

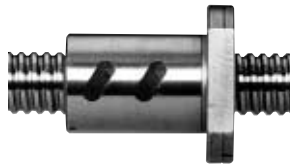



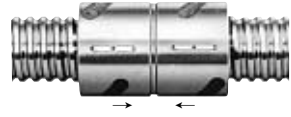
B-I-7.2 D Type (Deflector type, fine lead) Ball Screws

(1) Product categories

D Type ball screws use the deflector recirculation system. This can make the ball nut outside diameter smaller than the other recirculation systems. There

are several models by difference in the preload system as shown below (Table I-7-2).

Table I-7-2 Classification of D Type ball screws

Nut models	Shape	Flange shape	Preload system	Nut length	Page
SFD		Flanged d=16 or under Rectangle d=20 or over Circular I Circular II	Non-preload, Slight axial play	Short	B355
ZFD		Flanged Circular I Circular II	Z preload (medium preload)	Medium	B359
DFD		Flanged Circular I Circular II	D preload (medium preload) (heavy preload)	Long	B363
DFFD		Flanged to flanged Circular I	D preload (medium preload) (heavy preload)	Long	B367
DCD	 Preload direction	No flange	D preload (medium preload) (heavy preload)	Long	B371

(2) Benefit of design and precautions

Internal recirculation contributes to the compact design. Please note that it is impossible to assemble the nut unless one end of ball thread on the screw shaft is cut through, and, unless the shaft end of this side is smaller than the ball groove root diameter.

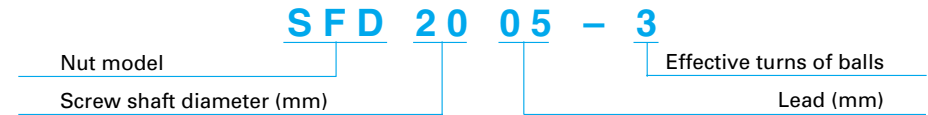
(3) Special ball screw specifications

D Series is based on the JIS B1192 combinations (shaft diameter/lead). However, NSK manufactures combinations other than shown in the Dimension Tables, as well as flanges of special shape. Please consult NSK.

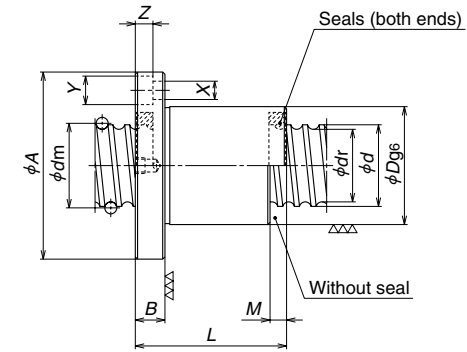
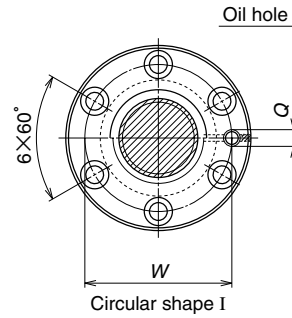
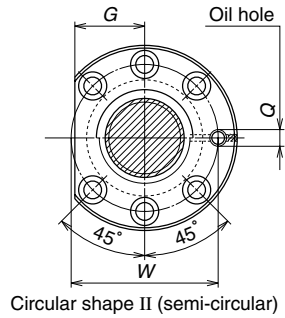
(4) Model number

A model number that indicates dimension factors is structured as shown below.

(Example) Nut model SFD shaft diameter 20 mm; lead 5 mm; effective turns of balls 3* (Note)



* Note: In case of Z preload, the number here is twice as large as the effective turns of balls.



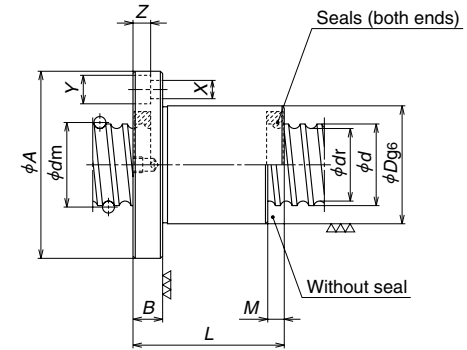
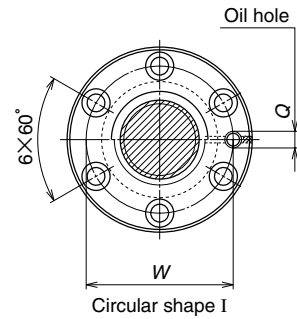
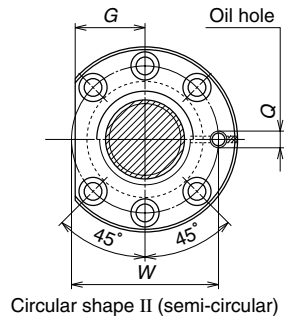
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_d</i>	Static <i>C_s</i>
SFD 2005-3	20	5	3.175	20.75	17.4	1×3	8620	17500
SFD 2005-4						1×4	11000	23300
SFD 2006-3		6	3.969	21.0	16.9	1×3	11100	20600
SFD 2006-4						1×4	14300	27500
SFD 2505-3	25	5	3.175	25.75	22.4	1×3	9790	22900
SFD 2505-4						1×4	12500	30500
SFD 2506-3		6	3.969	26.0	21.9	1×3	12900	27300
SFD 2506-4						1×4	16500	36500
SFD 2510-3	10	4.762	26.25	21.3	1×3	16100	32000	
SFD 3205-3	32	5	3.175	32.75	29.4	1×3	11100	30500
SFD 3205-4						1×4	14200	40700
SFD 3205-6		1×6	20200	61000				
SFD 3206-3		6	3.969	33.0	28.9	1×3	15000	37500
SFD 3206-4	1×4					19200	49900	
SFD 3206-6	1×6	27200	74900					
SFD 3208-3	8	4.762	33.25	28.3	1×3	18300	41800	
SFD 3208-4					1×4	23500	55800	
SFD 3210-3	10	6.35	33.75	27.1	1×3	25900	52800	
SFD 3210-4					1×4	33200	70300	
SFD 4005-4	40	5	3.175	40.75	37.4	1×4	15800	52300
SFD 4005-6						1×6	22400	78400
SFD 4006-4		6	3.969	41.0	36.9	1×4	21300	63500
SFD 4006-6						1×6	30100	95300
SFD 4008-4	8	4.762	41.25	36.3	1×4	27200	75200	
SFD 4008-6					1×6	38500	113000	
SFD 4010-3	10	6.35	41.75	35.1	1×3	30000	70000	
SFD 4010-4					1×4	38400	93300	

- Remarks
- Flange comes in Circular I and Circular II shape. Select a flange that is suitable for the nut installation space.
 - If there is no seal, the nut length is shorter by the length of "M" than those with a seal.
 - The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions											
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>	
196	35	58	22.5	11	46	5	46	5.5	9.5	5.5	M6×1	
255					51							
196	35	58	22.5	11	52	6	46	5.5	9.5	5.5	M6×1	
255					60							
245	40	63	24	11	46	5	51	5.5	9.5	5.5	M6×1	
323					51							
245	40	63	24	11	52	6	51	5.5	9.5	5.5	M6×1	
323					60							
245	42	69	26	15	80	10	55	6.6	11	6.5	M6×1	
304					47							
409	48	75	29	12	52	5	61	6.6	11	6.5	M6×1	
588					62							
314	48	75	29	12	53	6	61	6.6	11	6.5	M6×1	
412					61							
598	48	75	29	12	61	6	61	6.6	11	6.5	M6×1	
598					73							
304	50	84	32	15	67	8	66	9	14	8.5	M6×1	
392					76							
300	54	88	34	15	80	10	70	9	14	8.5	M6×1	
392					90							
490	56	90	34	15	55	5	72	9	14	8.5	Rc1/8	
725					65							
490	56	90	34	15	64	6	72	9	14	8.5	Rc1/8	
725					76							
500	60	94	36	15	76	8	76	9	14	8.5	Rc1/8	
735					93							
372	62	104	40	18	83	10	82	11	17.5	11	Rc1/8	
490					93							

- Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C_d*). Refer to "Technical Description" (Page B521) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.



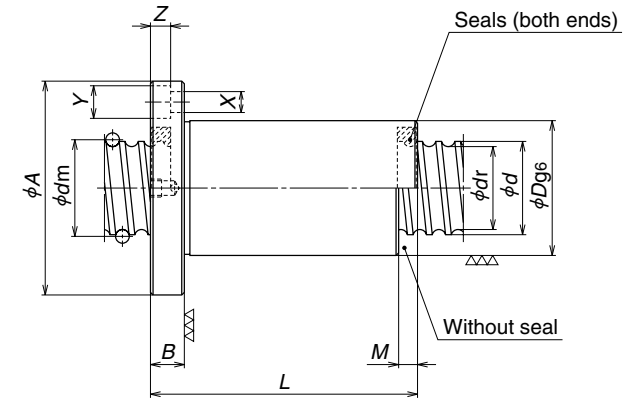
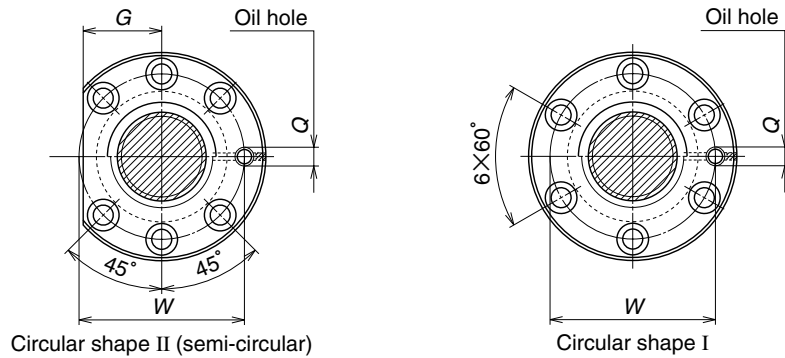
Unit: mm

Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		
							Dynamic <i>C_a</i>	Static <i>C_{0a}</i>	
SFD 5005-4 SFD 5005-6	50	5	3.175	50.75	47.4	1×4 1×6	17500 24800	66800 100000	
SFD 5006-4 SFD 5006-6		6	3.969	51.0	46.9	1×4 1×6	23600 33500	81700 122000	
SFD 5008-4 SFD 5008-6		8	4.762	51.25	46.3	1×4 1×6	29900 42400	94800 142000	
SFD 5010-3 SFD 5010-4 SFD 5010-6		10	6.35	51.75	45.1	1×3 1×4 1×6	34100 43600 61800	91600 122000 183000	
SFD 5012-3 SFD 5012-4		12	7.938	52.25	44.0	1×3 1×4	44800 57300	109000 146000	
SFD 5020-3		20	7.938	52.25	44.0	1×3	44800	109000	
SFD 6306-4 SFD 6306-6		63	6	3.969	64.0	59.9	1×4 1×6	26100 36900	104000 157000
SFD 6308-4 SFD 6308-6			8	4.762	64.25	59.3	1×4 1×6	33600 47600	124000 186000
SFD 6310-4 SFD 6310-6			10	6.35	64.75	58.1	1×4 1×6	49700 70500	163000 244000
SFD 6312-4 SFD 6312-6			12	7.938	65.25	57.0	1×4 1×6	65100 92200	191000 286000
SFD 6320-3	20		9.525	65.75	56.0	1×3	83700	232000	
SFD 8010-4 SFD 8010-6	80		10	6.35	81.75	75.1	1×4 1×6	55100 78000	209000 314000
SFD 8012-4 SFD 8012-6		12	7.938	82.25	74.0	1×4 1×6	74000 105000	254000 381000	
SFD 8020-3 SFD 8020-4		20	9.525	82.75	73.0	1×3 1×4	96600 124000	313000 417000	
SFD 10010-6 SFD 10012-6 SFD 10020-4		100	10	6.35	101.75	95.1	1×6	86200	401000
	12		7.938	102.25	94.0	1×6	117000	490000	
	20		9.525	102.75	93.0	1×4	136000	526000	

- Remarks
1. Flange comes in Circular I and Circular II shape. Select a flange that is suitable for the nut installation space.
 2. If there is no seal, the nut length is shorter by the length of "M" than those with a seal.
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions										
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>
593 872	66	100	38	15	55 65	5	82	9	14	8.5	Rc1/8
598 892	66	100	38	15	64 76	6	82	9	14	8.5	Rc1/8
598 887	70	112	43	18	79 96	8	90	11	17.5	11	Rc1/8
461 608 902	72	114	44	18	83 93 114	10	92	11	17.5	11	Rc1/8
461 608	75	121	47	22	99 111	12	97	14	20	13	Rc1/8
461	75	121	47	28	146	20	97	14	20	13	Rc1/8
735 1180	80	122	47	18	67 79	6	100	11	17.5	11	Rc1/8
745 1100	82	124	47	18	79 96	8	102	11	17.5	11	Rc1/8
764 1130	85	131	50	22	97 118	10	107	14	20	13	Rc1/8
755 1110	90	136	52	22	111 136	12	112	14	20	13	Rc1/8
735	95	153	59	28	146	20	123	18	26	17.5	Rc1/8
931 1370	105	151	57	22	97 118	10	127	14	20	13	Rc1/8
941 1392	110	156	59	22	111 136	12	132	14	20	13	Rc1/8
931 1230	115	173	66	28	146 168	20	143	18	26	17.5	Rc1/8
1670	125	171	64	22	118	10	147	14	20	13	Rc1/8
1680	130	188	71	28	142	12	158	18	26	17.5	Rc1/8
1470	135	205	79	32	172	20	169	22	32	21.5	Rc1/8

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C_a*). Refer to "Technical Description" (Page B521) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.



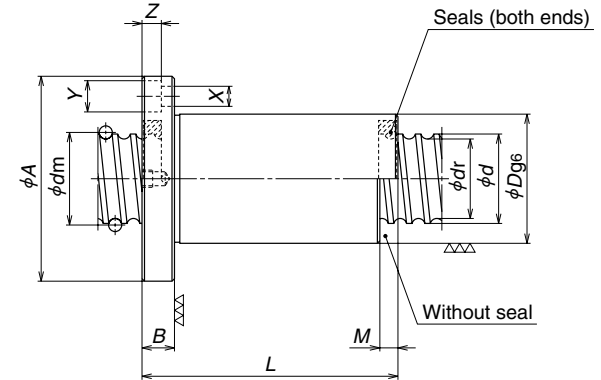
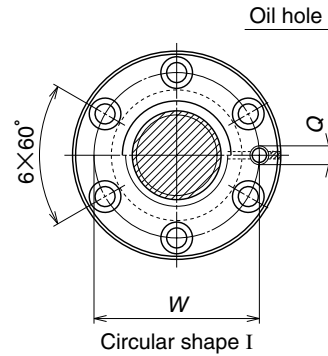
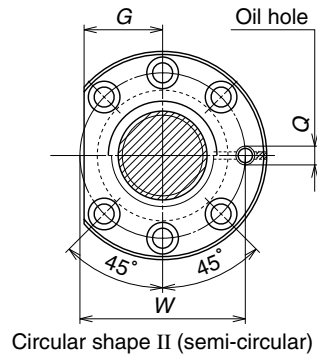
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
ZFD 2005-6	20	5	3.175	20.75	17.4	1×3	8620	17500
ZFD 2006-6		6	3.969	21.0	16.9	1×3	11100	20600
ZFD 2505-6		5	3.175	25.75	22.4	1×3	9790	22900
ZFD 2506-6	25	6	3.969	26.0	21.9	1×3	12900	27300
ZFD 2510-4		10	4.762	26.25	21.3	1×2	11400	21400
ZFD 3205-6	32	5	3.175	32.75	29.4	1×3	11100	30500
ZFD 3205-8						1×4	14200	40700
ZFD 3206-6		6	3.969	33.0	28.9	1×3	15000	37500
ZFD 3206-8						1×4	19200	49900
ZFD 3208-6		8	4.762	33.25	28.3	1×3	18300	41800
ZFD 3208-8						1×4	23500	55800
ZFD 3210-6	10	6.35	33.75	27.1	1×3	25900	52800	
ZFD 4005-8	40	5	3.175	40.75	37.4	1×4	15800	52300
ZFD 4005-12						1×6	22400	78400
ZFD 4006-8		6	3.969	41.0	36.9	1×4	21300	63500
ZFD 4006-12						1×6	30100	95300
ZFD 4008-8		8	4.762	41.25	36.3	1×4	27200	75200
ZFD 4010-6		10	6.35	41.75	35.1	1×3	30000	70000
ZFD 4010-8	1×4					38400	93300	

- Remarks
1. Flange comes in Circular I and Circular II shape. Select a flange that is suitable for the nut installation space.
 2. If there is no seal, the nut length is shorter by the length of "M" than those with a seal.
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions										
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>
382	35	58	22.5	11	66	5	46	5.5	9.5	5.5	M6×1
382	35	58	22.5	11	76	6	46	5.5	9.5	5.5	M6×1
480	40	63	24	11	66	5	51	5.5	9.5	5.5	M6×1
470	40	63	24	11	76	6	51	5.5	9.5	5.5	M6×1
323	42	69	26	15	88	10	55	6.6	11	6.5	M6×1
598	48	75	29	12	67	5	61	6.6	11	6.5	M6×1
784					77						
608	48	75	29	12	77	6	61	6.6	11	6.5	M6×1
804					90						
588	50	84	32	15	99	8	66	9	14	8.5	M6×1
774					116						
588	54	88	34	15	120	10	70	9	14	8.5	M6×1
960	56	90	34	15	80	5	72	9	14	8.5	Rc1/8
1410					101						
970	56	90	34	15	93	6	72	9	14	8.5	Rc1/8
1431					118						
990	60	94	36	15	116	8	76	9	14	8.5	Rc1/8
735	62	104	40	18	123	10	82	11	17.5	11	Rc1/8
970					143						

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



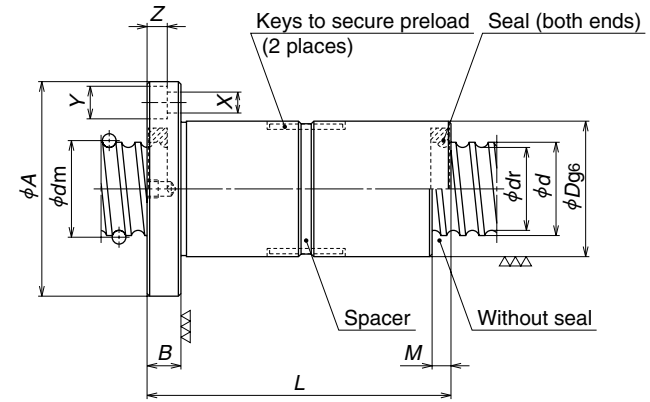
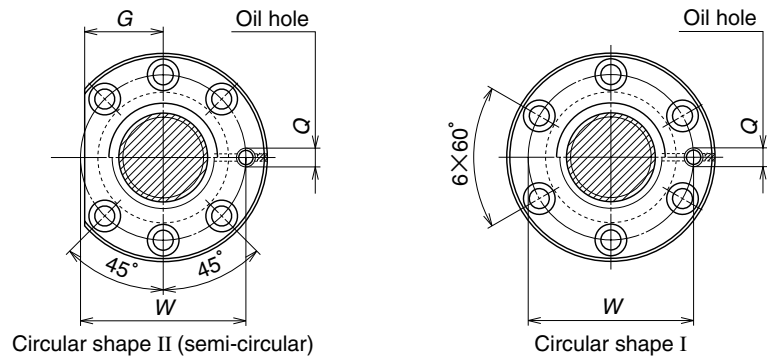
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
ZFD 5005-8 ZFD 5005-12	50	5	3.175	50.75	47.4	1×4 1×6	17500 24800	66800 100000
ZFD 5006-8 ZFD 5006-12		6	3.969	51.0	46.9	1×4 1×6	23600 33500	81700 122000
ZFD 5008-8		8	4.762	51.25	46.3	1×4	29900	94800
ZFD 5010-6 ZFD 5010-8		10	6.35	51.75	45.1	1×3 1×4	34100 43600	91600 122000
ZFD 5012-6		12	7.938	52.25	44.0	1×3	44800	109000
ZFD 6306-8 ZFD 6306-12		63	6	3.969	64.0	59.9	1×4 1×6	26100 36900
ZFD 6308-8	8		4.762	64.25	59.3	1×4	33600	124000
ZFD 6310-8	10		6.35	64.75	58.1	1×4	49700	163000
ZFD 6312-6	12		7.938	65.25	57.0	1×3	50800	143000

- Remarks
1. Flange comes in Circular I and Circular II shape. Select a flange that is suitable for the nut installation space.
 2. If there is no seal, the nut length is shorter by the length of "M" than those with a seal.
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions										
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>
1170 1720	66	100	38	15	80 101	5	82	9	14	8.5	Rc1/8
1190 1750	66	100	38	15	93 118	6	82	9	14	8.5	Rc1/8
1180	70	112	43	18	119	8	90	11	17.5	11	Rc1/8
914 1200	72	114	44	18	123 143	10	92	11	17.5	11	Rc1/8
906	75	121	47	22	147	12	97	14	20	13	Rc1/8
1430 2110	80	122	47	18	96 121	6	100	11	17.5	11	Rc1/8
1460	82	124	47	18	119	8	102	11	17.5	11	Rc1/8
1510	85	131	50	22	147	10	107	14	20	13	Rc1/8
1120	90	136	52	22	147	12	112	14	20	13	Rc1/8

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



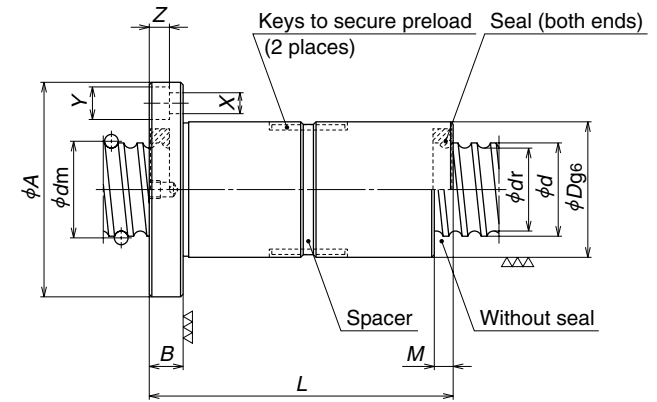
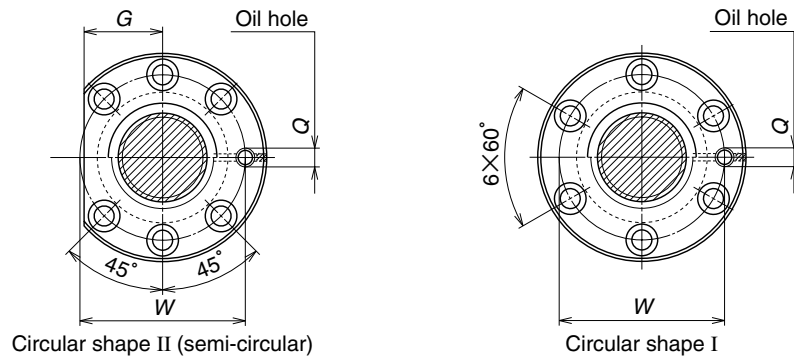
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
DFD 2005-3 DFD 2005-4	20	5	3.175	20.75	17.4	1×3 1×4	8620 11000	17500 23300
DFD 2006-3 DFD 2006-4		6	3.969	21.0	16.9	1×3 1×4	11100 14300	20600 27500
DFD 2505-3 DFD 2505-4	25	5	3.175	25.75	22.4	1×3 1×4	9790 12500	22900 30500
DFD 2506-3 DFD 2506-4		6	3.969	26.0	21.9	1×3 1×4	12900 16500	27300 36500
DFD 2510-3		10	4.762	26.25	21.3	1×3	16100	32000
DFD 3205-3 DFD 3205-4 DFD 3205-6	32	5	3.175	32.75	29.4	1×3 1×4 1×6	11100 14200 20200	30500 40700 61000
DFD 3206-3 DFD 3206-4 DFD 3206-6		6	3.969	33.0	28.9	1×3 1×4 1×6	15000 19200 27200	37500 49900 74900
DFD 3208-3 DFD 3208-4		8	4.762	33.25	28.3	1×3 1×4	18300 23500	41800 55800
DFD 3210-3 DFD 3210-4		10	6.35	33.75	27.1	1×3 1×4	25900 33200	52800 70300
DFD 4005-4 DFD 4005-6	40	5	3.175	40.75	37.4	1×4 1×6	15800 22400	52300 78400
DFD 4006-4 DFD 4006-6		6	3.969	41.0	36.9	1×4 1×6	21300 30100	63500 95300
DFD 4008-4 DFD 4008-6		8	4.762	41.25	36.3	1×4 1×6	27200 38500	75200 113000
DFD 4010-3 DFD 4010-4		10	6.35	41.75	35.1	1×3 1×4	30000 38400	70000 93300

- Remarks 1. Flanges for the shaft diameter of 16 mm and smaller are rectangular. There are Circular I and Circular II for those with 20 mm and larger.
Select a flange shape which is suitable for the nut installation space.
2. If there is no seal, the nut length is shorter by the size of "M" than those with a seal.
3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions										
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>
386 509	41	64	25	11	81 91	5	52	5.5	9.5	5.5	M6×1
378 498	42	65	25	11	92 108	6	53	5.5	9.5	5.5	M6×1
479 630	46	69	26	11	81 91	5	57	5.5	9.5	5.5	M6×1
475 626	47	70	27	11	92 108	6	58	5.5	9.5	5.5	M6×1
479	47	74	28	15	140	10	60	6.6	11	6.5	M6×1
600 784 1160	53	80	30	12	82 92 112	5	66	6.6	11	6.5	M6×1
613 806 1190	54	81	31	12	93 109 133	6	67	6.6	11	6.5	M6×1
591 777	54	88	34	15	116 134	8	70	9	14	8.5	M6×1
587 773	54	88	34	15	140 160	10	70	9	14	8.5	M6×1
962 1410	62	96	37	15	95 115	5	78	9	14	8.5	Rc1/8
973 1430	62	96	37	15	112 136	6	78	9	14	8.5	Rc1/8
989 1460	62	96	37	15	134 168	8	78	9	14	8.5	Rc1/8
738 970	62	104	40	18	143 163	10	82	11	17.5	11	Rc1/8

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



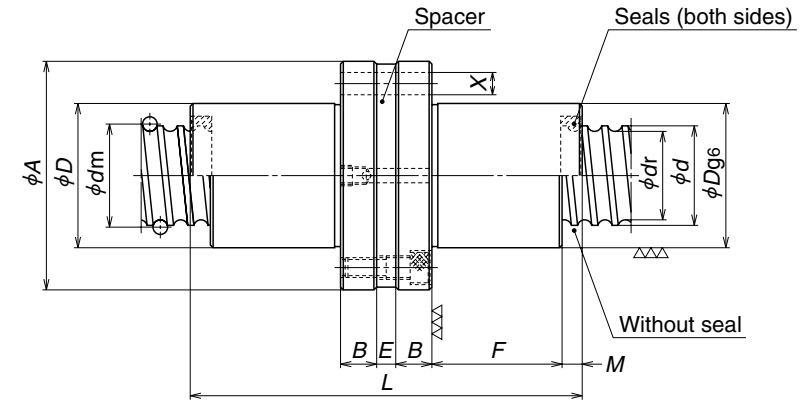
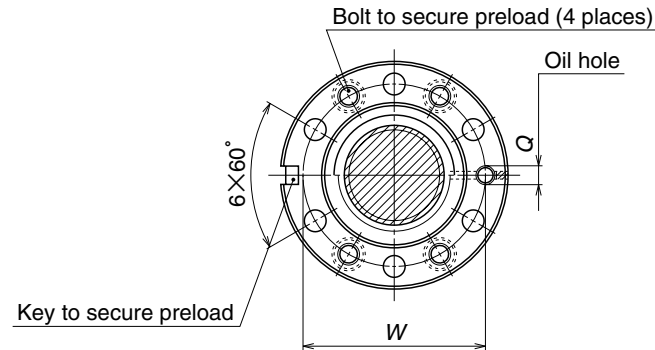
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		
							Dynamic <i>C_a</i>	Static <i>C_{0a}</i>	
DFD 5005-4 DFD 5005-6	50	5	3.175	50.75	47.4	1×4 1×6	17500 24800	66800 100000	
DFD 5006-4 DFD 5006-6		6	3.969	51.0	46.9	1×4 1×6	23600 33500	81700 122000	
DFD 5008-4 DFD 5008-6		8	4.762	51.25	46.3	1×4 1×6	29900 42400	94800 142000	
DFD 5010-3 DFD 5010-4 DFD 5010-6		10	6.35	51.75	45.1	1×3 1×4 1×6	34100 43600 61800	91600 122000 183000	
DFD 5012-3 DFD 5012-4		12	7.938	52.25	44.0	1×3 1×4	44800 57300	109000 146000	
DFD 5020-3		20	7.938	52.25	44.0	1×3	44800	109000	
DFD 6306-4 DFD 6306-6		63	6	3.969	64.0	59.9	1×4 1×6	26100 36900	104000 157000
DFD 6308-4 DFD 6308-6			8	4.762	64.25	59.3	1×4 1×6	33600 47600	124000 186000
DFD 6310-4 DFD 6310-6			10	6.35	64.75	58.1	1×4 1×6	49700 70500	163000 244000
DFD 6312-4 DFD 6312-6			12	7.938	65.25	57.0	1×4 1×6	65100 92200	191000 286000
DFD 6320-3	20		9.525	65.75	56.0	1×3	83700	232000	
DFD 8010-4 DFD 8010-6	80		10	6.35	81.75	75.1	1×4 1×6	55100 78000	209000 314000
DFD 8012-4 DFD 8012-6			12	7.938	82.25	74.0	1×4 1×6	74000 105000	254000 381000
DFD 8020-3 DFD 8020-4		20	9.525	82.75	73.0	1×3 1×4	96600 124000	313000 417000	
DFD 10010-6		100	10	6.35	101.75	95.1	1×6	86200	401000
DFD 10012-6			12	7.938	102.25	94.0	1×6	117000	490000
DFD 10020-4	20		9.525	102.75	93.0	1×4	136000	526000	

Remarks 1. Flange comes in Circular I and Circular II shape. Select a flange that is suitable for the nut installation space.
2. If there is no seal, the nut length is shorter by the length of "M" than those with a seal.
3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions										
	<i>D</i>	<i>A</i>	<i>G</i>	<i>B</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>Q</i>
1170 1720	72	106	40	15	95 115	5	88	9	14	8.5	Rc1/8
1190 1750	72	106	40	15	112 136	6	88	9	14	8.5	Rc1/8
1180 1740	72	114	44	18	137 171	8	92	11	17.5	11	Rc1/8
914 1200 1770	72	114	44	18	143 163 205	10	92	11	17.5	11	Rc1/8
906 1200	75	121	47	22	171 195	12	97	14	20	13	Rc1/8
908	75	121	47	28	253	20	97	14	20	13	Rc1/8
1430 2110	85	127	48	18	118 142	6	105	11	17.5	11	Rc1/8
1460 2150	85	127	48	18	141 175	8	105	11	17.5	11	Rc1/8
1510 2210	85	131	50	22	172 214	10	107	14	20	13	Rc1/8
1480 2180	90	136	52	22	195 248	12	112	14	20	13	Rc1/8
1440	95	153	59	28	253	20	123	18	26	17.5	Rc1/8
1840 2710	105	151	57	22	172 214	10	127	14	20	13	Rc1/8
1860 2730	110	156	59	22	195 248	12	132	14	20	13	Rc1/8
1830 2410	115	173	66	28	253 297	20	143	18	26	17.5	Rc1/8
3270	125	171	64	22	214	10	147	14	20	13	Rc1/8
3320	130	188	71	28	254	12	158	18	26	17.5	Rc1/8
2890	135	205	79	32	301	20	169	22	32	21.5	Rc1/8

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_a*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



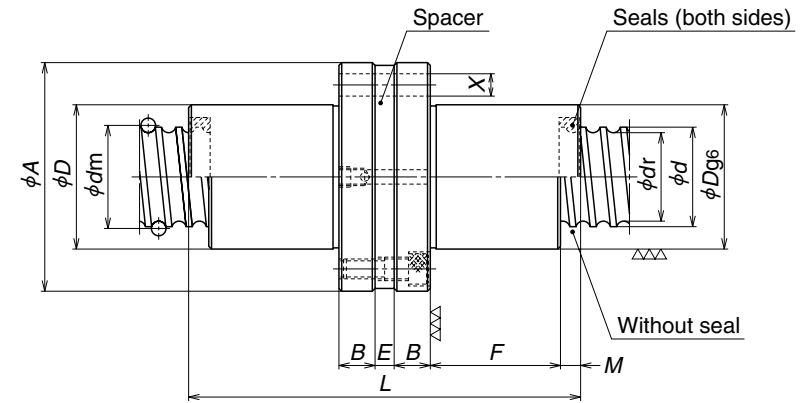
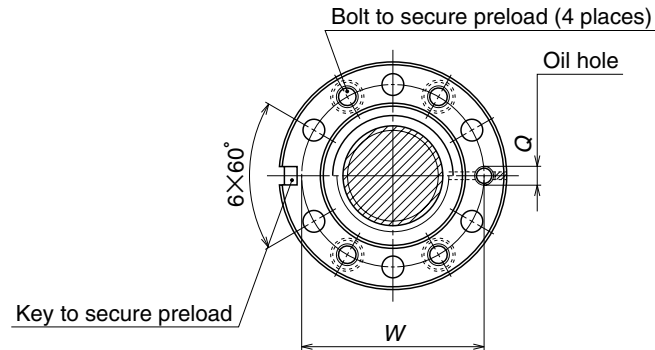
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
DFFD 2005-3 DFFD 2005-4	20	5	3.175	20.75	17.4	1×3 1×4	8620 11000	17500 23300
DFFD 2006-3 DFFD 2006-4		6	3.969	21.0	16.9	1×3 1×4	11100 14300	20600 27500
DFFD 2505-3 DFFD 2505-4	25	5	3.175	25.75	22.4	1×3 1×4	9790 12500	22900 30500
DFFD 2506-3 DFFD 2506-4		6	3.969	26.0	21.9	1×3 1×4	12900 16500	27300 36500
DFFD 3205-3 DFFD 3205-4 DFFD 3205-6	32	5	3.175	32.75	29.4	1×3 1×4 1×6	11100 14200 20200	30500 40700 61000
DFFD 3206-3 DFFD 3206-4 DFFD 3206-6		6	3.969	33.0	28.9	1×3 1×4 1×6	15000 19200 27200	37500 49900 74900
DFFD 3208-3 DFFD 3208-4		8	4.762	33.25	28.3	1×3 1×4	18300 23500	41800 55800
DFFD 3210-3 DFFD 3210-4		10	6.35	33.75	27.1	1×3 1×4	25900 33200	52800 70300
DFFD 4005-4 DFFD 4005-6	40	5	3.175	40.75	37.4	1×4 1×6	15800 22400	52300 78400
DFFD 4006-4 DFFD 4006-6		6	3.969	41.0	36.9	1×4 1×6	21300 30100	63500 95300
DFFD 4008-4 DFFD 4008-6		8	4.762	41.25	36.3	1×4 1×6	27200 38500	75200 113000
DFFD 4010-3 DFFD 4010-4		10	6.35	41.75	35.1	1×3 1×4	30000 38400	70000 93300

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions									
	<i>D</i>	<i>A</i>	<i>B</i>	<i>F</i>	<i>E</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Q</i>
386 509	35	58	11	30 35	8	100 110	5	46	5.5	M6×1
378 498	35	58	11	35 43	7	111 127	6	46	5.5	M6×1
479 630	40	63	11	30 35	8	100 110	5	51	5.5	M6×1
475 626	40	63	11	35 43	7	111 127	6	51	5.5	M6×1
600 784 1160	48	75	12	30 35 45	6	100 110 130	5	61	6.6	M6×1
613 806 1190	48	75	12	35 43 55	5	111 127 151	6	61	6.6	M6×1
591 777	50	84	15	44 53	5	139 157	8	66	9	M6×1
587 773	54	88	15	55 65	5	165 185	10	70	9	M6×1
962 1410	56	90	15	35 45 55	5 5 5	115 135 157	5	72	9	Rc1/8
973 1430	56	90	15	43 55	5 5	133 157	6	72	9	Rc1/8
989 1460	60	94	15	53 70	5 5	157 191	8	76	9	Rc1/8
738 972	62	104	18	55 65	9 9	175 195	10	82	11	Rc1/8

Remarks 1. If there is no seal, the nut length is shorter by the length of "2M" than those with a seal.
2. Right turn screw is standard. "L" is added to the end of the model code for left turn screw.

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



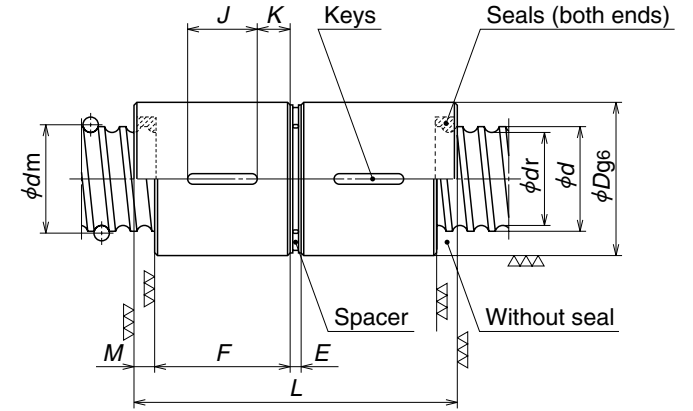
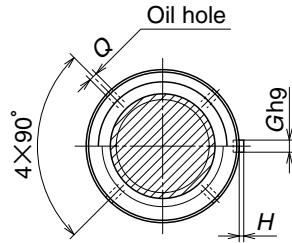
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
DFFD 5005-4 DFFD 5005-6	50	5	3.175	50.75	47.4	1×4 1×6	17500 24800	66800 100000
DFFD 5006-4 DFFD 5006-6		6	3.969	51.0	46.9	1×4 1×6	23600 33500	81700 122000
DFFD 5008-4 DFFD 5008-6		8	4.762	51.25	46.3	1×4 1×6	29900 42400	94800 142000
DFFD 5010-3 DFFD 5010-4 DFFD 5010-6		10	6.35	51.75	45.1	1×3 1×4 1×6	34100 43600 61800	91600 122000 183000
DFFD 5012-3 DFFD 5012-4		12	7.938	52.25	44.0	1×3 1×4	44800 57300	109000 146000
DFFD 6306-4 DFFD 6306-6		63	6	3.969	64.0	59.9	1×4 1×6	26100 36900
DFFD 6308-4 DFFD 6308-6	8		4.762	64.25	59.3	1×4 1×6	33600 47600	124000 186000
DFFD 6310-4 DFFD 6310-6	10		6.35	64.75	58.1	1×4 1×6	49700 70500	163000 244000
DFFD 6312-4 DFFD 6312-6	12		7.938	65.25	57.0	1×4 1×6	65100 92200	191000 286000
DFFD 8010-4 DFFD 8010-6	80	10	6.35	81.75	75.1	1×4 1×6	55100 78000	209000 314000
DFFD 8012-4 DFFD 8012-6		12	7.938	82.25	74.0	1×4 1×6	74000 105000	254000 381000
DFFD 8020-3 DFFD 8020-4		20	9.525	82.75	73.0	1×3 1×4	96600 124000	313000 417000
DFFD 10010-6 DFFD 10012-6 DFFD 10020-4	100	10	6.35	101.75	95.1	1×6	86200	401000
		12	7.938	102.25	94.0	1×6	117000	490000
		20	9.525	102.75	93.0	1×4	136000	526000

Remarks 1. If there is no seal, the nut length is shorter by the length of "2M" than those with a seal.
2. Right turn screw is standard. "L" is added to the end of the model code for left turn screw.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions									
	<i>D</i>	<i>A</i>	<i>B</i>	<i>F</i>	<i>E</i>	<i>L</i>	<i>M</i>	<i>W</i>	<i>X</i>	<i>Q</i>
1170 1720	66	100	15	35 45	5 5	115 135	5	82	9	Rc1/8
1190 1750	66	100	15	43 55	8 8	136 160	6	82	9	Rc1/8
1180 1740	70	112	18	53 70	7 7	165 199	8	90	11	Rc1/8
914 1200 1770	72	114	18	55 65 86	9 9 7	175 195 235	10	92	11	Rc1/8
906 1200	75	121	22	65 77	5 5	203 227	12	97	14	Rc1/8
1430 2110	80	122	18	43 55	8 8	142 166	6	100	11	Rc1/8
1460 2150	82	124	18	53 70	7 7	165 199	8	102	11	Rc1/8
1510 2210	85	131	22	65 86	11 9	205 245	10	107	14	Rc1/8
1480 2180	90	136	22	77 102	8 8	230 280	12	112	14	Rc1/8
1840 2710	105	151	22	65 86	11 9	205 245	10	127	14	Rc1/8
1860 2730	110	156	22	77 102	8 8	230 280	12	132	14	Rc1/8
1830 2410	115	173	28	98 120	9 10	301 346	20	143	18	Rc1/8
3270 3320	125 130	171 188	22 28	86 102	9 8	245 292	10 12	147 158	14 18	Rc1/8 Rc1/8
2890	135	205	32	120	12	356	20	169	22	Rc1/8

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



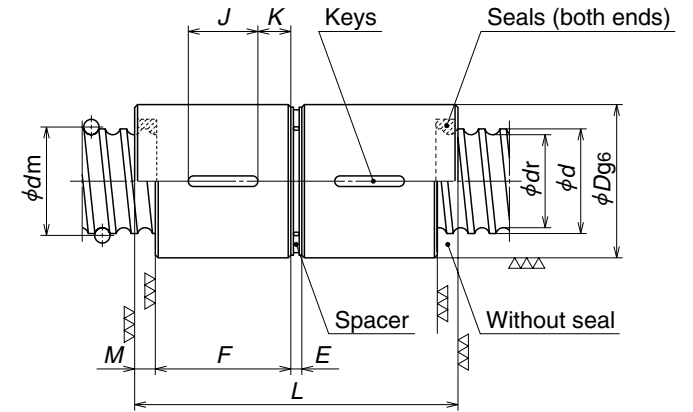
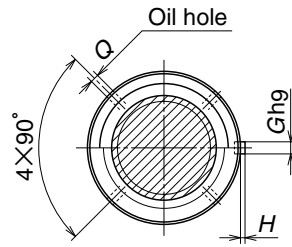
Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>
DCD 2005-3 DCD 2005-4	20	5	3.175	20.75	17.4	1×3 1×4	8620 11000	17500 23300
DCD 2006-3 DCD 2006-4		6	3.969	21.0	16.9	1×3 1×4	11100 14300	20600 27500
DCD 2505-3 DCD 2505-4	25	5	3.175	25.75	22.4	1×3 1×4	9790 12500	22900 30500
DCD 2506-3 DCD 2506-4		6	3.969	26.0	21.9	1×3 1×4	12900 16500	27300 36500
DCD 3205-3 DCD 3205-4 DCD 3205-6	32	5	3.175	32.75	29.4	1×3	11100	30500
1×4						14200	40700	
1×6		20200	61000					
DCD 3206-3 DCD 3206-4 DCD 3206-6		6	3.969	33.0	28.9	1×3	15000	37500
1×4	19200					49900		
DCD 3208-3 DCD 3208-4	8	4.762	33.25	28.3	1×3	18300	41800	
1×4					23500	55800		
DCD 3210-3 DCD 3210-4	10	6.35	33.75	27.1	1×3	25900	52800	
1×4					33200	70300		
DCD 4005-4 DCD 4005-6	40	5	3.175	40.75	37.4	1×4	15800	52300
1×6						22400	78400	
DCD 4006-4 DCD 4006-6		6	3.969	41.0	36.9	1×4	21300	63500
1×6						30100	95300	
DCD 4008-4 DCD 4008-6	8	4.762	41.25	36.3	1×4	27200	75200	
1×6					38500	113000		
DCD 4010-3 DCD 4010-4	10	6.35	41.75	35.1	1×3	30000	70000	
1×4					38400	93300		

Remarks 1. If there is no seal, the nut length is shorter by the length of "2M" than those with a seal.
 2. Right turn screw is standard. "L" is added to the end of the model code for left turn screw.
 3. Preload direction differs from that of other D preloaded items. The ball nuts are adjusted to a compressing preload. Apply a compressive load to the ball nuts when installing in the housing.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions									
	<i>D</i>	<i>F</i>	<i>E</i>	<i>L</i>	<i>M</i>	<i>J</i>	<i>K</i>	<i>G</i>	<i>H</i>	<i>Q</i>
386 509	35	30 35	5	75 85	5	20	5 7.5	4	1.5	3
378 498	35	35 43	5	87 103	6	20 25	7.5 9	4	1.5	3
479 630	40	30 35	5	75 85	5	20	5 7.5	4	1.5	3
475 626	40	35 43	5	87 103	6	20 25	7.5 9	4	1.5	3
600 784 1160	48	30 35 45	5	75 85 105	5	20	5 7.5 10	4	1.5	3
613 806 1190	48	35 43 55	5	87 103 127	6	20 25	7.5 9 13	4	1.5	3
591 777	50	44 53	5	109 127	8	25 25	9.5 14	5	2	3
587 773	54	55 65	5	135 155	10	25 32	15 16.5	5	2	3
962 1410	56	35 45	5	85 105	5	20 25	7.5 10	5	2	3
973 1430	56	43 55	5	103 127	6	25 25	9 13	5	2	3
989 1460	60	53 70	5	127 161	8	25 32	14 19	5	2	3
738 972	62	55 65	5	135 155	10	25 32	15 16.5	5	2	3

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.



Model No.	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D_w</i>	Ball circle dia. <i>d_m</i>	Root dia. <i>d_r</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		
							Dynamic <i>C_s</i>	Static <i>C_{0s}</i>	
DCD 5005-4 DCD 5005-6	50	5	3.175	50.75	47.4	1×4 1×6	17500 24800	66800 100000	
DCD 5006-4 DCD 5006-6		6	3.969	51.0	46.9	1×4 1×6	23600 33500	81700 122000	
DCD 5008-4 DCD 5008-6		8	4.762	51.25	46.3	1×4 1×6	29900 42400	94800 142000	
DCD 5010-4 DCD 5010-6		10	6.35	51.75	45.1	1×3 1×4 1×6	34100 43600 61800	91600 122000 183000	
DCD 5012-3 DCD 5012-4		12	7.938	52.25	44.0	1×3 1×4	44800 57300	109000 146000	
DCD 6306-4 DCD 6306-6		63	6	3.969	64.0	59.9	1×4 1×6	26100 36900	104000 157000
DCD 6308-4 DCD 6308-6			8	4.762	64.25	59.3	1×4 1×6	33600 47600	124000 186000
DCD 6310-4 DCD 6310-6			10	6.35	64.75	58.1	1×4 1×6	49700 70500	163000 244000
DCD 6312-4 DCD 6312-6			12	7.938	65.25	57.0	1×4 1×6	65100 92200	191000 286000
DCD 8010-4 DCD 8010-6		80	10	6.35	81.75	75.1	1×4 1×6	55100 78000	209000 314000
DCD 8012-4 DCD 8012-6			12	7.938	82.25	74.0	1×4 1×6	74000 105000	254000 381000
DCD 8020-3 DCD 8020-4			20	9.525	82.75	73.0	1×3 1×4	96600 124000	313000 417000
DCD 10010-6 DCD 10012-6 DCD 10020-4	100		10	6.35	101.75	95.1	1×6	86200	401000
		12	7.938	102.25	94.0	1×6	117000	490000	
		20	9.525	102.75	93.0	1×4	136000	526000	

Remarks 1. If there is no seal, the nut length is shorter by the length of "2M" than those with a seal.
 2. Right turn screw is standard. "L" is added to the end of the model code for left turn screw.
 3. Preload direction differs from that of other D preloaded items. The ball nuts are adjusted to a compressing preload. Apply a compressive load to the ball nuts when installing in the housing.

Unit: mm

Axial rigidity <i>K</i> (N/μm)	Ball nut dimensions									
	<i>D</i>	<i>F</i>	<i>E</i>	<i>L</i>	<i>M</i>	<i>J</i>	<i>K</i>	<i>G</i>	<i>H</i>	<i>Q</i>
1170 1720	66	35 45	5	85 105	5 5	20 25	7.5 10	5	2	3
1190 1750	66	43 55	5	103 127	6 6	25 25	9 13	5	2	3
1180 1740	70	53 70	5	127 161	8 8	25 32	14 19	5	2	3
914 1200 1770	72	55 65 86	5	135 155 197	10 10 10	25 32 40	15 16.5 23	5	2	3
906 1200	75	65 77	7	161 185	12 12	32 40	16.5 18.5	5	2	4
1430 2110	80	43 55	8	106 130	6 6	25 25	9 15	6	2.5	4
1460 2150	82	53 70	9	131 165	8 8	25 32	14 19	6	2.5	4
1510 2210	85	65 86	10	160 202	10 10	32 40	16.5 23	6	2.5	4
1480 2180	90	77 102	7 10	185 238	12 12	40 40	18.5 31	6	2.5	4
1840 2710	105	65 86	10	160 202	10 10	32 40	16.5 23	8	3	4
1860 2730	110	77 102	7 10	185 238	12 12	40 40	18.5 31	8	3	4
1830 2410	115	98 120	9	245 289	20 20	50 50	24 35	8	3	4
3270	125	86	10	202	10	40	23	8	3	4
3320	130	102	10	238	12	40	31	10	3	4
2890	135	120	9	289	20	50	35	10	3	4

4. Rigidity in the Table is theoretical value obtained from the elastic deformation between screw groove and ball when the preload is 10% of the basic dynamic load rating (*C_s*), and axial load is applied to it. Refer to "Technical Description" (Page B521) if preload differs from the conditions above, or when considering change in the deformation of the ball nut itself.