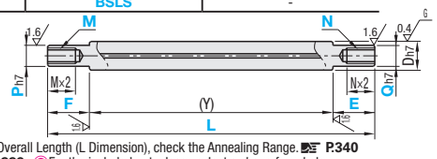
Ball Splines

Both Ends Stepped and Tapped

Both Ends Stepped and Taped

Both Ends Stepped and Tapped	Spline Shafts M EN 1.3505 Equiv. Nut M EN 1.7242 Equiv. H Hardness: 58HRC ~	Spline Shaft, Nut M Material: EN 1.4125 Equiv. H Hardness: 55HRC ~
	Nut 1 pc.	Nut 1 pc.
With Round Flange Nut	BSLM	BSLMS
With Compact Flange Nut	BSLN	-
With Straight Nut	BSLS	-

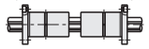


When selecting Overall Length (L Dimension), check the Annealing Range. P.340
Accuracy P.339 For the included nut, please select a shape from below.

Flanged Nut Orientation

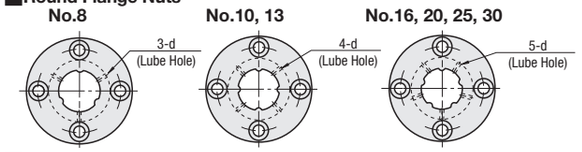
- 1 Nut Type

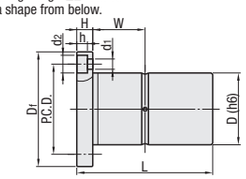
- 2 Nut Type (When Alteration NTW is specified)



Round Flange Nuts

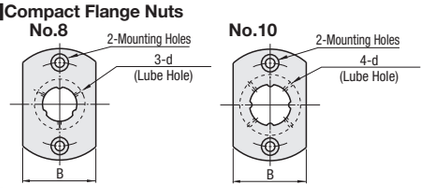
No.8 / No.10, 13 / No.16, 20, 25, 30

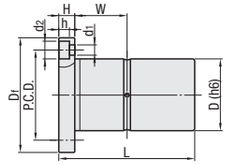




Compact Flange Nuts

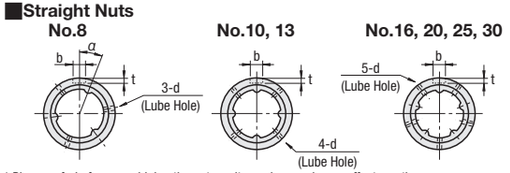
No.8 / No.10

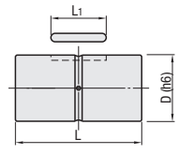




Straight Nuts

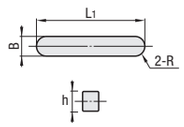
No.8 / No.10, 13 / No.16, 20, 25, 30





* 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	F·E	P, Q Selection	M (Coarse) / N (Coarse) Selection (M+3≤P, N+3≤Q)	D	(Y) 1-Nut Type min~max	Mass (kg/m)
BSLM BSLN BSLS BSLMS	*8	60~400(190)	2≤F≤P×5 2≤E≤Q×5	6	3	8	56~396(186)	0.39
	*10	60~600(390)		6 8	3 4	10.4	56~596(386)	0.65
	*13	60~600(390)		6 8 10	3 4 5 6	13.4	56~596(386)	1.11
	*16	70~600(390)		6 8 10 12 13	3 4 5 6 8 10	16.6	66~596(386)	1.65
	20	80~700		8 10 12 13 15 16	4 5 6 8 10 12	20.6	76~696	2.57
	25	90~900		8 10 12 13 15 16 20	4 5 6 8 10 12 16	25.8	86~896	4.04
	30	100~1150		10 12 13 15 16 20 25	4 5 6 8 10 12 16 20	30.8	96~1146	5.85

For BSLMS, only * marked sizes are available, and the Max. L and Y dimensions are in ( ).
For BSLN, only No. 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 C0t (N·m)	Basic Load Rating Dynamic C (kN)	Basic Load Rating Static C0 (kN)	Allowable Static Moment M01 (N·m)	Allowable Static Moment M02 (N·m)	Mass (kg)
8	16	25	32	6	24	3.5	6	3.1	6.5	1.5	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 EN 1.4125 Equiv. Allowable static moment M_{01} is a value measured when a single nut is used, and M_{02} 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 C0t (N·m)	Basic Load Rating Dynamic C (kN)	Basic Load Rating Static C0 (kN)	Allowable Static Moment M01 (N·m)	Allowable Static Moment M02 (N·m)	Mass (kg)	Dimensions of Key (Included) B	Tolerance	h	Tolerance	L1	R
8	16	25	2.5	+0.014 0	1.2	1.5	25°	4.8	8.7	1.2	2.1	5	36	0.013	2.5	+0.016 +0.006	2.5	0 -0.025	10.5	1.25
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 EN 1.4125 Equiv. Allowable static moment M_{01} is a value measured when a single nut is used, and M_{02} is a value measured when two nuts are used.

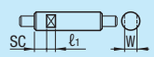
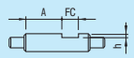
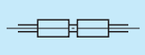
Part Number Type	No.	Unit Price Min. L ~150	L151 ~200	L201 ~300	L301 ~400	L401 ~500	L501 ~600	L601 ~700	L701 ~800	L801 ~900	L901 ~1000	L1001 ~1150
BSLM	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
	13							-	-	-	-	-
	16							-	-	-	-	-
	20								-	-	-	-
	25										-	-
	30											
BSLN	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
BSLS	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
BSLMS	8			-	-	-	-
	10						
	13						
	16						

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

Alterations

Part Number - L - F - E - P - Q - M - N - (SC, FC, NTW)
BSLM13 - 250 - F25 - E10 - P10 - Q8 - M5 - N5 - SC15

Alterations	Wrench Flats	Set Screw Flat	Additional Spline Nuts
			
Code	SC	FC	NTW
Spec.	Adds a wrench flat. SC=1mm Increment SC+ℓ1≤Y	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	Adds a nut. (from one nut to two nuts) Only available for BSLS, BSLM and BSLN.

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

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

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

Ordering Example

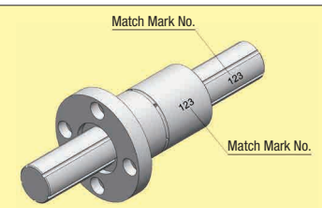
Part Number	L	F	E	P	Q	M	N
BSLM13	250	F25	E10	P10	Q8	M5	N5
BSLM13G	250	F25	E10	P10	Q8	M5	N5
BSLM13L	250	F25	E10	P10	Q8	M5	N5

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.