

Rolled Ball Screws - Shaft Ends Configurable

Accuracy Grade C10



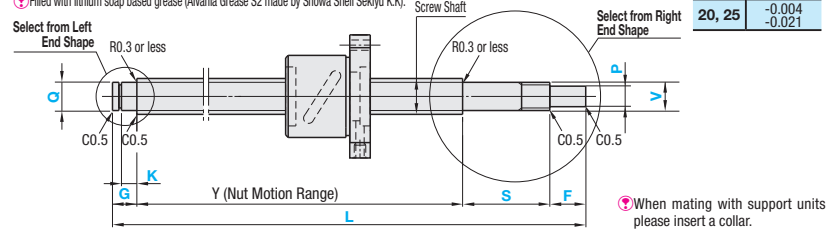
Nut Type	Type	Screw Shaft			Nut			V	Tolerance
		Material	Hardness	Surface Treatment	Material	Hardness	Surface Treatment		
Standard Nut	FBSSR	S55C	Induction Hardened 56-62HRC	Phosphate Conversion Coating	SCM420	Carburized 58-62HRC	Low Temperature Black Chrome (Screw Shafts 8 and 10 are applied with Phosphate Conversion Coating)	6	-0.002 -0.007
	FBSSZ							8	-0.002 -0.008
								10	-0.002 -0.015
								12, 15	-0.003 -0.018
								20, 25	-0.004 -0.021

Ⓢ Filled with lithium soap based grease (Alvania Grease S2 made by Showa Shell Sekiyu K.K.).

Ⓢ Select from Left End Shape

Ⓢ Select from Right End Shape

Ⓢ When mating with support units, please insert a collar.



Left (Support Side) Shaft End Shape		Right (Fixed Side) Shaft End Shape	
A No Machining on the Shaft End Ⓢ With a Centering Hole	B Stepped Machining	A No Machining on the Shaft End Ⓢ With a Centering Hole	J Double Stepped End Machining Ⓢ V-P≥2
C Single Stepped, Retaining Ring Groove	D Single Stepped, Tapped Hole on the End	K Double Stepped, Keyway Ⓢ V-P≥2	M Double Stepped, Tapped Hole on the End Ⓢ V-P≥2
E Single Stepped, Retaining Ring Groove, Tapped Hole on the End	F Single Stepped, Wrench Flats	N Double Stepped, One Flat Ⓢ SC<F 2≤F-SC V-P≥2	P Double Stepped, 90° Flats Ⓢ SC<F 2≤F-SC V-P≥2
G Single Stepped, Square End Ⓢ Y<G 2≤G-Y	H Double Stepped End Machining Ⓢ Y<G 2≤G-Y	R Double Stepped, Square End Ⓢ X<F 2≤F-X V-P≥2	S Double Stepped, Tapped Hole, Square End Ⓢ X<F 2≤F-X V-P≥2

Ⓢ For ball nut dimensions and specifications, refer to each product's page. Shaft Dia. 8 P.689, 10 P.695, 12 P.701, 14 P.701, 15 P.707, 20 P.713, 25 P.719, 28 P.723, 32 P.723

Ⓢ When combining the left end shape F, G with the right end shape K, N, P, R, S, there is no angular phase relationship.

Part Number - [L]-[F]-[P]-[S]-[V]-[U]-[C]-[KC]-[E]-[SC]-[X]-[Z]-[G]-[Q]-[K]-[N]-[J]-[JC]-[H]-[Y]-[W]-[R]-[RLC, SZC]
 FBSSZJ2010 - 1200 - F36 - P12 - S60 - V15 - U15 - G20 - Q15 - N10 - RLC

Alterations	Code	Spec.																																																		
Ball Nut Orientation Reversed (Left Shaft) (Right Shaft) Std. (Left Shaft) (Right Shaft) Revised (Left Shaft) (Right Shaft)	RLC	Changes the nut direction. Ordering Code RLC																																																		
Wrench Flats on Fixed Side	SZC	Adds wrench flats on the shaft right end. Ordering Code SZC Ⓢ Ball bearings will fall out if the ball nut crosses the wrench flats. <table border="1"> <thead> <tr> <th>Shaft Dia.</th> <th>Z</th> <th>ZC</th> <th>S</th> <th>ℓ</th> </tr> </thead> <tbody> <tr><td>8</td><td>4</td><td>4</td><td>5</td><td>18</td></tr> <tr><td>10</td><td>5</td><td>5</td><td>8</td><td>20</td></tr> <tr><td>12</td><td>5</td><td>5</td><td>8</td><td>20</td></tr> <tr><td>14</td><td>5</td><td>7</td><td>10</td><td>22</td></tr> <tr><td>15</td><td>5</td><td>7</td><td>10</td><td>22</td></tr> <tr><td>20</td><td>6</td><td>9</td><td>16</td><td>25</td></tr> <tr><td>25</td><td>7</td><td>10</td><td>18</td><td>27</td></tr> <tr><td>28</td><td>8</td><td>11</td><td>21</td><td>29</td></tr> <tr><td>32</td><td>9</td><td>13</td><td>27</td><td>32</td></tr> </tbody> </table> Ⓢ ℓ indicates incomplete hardened area.	Shaft Dia.	Z	ZC	S	ℓ	8	4	4	5	18	10	5	5	8	20	12	5	5	8	20	14	5	7	10	22	15	5	7	10	22	20	6	9	16	25	25	7	10	18	27	28	8	11	21	29	32	9	13	27	32
Shaft Dia.	Z	ZC	S	ℓ																																																
8	4	4	5	18																																																
10	5	5	8	20																																																
12	5	5	8	20																																																
14	5	7	10	22																																																
15	5	7	10	22																																																
20	6	9	16	25																																																
25	7	10	18	27																																																
28	8	11	21	29																																																
32	9	13	27	32																																																

Retaining Ring Groove Details

Q	e	tolerance	m	r1
6	5.7	0	0.8	
8	7.6	-0.06	0.9	
10	9.6	-0.09	1.15	
12	11.5	0	1.35	
15	14.3	-0.11		
20	19	0		
25	23.9	-0.21		

Keyway Details

Applicable Shaft and Nut Dia. p	Reference Dim.	Tolerance (N9)	Reference Dim.	Tolerance	r1
6, 7	2	-0.004	1.2		0.08
8-10	3	-0.029	1.8		-0.16
11, 12	4		2.5	+0.1	
13-17	5	0	3.0	0	
18-22	6	-0.030	3.5		0.16
23	8	0	4.0	+0.2	-0.25

Square Machining Details

Q(P)	W(Z)	M	Pitch
6-10	5-8	6	0.75
11-14	8-10	8	1.0
15-19	10-14	10	1.0
20-25	14-20	12	1.0
		15	1.0
		20	1.0
		25	1.5

V (Fine) Details

M	Pitch
6	0.75
8	1.0
10	1.0
12	1.0
15	1.0
20	1.0
25	1.5

Accuracy Grade	Part Number		Screw Shaft O.D.	Lead	1mm Increment										Selection		1mm Increment										Selection							
	Type	Left End Support Side			Right End Fixed Side	L	F	P	S	U	C	KC	SC	X	Z	V	E (Coarse)	G	K	J	JC	H	Y	R	W	Q	N (Coarse)							
C10	FBSSR FBSSZ	A B C D E F G H	A J K M N P R S	08	02	100-400											6	4	5	6	8	10	12	15	20	25	32	32	6	-				
				08	04	100-380																											6	
				10	02	150-585																											6	
				10	04	150-600																											6	
				10	10	150-585	5≤F≤P×3																										6	
				12	04	150-800	5≤S≤V×4																										8	10
				12	10	150-800	V≤U≤V×2																										8	10
				14	05	150-800	b1<C≤60																										8	10
				15	05	150-1200	F-C-KC≥2																										10	12
				15	10	200-1200	KC=0 or KC≥2																										10	12
				15	20	200-2000	5≤SC≤P×3 SC≤F-2																										10	12
				20	05	200-2000	5≤X≤20																										10	12
				20	10	250-2000	P≥4 P≤V/2																										10	12
				25	05	200-2000	When V=6, P=4																										15	20
				25	10	300-2000	When V=8, P=V-2																										15	20
				25	25																												20	25
28	06	200-2000													10	12																		
32	10														10	12																		
32	32														10	12																		

Ⓢ For FBSSZ type, sizes 0804, 1002 and 1010 are not available. Ⓢ E≤P-4 Ⓢ N≤Q-4

Part Number - [L]-[F]-[P]-[S]-[V]-[U]-[C]-[KC]-[E]-[SC]-[X]-[Z]-[G]-[Q]-[K]-[N]-[J]-[JC]-[H]-[Y]-[W]-[R]
 FBSSRAA1004 - 450
 FBSSZJ2010 - 1200 - F36 - P12 - S60 - V15 - U15 - G20 - Q15 - N10

Shaft Dia.	Lead	Material Unit Price 1 ~ 4 pc(s). Left End Shape: A Right End Shape: A															
		FBSSR							FBSSZ								
		Min. L-200	201-400	401-600	601-800	801-1000	1001-1200	1201-1500	1501-2000	Min. L-200	201-400	401-600	601-800	801-1000	1001-1200	1201-1500	1501-2000
08	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
08	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	06	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Shaft Dia.	Lead	Left Side Shaft Machining Unit Price 1 ~ 4 pc(s).								Right Side Shaft Machining Unit Price 1 ~ 4 pc(s).							
		B	C	D	E	F	G	H	J	K	M	N	P	R	S		
08	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
08	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
12	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
12	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
14	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
15	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
25	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
25	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
25	25	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
28	06	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
32	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
32	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Ⓢ Caution: Do not let the nuts overrun or remove the nuts from the screw shafts. It may cause the balls to fall out or damage the ball recirculation parts.

Ⓢ For accuracy of Rolled Ball Screws, see P.2223 and P.2224.

Ⓢ For Support Units, see P.753-P.778.

Ⓢ For Nut Brackets, see P.780.