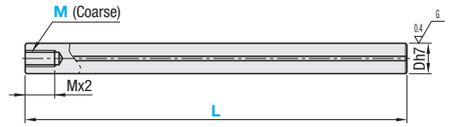
Ball Splines
One End Tapped

Reduced Days to Ship

One End Tapped RoHS



One End Tapped	Spline Shaft M 52100 Bearing Steel Nut M SCM415 Alloy Steel (JIS) Equivalent H Hardness: 58HRC~	Spline Shaft, Nut M Material: 440C Stainless Steel H Hardness: 55HRC~
	Nut 1 pc.	Nut 1 pc.
With Round Flange Nut	BSFM	BSFMS
With Compact Flange Nut	BSFN	-
With Straight Nut	BSFS	BSFSS



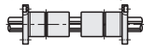


Flanged Nut Orientation

· 1 Nut Type



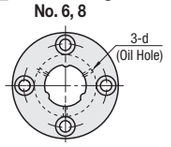
· 2 Nut Type
When Alteration NTW is specified)



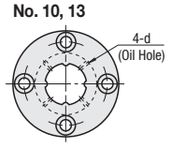
When selecting Overall Length (L Dimension), check the Annealing Range. P.305
Accuracy P.305 Choose Accessories Nuts from the following Shapes.

Round Flange Nuts

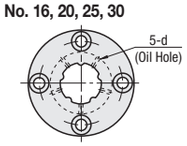
No. 6, 8

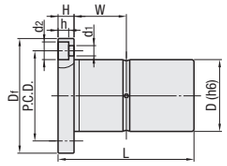


No. 10, 13



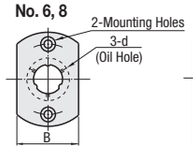
No. 16, 20, 25, 30



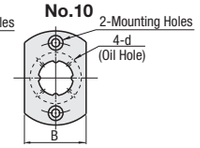


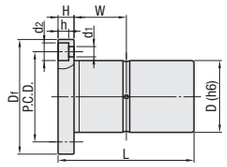
Compact Flange Nuts

No. 6, 8



No.10

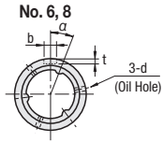




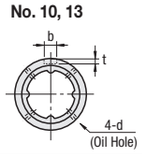
* The key is press-fit into the nut.

Straight Nuts

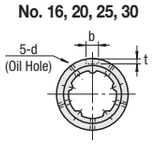
No. 6, 8

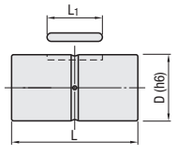


No. 10, 13

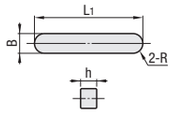


No. 16, 20, 25, 30





A Dimension of Attached Key



Spline Shafts

Part Number Type	No.	L 1mm Increment 1-Nut Type	M (Coarse)	D	Mass (kg/m)
BSFM BSFN BSFS BSFMS BSFSS	*6	60~400 (190)	3	6	0.23
	*8	60~400 (190)	3 4	8	0.39
	*10	60~600 (390)	3 4 5	10.4	0.65
	*13	60~600 (390)	4 5 6	13.4	1.11
	*16	70~600 (390)	4 5 6 8	16.6	1.65
	20	80~700	5 6 8 10	20.6	2.57
	25	90~900	5 6 8 10 12	25.8	4.04
	30	100~1150	6 8 10 12 16	30.8	5.85

For BSFSS and BSFMS, only *marked sizes are available, and the Max. L dimension is in ( ).
For BSFN, 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 440C Stainless Steel. 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)	Dimension 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 440C Stainless Steel. 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.

Price Configure Online

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
BSFM	6					-	-	-	-	-	-	-
	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
	13							-	-	-	-	-
	16							-	-	-	-	-
	20								-	-	-	-
	25										-	-
	30											
BSFN	6					-	-	-	-	-	-	-
	8					-	-	-	-	-	-	-
	10							-	-	-	-	-
BSFS	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
BSFMS	6			-	-	-	-
	8			-	-	-	-
	10						
	13						
	16						
BSFSS	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 - M - (SC, FC, NTW)
BSFS10 - 350 - M5 - SC15

Alterations	Wrench Flats	Set Screw Flat	Additional Spline Nuts
Code	SC	FC	NTW
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≤L/2 A=0 or A≥2	Adds a nut. (from one to two) Applicable to BSFS, BSFM, BSFN only.

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	

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

Ordering Example

Part Number	-	L	-	M
BSFS10	-	350	-	M5
BSFS10G	-	350	-	M5
BSFS10L	-	350	-	M5

Alternative grease types available.
For Days to Ship, Price and Performance, see P.306

Days to Ship Configure Online

Cautions for Ball Spline

Lubrication
Ball splines are shipped greased. Administer lubrication maintenance 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.

