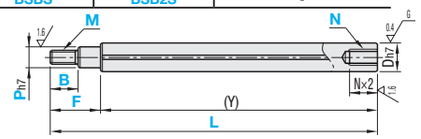
Ball Splines

One End Stepped and Threaded, One End Tapped

■One End Stepped and Threaded, One End Tapped

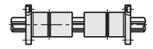
One End Stepped and Threaded, One End Tapped	Spline Shafts M SUJ2 Equivalent Nut M SCM415 Equivalent H Hardness : 58HRC ~		Spline Shaft, Nut M Material: SUS440C Equivalent H Hardness: 55HRC ~
	Nut 1 pc.	Nut 2 pcs.	Nut 1 pc.
With Round Flange Nut	BSBM	BSB2M	BSBMS
With Compact Flange Nut	BSBN	BSB2N	-
With Straight Nut	BSBS	BSB2S	-

6.3 (1.6 0.4 G) **Flanged** Nut Orientation



・1 Nut Type

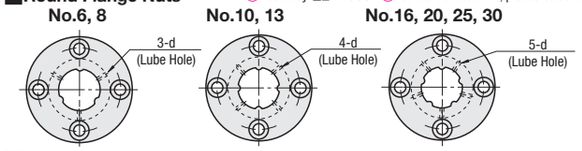
・2 Nut Type
(When Alteration NTW is specified)

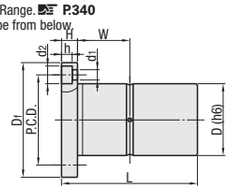


When selecting Overall Length (L Dimension), check the Annealing Range. P.340
Accuracy P.339 For the included nut, please select a shape from below.

■Round Flange Nuts

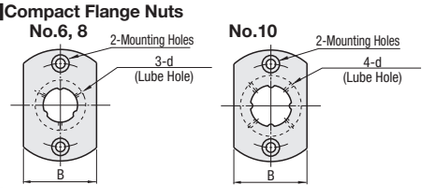
No.6, 8 / No.10, 13 / No.16, 20, 25, 30

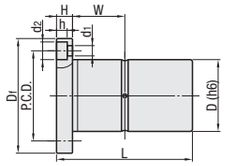




■Compact Flange Nuts

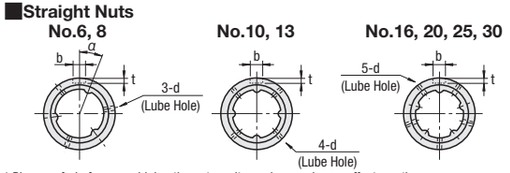
No.6, 8 / No.10

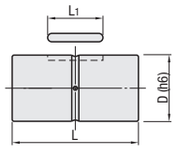




■Straight Nuts

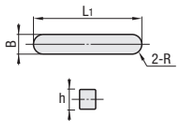
No.6, 8 / No.10, 13 / No.16, 20, 25, 30





* The key is press-fit into the nut.

A Dimension of Included Key



* Please refrain from machining the nuts as it may have adverse effects on the accuracy.

■Spline Shafts

Part Number Type	No.	1mm Increment L 1-Nut Type	L 2-Nut Type	F	B	P Selection	M (Coarse) Selection (M≤P)	N (Coarse) Selection	D	(Y) 1-Nut Type min~max	(Y) 2-Nut Type min~max	Mass (kg/m)
BSBM BSBN BSBS BSB2M BSB2N BSB2S BSBMS	*6	60~400(190)	60~400	When P=3 4≤F≤9 When P=4 4≤F≤16 When P≥5 4≤F≤Px5 F≥B+2	When M=3 2≤B≤9 When M=4 2≤B≤16 When M≥5 2≤B≤Mx5 B≥Pitchx3+ℓ For SUS materials, M≤B≤Mx3	3 4 5	3 4 5	3	6	56~396(186)	56~396	0.23
	*8	60~400(190)	60~600			4 5 6	4 5 6	3 4	8	56~396(186)	56~596	0.39
	*10	60~600(390)	90~600			4 5 6 8	4 5 6 8	3 4 5	10.4	56~596(386)	86~596	0.65
	*13	60~600(390)	100~600			5 6 8 10	5 6 8 10	4 5 6	13.4	56~596(386)	96~596	1.11
	*16	70~600(390)	110~600			5 6 8 10 12 13	6 8 10 12	4 5 6 8	16.6	66~596(386)	106~596	1.65
	20	80~ 700	130~700			8 10 12 13 15 16	6 8 10 12 16	4 5 6 8 10	20.6	76~696	126~696	2.57
	25	90~ 900	150~900			8 10 12 13 15 16 20	6 8 10 12 16 20	5 6 8 10 12	25.8	86~896	146~896	4.04
	30	100~1150	170~1150			10 12 13 15 16 20 25	8 10 12 16 20 24	6 8 10 12 16	30.8	96~1146	166~1146	5.85

For BSBMS, only * marked sizes are available, and the Max. L and Y dimensions are in ( ).
For BSBN and BSB2N, only No. 6, 8 and 10 are available.

■Round Flange Nuts, Compact Flange Nuts

No.	D (h6)	L	Df	H	P.C.D.	d1	d2	h	W	d	B	Basic Rated Torque Dynamic Ct (N·m)	Basic Rated Torque Static Cot (N·m)	Basic Load Rating Dynamic C (kN)	Basic Load Rating Static Co (kN)	Allowable Static Moment Mo1 (N·m)	Allowable Static Moment Mo2 (N·m)	Mass (kg)
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						21	4.8	8.7	1.2	2.1	5	36	0.04
10	21	40(33)	42(41)	6(8)	32(30)	4.5	8	4.4(5.3)	14(8.5)		25	19(11)	34(21)	3.8(2.4)	6.9(4.3)	26(15)	181(102)	0.09
13	24	44(36)	44(45)	7(8)	33(34)				15(10)		-	28(20)	52(37)	4.6(3.3)	8.3(5.9)	36(22)	251(148)	0.11
16	31	50	51	7	40			4.4	18			51	93	6.2	11.1	56	386	0.2
20	35	63	58	9	45	5.5	9.5	5.4	22.5	2		85	154	8.5	15.3	83	611	0.3
25	42	71	65		52				26.5			193	348	15.4	27.7	173	1248	0.4
30	47	80	75	10	60	6.6	11	6.5	30	2.5		272	490	18.5	33.3	212	1581	0.57

Dimensions in ( ) are for SUS440C Equivalent. Allowable static moment Mo1 is a value measured when a single nut is used, and Mo2 is a value measured when two nuts are used.

■Straight Nuts

No.	D (h6)	L	b	Tolerance	t +0.05 0	d	α	Basic Rated Torque Dynamic Ct (N·m)	Basic Rated Torque Static Cot (N·m)	Basic Load Rating Dynamic C (kN)	Basic Load Rating Static Co (kN)	Allowable Static Moment Mo1 (N·m)	Allowable Static Moment Mo2 (N·m)	Mass (kg)	Dimensions of Key (Included) B	Tolerance	h	Tolerance	L1	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						25°	4.8	8.7	1.2	2.1	5	36	0.013					10.5	
10	21	40(33)	3		1.5		-	19(11)	34(21)	3.8(2.4)	6.9(4.3)	26(15)	181(102)	0.06	3		3		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			51	93	6.2	11.1	56	386	0.15	3.5	+0.024 +0.012	3.5	0 -0.030	18	1.75
20	35	63	4		2.5	2		85	154	8.5	15.3	83	611	0.2	4		4		29	2
25	42	71						193	348	15.4	27.7	173	1248	0.29					33	
30	47	80				2.5		272	490	18.5	33.3	212	1581	0.37					42	

Dimensions in ( ) are for SUS440C Equivalent. Allowable static moment Mo1 is a value measured when a single nut is used, and Mo2 is a value measured when two nuts are used.

Part Number Type	No.	Unit Price Min. L ~150	L151 ~200	L201 ~300	L301 ~400	L401 ~500	L501 ~600	L601 ~700	L701 ~800	L801 ~900	L901 ~1000	L1001 ~1150
BSBM BSB2M Price of BSB2M = BSBM + Additional price shown below	6					-	-	-	-	-	-	-
	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
	13							-	-	-	-	-
	16							-	-	-	-	-
	20								-	-	-	-
	25										-	-
	30											
BSBN BSB2N Price of BSB2N = BSBN + Additional price shown below	6					-	-	-	-	-	-	-
	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
BSBS BSB2S Price of BSB2S = BSBS + Additional price shown below	6					-	-	-	-	-	-	-
	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
	13							-	-	-	-	-
	16							-	-	-	-	-
	20								-	-	-	-
	25										-	-
	30											

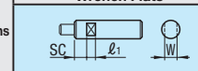
Part Number Type	No.	Unit Price Min. L ~150	L151 ~200	L201 ~250	L251 ~300	L301 ~350	L351 ~390
BSBMS	6			-	-	-	-
	8			-	-	-	-
	10						
	13						
	16						

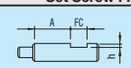
No.	Additional Price for 2-Nut Type Round Flange Nuts	Compact Flange Nuts	Straight Nuts
6			
8			
10			
13		-	
16		-	
20		-	
25		-	
30		-	

Alterations

Part Number	-	L	-	F	-	B	-	P	-	M	-	N	-	(SC, FC)
BSB2N10	-	300	-	F20	-	B10	-	P5	-	M5	-	N3	-	SC15

Alterations	Wrench Flats	Set Screw Flat
Code	SC	FC
Spec.	Adds a wrench flat. SC=1mm Increment SC+ℓ1≤L	Adds a set screw flat. Ordering Code FC10-A8 FC, A=1mm Increment FC≤3xD When 1.5xD<FC, FC≤Y/2 A=0 or A≥2

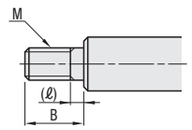




No.	W	ℓ1
6	5	8
8	7	
10	8	
13	11	10
16	14	
20	17	
25	22	15
30	27	

No.	h
6	1
8	
10	
13	
16	
20	2
25	
30	

Incomplete Thread Dimensions



M	(ℓ)
6 or Less	2
8, 10	3
12 or More	5

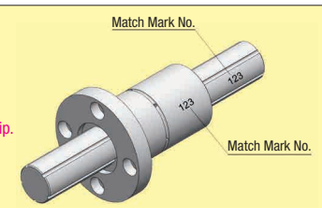
When selecting multiple alteration additions, more than 2mm is needed between each feature to be added.

Ordering Example

Part Number	-	L	-	F	-	B	-	P	-	M	-	N
BSB2N10	-	300	-	F20	-	B10	-	P5	-	M5	-	N3
BSB2N10G	-	300	-	F20	-	B10	-	P5	-	M5	-	N3
BSB2N10L	-	300	-	F20	-	B10	-	P5	-	M5	-	N3

Alternative grease types available.
For Days to Ship, Price and Performance, see P.340

Cautions for Ball Spline Assembly

■**Check Assembly Position**
Match Mark No.'s are entered on nuts and spline shafts (see diagram on right).
When re-assembling, match the character orientations of Match Mark No.'s, and positional relationship.

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