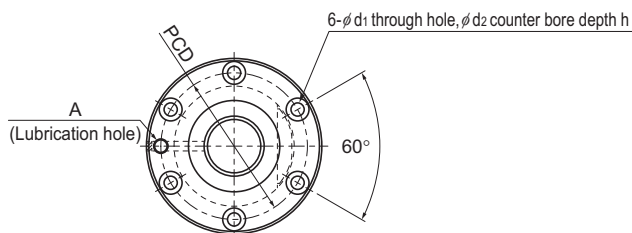


SBN-V Small With Preload

DN value	130,000
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Model No.	Screw shaft outer diameter d	Lead Ph	Ball center-to-center diameter dp	Thread minor diameter dc	No. of loaded circuits Rows × turns	Basic load rating		Rigidity K N/μm
						Ca kN	C _{0a} kN	
SBN 1604V-5	16	4	16.5	13.8	1×2.5	5.3	8	281
SBN 1605V-5	16	5	16.75	13.2	1×2.5	9.2	12.9	309
SBN 2004V-5	20	4	20.5	17.8	1×2.5	5.9	10.1	335
SBN 2005V-5	20	5	20.75	17.2	1×2.5	10.3	16.2	370
SBN 2010V-5	20	10	20.75	17.2	1×2.5	10.2	16.4	362
SBN 2504V-5	25	4	25.5	22.8	1×2.5	6.4	12.7	400
SBN 2505V-5	25	5	25.75	22.2	1×2.5	11.3	20.3	442
SBN 2506V-5	25	6	26	21.4	1×2.5	15.4	25.4	457
SBN 2805V-5	28	5	28.75	25.2	1×2.5	11.8	22.8	483
SBN 3205V-5	32	5	32.75	29.2	1×2.5	12.6	26.1	536
SBN 3206V-5	32	6	33	28.4	1×2.5	17.2	32.7	555

Model number coding

SBN1604V-5 QZ RR G0 +1200L C5

Model No.

Contamination protection accessory symbol¹

Accuracy symbol²

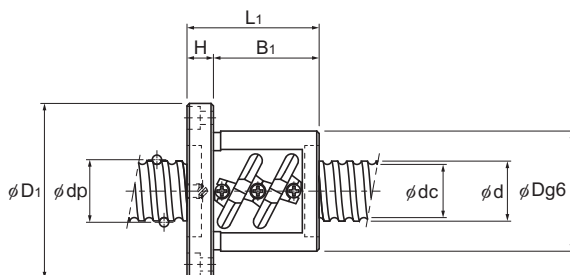
Overall screw shaft length (in mm)

With QZ lubricator
(No code without QZ lubricator)

Symbol for Clearance in the axial direction
(G0 for all SBN-V variations)

¹ See **A15-356**. ² See **A15-12**.

Positioning Ball Screw



Unit: mm

	Nut dimensions								Screw shaft inertial moment/mm	Nut mass	Shaft mass	Permissible rotational speed
	Outer diameter	Flange diameter	Overall length					Lubrication hole				
	Dg6	D ₁	L ₁	H	B ₁	PCD	d ₁ ×d ₂ ×h	A				
	36	59	53	11	42	47	5.5×9.5×5.5	M6	5.05×10 ⁻⁸	0.42	1.42	5,000
	40	60	56	10	46	50	4.5×8×4.5	M6	5.05×10 ⁻⁸	0.5	1.37	5,000
	40	63	49	11	38	51	5.5×9.5×5.5	M6	1.23×10 ⁻⁷	0.43	2.22	5,000
	44	67	56	11	45	55	5.5×9.5×5.5	M6	1.23×10 ⁻⁷	0.61	2.6	5,000
	46	74	90	15	75	59	5.5×9.5×5.5	M6	1.23×10 ⁻⁷	1.06	2.33	5,000
	46	69	48	11	37	57	5.5×9.5×5.5	M6	3.01×10 ⁻⁷	0.55	3.6	5,000
	50	73	55	11	44	61	5.5×9.5×5.5	M6	3.01×10 ⁻⁷	0.72	3.52	5,000
	53	76	62	11	51	64	5.5×9.5×5.5	M6	3.01×10 ⁻⁷	0.9	3.43	5,000
	55	85	59	12	47	69	6.6×11×6.5	M6	4.74×10 ⁻⁷	0.98	4.45	4,520
	58	85	56	12	44	71	6.6×11×6.5	M6	8.08×10 ⁻⁷	0.96	5.88	3,960
	62	89	63	12	51	75	6.6×11×6.5	M6	8.08×10 ⁻⁷	1.22	5.89	3,930

Axial Clearance

Unit: mm

Clearance symbol	G0
Axial Clearance	0 or less

Notes: The overall length of the nut will increase when equipping the QZ lubricating device. See **A15-366** for further details.

At least one end of the shaft must accommodate the insertion of the nut onto the ball screw threads for assembly. Please contact THK if this impacts your desired system design.

The rigidity values in the table represent spring constants, each obtained from the load and the elastic deformation when providing a preload equal to 10% of the basic axial dynamic load rating (Ca) and applying an axial load three times greater than the pre-load. These values do not include the rigidity of the components related to mounting the ball screw nut. Therefore, it is normally appropriate to regard roughly 80% of the value in the table as the actual value.

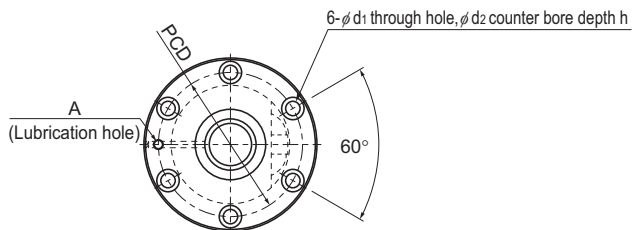
If the applied preload (Fa₀) is not 10% of Ca, the rigidity value (K_N) is obtained from the following equation.

$$K_N = K \left(\frac{Fa_0}{0.1Ca} \right)^{\frac{1}{3}}$$

K: Rigidity value in the dimensional table

SBN-V Medium With Preload

DN value	160,000
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Model No.	Screw shaft outer diameter d	Lead Ph	Ball center-to-center diameter dp	Thread minor diameter dc	No. of loaded circuits Rows X turns	Basic load rating		Rigidity K N/μm
						Ca kN	Coa kN	
SBN 2508V-7	25	8	26.25	20.5	1×3.5	26.2	43	650
SBN 2510V-5	25	10	26.25	21.5	1×2.5	19.6	30.9	474
SBN 2810V-3	28	10	29.75	22.4	1×1.5	19.5	27.8	332
SBN 3210V-7	32	10	33.75	26.4	1×3.5	43	73.1	836.7
SBN 3212V-5	32	12	34	26.1	1×2.5	37.4	58.7	612.2
SBN 3216V-5	32	16	33.75	26.4	1×2.5	31.9	52.2	592
SBN 3610V-7	36	10	37.75	30.4	1×3.5	45.6	82.3	900
SBN 3612V-7	36	12	38	30.1	1×3.5	53.2	92.6	920
SBN 3616V-5	36	16	38	30.1	1×2.5	39.7	66.4	662
SBN 3620V-3	36	20	37.75	30.5	1×1.5	21.6	32.9	398
SBN 4010V-5	40	10	41.75	34.4	1×2.5	35.8	65.2	708
SBN 4012V-5	40	12	42	34.1	1×2.5	42	73.6	735.4
SBN 4016V-5	40	16	42	34.1	1×2.5	41.9	73.8	736.6
SBN 4020V-5	40	20	41.75	34.4	1×2.5	35.4	65.2	706
SBN 4510V-5	45	10	46.75	39.5	1×2.5	37.9	73.8	780
SBN 4512V-5	45	12	47	39.2	1×2.5	44.4	82.9	809.1
SBN 4516V-5	45	16	47	39.2	1×2.5	44.3	83.1	810.1
SBN 4520V-5	45	20	47	39.2	1×2.5	43.9	82.5	788
SBN 5010V-5	50	10	51.75	44.4	1×2.5	39.4	81	838
SBN 5012V-5	50	12	52.25	43.3	1×2.5	53.6	101.9	936
SBN 5016V-5	50	16	52.7	42.9	1×2.5	89	167.7	1,228
SBN 5020V-5	50	20	52.7	42.9	1×2.5	88.7	167.7	1,228

Model number coding

SBN4012V-5 QZ RR G0 +1200L C5

Model No.

Contamination protection accessory symbol¹

Accuracy symbol²

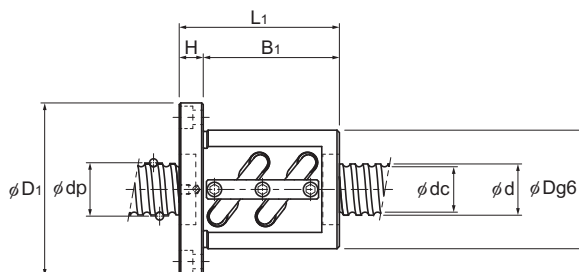
Overall screw shaft length (in mm)

With QZ lubricator
(No code without QZ lubricator)

Symbol for Clearance in the axial direction
(G0 for all SBN-V variations)

¹ See **A15-356**. ² See **A15-12**.

Positioning Ball Screw



Unit: mm

	Nut dimensions								Screw shaft inertial moment/mm ²	Nut mass	Shaft mass	Permissible rotational speed
	Outer diameter Dg6	Flange diameter D ₁	Overall length L ₁	H	B ₁	PCD	d ₁ × d ₂ × h	Lubrication hole A				
	58	85	98	15	83	71	6.6 × 11 × 6.5	M6	3.01 × 10 ⁻⁷	1.5	3.51	5,000
	58	85	100	18	82	71	6.6 × 11 × 6.5	M6	3.01 × 10 ⁻⁷	1.31	3.5	5,000
	65	106	88	18	70	85	11 × 17.5 × 11	M6	4.74 × 10 ⁻⁷	2.41	4.15	5,000
	74	108	120	15	105	90	9 × 14 × 8.5	M6	8.08 × 10 ⁻⁷	3.1	5.53	4,740
	76	121	117	18	99	98	11 × 17.5 × 11	M6	8.08 × 10 ⁻⁷	3.7	5.7	4,700
	74	108	139	18	121	90	9 × 14 × 8.5	M6	8.08 × 10 ⁻⁷	3.81	5.82	4,740
	75	120	123	18	105	98	11 × 17.5 × 11	M6	1.29 × 10 ⁻⁶	3.82	7.1	4,230
	78	123	140	18	122	100	11 × 17.5 × 11	M6	1.29 × 10 ⁻⁶	4.34	7.99	4,210
	78	123	140	18	122	100	11 × 17.5 × 11	M6	1.29 × 10 ⁻⁶	4.31	7.99	4,210
	75	114	122	18	104	93	11 × 17.5 × 11	M6	1.29 × 10 ⁻⁶	3.4	7.54	4,230
	82	124	103	18	85	102	11 × 17.5 × 11	M6	1.97 × 10 ⁻⁶	3.61	8.87	3,830
	84	126	119	18	101	104	11 × 17.5 × 11	M6	1.97 × 10 ⁻⁶	4.2	8.83	3,800
	84	126	144	18	126	104	11 × 17.5 × 11	M6	1.97 × 10 ⁻⁶	4.9	9.09	3,800
	82	126	162	18	144	104	11 × 17.5 × 11	M6	1.97 × 10 ⁻⁶	5.17	9.37	3,830
	88	132	111	18	93	110	11 × 17.5 × 11	Rc1/8 (PT1/8)	3.16 × 10 ⁻⁶	4.29	11.36	3,420
	90	130	119	18	101	110	11 × 17.5 × 11		3.16 × 10 ⁻⁶	4.6	11.32	3,400
	90	130	140	18	122	110	11 × 17.5 × 11		3.16 × 10 ⁻⁶	5.3	11.61	3,400
	90	130	162	18	144	110	11 × 17.5 × 11		3.16 × 10 ⁻⁶	5.96	11.1	3,400
	93	135	103	18	85	113	11 × 17.5 × 11		4.82 × 10 ⁻⁶	4.28	14.16	3,090
	100	146	123	22	101	122	14 × 20 × 13		4.82 × 10 ⁻⁶	6.12	13.82	3,060
	105	152	164	25	139	128	14 × 20 × 13		4.82 × 10 ⁻⁶	8.82	13.71	3,030
	105	152	201	28	173	128	14 × 20 × 13		4.82 × 10 ⁻⁶	10.63	14.05	3,030

Axial Clearance

Unit: mm

Clearance symbol	G0
Axial Clearance	0 or less

Notes: The overall length of the nut will increase when equipping the QZ lubricating device. See **A15-366** for further details.
At least one end of the shaft must accommodate the insertion of the nut onto the ball screw threads for assembly.
Please contact THK if this impacts your desired system design.

The rigidity values in the table represent spring constants, each obtained from the load and the elastic deformation when providing a preload equal to 10% of the basic axial dynamic load rating (Ca) and applying an axial load three times greater than the pre-load.

These values do not include the rigidity of the components related to mounting the ball screw nut. Therefore, it is normally appropriate to regard roughly 80% of the value in the table as the actual value. If the applied preload (Fa₀) is not 10% of Ca, the rigidity value (K_a) is obtained from the following equation.

$$K_a = K \left(\frac{Fa_0}{0.1Ca} \right)^{\frac{1}{3}}$$

K: Rigidity value in the dimensional table