


Ball Splines

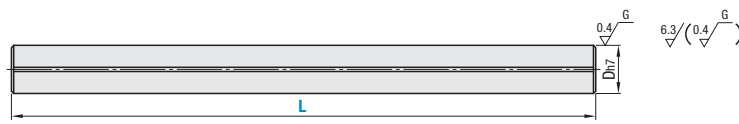
Standard Type

Ball Splines – Standard Type



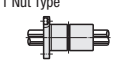
RoHS10

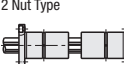
Standard Type	Spline Shaft Material 52100 Bearing Steel Nuts Material 4115 Alloy Steel Equivalent Hardness: 58 HRC min.				Spline Shaft, Nut Material 440C Stainless Steel Equivalent Hardness: 55 HRC min.	
	Nut 1 pc.		Nut 2 pcs.		Nut 1 pc.	
	L Dimension	L Dimension Configurable	L Dimension	L Dimension Configurable	L Dimension	L Dimension Configurable
With Round Flange Nut	BSSM	BHSM	BSS2M	BHS2M	BESKFS	BASKFS
With Compact Flange Nut	BSSN	BHSN	BSS2N	BHS2N	—	—
With Straight Nut	BSSS	BHSS	BSS2S	BHS2S	BESKSS	BASKSS



Accuracy P407 Choose Accessories Nuts from the following Shapes.

Flanged Nut Orientation

1 Nut Type 

2 Nut Type 

Round Flange Nuts

No. 6, 8 (3-d Oil Hole)

No. 10, 13 (4-d Oil Hole)

No. 16, 20, 25, 30 (5-d Oil Hole)

Compact Flange Nuts

No. 6, 8 (2-Mounting Holes, 3-d Oil Hole)

No. 10 (2-Mounting Holes, 4-d Oil Hole)

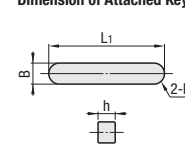
Straight Nuts

No. 6, 8 (3-d Oil Hole)

No. 10, 13 (4-d Oil Hole)

No. 16, 20, 25, 30 (5-d Oil Hole)

Dimension of Attached Key



* The key is press-fit into the nut.

Spline Shaft L dim. Selectable Type

Part Number	Type	No.	L (mm)	D	Mass (kg/m)				
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	6	150* 200* 300 400	6	0.23
						8	150* 200* 300 400	8	0.39
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	10	150 200* 300* 400 500 600	10.4	0.65
						13	150 200* 300* 400 500 600	13.4	1.11
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	16	150 200* 300* 400 500 600	16.6	1.65
						20	150 200 300 400 500 600 700	20.6	2.57
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	25	150 200 300 400 500 600 700 800 900	25.8	4.04
						30	150 200 300 400 500 600 700 800 900 1000 1150	30.8	5.85

① Only * marked sizes are available for BESKSS and BASKFS.
 ② For BSSN and BSS2N, only No. 6, 8 and 10 are available.

Spline Shaft L Dimension Configurable

Part Number	Type	No.	L 1 mm Increment		D	Mass (kg/m)				
			1-Nut Type	2-Nut Type						
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	*6	60-400 (200)	60-400	6	0.23
						*8	60-400 (200)	60-400	8	0.39
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	*10	60-600 (400)	90-600	10.4	0.65
						*13	60-600 (400)	100-600	13.4	1.11
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	*16	70-600 (400)	110-600	16.6	1.65
						20	80-700	130-700	20.6	2.57
BSSM	BSSN	BSSS	BSS2M	BSS2N	BSS2S	25	90-900	150-900	25.8	4.04
						30	100-1150	170-1150	30.8	5.85

① For BASKSS and BASKFS, only * marked sizes are available, and the Max. L dimension is in ().
 ② For BHSN and BHS2N, only No. 6, 8 and 10 are available.

Ball Splines

Standard Type, continued

Round Flange Nuts / Compact Flange Nuts

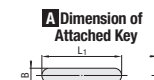
No.	D (h6)	L	Df	H	P.C.D.	d ₁	d ₂	h	W	d	B	Basic Rated Torque		Basic Load Rating		Allowable Static Moment		Mass (kg)
												Dynamic C _r (N-m)	Static C _{0r} (N-m)	Dynamic C (kN)	Static C ₀ (kN)	M ₀₁ (N-m)	M ₀₂ (N-m)	
6	14	25	30	6	22	3.5	6	3.1	6.5	1.5	18	3.8	7	1.2	2.1	5	36	0.03
8	16		32									24	4.8	8.7	1.2	2.1	5	36
10	21	40 (33)	42 (41)	6 (8)	32 (30)	4.5	8	4.4 (5.3)	14 (10)	2	25	19 (11)	34 (12)	3.8 (2.4)	6.9 (4.3)	26 (15)	181 (102)	0.09
13	24	44 (36)	44 (45)	7 (8)	33 (34)							28 (20)	52 (37)	4.6 (3.3)	8.3 (5.9)	36 (22)	251 (148)	0.11
16	31	50	51	7	40	5.5	9.5	5.4	22.5	2	—	51	93	6.2	11.1	56	386	0.2
20	35	63	58	9	45							85	154	8.5	15.3	83	611	0.3
25	42	71	65	9	52	6.6	11	6.5	30	2.5	—	193	348	15.4	27.7	173	1248	0.4
30	47	80	75	10	60							272	490	18.5	33.3	212	1581	0.57

① Dimensions in () are for 440C Stainless Steel. ② Allowable static moment M₀₁ is a value measured when a single nut is used, and M₀₂ is a value measured when two nuts are used.

Straight Nuts

No.	D (h6)	L	b	Tolerance	t +0.05 0 ()	d	a	Basic Rated Torque		Basic Load Rating		Allowable Static Moment		Mass (kg)	Dimension of Key (Included)						
								Dynamic C _r (N-m)	Static C _{0r} (N-m)	Dynamic C (kN)	Static C ₀ (kN)	M ₀₁ (N-m)	M ₀₂ (N-m)		B	Tolerance	h	Tolerance	L ₁	R	
6	14	25	2.5	+0.014 0	1.2	1.5	15°	3.8	7	1.2	2.1	5	36	0.012	2.5	±0.016 ±0.006	2.5	0	-0.025	10.5	1.25
8	16							4.8	8.7	1.2	2.1	5	36	0.013						10.5	
10	21	40 (33)	3	+0.018 0	1.5	2	—	19 (11)	34 (21)	3.8 (2.4)	6.9 (4.3)	26 (15)	181 (102)	0.06	3	±0.024 ±0.012	3	0	-0.030	17 (14)	1.5
13	24	44 (36)						28 (20)	52 (37)	4.6 (3.3)	8.3 (5.9)	36 (22)	251 (148)	0.07						17 (14)	
16	31	50	3.5	+0.018 0	2	2.5	—	51	93	6.2	11.1	56	386	0.15	3.5	±0.024 ±0.012	4	0	-0.030	18	1.75
20	35	63	4					85	154	8.5	15.3	83	611	0.2						29	
25	42	71	4	+0.018 0	2.5	2.5	—	193	348	15.4	27.7	173	1248	0.29	4	±0.024 ±0.012	4	0	-0.030	33	2
30	47	80	4					272	490	18.5	33.3	212	1581	0.37						42	

① Allowable static moment M₀₁ is a value measured when a single nut is used, and M₀₂ is a value measured when two nuts are used.
 ② Dimensions in () are for 440C Stainless Steel.



Part Number Example

Part Number	L
BHS2M10	555
BSSS8	300
BHS2M10G	555
BSSS8L	300

① Alternative grease types available.

Cautions for Ball Spline

Lubrication
 Ball splines are shipped greased. Reapply lubrication with Lithium soap based grease (Alvania Grease S2 by Showa Shell Sekiyu K.K.), etc. as needed.

Tolerance for Mating Bores
 An H7 tolerance is recommended for mating bores for the spline nuts.

Nut Removal
 Balls do not fall out when the spline shaft is pulled out. Once the nuts are removed from the spline shaft, reassemble the ball spline while confirming match No.'s, character orientations, and positional relationship of these parts.
 Nuts and shafts are offered as the set product. Thus, when using multiple pcs. of them, do not change the default combination.

Adding Nuts
 The ball spline ensures clearance and accuracy by integrating the nuts and shaft into one set. Thus, the nuts or shafts are not sold as separate items. When two nuts are required, select the 2-nut type part number.

