

### B-3-3.2 Return Tube Type Ball Screw

#### 1. Features

Return tube type is standard recirculation system for ball screws. It has various combinations of shaft dia. and lead.

#### 2. Specifications

##### (1) Recirculation system

The structure of return tube recirculation system is shown below.

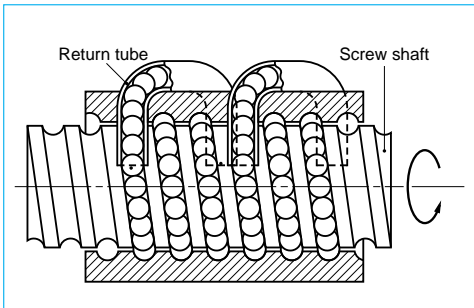


Fig.1 Structure of return tube recirculation system

##### (2) Accuracy grade and axial play

The available standard accuracy grade and axial play are shown in Table 1. Please consult NSK for other grades.

##### (3) Allowable d-n value and the criterion of maximum rotational speed

Allowable d-n value and the criterion of maximum rotational speed are shown below. Please consult NSK if the rotational speed exceeds the permissible range below. Basic measure must be taken for the high speed ball screws respectively.

Allowable d-n value :

Standard specification : 70000 or less

High-speed specification; 100000 or less

Standard of rotational speed : 3000 min<sup>-1</sup>

Note: Please also review the critical speed. Refer to "Technical Description: Permissible rotational speed" (Page B51) for details.

##### (4) Other specifications

Please consult NSK for other specifications not listed in the dimension tables.

#### 3. Product categories

There are four different preloaded systems with several models. Since the leads are in the range from 1/2 to the same length of the shaft diameter (medium-high helix lead), LSFT, LPFT, LDFT Type ball screws are suitable for high-speed operation.

Table 1 Accuracy grade and axial play

Accuracy grade	SFT, PFT, ZFT, DFT: C0, C1, C2, C3, C5, Ct7 LSFT, LPFT, LDFT: C1, C2, C3, C5, Ct7 (Ct7 is not included in DFT, LDFT)
Axial play	Z, 0 mm (Preload); T, 0.005 mm or less S, 0.020 mm or less; N, 0.050 mm or less

Table 2 Return tube type ball screws product categories

Nut model	Shape	Flange shape	Nut shape	Preload system
SFT		Flanged d=16mm or under	Circle dia.	Non-preload, Slight axial play
PFT		Rectangle d=20mm or over Circular I, II		P preload (light preload) Spacer ball 1:1
ZFT		Flanged Circular I, II	Circle dia.	Z preload (medium preload)

Nut model	Shape	Flange shape	Nut shape	Preload system
DFT		Flanged Circular I, II	Circular	D preload (medium preload) (heavy preload)
LSFT		Flanged d=20mm or under	d=20mm or under Circular	Non-preload, Slight axial play
LPFT		Rectangle d=25mm or over Circular II	d=25mm or over Tube- projecting type	
LDFT		Flanged Circular II	Circular	D preload (medium preload) (heavy preload)

#### 4. Example of model number in dimension tables

A structure of "Model number" and "Reference number for ball screw" are as follows.

##### ◇ Model number

**SFT 14 05 - 2.5**

Nut model:  
SFT, PFT, ZFT, DFT  
LSFT, LPFT, LDFT

Screw shaft diameter (mm)

Effective turns of balls (Note)

Lead (mm)

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

##### ◇ Reference number for ball screw

**W 14 01 - \*\* P - C3 Z 5**

Product code

Screw shaft diameter (mm)

Effective threaded length (in the unit of 100 mm)

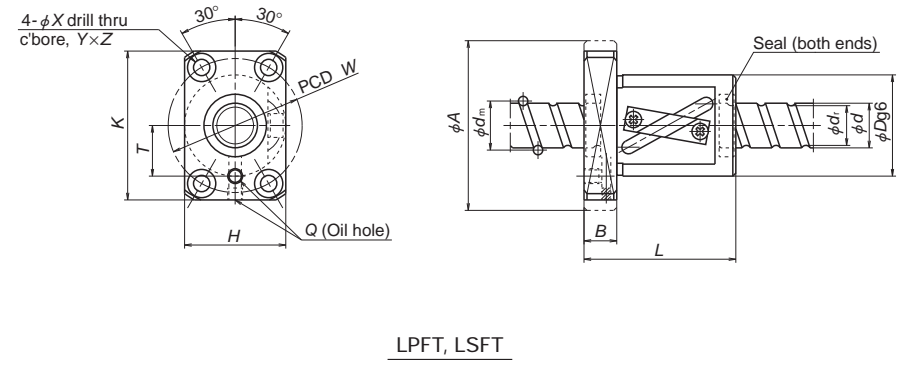
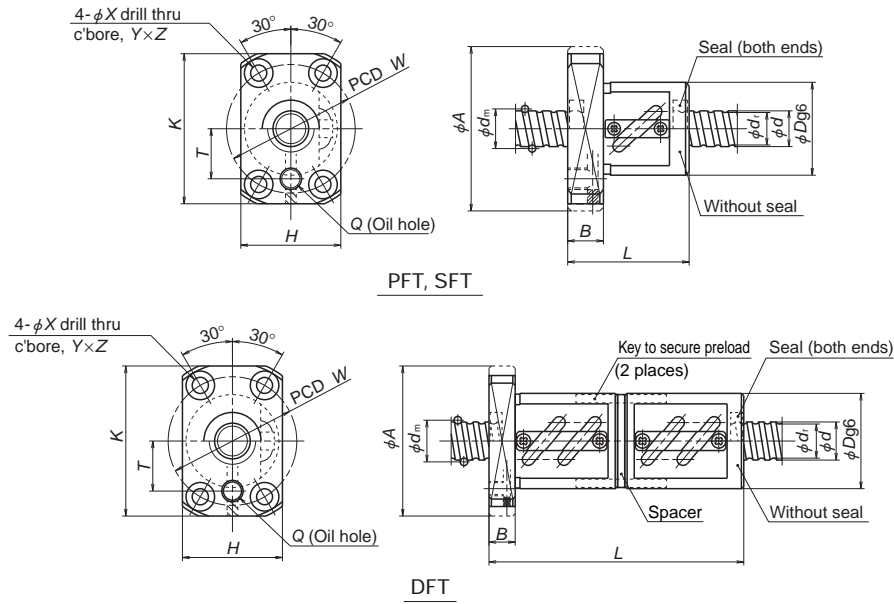
NSK design serial number

Preload code:  
No code, non-preload; P, P preload  
Z, Z preload; D, D preload

Lead (mm)

Axial play code: Z, T, S, N

Accuracy grade code:  
C0, C1, C2, C3, C5, C7 (Ct7)



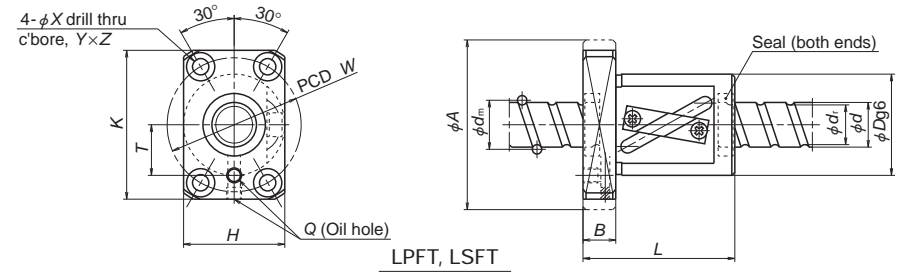
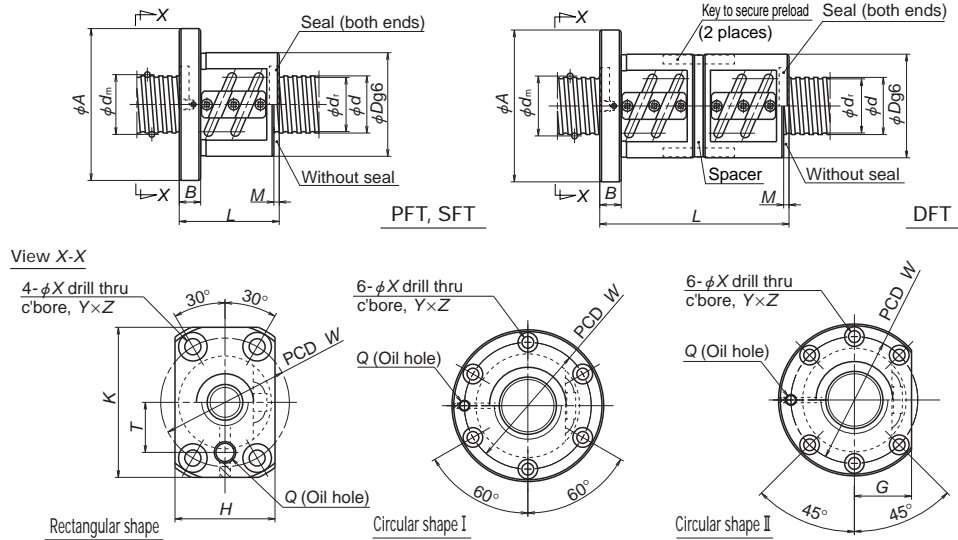
Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)
								Dynamic <i>C<sub>a</sub></i>	Static <i>C<sub>0a</sub></i>	
* PFT 1004-2.5 SFT 1004-2.5	P Clearance	10	4	2.000	10.3	8.2	2.5×1	1730 2740	2230 4450	76 90
PFT 1204-2.5 PFT 1204-3 SFT 1204-2.5 SFT 1204-3	P Clearance Clearance	12	4	2.381	12.3	9.8	2.5×1	2370	3160	89
1.5×2	2770						3790	106		
2.5×1	3760						6310	106		
1.5×2	4390						7580	126		
* PFT 1205-2.5 PFT 1205-3 SFT 1205-2.5 SFT 1205-3	P Clearance Clearance	12	5	2.381	12.3	9.8	2.5×1	2370	3160	89
1.5×2	2770						3790	106		
2.5×1	3760						6310	106		
1.5×2	4390						7580	126		
* LPFT 1210-2.5 LSFT 1210-2.5	P Clearance	10	10	2.381	12.5	10.0	2.5×1	2360 3750	3240 6480	90 110
* PFT 1405-2.5 SFT 1405-2.5 PFT 1405-5 SFT 1405-5	P Clearance Clearance	14	5	3.175	14.5	11.2	2.5×1	4280	5840	116
2.5×1	6790						11700	140		
2.5×2	7770						11700	225		
2.5×2	12300						23400	274		
* LPFT 1408-2.5 LSFT 1408-2.5	P Clearance	8	8	3.175	14.5	11.2	2.5×1	4280 6790	5840 11700	120 140
* LPFT 1510-2.5 LSFT 1510-2.5	P Clearance	15	10	3.175	15.5	12.2	2.5×1	4450 7070	6380 12800	127 150
PFT 1604-3 SFT 1604-2.5 DFT 1604-2.5 PFT 1604-5 SFT 1604-3 DFT 1604-3	P Clearance D P Clearance D	16	4	2.381	16.3	13.8	1.5×2	3170	5150	135
2.5×1	4300						8530	134		
2.5×1	4300						8530	263		
2.5×2	4920						8530	215		
1.5×2	5040						10300	160		
1.5×2	5040						10300	315		

- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape.  
 2. Seals are equipped as a standard for LSFT and LPFT of shaft diameter 12 mm or smaller. The outside dimensions are the same as those of without seals.  
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions											
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Rectangle flanged diameter			Bolt hole dimension			Oil hole length <i>T</i>	Oil hole <i>O</i>
				<i>H</i>	<i>K</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	Bolt hole PCD <i>W</i>		
34	26	46	10	28	42	4.5	8	4.5	36	14	M6×1
38	30	50	10	32	45	4.5	8	4.5	40	15	M6×1
44											
38											
44											
40	30	50	10	32	45	4.5	8	4.5	40	15	M6×1
48											
40											
48											
50	30	50	10	32	45	4.5	8	4.5	40	15	M6×1
40	34	57	11	34	50	5.5	9.5	5.5	45	17	M6×1
40											
55											
55											
46	34	57	11	34	50	5.5	9.5	5.5	45	17	M6×1
51	34	57	11	34	50	5.5	9.5	5.5	45	17	M6×1
45	34	57	11	34	50	5.5	9.5	5.5	45	17	M6×1
38											
70											
50											
45											
45											
85											
36											

- Remarks: 4. The axial rigidity in the table above is a 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<sub>a</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 6. The models marked with \* are in FA type of standard ball screw with finished shaft end.  
 7. Preload system: P, Oversize ball preload; D, Double nut preload (Refer to Page B5)



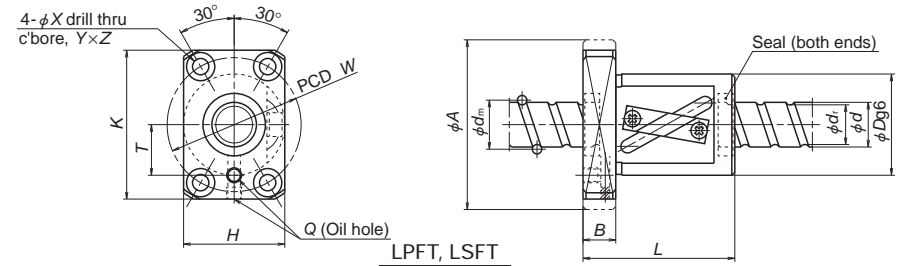
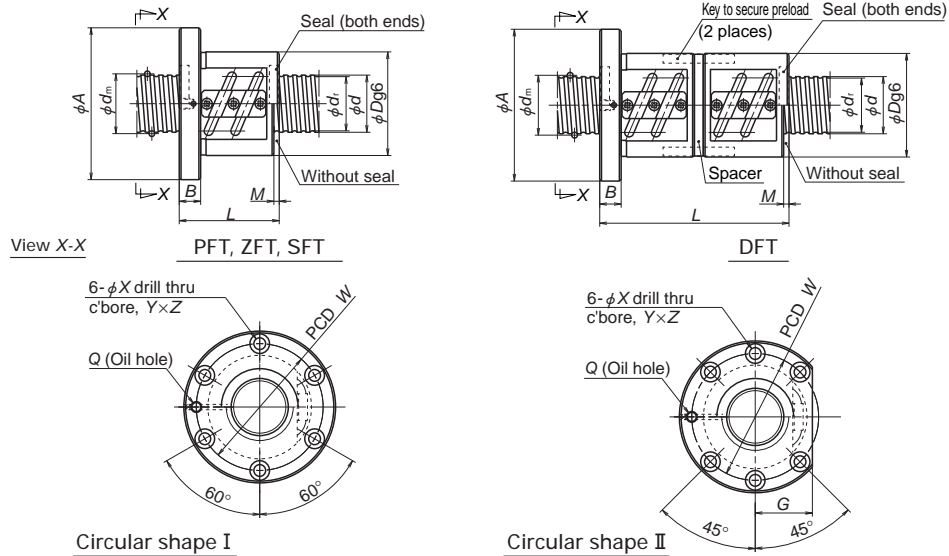
Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)
								Dynamic <i>C<sub>a</sub></i>	Static <i>C<sub>0a</sub></i>	
PFT 1605-3	P	16	5	3.175	16.5	13.2	1.5×2	5400	8100	158
SFT 1605-2.5	Clearance						2.5×1	7330	13500	158
DFT 1605-2.5	D						2.5×1	7330	13500	311
PFT 1605-5	P						2.5×2	8380	13500	258
SFT 1605-3	Clearance						1.5×2	8570	16200	188
DFT 1605-3	D						1.5×2	8570	16200	370
SFT 1605-5	Clearance		2.5×2	13300	27000	307				
DFT 1605-5	D		2.5×2	13300	27000	603				
* PFT 1606-2.5	P		6	3.175	16.5	13.2	2.5×1	4620	6750	133
SFT 1606-2.5	Clearance						2.5×1	7330	13500	158
DFT 1606-2.5	D						2.5×1	7330	13500	311
SFT 1606-3	Clearance						1.5×2	8570	16200	188
DFT 1606-3	D	1.5×2					8570	16200	370	
* LPFT 1616-1.5	P	16					3.175	16.75	13.4	1.5×1
LSFT 1616-1.5	Clearance		1.5×1	4710	8110	100				
SFT 2004-2.5	Clearance	20	4	2.381	20.3	17.8	2.5×1	4740	10700	160
DFT 2004-2.5	D						2.5×1	4740	10700	315
* PFT 2004-5	P						2.5×2	5420	10700	260
SFT 2004-5	Clearance						2.5×2	8600	21500	309
DFT 2004-5	D						2.5×2	8600	21500	608
PFT 2005-3	P						5	3.175	20.5	17.2
SFT 2005-2.5	Clearance	2.5×1	8230	17100	190					
DFT 2005-2.5	D	2.5×1	8230	17100	376					
* PFT 2005-5	P	2.5×2	9410	17100	311					
SFT 2005-3	Clearance	1.5×2	9620	20600	227					
DFT 2005-3	D	1.5×2	9620	20600	446					
SFT 2005-5	Clearance	2.5×2	14900	34300	370					
DFT 2005-5	D	2.5×2	14900	34300	726					

- Remarks:
- Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.
  - If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".
  - Seals are equipped as a standard for LSFT and LPFT of shaft diameter 12 mm or smaller. The outside dimensions are the same as those of without seals.
  - The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Rectangle flanged diameter		Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole length <i>T</i>	Oil hole <i>Q</i>
					<i>H</i>	<i>K</i>		<i>X</i>	<i>Y</i>	<i>Z</i>			
52	40	63	11	—	40	55	—	5.5	9.5	5.5	51	20	M6×1
42													
77													
57													
52													
97													
57	40	63	11	—	40	55	—	5.5	9.5	5.5	51	20	M6×1
107													
44													
86													
56													
110													
56	40	63	12	—	40	55	—	5.5	9.5	5.5	51	17	M6×1
56													
37													
69													
49													
93													
52	44	67	11	26	—	—	3	5.5	9.5	5.5	55	—	M6×1
41													
76													
56													
52													
97													
56													
106													

- Remarks:
- The axial rigidity in the table above is a 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<sub>a</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.
  - For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.
  - The models marked with \* are in FA or SA type of standard ball screw with finished shaft end.
  - Preload system: P, Oversize ball preload; D, Double nut preload (Refer to Page B5)



Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)								
								Dynamic <i>C<sub>a</sub></i>	Static <i>C<sub>0a</sub></i>									
PFT 2006-2.5	P	20	6	3.969	20.5	16.4	2.5x1	6900	10500	164								
PFT 2006-3	P						1.5x2	8080	12700	195								
SFT 2006-2.5	Clearance D						2.5x1	11000	21100	195								
DFT 2006-2.5	D						2.5x1	11000	21100	384								
SFT 2006-3	Clearance D						1.5x2	12800	25300	232								
DFT 2006-3	D						1.5x2	12800	25300	456								
PFT 2008-2.5	P		8	3.969	20.5	16.4	2.5x1	6900	10500	164								
SFT 2008-2.5	P						2.5x1	11000	21100	195								
DFT 2008-2.5	Clearance D						2.5x1	11000	21100	384								
SFT 2008-3	Clearance D						1.5x2	12800	25300	232								
DFT 2008-3	D						1.5x2	12800	25300	456								
* LPFT 2010-2.5	P						10	3.969	21.0	16.9	2.5x1	6800	10800	169				
LSFT 2010-2.5	Clearance	2.5x1	10900	21700	202													
LPFT 2016-2.5	P	16	3.969	21.0	16.9	2.5x1					6880	10800	169					
LSFT 2016-2.5	Clearance					2.5x1					10900	21700	202					
* LPFT 2020-1.5	P					20					3.969	21.0	16.9	1.5x1	5370	8450	137	
LSFT 2020-1.5	Clearance													1.5x1	7040	12700	127	
SFT 2504-2.5	Clearance Z						25	4	2.381	25.3				22.8	2.5x1	5270	13600	193
ZFT 2504-5	Z														2.5x1	5270	13600	379
* PFT 2504-5	P	2.5x2	6020	13600	312													
SFT 2504-5	Clearance Z	2.5x2	9560	27200	374													
ZFT 2504-10	Z	2.5x2	9560	27200	735													
PFT 2505-3	P	5	3.175	25.5	22.2	1.5x2					6730	12800	223					
SFT 2505-2.5	Clearance Z					2.5x1		9130	21900	231								
ZFT 2505-5	Z					2.5x1		9130	21900	454								
* PFT 2505-5	P					2.5x2		10400	21900	372								
SFT 2505-3	Clearance D					1.5x2		10700	25700	271								
DFT 2505-3	D					1.5x2		10700	25700	532								
SFT 2505-5	Clearance Z	50	73	11	28	—		—	—	3	5.5	9.5	5.5	61	—	M6x1		
SFT 2505-3	Clearance D						52											
DFT 2505-3	D						102											
SFT 2505-5	Clearance Z	55	73	11	28	—	—	—	3	5.5	9.5	5.5	61	—	M6x1			
SFT 2505-3	Clearance D															55		
ZFT 2505-10	Z															85		

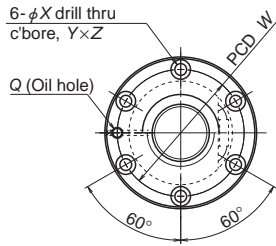
- Remarks:
- Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.
  - If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".
  - Seals are equipped as a standard for LPFT and LSFT of shaft diameter 12 mm or smaller. The outside dimensions are the same as those of without seals.
  - The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions													
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Rectangle flanged diameter <i>H</i>	<i>K</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole length <i>T</i>	Oil hole <i>Q</i>
<i>L</i>	<i>D</i>	<i>A</i>	<i>B</i>	<i>G</i>	<i>H</i>	<i>K</i>	<i>M</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>W</i>	<i>T</i>	<i>Q</i>
44	48	71	11	27	—	—	3	5.5	9.5	5.5	59	—	M6x1
56													
110													
54													
54													
102													
64	48	75	13	28	—	—	5	6.6	11	6.5	61	—	M6x1
64													
120													
54													
54													
72													
72	46	74	13	—	46	66	—	6.6	11	6.5	59	24	M6x1
63													
63													
36													
48													
48													
48	46	69	11	26	—	—	3	5.5	9.5	5.5	57	—	M6x1
48													
72													
52													
40													
55													
55	50	73	11	28	—	—	3	5.5	9.5	5.5	61	—	M6x1
55													
52													
102													
55													
85													

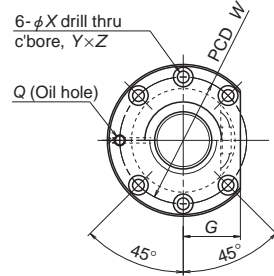
- Remarks:
- The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.
  - For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.
  - The models marked with \* are in FA or SA type of standard ball screw with finished shaft end.
  - Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

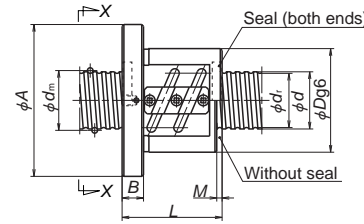
View X-X



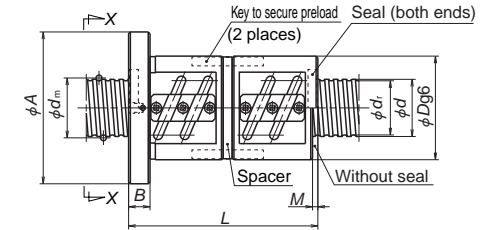
Circular shape I



Circular shape II



PFT, ZFT, SFT



DFT

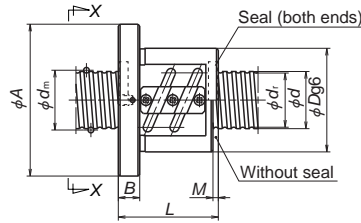
Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns $\times$ Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/ $\mu$ m)					
								Dynamic <i>C<sub>a</sub></i>	Static <i>C<sub>0a</sub></i>						
PFT 2506-3	P	25	6	3.969	25.5	21.4	1.5 $\times$ 2	9070	16100	235					
SFT 2506-2.5	Clearance Z						2.5 $\times$ 1	12300	26800	235					
ZFT 2506-5	P						2.5 $\times$ 1	12300	26800	462					
* PFT 2506-5	P						2.5 $\times$ 2	14100	26800	383					
SFT 2506-3	Clearance D						1.5 $\times$ 2	14400	32100	280					
DFT 2506-3	D						1.5 $\times$ 2	14400	32100	551					
SFT 2506-5	Clearance Z						2.5 $\times$ 2	22300	53500	456					
ZFT 2506-10	Z						2.5 $\times$ 2	22300	53500	896					
PFT 2508-2.5	P						25	8	4.762	25.5	20.5	2.5 $\times$ 1	9940	16000	203
PFT 2508-3	P											1.5 $\times$ 2	11600	19000	234
SFT 2508-2.5	Clearance Z	2.5 $\times$ 1	15800	32000	242										
ZFT 2508-5	Z	2.5 $\times$ 1	15800	32000	476										
SFT 2508-3	Clearance D	1.5 $\times$ 2	18500	38100	286										
DFT 2508-3	D	1.5 $\times$ 2	18500	38100	562										
PFT 2510-2.5	P	25	10	4.762	25.5	20.5						2.5 $\times$ 1	9940	16000	203
ZFT 2510-3	Z											1.5 $\times$ 1	10200	19000	291
PFT 2510-3	P											1.5 $\times$ 2	11600	19000	234
SFT 2510-2.5	Clearance Z											2.5 $\times$ 1	15800	32000	242
DFT 2510-2.5	D						2.5 $\times$ 1	15800	32000	475					
SFT 2510-3	Clearance D						1.5 $\times$ 2	18500	38100	286					
DFT 2510-3	D						1.5 $\times$ 2	18500	38100	562					
SFT 2510-3.5	Clearance Z						3.5 $\times$ 1	21100	44200	330					
DFT 2510-3.5	D						3.5 $\times$ 1	21100	44200	649					

Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

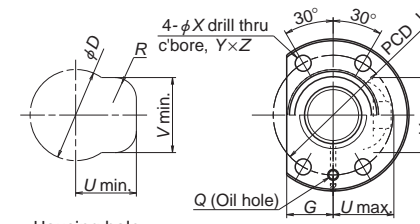
Unit: mm

Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>
						<i>X</i>	<i>Y</i>	<i>Z</i>		
56	53	76	11	29	3	5.5	9.5	5.5	64	M6 $\times$ 1
44										
62										
62										
56										
110										
62										
98										
56	58	85	13	32	5	6.6	11	6.5	71	M6 $\times$ 1
69										
56										
80										
69										
133										
67										
81	58	85	15	32	8	6.6	11	6.5	71	M6 $\times$ 1
81										
81										
67										
127										
81										
151										
77										
147										

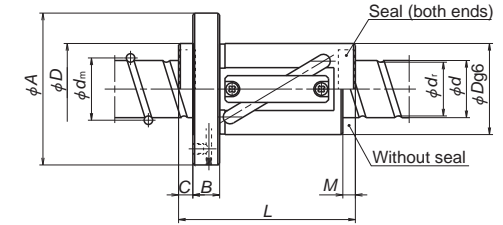
Remarks: 4. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C<sub>a</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
6. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)



PFT, ZFT, SFT

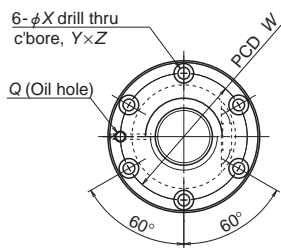


Housing hole and its clearance

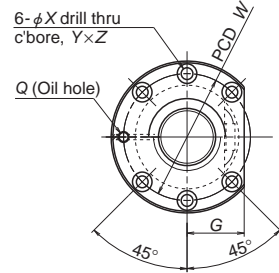


LPFT, LSFT

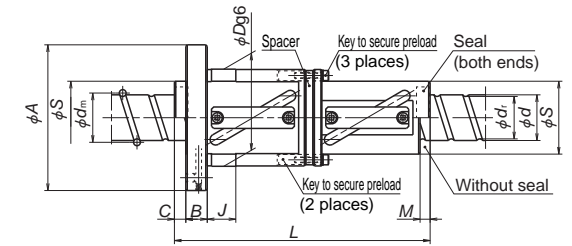
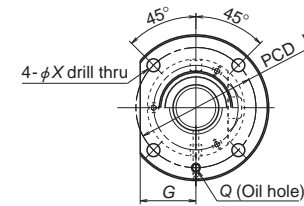
View X-X



Circular shape I



Circular shape II



LDFT

Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>t</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)	Nut entire length <i>L</i>	
								Dynamic <i>C<sub>0</sub></i>	Static <i>C<sub>0s</sub></i>			
LPFT 2516-2.5	P	25	16	4.762	26.25	21.3	2.5×1	9900	16400	210	84	
LPFT 2516-3	P						1.5×2	11600	19100	247	100	
LSFT 2516-2.5	Clearance D						2.5×1	15700	32800	250	84	
LDFT 2516-2.5	Clearance D						2.5×1	15700	32800	490	152	
LSFT 2516-3	Clearance D						1.5×2	18400	38200	295	100	
LDFT 2516-3	Clearance D						1.5×2	18400	38200	577	181	
* LPFT 2520-2.5	P		20	16	4.762	26.25	21.3	2.5×1	9900	16400	210	96
LPFT 2520-3	P							1.5×2	11600	19100	247	116
LSFT 2520-2.5	Clearance D							2.5×1	15700	32800	250	96
LDFT 2520-2.5	Clearance D							2.5×1	15700	32800	490	177
LSFT 2520-3	Clearance D							1.5×2	18400	38200	295	116
LDFT 2520-3	Clearance D							1.5×2	18400	38200	577	217
* LPFT 2525-1.5	P	28	5	3.175	28.5	25.2	2.5×1	6380	9540	127	90	
LDFT 2525-1.5	D						1.5×1	10100	19100	308	166	
LSFT 2525-1.5	Clearance						2.5×2	10100	19100	157	90	
SFT 2805-2.5	Clearance Z	28	5	3.175	28.5	25.2	2.5×1	9600	24400	252	41	
ZFT 2805-5	Z						2.5×1	9600	24400	495	56	
PFT 2805-5	P						2.5×2	11000	24400	410	56	
SFT 2805-5	Clearance Z						2.5×2	17400	48800	487	56	
* ZFT 2805-10	Z						2.5×2	17400	48800	959	86	

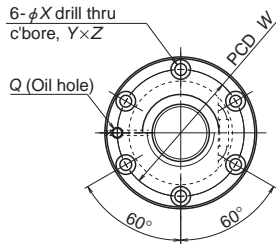
- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, ZFT, and SFT, the nut length "L" is shortened by dimension "M".  
 3. If there is no seal for LSFT and LDFT of shaft diameter 25 mm or larger, the nut length "L" is shortened by dimension "M" and "C".  
 4. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions															
Nut diameter		Flanged diameter	Flanged width	Notched flange	Tube projecting type			Seal dimension		Diameter g6	Bolt hole dimension			Bolt hole PCD	Oil hole
<i>D</i>	<i>S</i>	<i>A</i>	<i>B</i>	<i>G</i>	<i>U</i>	<i>V</i>	<i>R</i>	<i>M</i>	<i>C</i>	<i>J</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>W</i>	<i>Q</i>
44	—	71	—	23	31	35	12	—	—	—	—	—	—	57	—
44	—	71	—	23	31	35	12	—	—	—	—	—	—	57	—
44	—	71	12	23	31	35	12	6	8	—	6.6	—	—	57	M6×1
62	44	89	—	34	—	—	—	—	—	18	—	—	—	75	—
44	—	71	—	23	31	35	12	—	—	—	—	—	—	57	—
62	44	89	—	34	—	—	—	—	—	18	6.6	—	—	57	M6×1
44	—	71	12	23	31	35	12	7	8	—	—	—	—	75	—
62	44	89	—	34	—	—	—	—	—	18	—	—	—	75	—
44	—	71	—	23	32	34	12	—	—	—	—	—	—	57	—
62	44	89	12	34	—	—	—	10	10	18	6.6	—	—	75	M6×1
44	—	71	—	23	32	34	12	—	—	—	—	—	—	57	—
55	—	85	12	31	—	—	—	3	—	—	6.6	11	6.5	69	M6×1

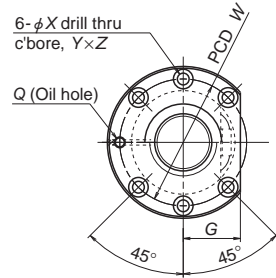
- Remarks: 5. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C<sub>0</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 6. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 7. The models marked with \* are in FA and SA type of standard ball screw with finished shaft end.  
 8. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

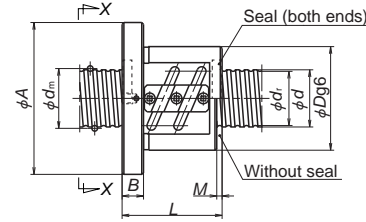
View X-X



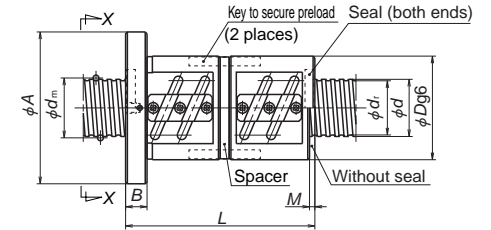
Circular shape I



Circular shape II



PFT, ZFT, SFT



DFT

Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)				
								Dynamic <i>C<sub>a</sub></i>	Static <i>C<sub>0a</sub></i>					
PFT 2806-3	P	28	6	3.175	28.5	25.2	1.5×2	7080	14600	252				
SFT 2806-2.5	Clearance						2.5×1	9600	24400	252				
ZFT 2806-5	Z						2.5×1	9600	24400	495				
PFT 2806-5	P						2.5×2	11000	24400	410				
SFT 2806-3	Clearance						1.5×2	11200	29300	300				
DFT 2806-3	D						1.5×2	11200	29300	590				
SFT 2806-5	Clearance						2.5×2	17400	48800	487				
* ZFT 2806-10	Z						2.5×2	17400	48800	959				
PFT 2810-2.5	P						10	4.762	28.5	23.5	2.5×1	10500	18000	220
ZFT 2810-3	Z										1.5×1	10800	21500	320
PFT 2810-3	P	1.5×2	12300	21500	265									
SFT 2810-2.5	Clearance	2.5×1	16700	36100	265									
DFT 2810-2.5	D	2.5×1	16700	36100	522									
SFT 2810-3	Clearance	1.5×2	19500	43000	314									
DFT 2810-3	D	1.5×2	19500	43000	618									
SFT 3204-2.5	Clearance	32	4	2.381	32.3	29.8					2.5×1	5800	17500	234
ZFT 3204-5	Z										2.5×1	5800	17500	461
PFT 3204-5	P										2.5×2	6630	17500	382
SFT 3204-5	Clearance						2.5×2	10500	35100	454				
ZFT 3204-10	Z						2.5×2	10500	35100	892				
PFT 3205-3	P						1.5×2	7490	16800	281				
SFT 3205-2.5	Clearance						2.5×1	10200	28000	281				
ZFT 3205-5	Z						2.5×1	10200	28000	552				
* PFT 3205-5	P						2.5×2	11600	28000	455				
SFT 3205-3	Clearance						1.5×2	11900	33600	333				
DFT 3205-3	D	1.5×2	11900	33600	655									
PFT 3205-7.5	P	2.5×3	16500	42100	672									
SFT 3205-5	Clearance	2.5×2	18500	56100	543									
* ZFT 3205-10	Z	2.5×2	18500	56100	1070									
SFT 3205-7.5	Clearance	2.5×3	26200	84100	799									
DFT 3205-7.5	D	2.5×3	26200	84100	1572									

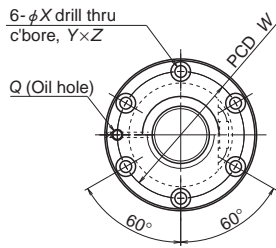
Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions																				
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>										
						<i>X</i>	<i>Y</i>	<i>Z</i>												
57	55	85	12	31	3	6.6	11	6.5	69	M6×1										
45																				
63																				
63																				
57																				
111																				
63																				
99																				
68											60	94	15	36	7	9	14	8.5	76	M6×1
82																				
82																				
68																				
128																				
82																				
152																				
37	54	81	12	31	3	6.6	11	6.5	67	M6×1										
49																				
49																				
49																				
73																				
53											58	85	12	32	3	6.6	11	6.5	71	M6×1
41																				
56																				
56																				
53																				
103																				
71																				
56																				
86																				
71																				
136																				

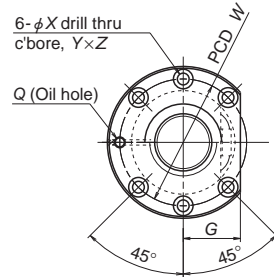
Remarks: 4. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C<sub>a</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
6. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

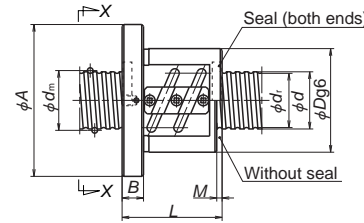
View X-X



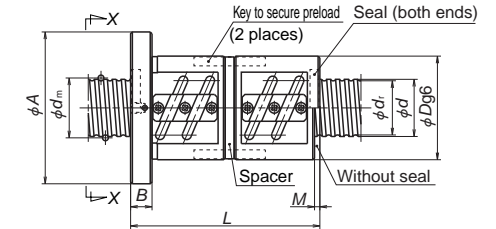
Circular shape I



Circular shape II



PFT, ZFT, SFT



DFT

Unit: mm

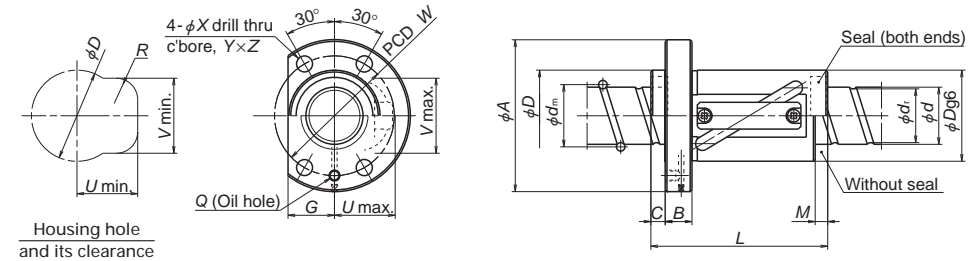
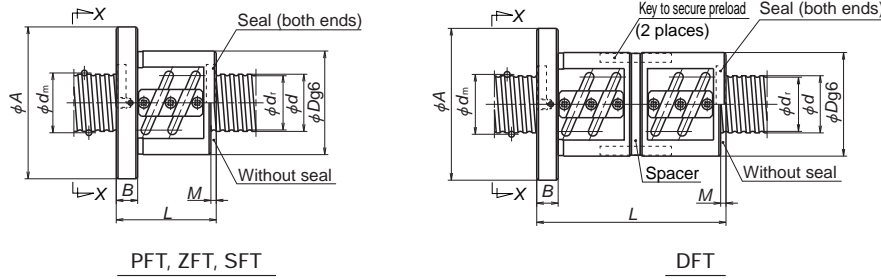
Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)	
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>0a</sub></i>		
PFT 3206-3	P	32	6	3.969	32.5	28.4	1.5×2	10000	20600	285	
SFT 3206-2.5	Clearance Z						2.5×1	13600	34700	287	
ZFT 3206-5	P						2.5×1	13600	34700	563	
PFT 3206-5	P						2.5×2	15500	34700	468	
SFT 3206-3	Clearance Z						1.5×2	15900	41200	339	
DFT 3206-3	D						1.5×2	15900	41200	666	
SFT 3206-5	Clearance Z		2.5×2	24700	69400	555					
ZFT 3206-10	Z		2.5×2	24700	69400	1090					
PFT 3208-3	P		32	8	4.762	32.5	27.5	1.5×2	12900	24800	294
SFT 3208-2.5	Clearance Z							2.5×1	17500	41000	292
ZFT 3208-5	P							2.5×1	17500	41000	573
PFT 3208-5	P							2.5×2	20000	41000	470
SFT 3208-3	Clearance Z	1.5×2						20400	49500	349	
ZFT 3208-6	Z	1.5×2						20400	49500	686	
SFT 3208-5	Clearance D	2.5×2		31700	82000	565					
DFT 3208-5	D	2.5×2		31700	82000	1110					
PFT 3210-2.5	P	32		10	6.35	33.0	26.4	2.5×1	16100	27000	255
ZFT 3210-3	Z							1.5×1	16400	32400	365
PFT 3210-3	P							1.5×2	18800	32400	303
SFT 3210-2.5	Clearance Z							2.5×1	25500	54000	302
ZFT 3210-5	P		2.5×1					25500	54000	594	
PFT 3210-5	P		2.5×2					29200	54000	494	
SFT 3210-3	Clearance D		1.5×2	29900	64800	360					
DFT 3210-3	D		1.5×2	29900	64800	707					
SFT 3210-3.5	Clearance D		3.5×1	34100	77000	422					
DFT 3210-3.5	D		3.5×1	34100	77000	829					
SFT 3210-5	Clearance D		2.5×2	46300	108000	585					
DFT 3210-5	D		2.5×2	46300	108000	1150					
PFT 3212-2.5	P	32	12	6.35	33.0	26.4	2.5×1	16100	27000	255	
ZFT 3212-3	Z						1.5×1	16400	32400	365	
PFT 3212-3	P						1.5×2	18800	32400	303	
SFT 3212-2.5	Clearance Z						2.5×1	25500	54000	302	
DFT 3212-2.5	D						2.5×1	25500	54000	603	
SFT 3212-3	Clearance D						1.5×2	29900	64800	360	
DFT 3212-3	D		1.5×2	29900	64800	707					

- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

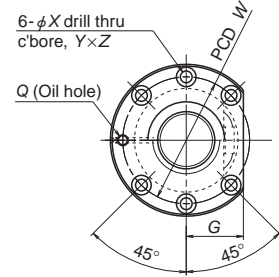
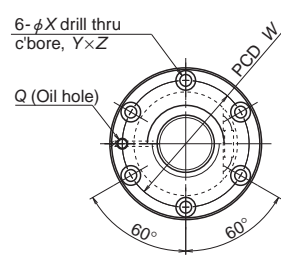
## Ball nut dimensions

Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>
						<i>X</i>	<i>Y</i>	<i>Z</i>		
57	62	89	12	34	3	6.6	11	6.5	75	M6×1
45										
63										
63										
57										
111										
63	66	100	15	38	5	9	14	8.5	82	M6×1
99										
71										
58										
82										
82										
71	74	108	15	41	7	9	14	8.5	90	M6×1
111										
82										
167										
80										
150										
100	74	108	18	41	9	9	14	8.5	90	M6×1
100										
190										
81										
97										
153										
97	74	108	18	41	9	9	14	8.5	90	M6×1
181										
81										
97										
153										
97										

- Remarks: 4. The axial rigidity in the table above is a 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<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 6. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
 7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)



View X-X

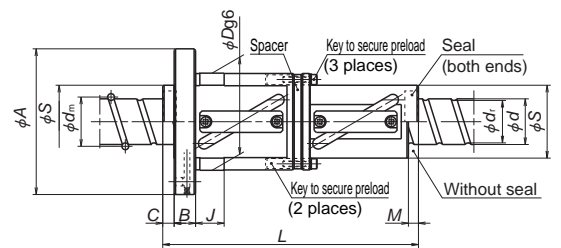
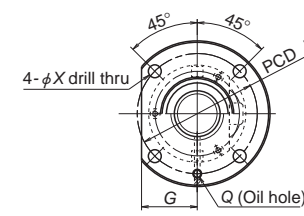


Circular shape I

Circular shape II

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)	Nut entire length <i>L</i>				
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>st</sub></i>						
LPFT 3220-2.5	P	32	20	4.762	33.25	28.3	2.5×1	11300	20900	251	99				
LPFT 3220-3	P						1.5×2	13200	24800	297	119				
LSFT 3220-2.5	Clearance D						2.5×1	17900	41800	300	99				
LDFT 3220-2.5	Clearance D						2.5×1	17900	41800	604	179				
LSFT 3220-3	Clearance D						1.5×2	21000	49600	360	119				
LDFT 3220-3	Clearance D						1.5×2	21000	49600	708	219				
* LPFT 3225-2.5	P		25	4.762	33.25	28.3	2.5×1	11300	20900	251	117				
LPFT 3225-3	P						1.5×2	13200	24800	297	142				
LSFT 3225-2.5	Clearance D						2.5×1	17900	41800	300	117				
LDFT 3225-2.5	Clearance D						2.5×1	17900	41800	604	218				
LSFT 3225-3	Clearance D						1.5×2	21000	49600	360	142				
LDFT 3225-3	Clearance D						1.5×2	21000	49600	708	268				
* LPFT 3232-1.5	P	32	4.762	33.25	28.3	1.5×1	7280	12400	161	109					
LSFT 3232-1.5	Clearance D					1.5×1	11500	24800	190	109					
LDFT 3232-1.5	Clearance D					1.5×1	11500	24800	376	205					
ZFT 3605-5	Z					36	5	3.175	36.5	33.2	2.5×1	10700	31700	607	59
PFT 3605-5	P										2.5×2	12200	31700	504	59
PFT 3605-7.5	P										2.5×3	17300	47500	740	74
SFT 3605-5	Clearance Z	2.5×2	19400	63300	597						59				
ZFT 3605-10	Z	2.5×2	19400	63300	1170						89				
SFT 3605-7.5	Clearance Z	2.5×3	27500	95000	878						74				
DFT 3605-7.5	D	2.5×3	27500	95000	1730						139				

- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, ZFT, and SFT, the nut length "L" is shortened by dimension "M".  
 3. If there is no seal for LSFT and LDFT of shaft diameter 25 mm or larger, the nut length "L" is shortened by dimension "M" and "C".  
 4. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.



LDFT

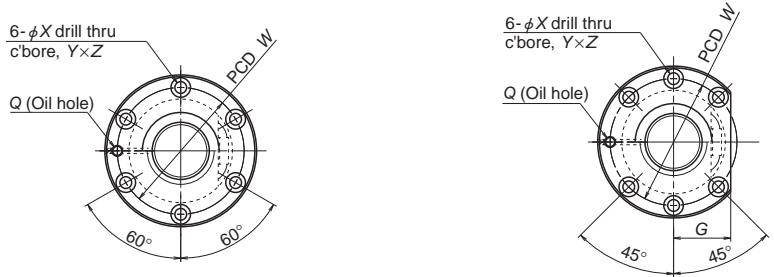
Unit: mm

Ball nut dimensions																							
Nut diameter		Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Tube projecting type			Seal dimension		Diameter g6 <i>J</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>								
<i>D</i>	<i>S</i>				<i>U</i>	<i>V</i>	<i>R</i>	<i>M</i>	<i>C</i>		<i>X</i>	<i>Y</i>	<i>Z</i>										
51	—	85	15	26	34	42	12	7	8	20	9	—	—	67	M6×1								
51	—	85		26	34	42	12																
51	—	85		26	34	42	12																
68	51	102		39	—	—	—																
51	—	85		26	34	42	12																
68	51	102		39	—	—	—																
51	—	85	15	26	34	42	12	10	10	20	9	—	—	67	M6×1								
51	—	85		26	34	42	12																
51	—	85		26	34	42	12																
68	51	102		39	—	—	—																
51	—	85		26	34	42	12																
68	51	102		39	—	—	—																
51	—	85	15	26	34	42	12	13	12	20	9	—	—	67	M6×1								
51	—	85		26	34	42	12																
51	—	85		26	34	42	12																
68	51	102		39	—	—	—																
65	—	100		15	38	—	—									3	—	—	9	14	8.5	82	M6×1

- Remarks: 5. The axial rigidity in the table above is a 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<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 6. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 7. The models marked with \* are in FA type of standard ball screw with finished shaft end.  
 8. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

View X-X

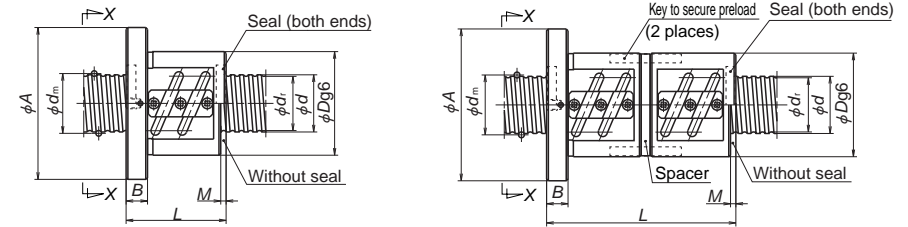


Circular shape I

Circular shape II

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)	
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>0a</sub></i>		
ZFT 3606-5	Z	36	6	3.969	36.5	32.4	2.5×1	14600	39300	625	
PFT 3606-5	P						2.5×2	16700	39300	518	
PFT 3606-7.5	P						2.5×3	23700	58900	763	
SFT 3606-5	Clearance						2.5×2	26500	78500	615	
ZFT 3606-10	Z						2.5×2	26500	78500	1210	
SFT 3606-7.5	Clearance						2.5×3	37600	118000	905	
DFT 3606-7.5	D		2.5×3	37600	118000	1780					
PFT 3610-2.5	P		36	10	6.35	37.0	30.4	2.5×1	17100	30600	278
ZFT 3610-3	Z							1.5×1	17500	36800	404
PFT 3610-3	P							1.5×2	20000	36800	327
SFT 3610-2.5	Clearance							2.5×1	27200	61300	334
ZFT 3610-5	Z							2.5×1	27200	61300	657
PFT 3610-5	P	2.5×2						31100	61300	537	
SFT 3610-3	Clearance	1.5×2		31800	73500	397					
DFT 3610-3	D	1.5×2		31800	73500	781					
SFT 3610-5	Clearance	2.5×2		49300	123000	647					
DFT 3610-5	D	2.5×2		49300	123000	1270					
PFT 4005-3	P	40		5	3.175	40.5	37.2	1.5×2	8210	21200	337
SFT 4005-2.5	Clearance							2.5×1	11100	35300	336
ZFT 4005-5	Z		2.5×1					11100	35300	661	
PFT 4005-5	P		2.5×2					12700	35300	548	
SFT 4005-3	Clearance		1.5×2					13000	42400	399	
DFT 4005-3	D		1.5×2					13000	42400	785	
PFT 4005-7.5	P		2.5×3	18100	53000	806					
SFT 4005-5	Clearance		2.5×2	20200	70600	649					
* ZFT 4005-10	Z		2.5×2	20200	70600	1280					
SFT 4005-7.5	Clearance		2.5×3	28700	106000	956					
DFT 4005-7.5	D		2.5×3	28700	106000	1870					
ZFT 4006-5	Z		40	6	3.969	40.5	36.4	2.5×1	15200	43800	679
PFT 4006-5	P	2.5×2						17400	43800	564	
SFT 4006-3	Clearance	1.5×2						17800	52600	411	
DFT 4006-3	D	1.5×2						17800	52600	807	
PFT 4006-7.5	P	2.5×3						24600	65700	827	
SFT 4006-5	Clearance	2.5×2						27600	87600	668	
ZFT 4006-10	Z	2.5×2		27600	87600	1320					
SFT 4006-7.5	Clearance	2.5×3		39100	131000	984					
DFT 4006-7.5	D	2.5×3		39100	131000	1940					

- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.



PFT, ZFT, SFT

DFT

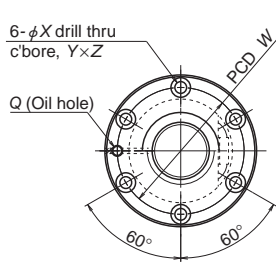
Unit: mm

Ball nut dimensions										
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>
						<i>X</i>	<i>Y</i>	<i>Z</i>		
66	65	100	15	38	3	9	14	8.5	82	M6×1
66										
84										
66										
102										
84										
162										
73	75	120	18	45	7	11	17.5	11	98	M6×1
90										
90										
73										
103										
103										
90										
170										
103										
193										
56	67	101	15	39	3	9	14	8.5	83	Rc1/8
44										
59										
59										
56										
106										
74										
59										
89										
74										
139										
66	70	104	15	40	3	9	14	8.5	86	Rc1/8
66										
60										
114										
84										
66										
102										
84										
162										

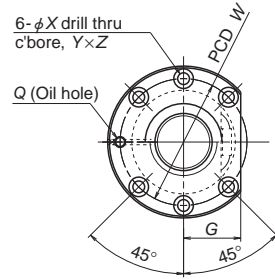
- Remarks: 4. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 6. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
 7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

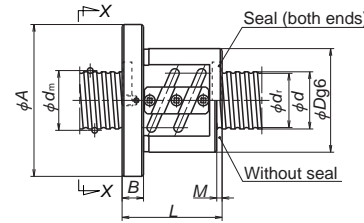
View X-X



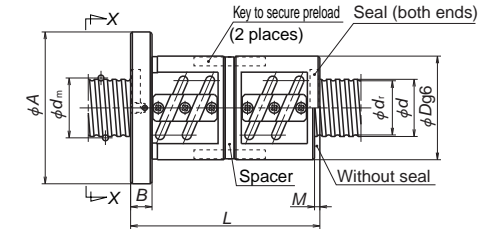
Circular shape I



Circular shape II



PFT, ZFT, SFT



DFT

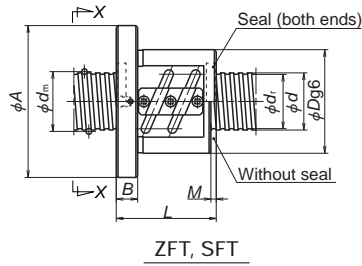
Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)					
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>0a</sub></i>						
PFT 4008-3	P	40	8	4.762	40.5	35.5	1.5×2	14200	31300	352					
SFT 4008-2.5	Clearance Z						2.5×1	19200	51600	349					
ZFT 4008-5	Z						2.5×1	19200	51600	687					
PFT 4008-5	P						2.5×2	22000	51600	570					
SFT 4008-3	Clearance Z						1.5×2	22500	62600	418					
DFT 4008-3	D						1.5×2	22500	62600	822					
SFT 4008-5	Clearance Z						2.5×2	34900	103000	675					
ZFT 4008-10	Z						2.5×2	34900	103000	1330					
PFT 4010-2.5	P						40	10	6.35	41	34.4	2.5×1	18000	34300	307
PFT 4010-3	P											1.5×2	21100	41100	366
SFT 4010-2.5	Clearance Z	2.5×1	28600	68600	365										
ZFT 4010-5	Z	2.5×1	28600	68600	717										
PFT 4010-5	P	2.5×2	32800	68600	595										
SFT 4010-3	Clearance Z	1.5×2	33500	82300	434										
ZFT 4010-6	Z	1.5×2	33500	82300	854										
ZFT 4010-7	Z	3.5×1	38300	96000	988										
SFT 4010-3.5	Clearance Z	3.5×1	38300	96000	503										
SFT 4010-5	Clearance Z	2.5×2	52000	137000	706										
* DFT 4010-5	D	2.5×2	52000	137000	1390										
PFT 4012-2.5	P	40	12	7.144	41.5	34.1						2.5×1	21200	38800	310
SFT 4012-2.5	Clearance Z											2.5×1	33600	77500	373
ZFT 4012-5	Z											2.5×1	33600	77500	733
PFT 4012-5	P						2.5×2	38400	77500	600					
SFT 4012-5	Clearance Z						2.5×2	61000	155000	722					
* DFT 4012-5	D						2.5×2	61000	155000	1420					
ZFT 4016-3	Z						40	16	7.144	41.5	34.1	1.5×1	21700	46500	451
SFT 4016-2.5	Clearance Z											2.5×1	33600	77500	373
DFT 4016-2.5	D											2.5×1	33600	77500	733
SFT 4016-3	Clearance Z											1.5×2	39300	93100	440
DFT 4016-3	D	1.5×2	39300	93100	872										

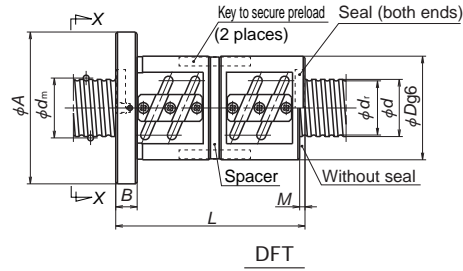
- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Ball nut dimensions			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>										
						Bolt hole dimension														
						<i>X</i>	<i>Y</i>	<i>Z</i>												
71	74	108	15	41	5	9	14	8.5	90	Rc1/8										
58																				
82																				
82																				
71																				
135																				
82																				
130																				
73											82	124	18	47	7	11	17.5	11	102	Rc1/8
90																				
73																				
103																				
103																				
90																				
140																				
123																				
83																				
103																				
193																				
81	86	128	18	48	9	11	17.5	11	106	Rc1/8										
81																				
117																				
117																				
117																				
225																				
118											86	128	22	48	14	11	17.5	11	106	Rc1/8
102																				
182																				
118																				
214																				

- Remarks: 4. The axial rigidity in the table above is a 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<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 5. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 6. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
 7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

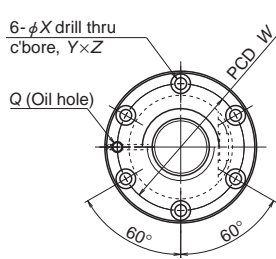


ZFT, SFT

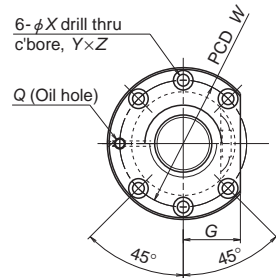


DFT

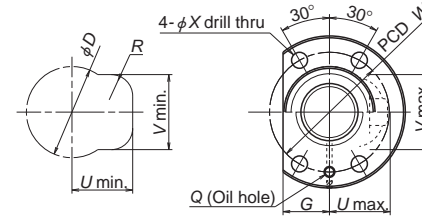
View X-X



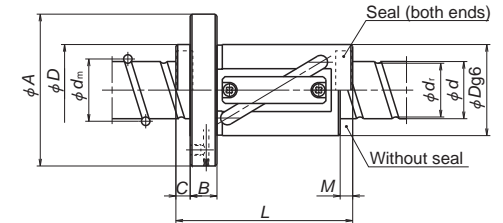
Circular shape I



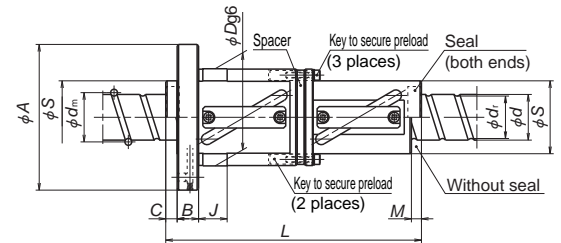
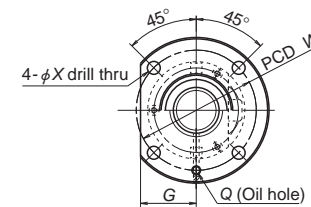
Circular shape II



Housing hole and its clearance



LPFT, LSFT



LDFT

Unit: mm

Model No.	Preload system	Shaft dia. d	Lead I	Ball dia. Dw	Ball circle dia. dm	Root dia. dr	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity K (N/μm)	Nut entire length L					
								Dynamic Cs	Static Csa							
LPFT 4025-2.5	P	40	25	6.35	41.75	35.1	2.5×1	18000	35000	315	123					
LPFT 4025-3	P						1.5×2	21000	41200	347	148					
LSFT 4025-2.5	D						2.5×1	28500	70000	375	123					
LDFT 4025-2.5	D						2.5×1	28500	70000	737	223					
LSFT 4025-3	D						1.5×2	33400	82400	444	148					
LDFT 4025-3	D						1.5×2	33400	82400	873	273					
LPFT 4032-2.5	P		32	6.35	41.75	35.1	2.5×1	18000	35000	315	146					
LPFT 4032-2.5	P							28500	70000	375	146					
LSFT 4032-2.5	D							28500	70000	737	274					
LDFT 4032-2.5	D							11600	20600	199	133					
LPFT 4040-1.5	P							40	6.35	41.75	35.1	1.5×1	18400	41200	237	133
LSFT 4040-1.5	D												18400	41200	465	253
LDFT 4040-1.5	D	29900	77300	784	103											
ZFT 4510-5	Z	45	10	6.35	46.0	39.4	2.5×2						54200	155000	772	103
SFT 4510-5	D						54200						155000	1520	193	
DFT 4510-5	D						2.5×2						54200	155000	1140	133
SFT 4510-7.5	D						2.5×3	76800	232000	1140	133					
DFT 4510-7.5	D						2.5×3	76800	232000	2230	253					
SFT 4512-2.5	C						12	7.144	46.5	39.1	2.5×1	35400	88500	412	83	
ZFT 4512-5	Z		35400	88500	811	119										
SFT 4512-5	D		2.5×2	64200	177000	798						119				
DFT 4512-5	D		2.5×2	64200	177000	1570						227				

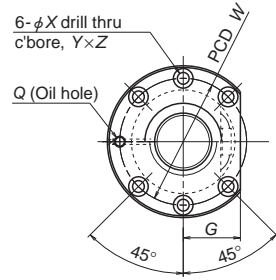
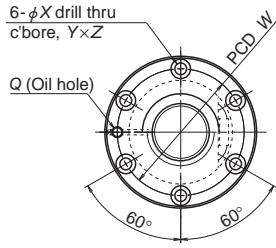
- Remarks:
1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.
  2. If there is no seal for PFT, ZFT, and SFT, the nut length "L" is shortened by dimension "M".
  3. If there is no seal for LSFT and LDFT of shaft diameter 25 mm or larger, the nut length "L" is shortened by dimension "M" and "C".
  4. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions														
Nut diameter		Flanged diameter	Flanged width	Notched flange	Tube projecting type			Seal dimension	Diameter g6	Bolt hole dimension			Bolt hole PCD	Oil hole
D	S	A	B	G	U	V	R	M	C	X	Y	Z	W	Q
64	—	106	—	33	42	52	15	—	—	—	—	—	84	—
64	—	106	—	33	42	52	15	—	—	—	—	—	84	—
64	—	106	18	33	42	52	15	10	10	—	—	—	104	Rc1/8
84	64	126	—	48	—	—	—	—	—	—	—	—	104	—
64	—	106	—	33	42	52	15	—	—	—	—	—	84	—
64	—	106	18	33	42	52	15	13	12	—	—	—	84	Rc1/8
84	64	126	—	48	—	—	—	—	—	—	—	—	104	—
64	—	106	—	33	42	52	15	—	—	—	—	—	84	—
64	—	106	18	33	42	52	15	16	14	—	—	—	84	Rc1/8
84	64	126	—	48	—	—	—	—	—	—	—	—	104	—
88	—	132	18	50	—	—	—	7	—	—	—	—	110	Rc1/8
90	—	132	18	50	—	—	—	8	—	—	—	—	110	Rc1/8

- Remarks:
5. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (Cs) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.
  6. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.
  7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

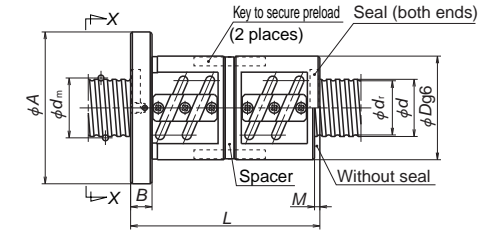
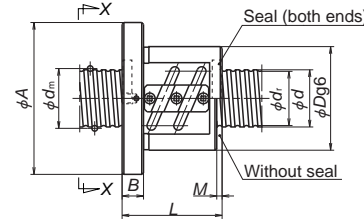
# Return tube type

View X-X



Circular shape I

Circular shape II



ZFT, SFT

DFT

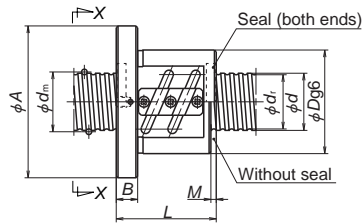
Unit: mm

Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)				
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>0</sub></i>					
SFT 5005-3	Clearance Z	50	5	3.175	50.5	47.2	1.5×2	14200	52500	472				
ZFT 5005-6							1.5×2	14200	52500	930				
SFT 5005-4.5							1.5×3	20200	78800	696				
ZFT 5005-9	1.5×3						20200	78800	1360					
SFT 5006-3	Clearance D						6	3.969	50.5	46.4	1.5×2	19500	65100	486
DFT 5006-3											1.5×2	19500	65100	956
SFT 5006-5			2.5×2	30300	109000	794								
ZFT 5006-10	2.5×2		30300	109000	1562									
SFT 5006-7.5	Clearance D		8	4.762	50.5	45.5					2.5×3	42900	164000	1170
DFT 5006-7.5											2.5×3	42900	164000	2300
SFT 5008-3	Clearance D						10	6.35	51.0	44.4	1.5×2	25000	77400	496
DFT 5008-3											1.5×2	25000	77400	975
SFT 5008-5		2.5×2									38700	131000	815	
ZFT 5008-10	2.5×2	38700									131000	1600		
SFT 5008-7.5	Clearance D	12	7.938	51.5	43.2	2.5×3					54900	197000	1200	
DFT 5008-7.5						2.5×3					54900	197000	2350	
SFT 5010-2.5	Clearance Z					16	7.938	51.5	43.2	2.5×1	31800	87400	440	
ZFT 5010-5										2.5×1	31800	87400	866	
SFT 5010-3										1.5×2	37200	103000	517	
DFT 5010-3	1.5×2									37200	103000	1010		
ZFT 5010-7	Clearance Z	20	7.938	51.5	43.2					3.5×1	42500	122000	1190	
SFT 5010-5										2.5×2	57700	175000	853	
ZFT 5010-10						2.5×2	57700	175000	1677					
SFT 5010-7.5	Clearance D					28	7.938	51.5	43.2	2.5×3	81800	262000	1250	
DFT 5010-7.5										2.5×3	81800	262000	2460	
SFT 5012-2.5	Clearance Z									32	7.938	51.5	43.2	2.5×1
ZFT 5012-5		2.5×1	42800	107000	883									
SFT 5012-5		2.5×2	77600	214000	869									
DFT 5012-5	2.5×2	77600	214000	1710										
SFT 5016-2.5	Clearance Z	40	7.938	51.5	43.2	2.5×1	42800	107000	449					
ZFT 5016-5						2.5×1	42800	107000	883					
SFT 5016-5						2.5×2	77600	214000	869					
DFT 5016-5	2.5×2					77600	214000	1710						
ZFT 5020-3	Clearance Z					50	7.938	51.5	43.2	1.5×1	27600	64300	542	
SFT 5020-2.5										2.5×1	42800	107000	449	
DFT 5020-2.5		2.5×1	42800	107000	883									
SFT 5020-3	Clearance D	60	7.938	51.5	43.2					1.5×2	50000	129000	534	
DFT 5020-3										1.5×2	50000	129000	1050	

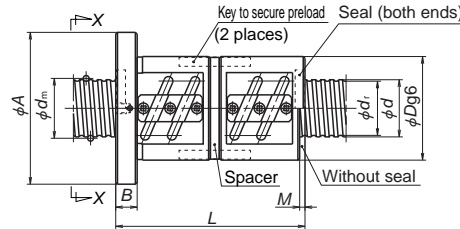
Ball nut dimensions										
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>
						<i>X</i>	<i>Y</i>	<i>Z</i>		
58	80	114	15	43	3	9	14	8.5	96	Rc1/8
83										
68										
103										
62										
116	84	118	15	45	3	9	14	8.5	100	Rc1/8
68										
104										
86										
164										
74	87	129	18	49	5	11	17.5	11	107	Rc1/8
138										
85										
133										
205										
73	93	135	18	51	7	11	17.5	11	113	Rc1/8
103										
90										
170										
123										
103	100	146	22	55	8	14	20	13	122	Rc1/8
163										
133										
253										
87										
123	100	146	22	55	14	14	20	13	122	Rc1/8
123										
231										
104										
152										
147	100	146	28	55	17	14	20	13	122	Rc1/8
127										
227										
147										
267										

Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
 3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Remarks: 4. The axial rigidity in the table above is a 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<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 5. The models marked with \* are in SA type of standard ball screw with finished shaft end.  
 6. Preload system: Z, Offset preload; D, Double nut preload (Refer to Page B5)

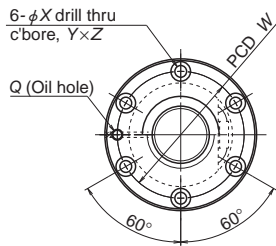


ZFT, SFT

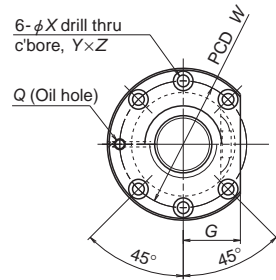


DFT

View X-X



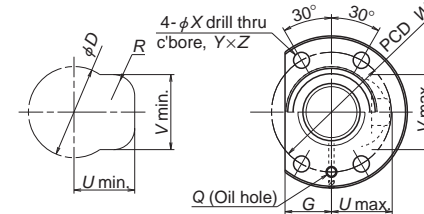
Circular shape I



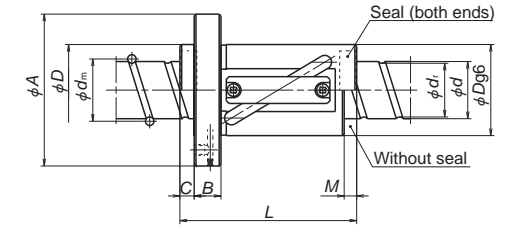
Circular shape II

Model No.	Preload system	Shaft dia. $d$	Lead $l$	Ball dia. $D_w$	Ball circle dia. $d_m$	Root dia. $d_r$	Effective turns of balls $\times$ Circuits	Basic load rating (N)		Axial rigidity $K$ (N/ $\mu$ m)	Nut entire length $L$
								Dynamic $C_d$	Static $C_{0d}$		
LPFT 5025-2.5	P	25	7.938	52.25	44	2.5x1	2.5x1	26900	54700	388	129
LPFT 5025-3	P						1.5x2	31400	66500	450	154
LSFT 5025-2.5	Clearance D						2.5x1	42700	109000	462	129
LDFT 5025-2.5	D						2.5x1	42700	109000	905	229
LSFT 5025-3	Clearance D						1.5x2	49900	133000	547	154
LDFT 5025-3	D						1.5x2	49900	133000	1070	279
LPFT 5032-2.5	P	50	32	7.938	44	2.5x1	2.5x1	26900	54700	388	151
LPFT 5032-3	P						1.5x2	31400	66500	450	183
LSFT 5032-2.5	Clearance D						2.5x1	42700	109000	462	151
LDFT 5032-2.5	D						2.5x1	42700	109000	905	279
LSFT 5032-3	Clearance D						1.5x2	49900	133000	547	183
LDFT 5032-3	D						1.5x2	49900	133000	1070	343
LPFT 5040-2.5	P	40	7.938	52.25	44	2.5x1	2.5x1	26900	54700	388	178
LSFT 5040-2.5	Clearance D						2.5x1	42700	109000	462	178
LDFT 5040-2.5	D						2.5x1	42700	109000	922	338
LPFT 5050-1.5	P	50	7.938	52.25	44	1.5x1	1.5x1	17300	33200	245	161
LSFT 5050-1.5	Clearance D						1.5x1	27500	66500	290	161
LDFT 5050-1.5	D						1.5x1	27500	66500	572	312
ZFT 5510-5	Z	55	10	6.35	56.0	49.4	2.5x1	32800	96100	929	103
SFT 5510-5	Clearance Z						2.5x2	59500	192000	916	103
ZFT 5510-10	Z						2.5x2	59500	192000	1800	163
DFT 5510-5	D						2.5x2	59500	192000	1800	193
SFT 5510-7.5	Clearance D						2.5x3	84300	288000	1350	133
DFT 5510-7.5	D						2.5x3	84300	288000	2650	253

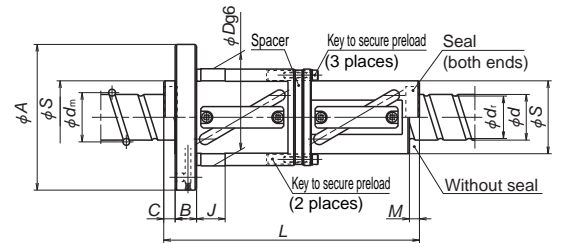
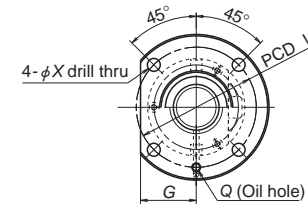
- Remarks:
1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.
  2. If there is no seal for PFT, ZFT, and SFT, the nut length "L" is shortened by dimension "M".
  3. If there is no seal for LSFT and LDFT of shaft diameter 25 mm or larger, the nut length "L" is shortened by dimension "M" and "C".
  4. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.



Housing hole and its clearance



LPFT, LSFT

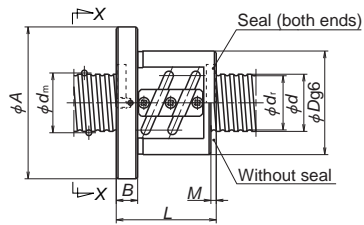


LDFT

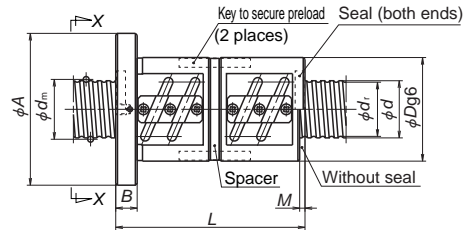
Unit: mm

Ball nut dimensions															
Nut diameter		Flanged diameter	Flanged width	Notched flange	Tube projecting type			Seal dimension		Diameter	Bolt hole dimension			Bolt hole	Oil hole
$D$	$S$	$A$	$B$	$G$	$U$	$V$	$R$	$M$	$C$	$\phi J$	$X$	$Y$	$Z$	PCD $W$	$Q$
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
106	80	152	22	56	—	—	—	11	11	25	14	—	—	128	Rc1/8
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	14	12	—	14	—	—	102	Rc1/8
106	80	152	—	56	—	—	—	—	—	25	—	—	—	128	—
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	17	14	—	14	—	—	102	Rc1/8
106	80	152	—	56	—	—	—	—	—	25	—	—	—	128	—
80	—	126	—	41	52	64	19	—	—	—	—	—	—	102	—
80	—	126	—	41	52	64	19	21	16	—	14	—	—	102	Rc1/8
106	80	152	—	56	—	—	—	—	—	25	—	—	—	128	—
102	—	144	18	54	—	—	—	7	—	—	11	17.5	11	122	Rc1/8

- Remarks:
5. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating ( $C_d$ ) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.
  6. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.
  7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

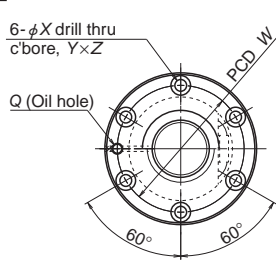


SFT, ZFT

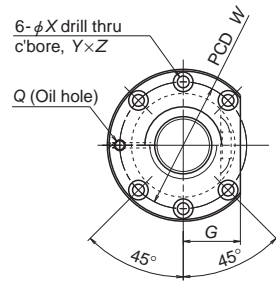


DFT

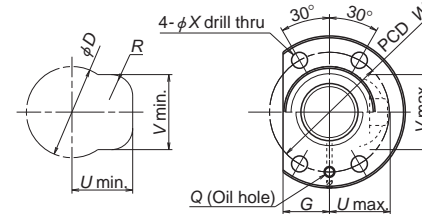
View X-X



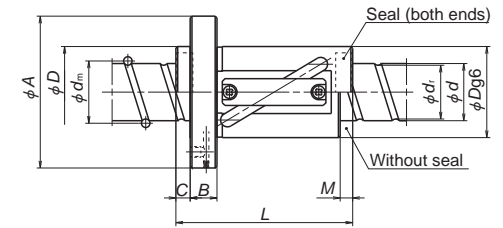
Circular shape I



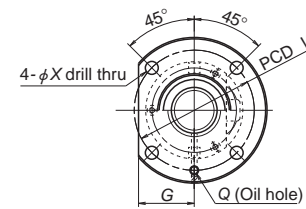
Circular shape II



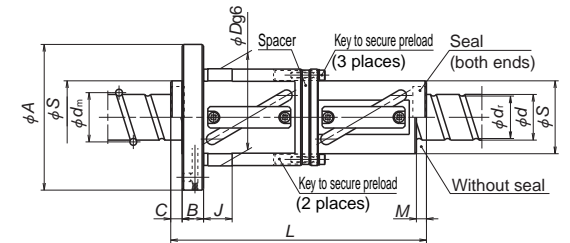
Housing hole and its clearance



LPFT, LSFT



LDFT



Unit: mm

Model No.	Preload system	Shaft dia. d	Lead I	Ball dia. D <sub>w</sub>	Ball circle dia. d <sub>m</sub>	Root dia. d <sub>t</sub>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity K (N/μm)	Nut entire length L			
								Dynamic C <sub>s</sub>	Static C <sub>0s</sub>					
SFT 6310-2.5	Clearance Z	63	10	6.35	64.0	57.4	2.5×1	34800	111000	528	77			
ZFT 6310-5							2.5×1	34800	111000	1038	107			
SFT 6310-5	2.5×2						63200	221000	1020	107				
ZFT 6310-10	2.5×2						63200	221000	2000	167				
SFT 6310-7.5	2.5×3						89500	332000	1500	137				
DFT 6310-7.5	2.5×3						89500	332000	2950	257				
SFT 6320-2.5	Clearance D		20	9.525	65.0	55.2	2.5×1	79500	228000	713	127			
DFT 6320-2.5							2.5×1	79500	228000	1400	227			
SFT 6320-5	2.5×2						144000	455000	1380	187				
DFT 6320-5	2.5×2						144000	455000	2710	347				
LPFT 6340-2.5	P	40					7.938	65.25	57	2.5×1	30600	69500	466	178
LPFT 6340-3										1.5×2	35800	82500	551	218
LSFT 6340-2.5	Clearance D		2.5×1	48500	139000	560				178				
LDFT 6340-2.5			2.5×1	48500	139000	1100				339				
LSFT 6340-3	Clearance D		1.5×2	56800	165000	667				218				
LDFT 6340-3			1.5×2	56800	165000	1310				419				
LPFT 6350-1.5	P	50	7.938	65.25	57	1.5×1	19700	41200	285	161				
LPFT 6350-2.5						2.5×1	30600	69500	478	211				
LSFT 6350-1.5	Clearance D					1.5×1	31300	82500	346	161				
LDFT 6350-1.5						1.5×1	31300	82500	678	311				
LSFT 6350-2.5	Clearance D					2.5×1	48500	139000	560	211				
LDFT 6350-2.5						2.5×1	48500	139000	1120	411				

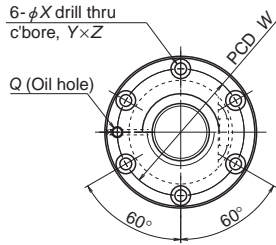
- Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
 2. If there is no seal for PFT, ZFT, and SFT, the nut length "L" is shortened by dimension "M".  
 3. If there is no seal for LSFT and LDFT of shaft diameter 25 mm or larger, the nut length "L" is shortened by dimension "M" and "C".  
 4. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions																
Nut diameter		Flanged diameter	Flanged width	Notched flange	Tube projecting type			Seal dimension		Diameter g6	Bolt hole dimension			Bolt hole PCD	Oil hole	
D	S	A	B	G	U	V	R	M	C	J	X	Y	Z	W	Q	
108	—	154	22	58	—	—	—	7	—	—	14	20	13	130	Rc1/8	
122	—	180	28	69	—	—	—	17	—	—	18	26	17.5	150	Rc1/8	
97	—	144	22	49	58	77	19	15	14	29	14	—	—	120	Rc1/8	
97	—	144		49	58	77	19									
97	—	144		49	58	77	19									
122	97	168		62	—	—	—									15
97	—	144		49	58	77	19									
122	97	168		62	—	—	—									15
97	—	144	22	49	58	77	19	19	16	29	14	—	—	120	Rc1/8	
97	—	144		49	58	77	19									
97	—	144		49	58	77	19									
122	97	168		62	—	—	—									19
97	—	144		49	58	77	19									
122	97	168		62	—	—	—									19

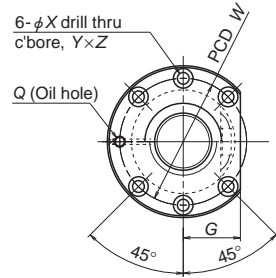
- Remarks: 5. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (C) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
 6. For PFT and LPFT, the basic load ratings differ from the other models as the spacer balls are installed.  
 7. Preload system: P, Oversize ball preload; Z, Offset preload; D, Double nut preload (Refer to Page B5)

# Return tube type

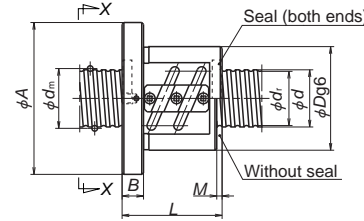
View X-X



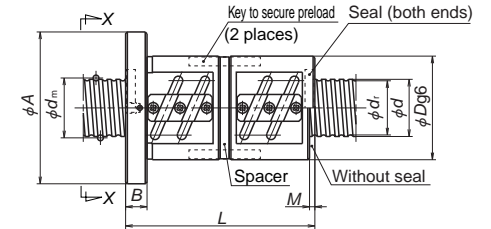
Circular shape I



Circular shape II



SFT



DFT

Unit: mm

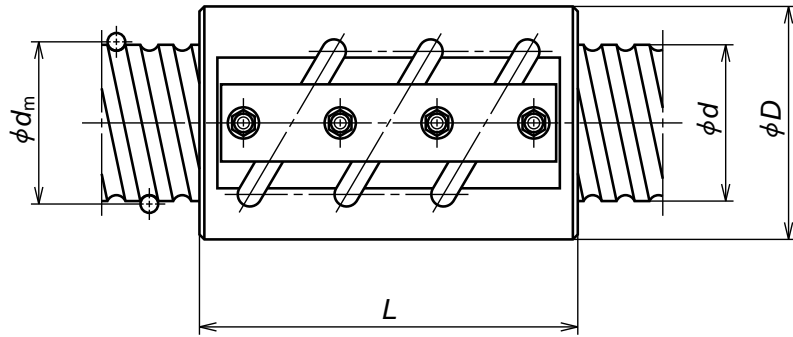
Model No.	Preload system	Shaft dia. <i>d</i>	Lead <i>l</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d<sub>r</sub></i>	Effective turns of balls Turns × Circuits	Basic load rating (N)		Axial rigidity <i>K</i> (N/μm)					
								Dynamic <i>C<sub>d</sub></i>	Static <i>C<sub>0a</sub></i>						
SFT 8010-5 DFT 8010-5 SFT 8010-7.5 DFT 8010-7.5	Clearance D Clearance D	80	10	6.35	81.0	74.4	2.5×2	70500	282000	1240					
SFT 8012-5 DFT 8012-5 SFT 8012-7.5 DFT 8012-7.5	Clearance D Clearance D			12	7.938	81.5	73.2	2.5×2	96000	350000	1280				
SFT 8016-5 DFT 8016-5 SFT 8016-7.5 DFT 8016-7.5	Clearance D Clearance D			16	9.525	82.0	72.2	2.5×2	162000	582000	1680				
SFT 8020-5 DFT 8020-5 SFT 8020-7.5 DFT 8020-7.5	Clearance D Clearance D		20	9.525	82.0	72.2	2.5×2	162000	582000	1680					
SFT 10012-5 DFT 10012-5 SFT 10012-7.5 DFT 10012-7.5	Clearance D Clearance D	100	12	7.938	101.5	93.2	2.5×2	105000	441000	1530					
SFT 10016-5 DFT 10016-5 SFT 10016-7.5 DFT 10016-7.5	Clearance D Clearance D			16	9.525	102	92.2	2.5×2	176000	737000	2010				
SFT 10020-5 DFT 10020-5 SFT 10020-7.5 DFT 10020-7.5	Clearance D Clearance D			20	9.525	102	92.2	2.5×2	176000	737000	2010				
SFT 12516-5 DFT 12516-5 SFT 12516-7.5 DFT 12516-7.5	Clearance D Clearance D	125	16	9.525	127	117.2	2.5×2	195000	918000	2390					
SFT 12520-5 DFT 12520-5 SFT 12520-7.5 DFT 12520-7.5	Clearance D Clearance D			20	9.525	127	117.2	2.5×2	195000	918000	2390				

Remarks: 1. Nut flange for shaft diameter 16 mm or smaller comes in rectangular shape. It comes in circular shape I and circular shape II for shaft diameter 20 mm or larger. Select a flange that is suitable for the space available for nut installation.  
2. If there is no seal for PFT, SFT, and DFT, the nut length "L" is shortened by dimension "M".  
3. The right turn screw is standard. "L" is added to the end of the model code for the left turn screw.

Ball nut dimensions										
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Flanged diameter <i>A</i>	Flanged width <i>B</i>	Notched flange <i>G</i>	Seal dimension <i>M</i>	Bolt hole dimension			Bolt hole PCD <i>W</i>	Oil hole <i>Q</i>
						<i>X</i>	<i>Y</i>	<i>Z</i>		
107	130	176	22	66	7	14	20	13	152	Rc1/8
197										
137										
257										
123	136	182	22	68	8	14	20	13	158	Rc1/8
231										
159										
303										
158	143	204	28	77	10	18	26	17.5	172	Rc1/8
302										
206										
398										
187	143	204	28	77	17	18	26	17.5	172	Rc1/8
347										
247										
467										
129	160	220	28	82	8	18	26	17.5	188	Rc1/8
237										
165										
309										
162	170	243	32	91	10	22	32	21.5	205	Rc1/8
306										
210										
402										
191	170	243	32	91	17	22	32	21.5	205	Rc1/8
351										
251										
471										
170	200	290	36	109	10	26	39	25.5	243	Rc1/8
314										
218										
410										
199	200	290	36	109	12	26	39	25.5	243	Rc1/8
379										
259										
499										

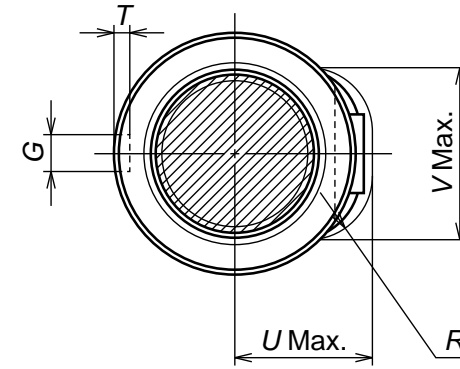
Remarks: 4. The axial rigidity in the table above is a theoretical value obtained from the elastic deformation between screw groove and ball when the axial load is 30% of the basic dynamic load rating (*C<sub>d</sub>*) with clearance, 10% with D preload, and 5% with P preload. Refer to "Technical description" (Page B41) if axial load differs from the conditions above, or when considering change in the deformation of the ball nut itself.  
5. Preload system: D: Double nut preload (Refer to Page B5)

## Return tube type



## Nut model GSCT (non-preload)

**NSK**



Unit: mm

Model No.	Axial play (Max.)	Shaft dia. <i>d</i>	Lead <i>I</i>	Ball dia. <i>D<sub>w</sub></i>	Ball circle dia. <i>d<sub>m</sub></i>	Root dia. <i>d</i>	Effective turns of balls Turns × Circuits	Basic load rating (N)	
								Dynamic <i>C<sub>s</sub></i>	Static <i>C<sub>0s</sub></i>
GSCT14025-5	0.25	140	25	15.875	143	126.0	2.5×2 2.5×3	272000	1400000
GSCT14025-7.5								362000	2090000
GSCT14032-5	0.35	140	32	22.225	144	121.0	2.5×2 2.5×3	428000	1920000
GSCT14032-7.5								568000	2880000
GSCT14040-5	0.35	140	40	22.225	144	121.0	2.5×2 2.5×3	428000	1920000
GSCT14040-7.5								568000	2880000
GSCT14050-5	0.40	140	50	25.4	145	119.0	2.5×2 2.5×3	518000	2190000
GSCT14050-7.5								688000	3290000
GSCT16032-5	0.35	160	32	22.225	164	141.0	2.5×2 2.5×3	458000	2210000
GSCT16032-7.5								608000	3310000
GSCT16040-5	0.35	160	40	22.225	164	141.0	2.5×2 2.5×3	458000	2210000
GSCT16040-7.5								608000	3310000
GSCT16050-5	0.40	160	50	25.4	165	139.0	2.5×2 2.5×3	544000	2560000
GSCT16050-7.5								722000	3840000
GSCT20032-5	0.35	200	32	22.225	204	181.0	2.5×2 2.5×3	509000	2820000
GSCT20032-7.5								676000	4230000
GSCT20040-5	0.35	200	40	22.225	204	181.0	2.5×2 2.5×3	509000	2820000
GSCT20040-7.5								676000	4230000
GSCT20050-5	0.40	200	50	25.4	205	179.0	2.5×2 2.5×3	604000	3200000
GSCT20050-7.5								802000	4800000
GSCT25040-5	0.40	250	40	25.4	255	229.0	2.5×2 2.5×3	662000	4000000
GSCT25040-7.5								879000	6000000
GSCT25050-5	0.51	250	50	31.75	256	223.0	2.5×2 2.5×3	825000	5000000
GSCT25050-7.5								1100000	7500000

Remarks 1. Precision grade is equivalent to Ct10 grade of JIS B1192 (Refer to Page B41)  
2. The entire nut length (L) is the size without seal. The size with a seal is longer by the size of "MS."

Nut dimensions							
Nut entire length <i>L</i>	Nut diameter <i>D</i>	Key dimension		Tube projecting dimension			Seal dimension (MS)
		<i>G</i>	<i>T</i>	<i>U</i>	<i>V</i>	<i>R</i>	
200 275	210	32	11	115	154	50	40
252 348	220			135	163	60	48
306 426	220			135	163	60	58
377 527	225			141	167	70	70
252 348	245	36	12	141	180	60	48
306 426	245			141	180	60	58
377 527	250			147	185	70	70
252 348	295	45	15	162	216	70	48
306 426	295			162	216		58
377 527	300			168	221		70
312 432	355	50	17	194	266	70	58
385 535	370			206	274	90	70