

B-3-1.3 BSL Type for Miniature Lathe

1. Features

- Prompt delivery
Screw shaft configuration and ball nut shape are standardized for prompt delivery.
- High speed and low noise
Adoption of end-deflector recirculation system realized high-speed operation with low noise.
- Excellent dust resistance
Thin plastic seal and specially designed ball grooves prevent the entry of foreign matters.

2. Specifications

(1) Recirculation system

End-deflector recirculation system has features of high-speed operation with low-noise, and compact ball nut. The structure of recirculation system is shown in Fig.1.

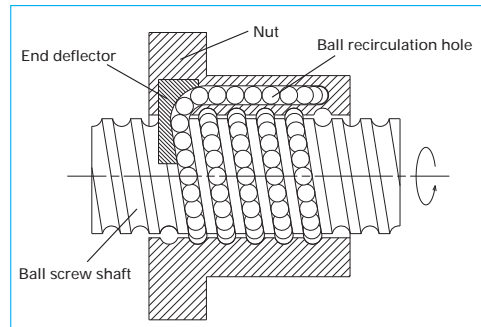


Fig. 1 Structure of end-deflector recirculation system

(2) Accuracy grade and axial play

The available standard accuracy grade and axial play are as follows. Please consult NSK for other grades.

Table 1 Accuracy grade and axial play

Accuracy grade	C5
Axial play	0 mm (Preloaded product)

(3) Allowable d·n value and the criterion of maximum rotational speed

Allowable d·n value and the criterion of maximum rotational speed are shown below. Please consult NSK if the rotational speed exceeds the permissible range below.

Allowable d·n value: 180 000 or less
 Criterion of maximum rotational speed : 4 000 min⁻¹

Note: Please also review the critical speed. See "Technical Description: Permissible rotational speed" (Page B51) for details.

(4) Options

Optional NSK K1 lubrication unit, molded from resin and impregnated with lubrication oil, supplies fresh oil onto ball rolling surface, ensuring long-term, maintenance-free operation. Please consult NSK when using NSK K1.

3. Design Precautions

When designing the screw shaft end, one end of the screw must meet either one of the following conditions. If not, we cannot install the ball nut on the screw shaft.

- Cut the ball groove through to the shaft end.
- The diameters of bearing journals and the gear or pulley seat must be less than the root diameter of ball groove "dr" specified on the dimension table.


Special bearings which have higher-load carrying capacity are available.

For general precautions regarding ball screws, refer to "Design Precautions" (Page B84) and "Handling Precautions" (Page B103).

4. Product categories

The BSL type has a model as follows.

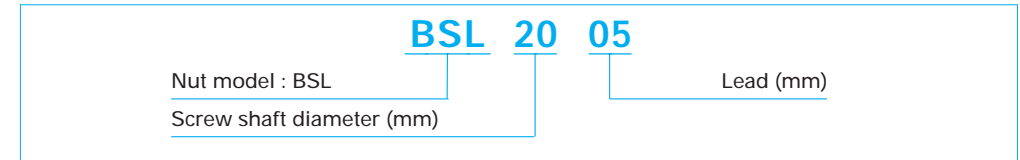
Table 2 BSL type product categories

Nut models	Shape	Flange shape	Preload system
BSL		Circular III	P Preload (Slight preload)

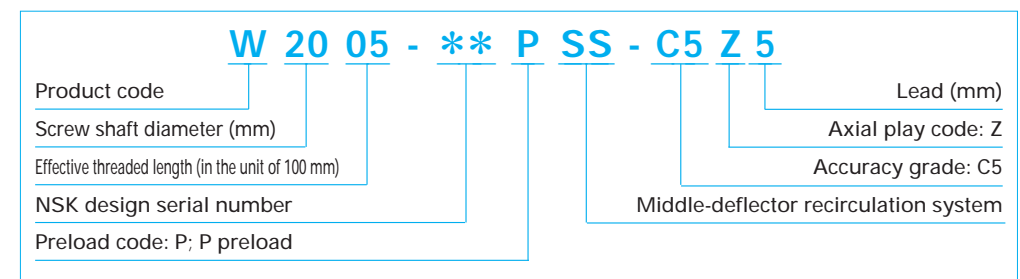
5. Example of model number in dimension table

A structure of "Model number" and "Reference number for ball screw" are as follows.

◇Model number



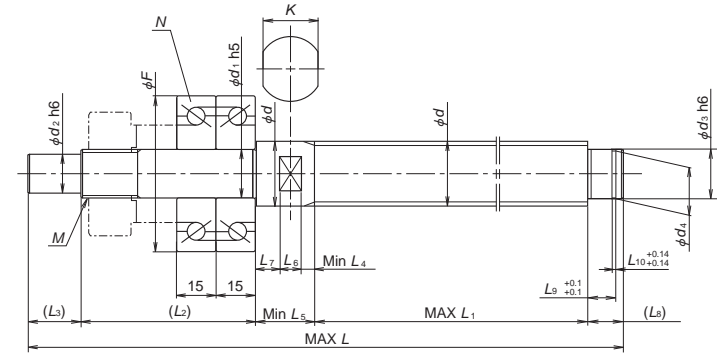
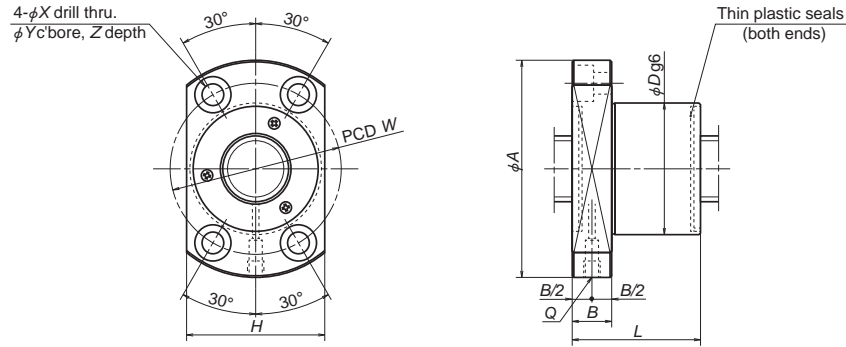
◇Reference number for ball screw



6. Handling Precautions

Maximum operating temperature: 80°C

If using NSK K1, operating temperature should not exceed 50°C. Refer to "Designing Precautions" (Page B84).



Model No.	Main factor						Ball nut dimensions										Oil hole	
	Shaft dia.	Lead	Ball dia.	Ball circle dia.	Root dia.	Basic load rating (N)		External dimensions					Bolt hole dimensions					
						Dynamic	Static	D	A	H	B	L	W	X	Y	Z		Q
d	I	D _w	d _m	d _r	C _d	C _{0a}	D	A	H	B	L	W	X	Y	Z	Q	d _i	
BSL2005	20	5	3.175	20.5	17.2	8920	16300	36	63	38	12	37	49	6.6	11	6.5	M6×1.0	15
BSL2006		6	3.9688	20.5	16.4	11900	20000	40	65	42		45	51					
BSL2505	25	5	3.175	25.5	22.2	9900	20500	40	65	42	12	38	51	6.6	11	6.5	M6×1.0	20
BSL2506		6	3.9688	25.5	21.4	13300	25200	43	69	45		44	55					
BSL2508		8	4.7625	25.5	20.5	17100	30100	46	72	48		55	58					
BSL2510		10	4.7625	25.5	20.5	17100	30100	46	72	48		65	58					
BSL3210	32	10	6.35	33	26.4	27700	51300	61	93	63	18	68	76	9	14	8.5	M6×1.0	25
BSL3212		12	6.35	33	26.4							77						

Remarks 1. The right turn screw is standard. Please consult NSK for left turn screw.
2. Shaft dimensions are for reference. Shaft length L₁ and shaft entire length L are the maximum length.

Unit: mm

Shaft configuration and dimensions (reference)																				Exclusive bearing N	Basic dynamic load rating C _a	Permissible axial load (N)
Shaft dimension																	Bearing reference number	F	C _a			
d ₂	d ₃	d ₄	L	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	L ₈	L ₉	L ₁₀	K	M							
12	15	14.3 ⁰ _{0.11}	500	500	66	20	3	20	8	9	14	10.15	1.15	17	M15×1.0	15TAC47B	47	21900	26600			
							4	21														
15	20	19 ⁰ _{0.21}	700	700	71	27	3	27	10	14	19	15.35	1.35	22	M20×1.0	20TAC62B	62	28500	40500			
							4	28														
							5	29														
20	25	23.9 ⁰ _{0.21}	1000	800	71	33	6	33	12	15	20	16.35	1.35	27	M25×1.5	25TAC62B	62	28500	40500			
							7	34														