

B-3-2.2 Finished Shaft End MA type, FA type, SA type

◇Ball screw sizes are arranged in order of the page number.

The Table begins with the smallest shaft diameter of each MA, FA, and SA type ball screws, and proceeds to the larger sizes. If ball screws have the same shaft diameter, those with smaller leads appear first. Page numbers of shaft diameter and lead combinations are shown in Table 1.

◇Dimension tables

Dimension tables show shapes/sizes as well as specification factors of each shaft diameter/lead combination. Tables also contain data as follows:

●Stroke

Nominal stroke: A reference for your use.
 Maximum stroke: The limit stroke that the nut can move. The figure is obtained by subtracting the nut length from the effective threaded length (L_1).

●Lead accuracy

Lead accuracy is C3 and C5 grades
 T : Travel compensation;
 e_p : Tolerance on specified travel;
 v_u : Travel variation
 See "Technical Description: Lead accuracy"

(Page B41) for the details of the codes.

●Permissible rotational speed

$d \cdot n$: Limited by the relative peripheral speed between the screw shaft and the nut.

Critical speed: Limited by the natural frequency of a ball screw shaft. Critical speed depends on the supporting condition of screw shaft.

The lower of the two criteria, $d \cdot n$ and Critical Speed, will determine the overall Permissible Rotational Speed of the ball screw. For details, see "Technical description: Permissible rotational speed" (Page B51).

◇Other

The seal of the ball screw, ball recirculating deflector, and end cap are made of synthetic resin. Consult NSK when using our ball screws under extreme environments or in special environments, or if using special lubricant or oil. For special environments, refer to Pages B74 and D2. For lubricants, refer to Pages B71 and D13.

Note: For details of standard stock products, contact NSK.

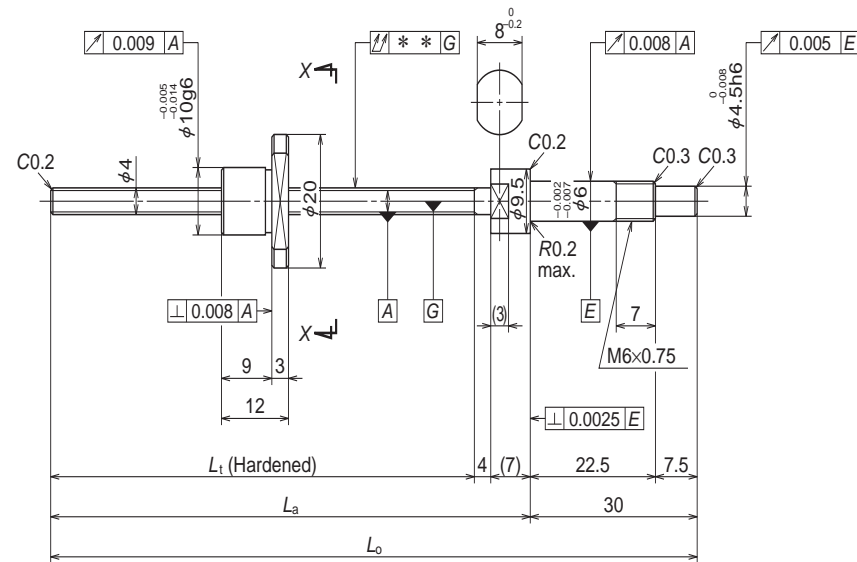
Table 1 Combinations of screw shaft diameter and lead

Lead (mm)	1	1.5	2	2.5	4	5	6
4	B243						
6	B245						
8	B247	B249	B251				
10			B253	B255	B265		
12			B257	B259		B267	
14						B271	
15							
16		B261	B263			B279	
20					B301	B303	
25					B305	B307	B309
28						B313 B315	B317 B319
32						B321 B323	B325 B327
36							
40						B339	
45							
50							

8	10	12	16	20	25	32	40	50
	B269							
B273								
	B275			B277				
			B281			B283		
	B285			B287			B289	
	B311			B291	B293			B295
B329	B331 B333				B297	B299		
	B335 B337							
B341	B343 B345	B347 B349						
	B351							
	B353 B355							

Finished shaft end MA Type

(Fine lead) Dia. 4, Lead 1

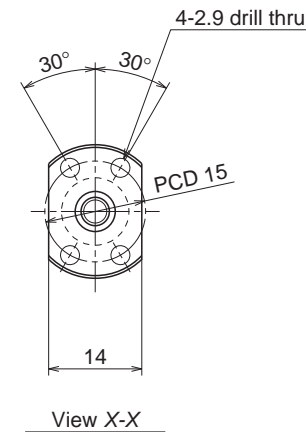


Nut models: MPFD, MSFD

NSK

ø4x1

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	4x1/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	0.800/4.2	
Screw shaft root diameter	3.2	
Effective turns of balls	1x2	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C_a	315
	Static C_{0a}	370
Axial play	0	0.005 or less
Preload (N)	19.6	—
Dynamic friction torque, (N-cm)	1.0 or less	0.3 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit

WBK06-01A	(square)
WBK06-11	(round)

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W0400MA-1PY-C3Z1	W0400MA-2Y-C3T1	20	32
W0400MA-3PY-C3Z1	W0400MA-4Y-C3T1	40	52
W0401MA-1PY-C3Z1	W0401MA-2Y-C3T1	70	82

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Nut does not have a seal.
 4. Contact NSK if permissible rotational speed is to be exceeded.

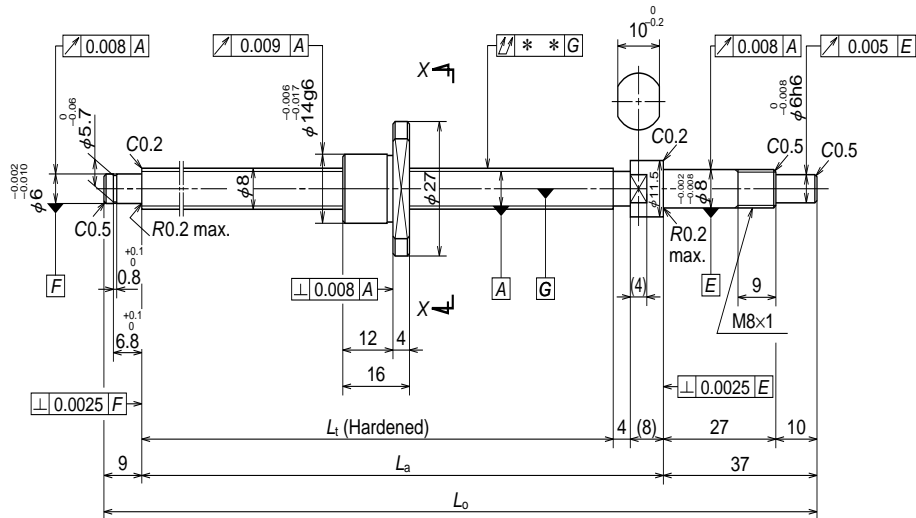
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition
L_1	L_a	L_o	T	e_p	v_u			
44	55	85	0	0.008	0.008	0.015	0.024	3000
64	75	105	0	0.008	0.008	0.020	0.026	3000
94	105	135	0	0.008	0.008	0.025	0.028	3000

B243

B244

Finished shaft end MA Type

(Fine lead) Dia. 8, Lead 1

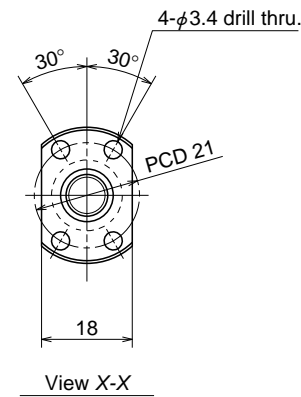


Nut models: MPFD, MSFD

NSK

ø8×1

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	8x1/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	0.800/8.2	
Screw shaft root diameter	7.2	
Effective turns of balls	1x3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C _a	670
	Static C _{0a}	1290
Axial play	0	0.005 or less
Preload (N)	29.4	—
Dynamic friction torque, (N·cm)	1.8 or less	0.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For drive side	For opposite to drive side
WBK08-01A (square)	○	
WBK08S-01 (square)		○
WBK08-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L _t —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W0800MA-1PY-C3Z1	W0800MA-2Y-C3T1	40	64
W0801MA-1PY-C3Z1	W0801MA-2Y-C3T1	70	94
W0801MA-3PY-C3Z1	W0801MA-4Y-C3T1	100	124
W0802MA-1PY-C3Z1	W0802MA-2Y-C3T1	150	174

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Nut does not have a seal.
 4. Contact NSK if permissible rotational speed is to be exceeded.

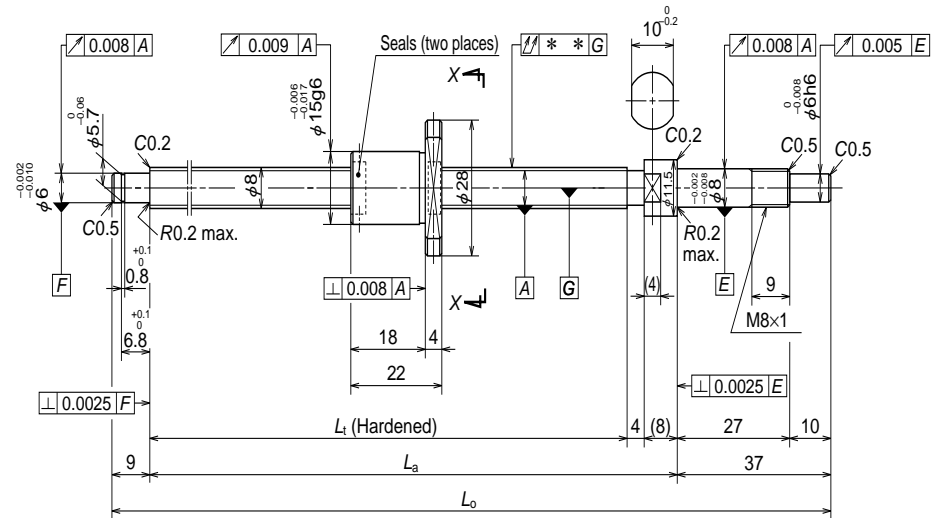
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L _t	L _a	L _o	T	e _p	v _u			
80	92	138	0	0.008	0.008	0.025	0.073	3000
110	122	168	0	0.010	0.008	0.030	0.084	3000
140	152	198	0	0.010	0.008	0.030	0.095	3000
190	202	248	0	0.010	0.008	0.035	0.11	3000

B247

B248

Finished shaft end MA Type

(Fine lead) Dia. 8, Lead 1.5

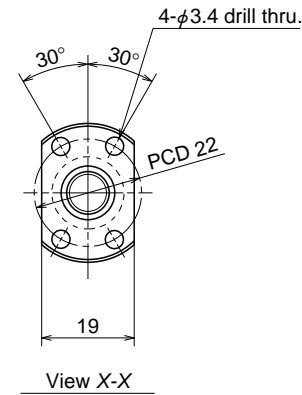


Nut models: MPFD, MSFD

NSK

ø8×1.5

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	8x1.5/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.000/8.3	
Screw shaft root diameter	7.0	
Effective turns of balls	1x3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C_a	1080
	Static C_{0a}	1980
Axial play	0	0.005 or less
Preload (N)	49.0	—
Dynamic friction torque, (N-cm)	2.0 or less	0.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For drive side		For opposite to drive side
	For drive side	For opposite to drive side	
WBK08-01A (square)	○		
WBK08S-01 (square)		○	
WBK08-11 (round)	○		

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W0800MA-3PY-C3Z1.5	W0800MA-4Y-C3T1.5	40	58
W0801MA-5PY-C3Z1.5	W0801MA-6Y-C3T1.5	70	88
W0801MA-7PY-C3Z1.5	W0801MA-8Y-C3T1.5	100	118
W0802MA-3PY-C3Z1.5	W0802MA-4Y-C3T1.5	150	168

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

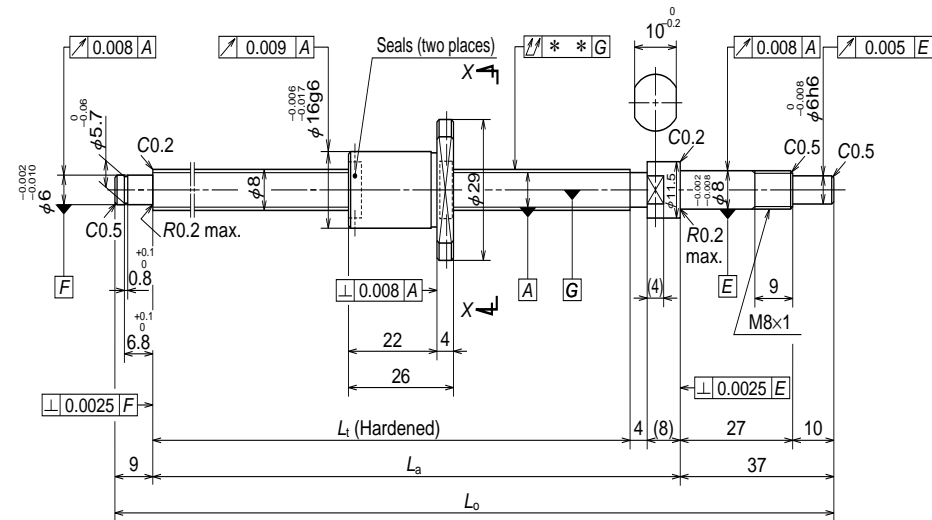
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L_1	L_a	L_o	T	e_p	v_u			
80	92	138	0	0.008	0.008	0.025	0.082	3000
110	122	168	0	0.010	0.008	0.030	0.093	3000
140	152	198	0	0.010	0.008	0.030	0.10	3000
190	202	248	0	0.010	0.008	0.035	0.12	3000

B249

B250

Finished shaft end MA Type

(Fine lead) Dia. 8, Lead 2



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W0800MA-5PY-C3Z2	W0800MA-6Y-C3T2	40	54
W0801MA-9PY-C3Z2	W0801MA-10Y-C3T2	70	84
W0801MA-11PY-C3Z2	W0801MA-12Y-C3T2	100	114
W0802MA-5PY-C3Z2	W0802MA-6Y-C3T2	150	164

Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

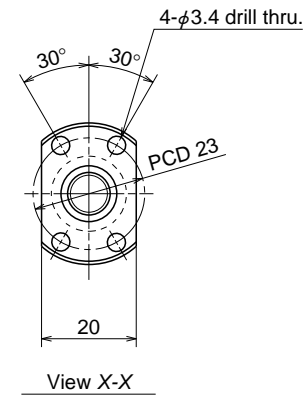
B251

Nut models: MPFD, MSFD

NSK

ø8×2

Unit: mm



Ball screw specifications		
Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	8x2/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.200/8.3	
Screw shaft root diameter	6.9	
Effective turns of balls	1x3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C _a	1320
	Static C _{0a}	2210
Axial play	0	0.005 or less
Preload (N)	49.0	—
Dynamic friction torque, (N·cm)	2.0 or less	0.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For drive side		For opposite to drive side
	For drive side	For opposite to drive side	
WBK08-01A (square)	○		
WBK08S-01 (square)		○	
WBK08-11 (round)	○		

Unit: mm

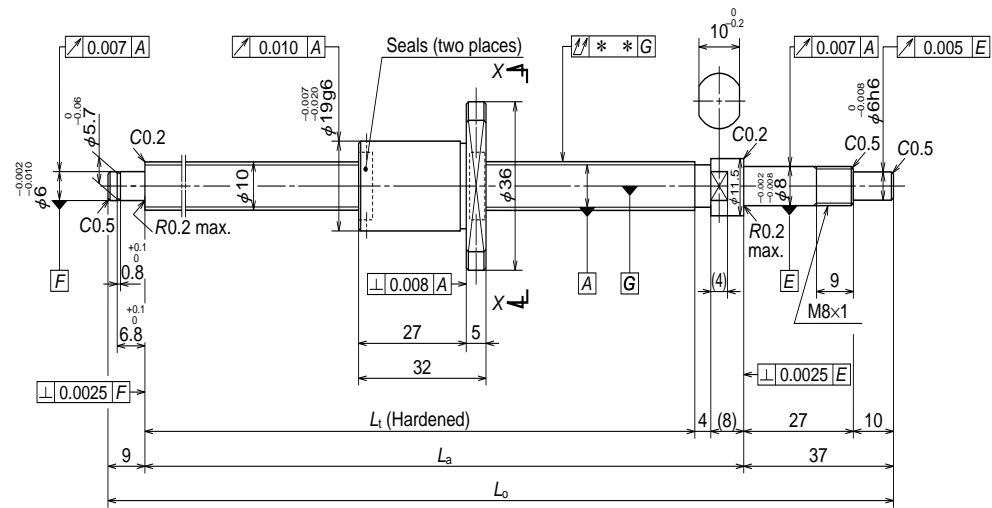
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L ₁	L _a	L _o	T	e _p	v _u			
80	92	138	0	0.008	0.008	0.025	0.09	3000
110	122	168	0	0.010	0.008	0.030	0.10	3000
140	152	198	0	0.010	0.008	0.030	0.11	3000
190	202	248	0	0.010	0.008	0.035	0.13	3000

B
252

B252

Finished shaft end MA Type

(Fine lead) Dia. 10, Lead 2.5

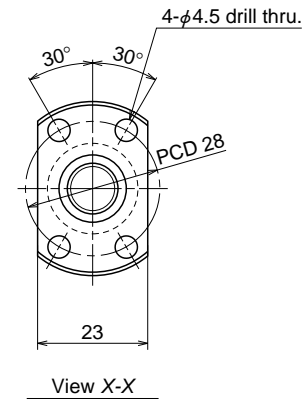


Nut models: MPFD, MSFD

NSK

ø10×2.5

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	10×2.5/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.588/10.4	
Screw shaft root diameter	8.6	
Effective turns of balls	1×3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C_a	2130
	Static C_{0a}	3640
Axial play	0	0.005 or less
Preload (N)	98.1	—
Dynamic friction torque, (N·cm)	0.2 - 2.9	0.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For drive side	For opposite to drive side
WBK08-01A (square)	○	
WBK08S-01 (square)		○
WBK08-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W1001MA-5PY-C3Z2.5	W1001MA-6Y-C3T2.5	50	68
W1001MA-7PY-C3Z2.5	W1001MA-8Y-C3T2.5	100	118
W1002MA-5PY-C3Z2.5	W1002MA-6Y-C3T2.5	150	168
W1002MA-7PY-C3Z2.5	W1002MA-8Y-C3T2.5	200	218

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

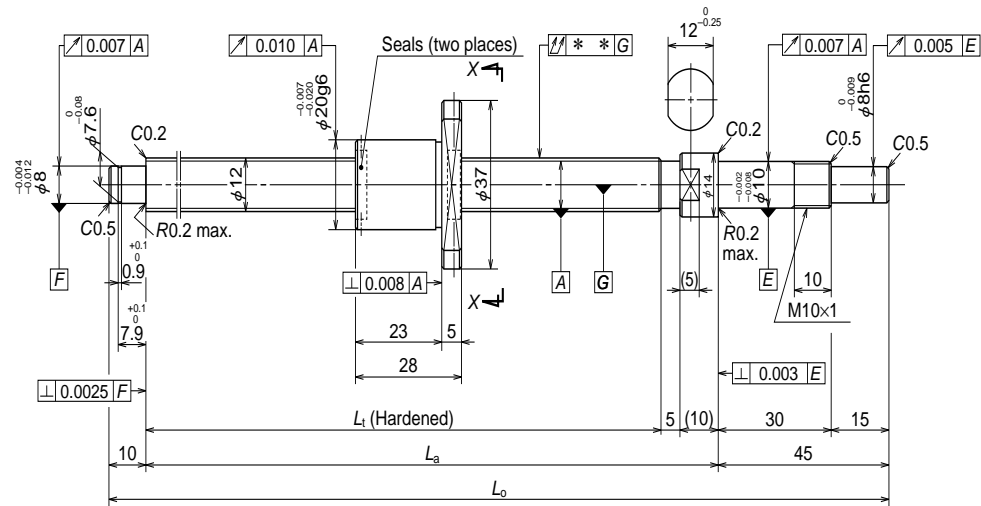
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L_1	L_a	L_o	T	e_p	v_u			
100	112	158	0	0.008	0.008	0.020	0.14	3000
150	162	208	0	0.010	0.008	0.030	0.17	3000
200	212	258	0	0.010	0.008	0.030	0.20	3000
250	262	308	0	0.012	0.008	0.030	0.23	3000

B255

B256

Finished shaft end MA Type

(Fine lead) Dia. 12, Lead 2

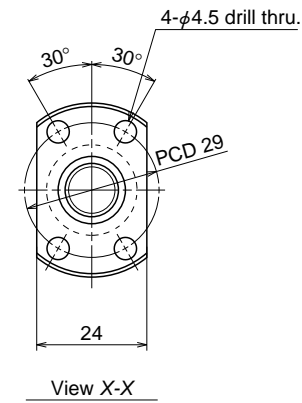


Nut models: MPFD, MSFD

NSK

ø12×2

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	12x2/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.200/12.3	
Screw shaft root diameter	10.9	
Effective turns of balls	1x3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C_a	1660
	Static C_{0a}	3620
Axial play	0	0.005 or less
Preload (N)	98.1	—
Dynamic friction torque, (N·cm)	0.4 – 3.4	1.0 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For drive side	For opposite to drive side
WBK10-01A (square)	○	
WBK10S-01 (square)		○
WBK10-11 (round)	○	

Unit: mm

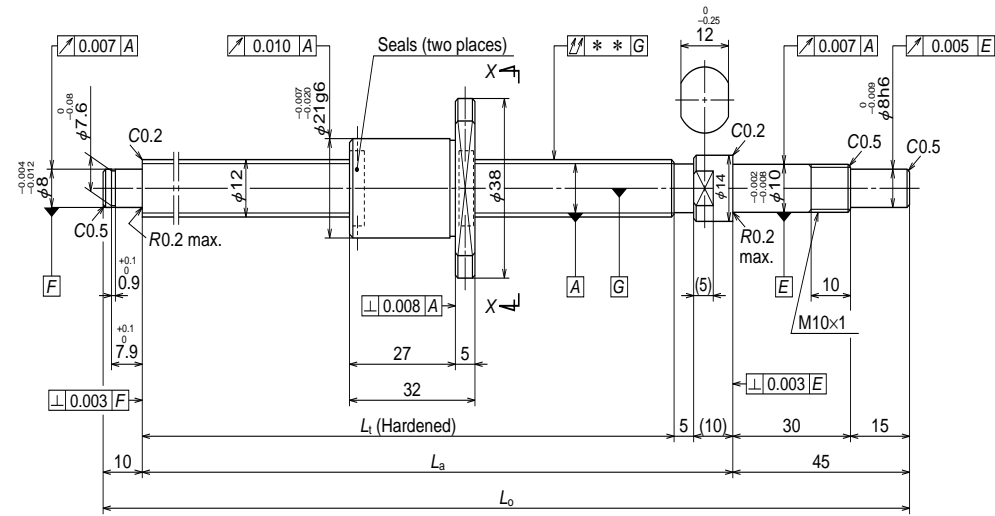
Ball screw No.		Stroke	
Preloaded (MPFD)	Precise clearance (MSFD)	Nominal	Maximum (L_1 —Nut length)
W1201MA-1PY-C3Z2	W1201MA-2Y-C3T2	50	82
W1201MA-3PY-C3Z2	W1201MA-4Y-C3T2	100	132
W1202MA-1PY-C3Z2	W1202MA-2Y-C3T2	150	182
W1202MA-3PY-C3Z2	W1202MA-4Y-C3T2	200	232
W1203MA-1PY-C3Z2	W1203MA-2Y-C3T2	250	282

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L_1	L_a	L_o	T	e_p	v_u			
110	125	180	0	0.010	0.008	0.020	0.20	3000
160	175	230	0	0.010	0.008	0.030	0.24	3000
210	225	280	0	0.012	0.008	0.030	0.28	3000
260	275	330	0	0.012	0.008	0.040	0.32	3000
310	325	380	0	0.012	0.008	0.040	0.36	3000

Finished shaft end MA Type

(Fine lead) Dia. 12, Lead 2.5



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W1201MA-5PY-C3Z2.5	W1201MA-6Y-C3T2.5	50	78
W1201MA-7PY-C3Z2.5	W1201MA-8Y-C3T2.5	100	128
W1202MA-5PY-C3Z2.5	W1202MA-6Y-C3T2.5	150	178
W1202MA-7PY-C3Z2.5	W1202MA-8Y-C3T2.5	200	228
W1203MA-3PY-C3Z2.5	W1203MA-4Y-C3T2.5	250	278

Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. Apply to the screw shaft surface when replenishing. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

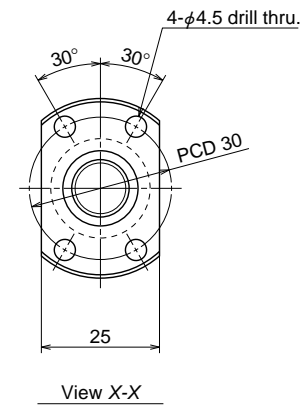
B259

Nut models: MPFD, MSFD

NSK

ø12×2.5

Unit: mm



Ball screw specifications		
Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	12×2.5/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.588/12.4	
Screw shaft root diameter	10.6	
Effective turns of balls	1×3	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C _a	2360
	Static C _{0a}	4540
Axial play	0	0.005 or less
Preload (N)	98.1	—
Dynamic friction torque, (N·cm)	0.4 – 3.4	1.0 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	

Recommended support unit	For opposite to drive side	
	For drive side	
WBK10-01A (square)	○	
WBK10S-01 (square)		○
WBK10-11 (round)	○	

Unit: mm

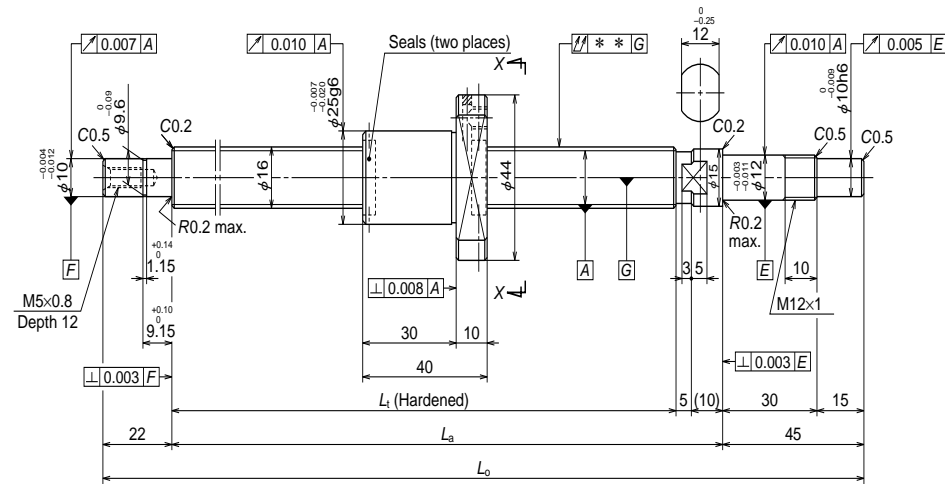
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L ₁	L _a	L _o	T	e _p	v _u			
110	125	180	0	0.010	0.008	0.020	0.21	3000
160	175	230	0	0.010	0.008	0.030	0.25	3000
210	225	280	0	0.012	0.008	0.030	0.29	3000
260	275	330	0	0.012	0.008	0.040	0.33	3000
310	325	380	0	0.012	0.008	0.040	0.37	3000

B
260

B260

Finished shaft end MA Type

(Fine lead) Dia. 16, Lead 2

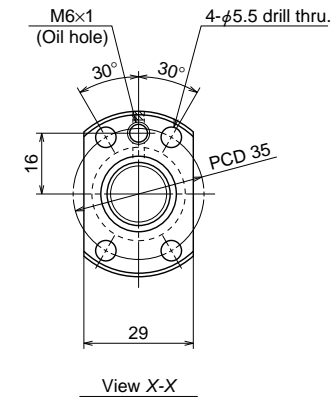


Nut models: MPFD, MSFD

NSK

ø16x2

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	16x2/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.588/16.4	
Screw shaft root diameter	14.6	
Effective turns of balls	1x4	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C_a	3510
	Static C_{0a}	8450
Axial play	0	0.005 or less
Preload (N)	147	—
Dynamic friction torque, (N-cm)	0.5 - 4.9	1.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	
Internal spatial volume of nut (cm ³)	1.6	
Standard volume of grease replenishing (cm ³)	0.8	

Recommended support unit	For drive side	For opposite to drive side
WBK12-01A (square)	○	
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_t —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W1601MA-1PY-C3Z2	W1601MA-2Y-C3T2	50	99
W1601MA-3PY-C3Z2	W1601MA-4Y-C3T2	100	149
W1602MA-1PY-C3Z2	W1602MA-2Y-C3T2	150	199
W1602MA-3PY-C3Z2	W1602MA-4Y-C3T2	200	249
W1603MA-1PY-C3Z2	W1603MA-2Y-C3T2	300	349

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

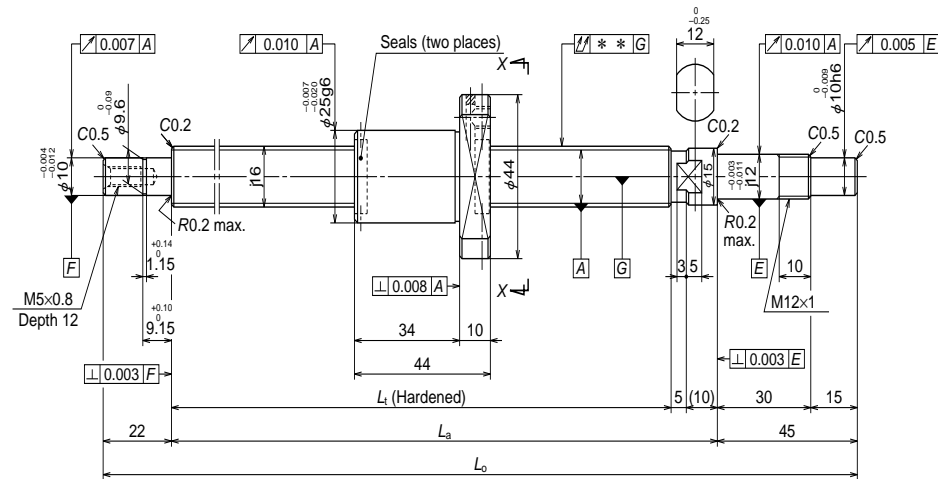
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L_t	L_a	L_o	T	e_p	v_u			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
139	154	221	0	0.010	0.008	0.020	0.41	3000	3000
189	204	271	0	0.010	0.008	0.020	0.48	3000	3000
239	254	321	0	0.012	0.008	0.030	0.55	3000	3000
289	304	371	0	0.012	0.008	0.030	0.62	3000	3000
389	404	471	0	0.013	0.010	0.035	0.77	3000	3000

B261

B262

Finished shaft end MA Type

(Fine lead) Dia. 16, Lead 2.5



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (MPFD)	Precise clearance (MSFD)		
W1601MA-5PY-C3Z2.5	W1601MA-6Y-C3T2.5	50	95
W1601MA-7PY-C3Z2.5	W1601MA-8Y-C3T2.5	100	145
W1602MA-5PY-C3Z2.5	W1602MA-6Y-C3T2.5	150	195
W1602MA-7PY-C3Z2.5	W1602MA-8Y-C3T2.5	200	245
W1603MA-3PY-C3Z2.5	W1603MA-4Y-C3T2.5	300	345

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

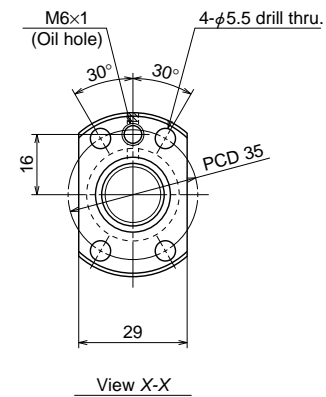
B263

Nut models: MPFD, MSFD

NSK

ø16×2.5

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	16×2.5/Right	
Preload / Ball recirculation	P preload / Deflector	
Ball dia. / Ball circle dia.	1.588/16.4	
Screw shaft root diameter	14.6	
Effective turns of balls	1×4	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C _a	3510
	Static C _{0a}	8450
Axial play	0	0.005 or less
Preload (N)	147	—
Dynamic friction torque, (N·cm)	0.5 – 4.9	1.5 or less
Spacer ball	None	
Factory packed grease	NSK grease PS2	
Internal spatial volume of nut (cm ³)	1.6	
Standard volume of grease replenishing (cm ³)	0.8	

Recommended support unit	For drive side	For opposite to drive side
WBK12-01A (square)	○	
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Unit: mm

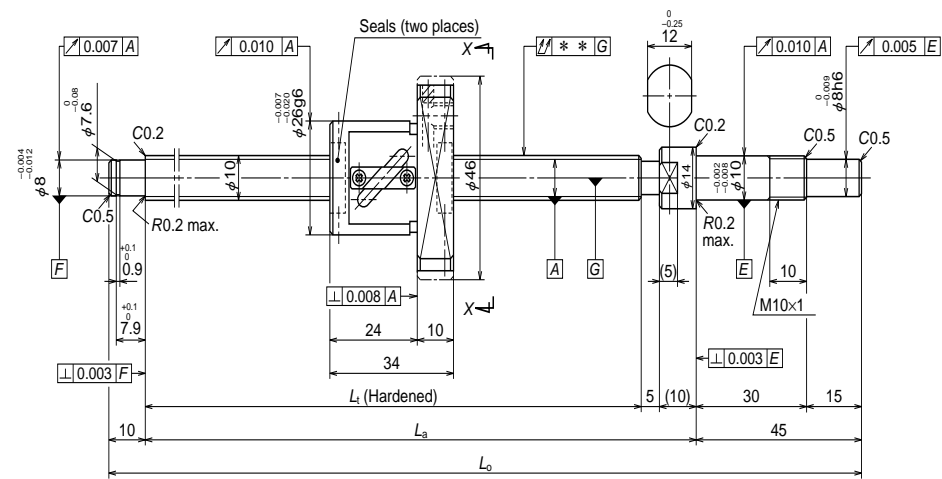
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L _t	L _a	L _o	T	e _p	v _u			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
139	154	221	0	0.010	0.008	0.020	0.42	3000	3000
189	204	271	0	0.010	0.008	0.020	0.49	3000	3000
239	254	321	0	0.012	0.008	0.030	0.57	3000	3000
289	304	371	0	0.012	0.008	0.030	0.64	3000	3000
389	404	471	0	0.013	0.010	0.035	0.79	3000	3000

B
264

B264

Finished shaft end FA Type

(Fine lead) Dia. 10, Lead 4

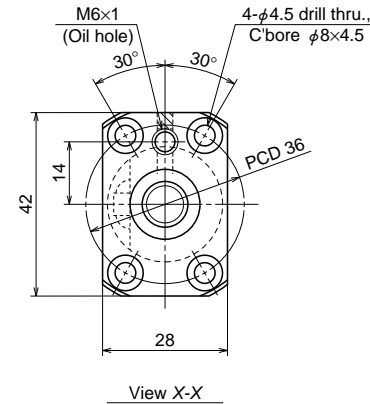


Nut models: PFT, SFT

NSK

ø10×4

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	10x4/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	2.000/10.3		
Screw shaft root diameter	8.2		
Effective turns of balls	2.5x1		
Accuracy grade / Preload / Axial play	C3/Z	C3/T	
Basic load rating (N)	Dynamic C_a	1730	2740
	Static C_{0a}	2230	4450
Axial play	0	0.005 or less	
Preload (N)	98.1	—	
Dynamic friction torque, (N·cm)	0.5 - 3.9	1.0 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease PS2		
Internal spatial volume of nut (cm ³)	0.8		
Standard volume of grease replenishing (cm ³)	0.4		

Recommended support unit	For drive side	For opposite to drive side
WBK10-01A (square)	○	
WBK10S-01 (square)		○
WBK10-11 (round)	○	

Unit: mm

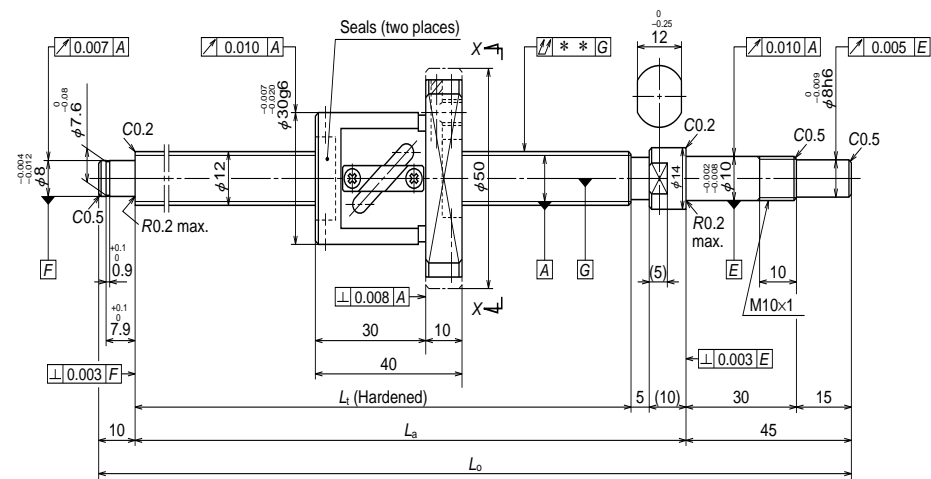
Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (PFT)	Precise clearance (SFT)		
W1001FA-1P-C3Z4	W1001FA-2-C3T4	50	76
W1001FA-3P-C3Z4	W1001FA-4-C3T4	100	126
W1002FA-1P-C3Z4	W1002FA-2-C3T4	150	176
W1002FA-3P-C3Z4	W1002FA-4-C3T4	200	226
W1003FA-1P-C3Z4	W1003FA-2-C3T4	250	276
W1003FA-3P-C3Z4	W1003FA-4-C3T4	300	326

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed · Simple support
L_i	L_a	L_o	T	e_p	v_u			
110	125	180	0	0.010	0.008	0.020	0.26	3000
160	175	230	0	0.010	0.008	0.030	0.28	3000
210	225	280	0	0.012	0.008	0.030	0.31	3000
260	275	330	0	0.012	0.008	0.040	0.34	3000
310	325	380	0	0.012	0.008	0.040	0.37	3000
360	375	430	0	0.013	0.010	0.050	0.39	3000

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Finished shaft end FA Type

(Fine lead) Dia. 12, Lead 5

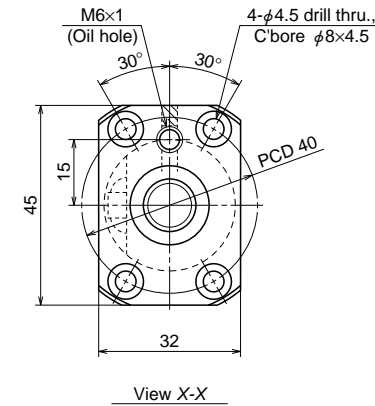


Nut models: PFT, SFT

NSK

ø12×5

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	12x5/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	2.381/12.3	
Screw shaft root diameter	9.8	
Effective turns of balls	2.5x1	
Accuracy grade / Preload / Axial play	C3/Z	C3/T
Basic load rating (N)	Dynamic C _a	2370
	Static C _{0a}	3160
Axial play	0	0.005 or less
Preload (N)	98.1	—
Dynamic friction torque, (N·cm)	1.0 – 4.4	1.0 or less
Spacer ball	Yes	None
Factory packed grease	NSK grease PS2	
Internal spatial volume of nut (cm ³)	1.2	
Standard volume of grease replenishing (cm ³)	0.6	

Recommended support unit	For drive side	For opposite to drive side
WBK10-01A (square)	○	
WBK10S-01 (square)		○
WBK10-11 (round)	○	

Unit: mm

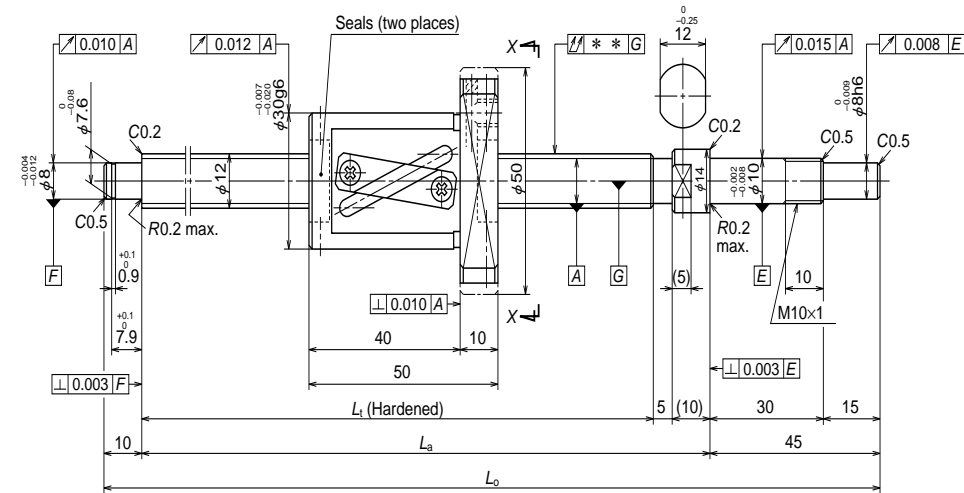
Ball screw No.		Stroke	
Preloaded (PFT)	Precise clearance (SFT)	Nominal	Maximum (L _t —Nut length)
W1201FA-1P-C3Z5	W1201FA-2-C3T5	50	70
W1201FA-3P-C3Z5	W1201FA-4-C3T5	100	120
W1202FA-1P-C3Z5	W1202FA-2-C3T5	150	170
W1202FA-3P-C3Z5	W1202FA-4-C3T5	200	220
W1203FA-1P-C3Z5	W1203FA-2-C3T5	250	270
W1204FA-1P-C3Z5	W1204FA-2-C3T5	350	370
W1205FA-1P-C3Z5	W1205FA-2-C3T5	450	470

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease PS2 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹) Supporting condition Fixed - Simple support
L _t	L _a	L _o	T	e _p	v _u			
110	125	180	0	0.010	0.008	0.020	0.35	3000
160	175	230	0	0.010	0.008	0.030	0.38	3000
210	225	280	0	0.012	0.008	0.030	0.42	3000
260	275	330	0	0.012	0.008	0.040	0.46	3000
310	325	380	0	0.012	0.008	0.040	0.50	3000
410	425	480	0	0.015	0.010	0.050	0.58	3000
510	525	580	0	0.016	0.012	0.065	0.66	3000

Finished shaft end FA Type

(Medium lead) Dia. 12, Lead 10

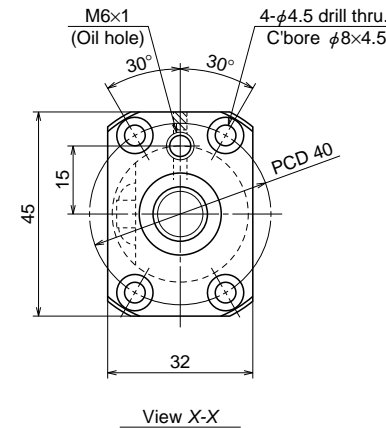


Nut models: LPFT, LSFT

NSK

ø12×10

Unit: mm



Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	12x10/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	2.381/12.5		
Screw shaft root diameter	10.0		
Effective turns of balls	2.5x1		
Accuracy grade / Preload / Axial play	C5/Z	C5/T	
Basic load rating (N)	Dynamic C _a	2360	3750
	Static C _{0a}	3240	6480
Axial play	0	0.005 or less	
Preload (N)	98.1	—	
Dynamic friction torque, (N·cm)	1.0 – 4.9	1.5 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	1.4		
Standard volume of grease replenishing (cm ³)	0.7		

Recommended support unit	For drive side		For opposite to drive side	
	WBK10-01A (square)	○		
WBK10S-01 (square)			○	
WBK10-11 (round)	○			

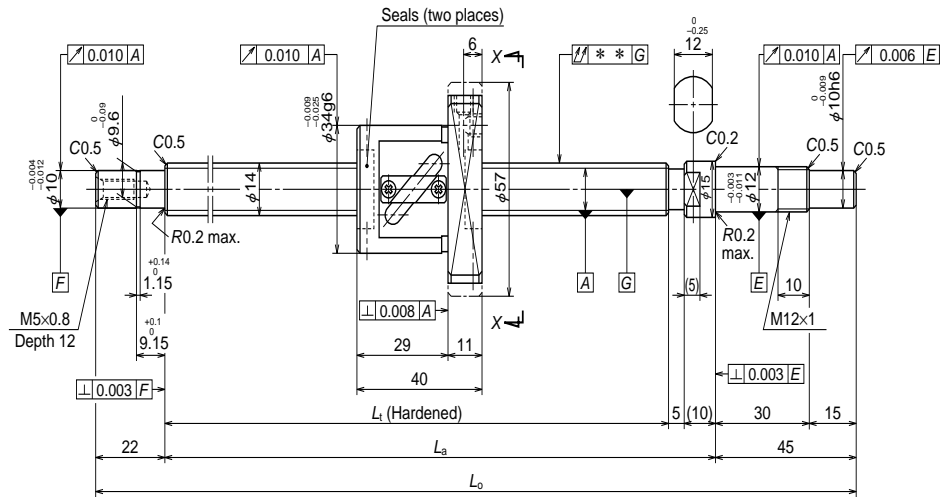
Ball screw No.		Stroke	
		Nominal	Maximum (L _r —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W1201FA-5P-C5Z10	W1201FA-6-C5T10	100	110
W1202FA-5P-C5Z10	W1202FA-6-C5T10	150	160
W1203FA-3P-C5Z10	W1203FA-4-C5T10	250	260
W1204FA-3P-C5Z10	W1204FA-4-C5T10	350	360
W1205FA-3P-C5Z10	W1205FA-4-C5T10	450	460

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L _i	L _a	L _o	T	e _p	v _u			Supporting condition	Fixed · Simple support
160	175	230	0	0.020	0.018	0.035	0.43	3000	
210	225	280	0	0.023	0.018	0.035	0.47	3000	
310	325	380	0	0.023	0.018	0.050	0.56	3000	
410	425	480	0	0.027	0.020	0.060	0.64	3000	
510	525	580	0	0.030	0.023	0.075	0.72	3000	

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Finished shaft end FA Type

(Fine lead) Dia. 14, Lead 5

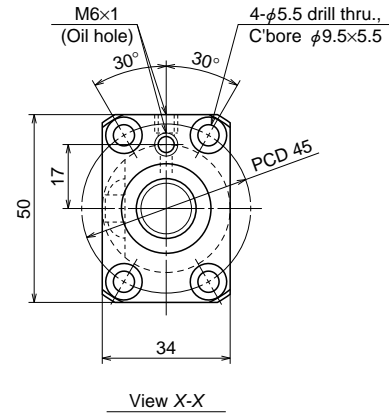


Nut models: PFT, SFT

NSK

ø14×5

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	14x5/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	3.175/14.5		
Screw shaft root diameter	11.2		
Effective turns of balls	2.5x1		
Accuracy grade / Preload / Axial play	C3/Z	C3/T	
Basic load rating (N)	Dynamic C_a	4280	6790
	Static C_{0a}	5840	11700
Axial play	0	0.005 or less	
Preload (N)	147	—	
Dynamic friction torque, (N·cm)	1.5 – 6.9	2.0 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	2.2		
Standard volume of grease replenishing (cm ³)	1.1		

Recommended support unit	For drive side	For opposite to drive side
WBK12-01A (square)	○	
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (PFT)	Precise clearance (SFT)		
W1401FA-1P-C3Z5	W1401FA-2-C3T5	100	149
W1402FA-1P-C3Z5	W1402FA-2-C3T5	150	199
W1403FA-1P-C3Z5	W1403FA-2-C3T5	250	299
W1404FA-1P-C3Z5	W1404FA-2-C3T5	350	399
W1405FA-1P-C3Z5	W1405FA-2-C3T5	450	499
W1406FA-1P-C3Z5	W1406FA-2-C3T5	600	649

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

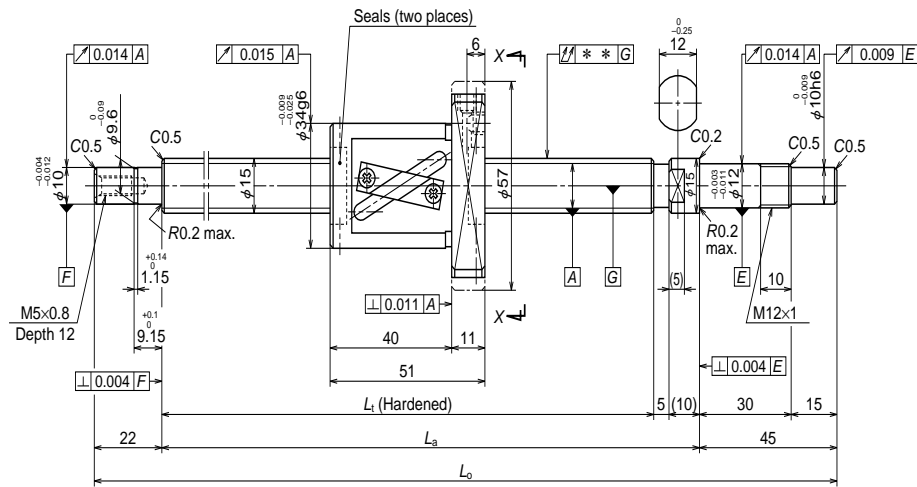
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L_1	L_a	L_0	T	e_p	v_a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
189	204	271	0	0.010	0.008	0.020	0.52	3000	3000
239	254	321	0	0.012	0.008	0.030	0.57	3000	3000
339	354	421	0	0.013	0.010	0.035	0.67	3000	3000
439	454	521	0	0.015	0.010	0.045	0.77	3000	3000
539	554	621	0	0.016	0.012	0.045	0.87	3000	3000
689	704	771	0	0.018	0.013	0.055	1.0	3000	3000

B271

B272

Finished shaft end FA Type

(Medium lead) Dia. 15, Lead 10



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W1501FA-1P-C5Z10	W1501FA-2-C5T10	100	138
W1502FA-1P-C5Z10	W1502FA-2-C5T10	150	188
W1502FA-3P-C5Z10	W1502FA-4-C5T10	200	238
W1503FA-1P-C5Z10	W1503FA-2-C5T10	250	288
W1503FA-3P-C5Z10	W1503FA-4-C5T10	300	338
W1504FA-1P-C5Z10	W1504FA-2-C5T10	350	388
W1504FA-3P-C5Z10	W1504FA-4-C5T10	400	438
W1505FA-1P-C5Z10	W1505FA-2-C5T10	450	488
W1505FA-3P-C5Z10	W1505FA-4-C5T10	500	538
W1506FA-1P-C5Z10	W1506FA-2-C5T10	550	588
W1506FA-3P-C5Z10	W1506FA-4-C5T10	600	638
W1507FA-1P-C5Z10	W1507FA-2-C5T10	700	738
W1508FA-1P-C5Z10	W1508FA-2-C5T10	800	838
W1510FA-1P-C5Z10	W1510FA-2-C5T10	1000	1038

Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

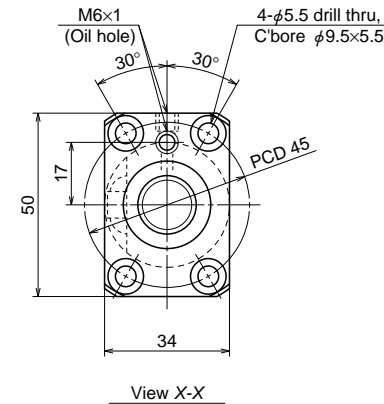
B275

Nut models: LPFT, LSFT

NSK

ø15×10

Unit: mm



Recommended support unit	For drive side	For opposite to drive side
WBK12-01A (square)	○	
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	15×10/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/15.5	
Screw shaft root diameter	12.2	
Effective turns of balls	2.5×1	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C _a	4450
	Static C _{0a}	6380
Axial play	0	0.005 or less
Preload (N)	147	—
Dynamic friction torque, (N·cm)	1.5 - 7.8	2.4 or less
Spacer ball	Yes	None
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	2.3	
Standard volume of grease replenishing (cm ³)	1.2	

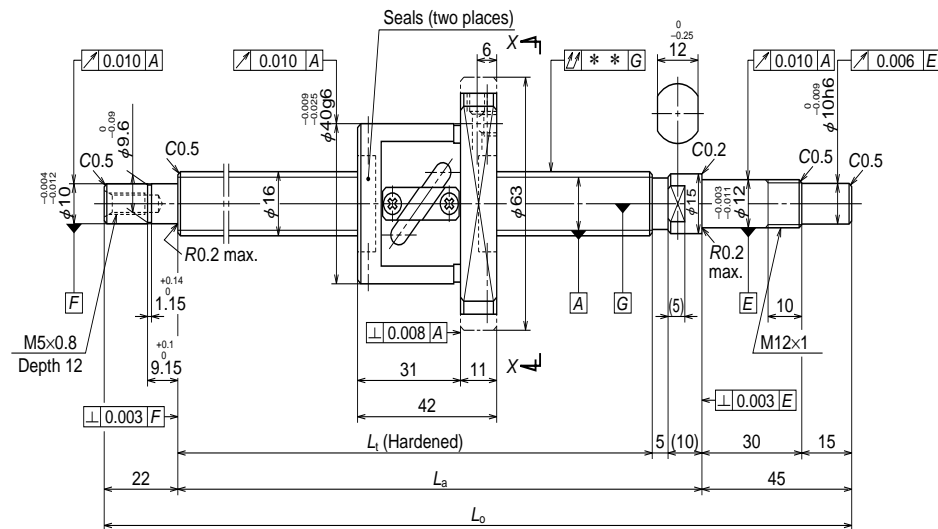
Unit: mm

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L ₁	L _a	L _o	T	e _p	v _o			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
189	204	271	0	0.020	0.018	0.025	0.61	3000	3000
239	254	321	0	0.023	0.018	0.035	0.67	3000	3000
289	304	371	0	0.023	0.018	0.035	0.74	3000	3000
339	354	421	0	0.025	0.020	0.040	0.80	3000	3000
389	404	471	0	0.025	0.020	0.040	0.86	3000	3000
439	454	521	0	0.027	0.020	0.050	0.93	3000	3000
489	504	571	0	0.027	0.020	0.050	1.0	3000	3000
539	554	621	0	0.030	0.023	0.050	1.1	3000	3000
589	604	671	0	0.030	0.023	0.065	1.1	3000	3000
639	654	721	0	0.035	0.025	0.065	1.2	3000	3000
689	704	771	0	0.035	0.025	0.065	1.2	3000	3000
789	804	871	0	0.035	0.025	0.085	1.4	3000	3000
889	904	971	0	0.040	0.027	0.085	1.5	2400	3000
1089	1104	1171	0	0.046	0.030	0.110	1.8	1590	2250

B276

Finished shaft end FA Type

(Fine lead) Dia. 16, Lead 5

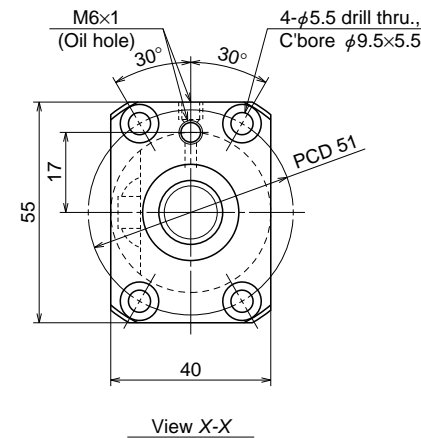


Nut models: PFT, SFT

NSK

ø16x5

Unit: mm



Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	16x5/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	3.175/16.5		
Screw shaft root diameter	13.2		
Effective turns of balls	2.5x1		
Accuracy grade / Preload / Axial play	C3/Z	C3/T	
Basic load rating (N)	Dynamic C_a	4620	7330
	Static C_{0a}	6750	13500
Axial play	0	0.005 or less	
Preload (N)	147	—	
Dynamic friction torque, (N·cm)	1.5 - 7.8	2.0 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	2.6		
Standard volume of grease replenishing (cm ³)	1.3		

Recommended support unit	For drive side		For opposite to drive side	
	For drive side	For opposite to drive side	For drive side	For opposite to drive side
WBK12-01A (square)	○			
WBK12S-01 (square)			○	
WBK12-11 (round)	○			

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (PFT)	Precise clearance (SFT)		
W1601FA-1P-C3Z5	W1601FA-2-C3T5	100	147
W1602FA-1P-C3Z5	W1602FA-2-C3T5	200	247
W1603FA-1P-C3Z5	W1603FA-2-C3T5	300	347
W1604FA-1P-C3Z5	W1604FA-2-C3T5	400	447
W1606FA-1P-C3Z5	W1606FA-2-C3T5	600	647
W1608FA-1P-C3Z5	W1608FA-2-C3T5	800	847

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

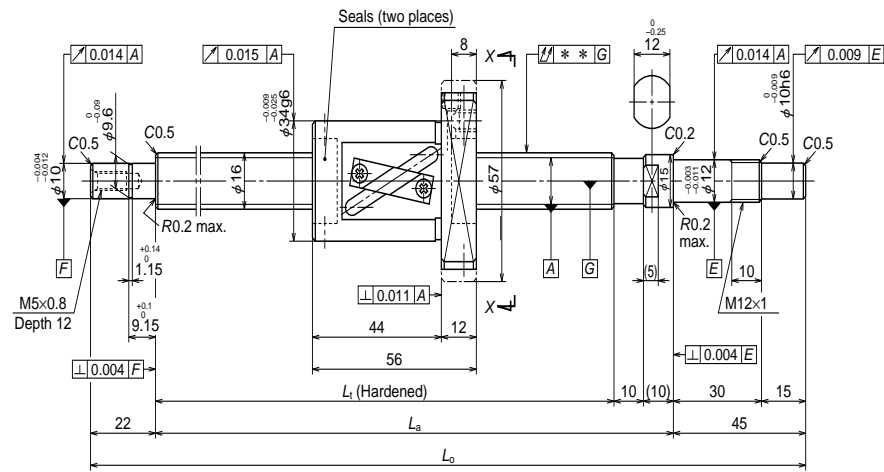
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L_1	L_a	L_o	T	e_p	v_a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
189	204	271	0	0.010	0.008	0.020	0.70	3000	3000
289	304	371	0	0.012	0.008	0.030	0.83	3000	3000
389	404	471	0	0.013	0.010	0.035	0.97	3000	3000
489	504	571	0	0.015	0.010	0.045	1.1	3000	3000
689	704	771	0	0.018	0.013	0.055	1.4	3000	3000
889	904	971	0	0.021	0.015	0.075	1.6	2570	3000

B279

B280

Finished shaft end FA Type

(High helix lead) Dia. 16, Lead 16

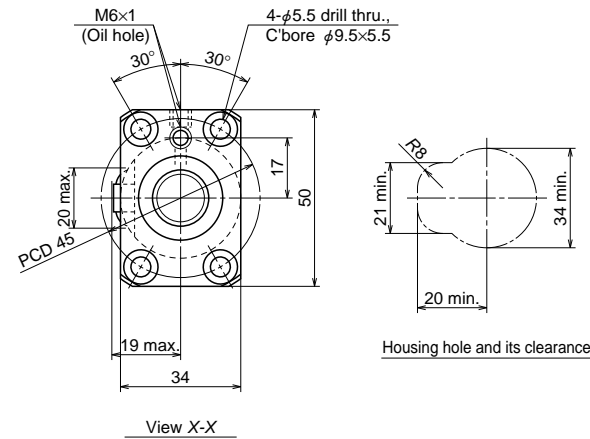


Nut models: LPFT, LSFT

NSK

Unit: mm

ø16×16



Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	16×16/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	3.175/16.75		
Screw shaft root diameter	13.4		
Effective turns of balls	1.5×1		
Accuracy grade / Preload / Axial play	C5/Z	C5/T	
Basic load rating (N)	Dynamic C _a	3600	4710
	Static C _{0a}	5410	8110
Axial play	0	0.005 or less	
Preload (N)	147	—	
Dynamic friction torque, (N·cm)	1.5 - 7.8	2.4 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	2.1		
Standard volume of grease replenishing (cm ³)	1.1		

Recommended support unit	For drive side	For opposite to drive side
WBK12-01A (square)	○	
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L _t —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W1601FA-3P-C5Z16	W1601FA-4-C5T16	100	128
W1602FA-3P-C5Z16	W1602FA-4-C5T16	150	178
W1602FA-5P-C5Z16	W1602FA-6-C5T16	200	228
W1603FA-3P-C5Z16	W1603FA-4-C5T16	250	278
W1603FA-5P-C5Z16	W1603FA-6-C5T16	300	328
W1604FA-3P-C5Z16	W1604FA-4-C5T16	350	378
W1604FA-5P-C5Z16	W1604FA-6-C5T16	400	428
W1605FA-1P-C5Z16	W1605FA-2-C5T16	450	478
W1605FA-3P-C5Z16	W1605FA-4-C5T16	500	528
W1606FA-3P-C5Z16	W1606FA-4-C5T16	550	578
W1606FA-5P-C5Z16	W1606FA-6-C5T16	600	628
W1607FA-1P-C5Z16	W1607FA-2-C5T16	700	728
W1608FA-3P-C5Z16	W1608FA-4-C5T16	800	828
W1610FA-1P-C5Z16	W1610FA-2-C5T16	1000	1028

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

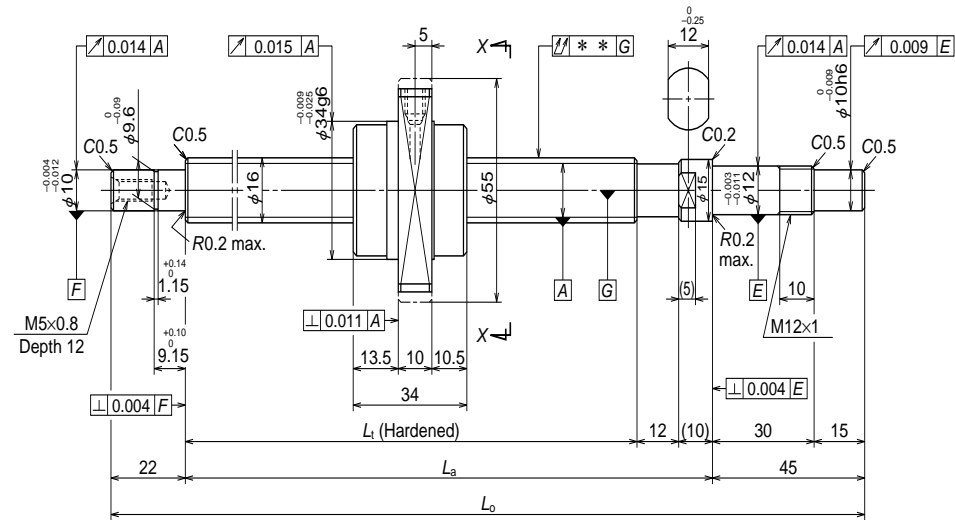
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
								Supporting condition	
L _t	L _a	L _o	T	e _p	v _a		Fixed - Simple support	Fixed - Fixed	
184	204	271	0	0.020	0.018	0.025	0.69	3000	3000
234	254	321	0	0.023	0.018	0.035	0.77	3000	3000
284	304	371	0	0.023	0.018	0.035	0.84	3000	3000
334	354	421	0	0.025	0.020	0.040	0.92	3000	3000
384	404	471	0	0.025	0.020	0.040	0.99	3000	3000
434	454	521	0	0.027	0.020	0.050	1.1	3000	3000
484	504	571	0	0.027	0.020	0.050	1.1	3000	3000
534	554	621	0	0.030	0.023	0.050	1.2	3000	3000
584	604	671	0	0.030	0.023	0.065	1.3	3000	3000
634	654	721	0	0.035	0.025	0.065	1.4	3000	3000
684	704	771	0	0.035	0.025	0.065	1.4	3000	3000
784	804	871	0	0.035	0.025	0.085	1.6	3000	3000
884	904	971	0	0.040	0.027	0.085	1.7	2690	3000
1084	1104	1171	0	0.046	0.030	0.110	2.0	1770	2480

B281

B282

Finished shaft end FA Type

(Ultra high helix lead) Dia. 16, Lead 32



Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (UPFC)	Precise clearance (USFC)		
W1603FA-7PGX-C5Z32	W1603FA-8GX-C5T32	300	348
W1605FA-5PGX-C5Z32	W1605FA-6GX-C5T32	500	548
W1608FA-5PGX-C5Z32	W1608FA-6GX-C5T32	800	848
W1612FA-1PGX-C5Z32	W1612FA-2GX-C5T32	1200	1248

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Nut does not have a seal.
 4. Contact NSK if permissible rotational speed is to be exceeded.

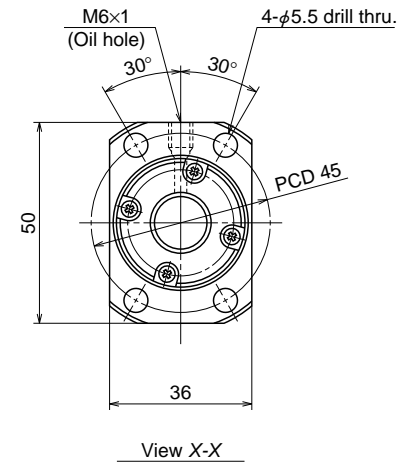
B283

Nut models: UPFC, USFC

NSK

ø16×32

Unit: mm



Ball screw specifications		
Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	16x32/Right	
Preload / Ball recirculation	P preload / End cap	
Ball dia. / Ball circle dia.	3.175/16.75	
Screw shaft root diameter	13.4	
Effective turns of balls	0.7x2	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C_a	4000
	Static C_{0a}	6690
Axial play	0	0.005 or less
Preload (N)	118	—
Dynamic friction torque, (N·cm)	1.5 - 9.8	2.4 or less
Spacer ball	None	
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	2.0	
Standard volume of grease replenishing (cm ³)	1.0	

Recommended support unit	For drive side	For opposite to drive side
	WBK12-01A (square)	○
WBK12S-01 (square)		○
WBK12-11 (round)	○	

Unit: mm

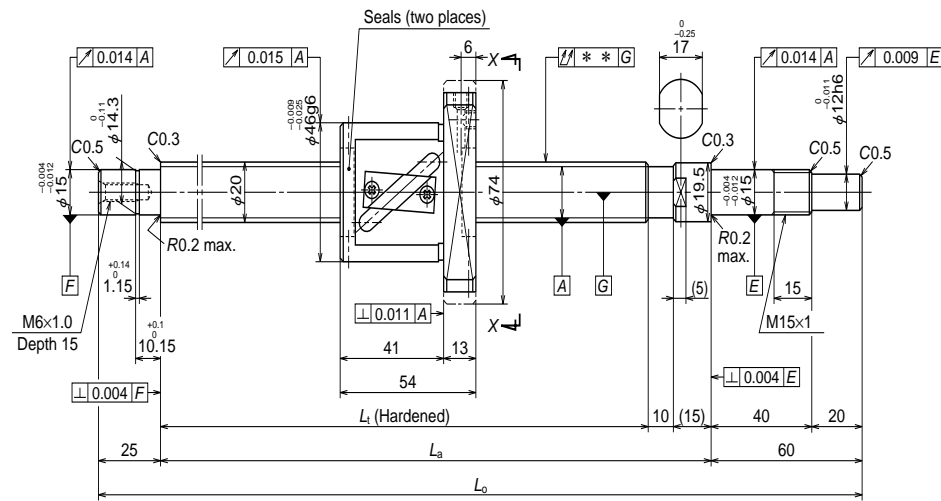
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
								Supporting condition	
L_1	L_a	L_o	T	e_p	v_a			Fixed - Simple support	Fixed - Fixed
382	404	471	0	0.025	0.020	0.040	0.90	3000	3000
582	604	671	0	0.030	0.023	0.065	1.2	3000	3000
882	904	971	0	0.040	0.027	0.085	1.7	2630	3000
1282	1304	1371	0	0.054	0.035	0.150	2.3	1240	1740

B
284

B284

Finished shaft end FA Type

(Medium lead) Dia. 20, Lead 10

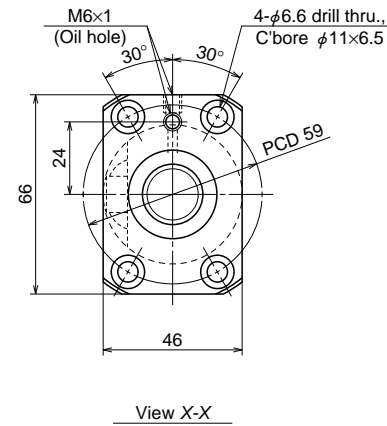


Nut models: LPFT, LSFT

NSK

ø20×10

Unit: mm



Recommended support unit	For drive side	For opposite to drive side
WBK15-01A (square)	○	
WBK15S-01 (square)		○
WBK15-11 (round)	○	

Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	20x10/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	3.969/21		
Screw shaft root diameter	16.9		
Effective turns of balls	2.5x1		
Accuracy grade / Preload / Axial play	C5/Z	C5/T	
Basic load rating (N)	Dynamic C_a	6880	10900
	Static C_{0a}	10800	21700
Axial play	0	0.005 or less	
Preload (N)	196	—	
Dynamic friction torque, (N-cm)	2.0 - 11.8	2.9 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	4.7		
Standard volume of grease replenishing (cm ³)	2.4		

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W2002FA-1P-C5Z10	W2002FA-2-C5T10	200	235
W2003FA-1P-C5Z10	W2003FA-2-C5T10	300	335
W2004FA-1P-C5Z10	W2004FA-2-C5T10	400	435
W2005FA-1P-C5Z10	W2005FA-2-C5T10	500	535
W2006FA-1P-C5Z10	W2006FA-2-C5T10	600	635
W2007FA-1P-C5Z10	W2007FA-2-C5T10	700	735
W2008FA-1P-C5Z10	W2008FA-2-C5T10	800	835
W2009FA-1P-C5Z10	W2009FA-2-C5T10	900	935
W2010FA-1P-C5Z10	W2010FA-2-C5T10	1000	1035
W2011FA-1P-C5Z10	W2011FA-2-C5T10	1100	1135
W2012FA-1P-C5Z10	W2012FA-2-C5T10	1200	1235

Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

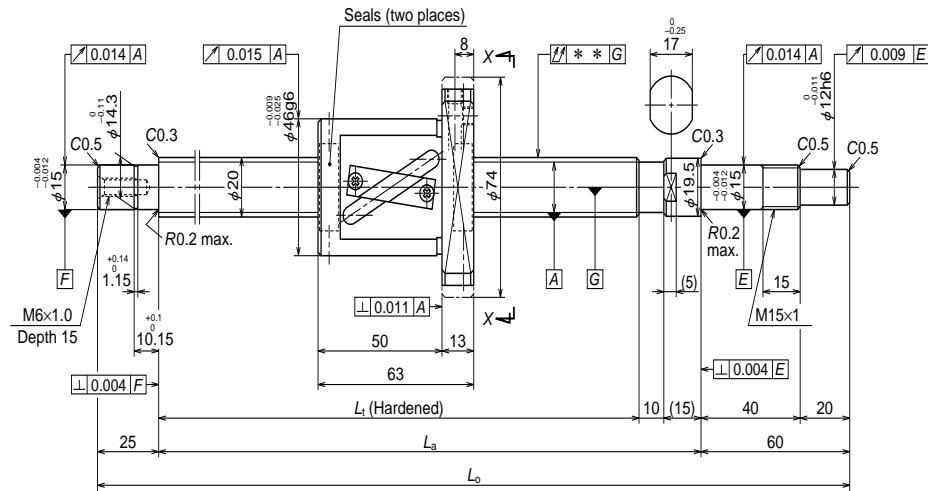
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L ₁	L _a	L _o	T	e _p	v _a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
289	314	399	0	0.023	0.018	0.035	1.4	3000	3000
389	414	499	0	0.025	0.020	0.040	1.6	3000	3000
489	514	599	0	0.027	0.020	0.050	1.9	3000	3000
589	614	699	0	0.030	0.023	0.065	2.1	3000	3000
689	714	799	0	0.035	0.025	0.065	2.3	3000	3000
789	814	899	0	0.035	0.025	0.085	2.5	3000	3000
889	914	999	0	0.040	0.027	0.085	2.8	3000	3000
989	1014	1099	0	0.040	0.027	0.110	3.0	2680	3000
1089	1114	1199	0	0.046	0.030	0.110	3.2	2210	3000
1189	1214	1299	0	0.046	0.030	0.150	3.4	1840	2570
1289	1314	1399	0	0.054	0.035	0.150	3.7	1570	2190

B285

B286

Finished shaft end FA Type

(High helix lead) Dia. 20, Lead 20

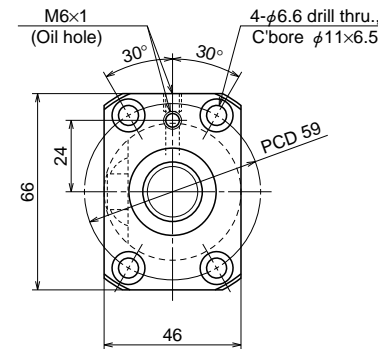


Nut models: LPFT, LSFT

NSK

ø20×20

Unit: mm



View X-X

Recommended support unit	For drive side	For opposite to drive side
WBK15-01A (square)	○	
WBK15S-01 (square)		○
WBK15-11 (round)	○	

Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	20×20/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	3.969/21		
Screw shaft root diameter	16.9		
Effective turns of balls	1.5×1		
Accuracy grade / Preload / Axial play	C5/Z	C53/T	
Basic load rating (N)	Dynamic C_a	5370	7040
	Static C_{0a}	8450	12700
Axial play	0	0.005 or less	
Preload (N)	196	—	
Dynamic friction torque, (N·cm)	2.0 - 11.8	2.9 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	4.2		
Standard volume of grease replenishing (cm ³)	2.1		

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L _r —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W2003FA-3P-C5Z20	W2003FA-4-C5T20	200	247
W2004FA-3P-C5Z20	W2004FA-4-C5T20	300	347
W2005FA-3P-C5Z20	W2005FA-4-C5T20	400	447
W2006FA-3P-C5Z20	W2006FA-4-C5T20	500	547
W2007FA-3P-C5Z20	W2007FA-4-C5T20	600	647
W2008FA-3P-C5Z20	W2008FA-4-C5T20	700	747
W2009FA-3P-C5Z20	W2009FA-4-C5T20	800	847
W2010FA-3P-C5Z20	W2010FA-4-C5T20	900	947
W2011FA-3P-C5Z20	W2011FA-4-C5T20	1000	1047
W2012FA-3P-C5Z20	W2012FA-4-C5T20	1100	1147
W2015FA-1P-C5Z20	W2015FA-2-C5T20	1400	1447

- Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

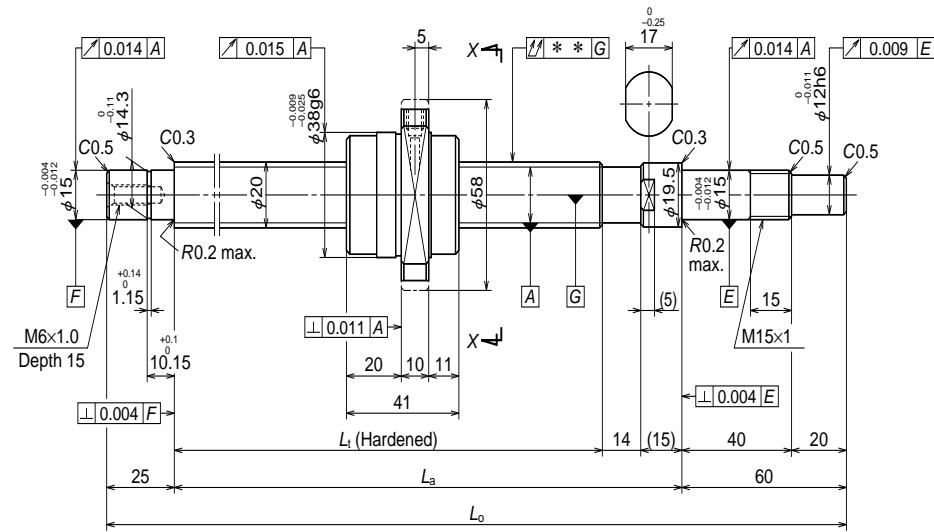
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
								Supporting condition	
L _t	L _a	L _o	T	e _p	v _a		Fixed - Simple support	Fixed - Fixed	
310	335	420	0	0.023	0.018	0.040	1.6	3000	3000
410	435	520	0	0.027	0.020	0.050	1.8	3000	3000
510	535	620	0	0.030	0.023	0.050	2.0	3000	3000
610	635	720	0	0.030	0.023	0.065	2.3	3000	3000
710	735	820	0	0.035	0.025	0.085	2.5	3000	3000
810	835	920	0	0.040	0.027	0.085	2.7	3000	3000
910	935	1020	0	0.040	0.027	0.110	3.0	3000	3000
1010	1035	1120	0	0.046	0.030	0.110	3.2	2590	3000
1110	1135	1220	0	0.046	0.030	0.110	3.4	2140	2970
1210	1235	1320	0	0.046	0.030	0.150	3.7	1790	2500
1510	1535	1620	0	0.054	0.035	0.180	4.4	1140	1610

B287

B288

Finished shaft end FA Type

(Ultra high helix lead) Dia. 20, Lead 40

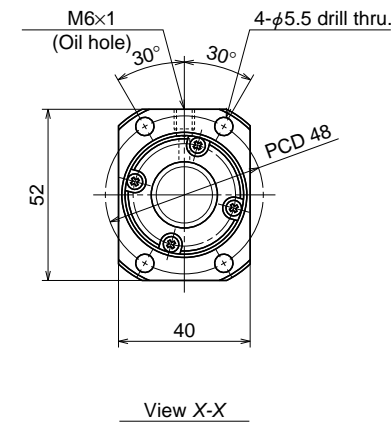


Nut models: UPFC, USFC

NSK

ø20×40

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	20x40/Right	
Preload / Ball recirculation	P preload / End cap	
Ball dia. / Ball circle dia.	3.175/20.75	
Screw shaft root diameter	17.4	
Effective turns of balls	0.7x2	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C_a	4490
	Static C_{0a}	8640
Axial play	0	0.005 or less
Preload (N)	148	—
Dynamic friction torque, (N-cm)	2.0 - 11.8	2.9 or less
Spacer ball	None	
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	2.8	
Standard volume of grease replenishing (cm ³)	1.4	

Recommended support unit	For drive side	For opposite to drive side
WBK15-01A (square)	○	
WBK15S-01 (square)		○
WBK15-11 (round)	○	

Unit: mm

Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (UPFC)	Precise clearance (USFC)		
W2005FA-5PGX-C5Z40	W2005FA-6GX-C5T40	400	465
W2007FA-5PGX-C5Z40	W2007FA-6GX-C5T40	600	665
W2009FA-5PGX-C5Z40	W2009FA-6GX-C5T40	800	865
W2011FA-5PGX-C5Z40	W2011FA-6GX-C5T40	1000	1065
W2013FA-1PGX-C5Z40	W2013FA-2GX-C5T40	1200	1265
W2017FA-1PGX-C5Z40	W2017FA-2GX-C5T40	1600	1665

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Nut does not have a seal.
 4. Contact NSK if permissible rotational speed is to be exceeded.

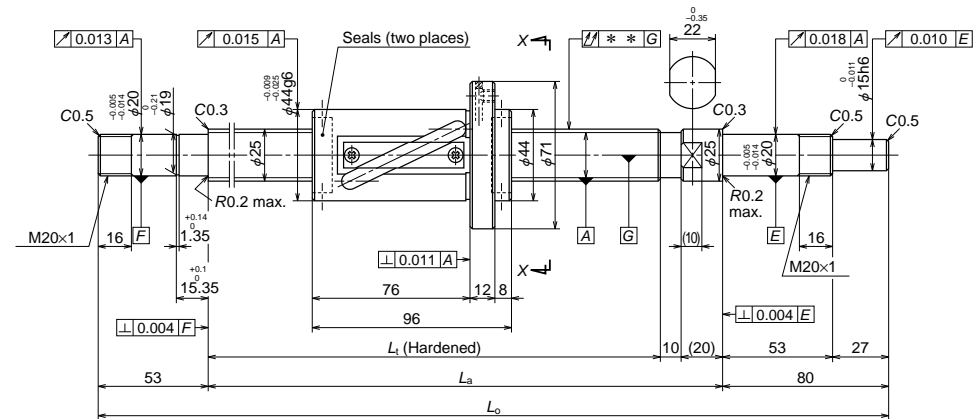
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L_1	L_a	L_o	T	e_p	v_a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
506	535	620	0	0.030	0.023	0.050	1.7	3000	3000
706	735	820	0	0.035	0.025	0.085	2.2	3000	3000
906	935	1020	0	0.040	0.027	0.110	2.7	3000	3000
1106	1135	1220	0	0.046	0.030	0.110	3.1	2170	3000
1306	1335	1420	0	0.054	0.035	0.150	3.6	1550	2160
1706	1735	1820	0	0.065	0.040	0.230	4.6	910	1270

B289

B290

Finished shaft end FA Type

(Medium lead) Dia. 25, Lead 20

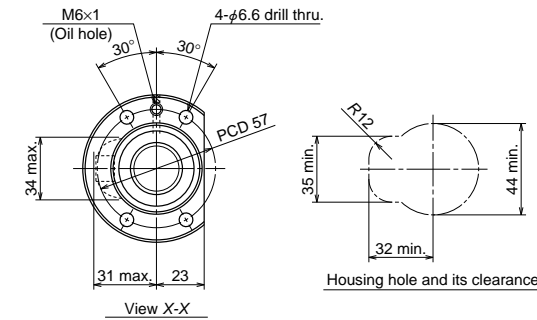


Nut models: LPFT, LSFT

NSK

ø25×20

Unit: mm



Ball screw specifications		
Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	25x20/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	4.762/26.25	
Screw shaft root diameter	21.3	
Effective turns of balls	2.5x1	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C_a	9900
	Static C_{0a}	16400
Axial play	0	0.005 or less
Preload (N)	343	—
Dynamic friction torque, (N·cm)	3.9 - 24.5	4.9 or less
Spacer ball	Yes	None
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	12	
Standard volume of grease replenishing (cm ³)	6	

Recommended support unit	For drive side	For opposite to drive side
WBK20-01 (square)	○	○
WBK20S-01 (square)		○
WBK20-11 (round)	○	○

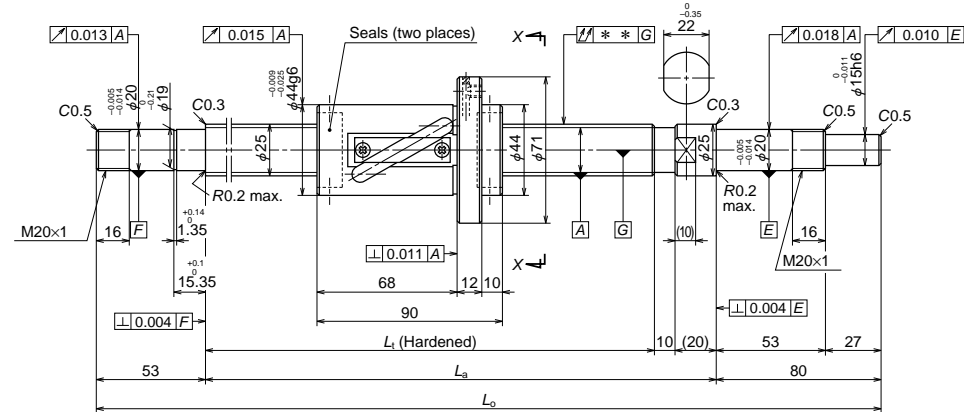
Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W2507FA-1P-C5Z20	W2507FA-2-C5T20	600	654
W2509FA-1P-C5Z20	W2509FA-2-C5T20	800	854
W2511FA-1P-C5Z20	W2511FA-2-C5T20	1000	1054
W2513FA-1P-C5Z20	W2513FA-2-C5T20	1200	1254
W2515FA-1P-C5Z20	W2515FA-2-C5T20	1400	1454
W2517FA-1P-C5Z20	W2517FA-2-C5T20	1600	1654
W2521FA-1P-C5Z20	W2521FA-2-C5T20	2000	2054

Remarks: 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
								Supporting condition	
L ₁	L _a	L ₀	T	e _p	v _a		Fixed - Simple support	Fixed - Fixed	
750	780	913	0	0.035	0.025	0.055	4.0	2800	2800
950	980	1113	0	0.040	0.027	0.070	4.7	2800	2800
1150	1180	1313	0	0.046	0.030	0.090	5.4	2560	2800
1350	1380	1513	0	0.054	0.035	0.090	6.2	1840	2550
1550	1580	1713	0	0.054	0.035	0.120	6.9	1390	1940
1750	1780	1913	0	0.065	0.040	0.120	7.6	1080	1520
2150	2180	2313	0	0.077	0.046	0.160	9.1	710	1000

Finished shaft end FA Type

(High helix lead) Dia. 25, Lead 25

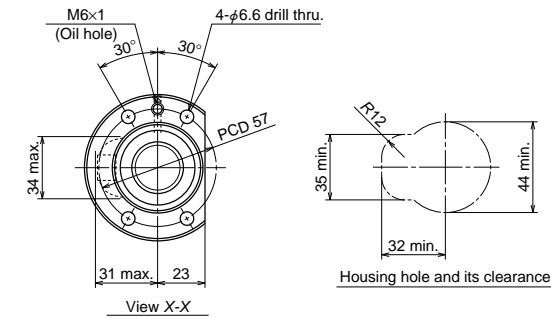


Nut models: LPFT, LSFT

NSK

ø25×25

Unit: mm



Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	25x25/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	4.762/26.25		
Screw shaft root diameter	21.3		
Effective turns of balls	1.5x1		
Accuracy grade / Preload / Axial play	C5/Z	C5/T	
Basic load rating (N)	Dynamic C _a	7730	10100
	Static C _{0a}	12700	19100
Axial play	0	0.005 or less	
Preload (N)	294	—	
Dynamic friction torque, (N·cm)	3.9 - 24.5	4.9	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	7.5		
Standard volume of grease replenishing (cm ³)	3.8		

Recommended support unit	For drive side	For opposite to drive side
WBK20-01 (square)	○	○
WBK20S-01 (square)		○
WBK20-11 (round)	○	○

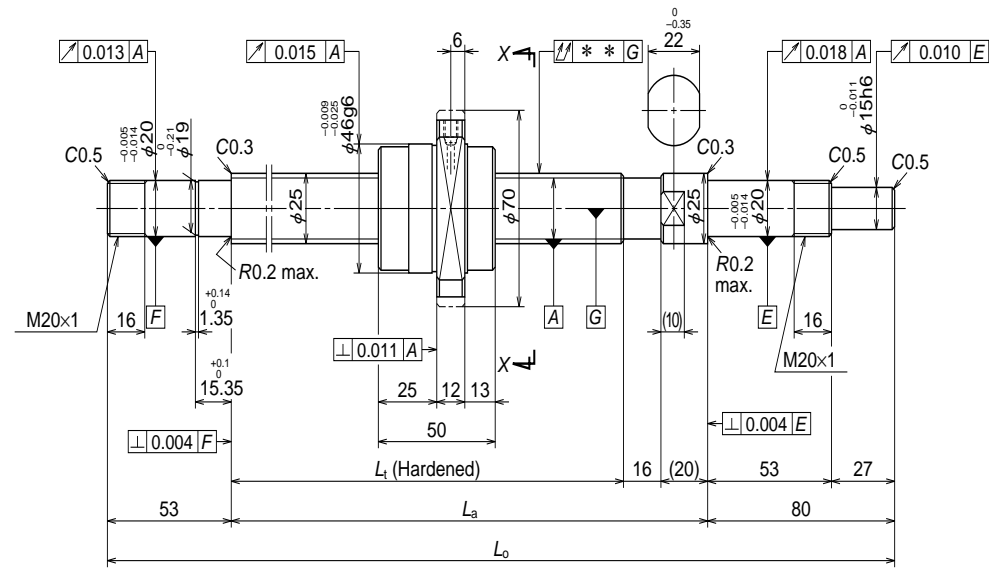
Ball screw No.		Stroke	
		Nominal	Maximum (L _t —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W2507FA-3P-C5Z25	W2507FA-4-C5T25	600	660
W2509FA-3P-C5Z25	W2509FA-4-C5T25	800	860
W2511FA-3P-C5Z25	W2511FA-4-C5T25	1000	1060
W2513FA-3P-C5Z25	W2513FA-4-C5T25	1200	1260
W2515FA-3P-C5Z25	W2515FA-4-C5T25	1400	1460
W2517FA-3P-C5Z25	W2517FA-4-C5T25	1600	1660
W2521FA-3P-C5Z25	W2521FA-4-C5T25	2000	2060

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
								Supporting condition	
L _t	L _a	L _o	T	e _p	v _u	l/l	Fixed - Simple support	Fixed - Fixed	
750	780	913	0	0.035	0.025	0.055	4.0	2800	2800
950	980	1113	0	0.040	0.027	0.070	4.7	2800	2800
1150	1180	1313	0	0.046	0.030	0.090	5.4	2540	2800
1350	1380	1513	0	0.054	0.035	0.090	6.2	1830	2540
1550	1580	1713	0	0.054	0.035	0.120	7.0	1380	1930
1750	1780	1913	0	0.065	0.040	0.120	7.7	1080	1510
2150	2180	2313	0	0.077	0.046	0.160	9.1	710	1000

Finished shaft end FA Type

(Ultra high helix lead) Dia. 25, Lead 50

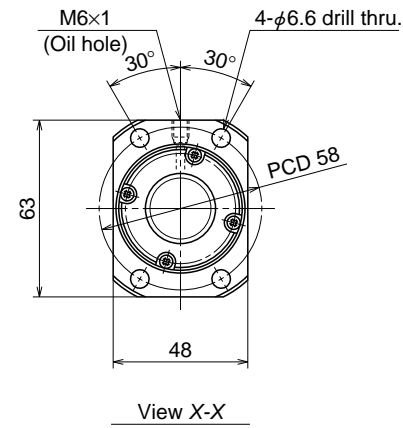


Nut models: UPFC, USFC

NSK

ø25×50

Unit: mm



Ball screw specifications		
Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	25x50/Right	
Preload / Ball recirculation	P preload / End cap	
Ball dia. / Ball circle dia.	3.969/26	
Screw shaft root diameter	21.9	
Effective turns of balls	0.7x2	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C_a	6690
	Static C_{0a}	13500
Axial play	0	0.005 or less
Preload (N)	196	—
Dynamic friction torque, (N-cm)	2.9 - 21.5	4.9 or less
Spacer ball	None	
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	4.2	
Standard volume of grease replenishing (cm ³)	2.1	

Recommended support unit	For drive side	For opposite to drive side
WBK20-01 (square)	○	○
WBK20S-01 (square)		○
WBK20-11 (round)	○	○

Unit: mm

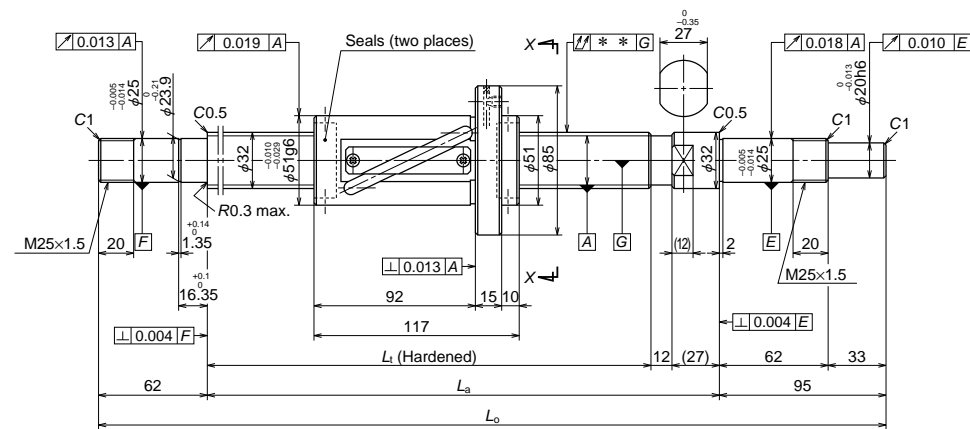
Ball screw No.		Stroke	
		Nominal	Maximum (L_1 —Nut length)
Preloaded (UPFC)	Precise clearance (USFC)		
W2508FA-1PGX-C5Z50	W2508FA-2GX-C5T50	700	794
W2511FA-5PGX-C5Z50	W2511FA-6GX-C5T50	1000	1094
W2516FA-1PGX-C5Z50	W2516FA-2GX-C5T50	1500	1594
W2521FA-5PGX-C5Z50	W2521FA-6GX-C5T50	2000	2094

- Remarks:
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Nut does not have a seal.
 4. Contact NSK if permissible rotational speed is to be exceeded.

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L_1	L_a	L_0	T	e_p	v_a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
844	880	1013	0	0.040	0.027	0.070	4.1	2800	2800
1144	1180	1313	0	0.046	0.030	0.090	5.3	2550	2800
1644	1680	1813	0	0.065	0.040	0.120	7.2	1230	1710
2144	2180	2313	0	0.077	0.046	0.160	9.1	720	1010

Finished shaft end FA Type

(Medium lead) Dia. 32, Lead 25



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W3211FA-1P-C5Z25	W3211FA-2-C5T25	1000	1063
W3216FA-1P-C5Z25	W3216FA-2-C5T25	1500	1563
W3221FA-1P-C5Z25	W3221FA-2-C5T25	2000	2063
W3227FA-1P-C5Z25	W3227FA-2-C5T25	2600	2663

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

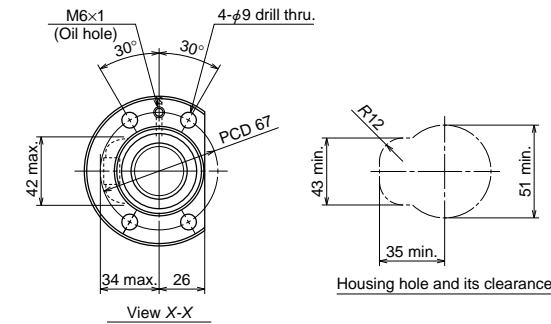
B297

Nut models: LPFT, LSFT

NSK

ø32×25

Unit: mm



Ball screw specifications

Product classification	Preloaded	Precise clearance
Shaft dia. x Lead / Direction of turn	32x25/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	4.762/33.25	
Screw shaft root diameter	28.3	
Effective turns of balls	2.5x1	
Accuracy grade / Preload / Axial play	C5/Z	C5/T
Basic load rating (N)	Dynamic C _a	11300
	Static C _{0a}	20900
Axial play	0	0.005 or less
Preload (N)	441	—
Dynamic friction torque, (N·cm)	6.8 - 31.5	7.8 or less
Spacer ball	Yes	None
Factory packed grease	NSK grease LR3	
Internal spatial volume of nut (cm ³)	17.5	
Standard volume of grease replenishing (cm ³)	8.8	

Recommended support unit	Unit: mm	
	For drive side	For opposite to drive side
WBK25-01 (square)	○	○
WBK25S-01 (square)		○
WBK25-11 (round)	○	○

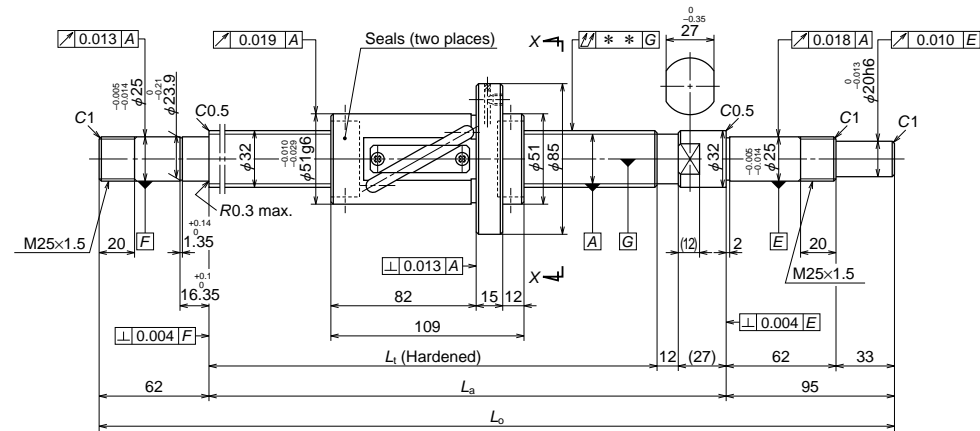
Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L ₁	L _a	L ₀	T	e _p	v _a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
1180	1219	1376	0	0.046	0.030	0.090	9.3	2180	2180
1680	1719	1876	0	0.065	0.040	0.120	12.3	1580	2180
2180	2219	2376	0	0.077	0.046	0.160	15.4	930	1300
2780	2819	2976	0	0.093	0.054	0.200	19.1	560	800

B
298

B298

Finished shaft end FA Type

(High helix lead) Dia. 32, Lead 32



Ball screw No.		Stroke	
		Nominal	Maximum (L ₁ —Nut length)
Preloaded (LPFT)	Precise clearance (LSFT)		
W3211FA-3P-C5Z32	W3211FA-4-C5T32	1000	1071
W3216FA-3P-C5Z32	W3216FA-4-C5T32	1500	1571
W3221FA-3P-C5Z32	W3221FA-4-C5T32	2000	2071
W3227FA-3P-C5Z32	W3227FA-4-C5T32	2600	2671

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. NSK grease LR3 is recommended. The amount for replenishing should be about 50% of the nut internal space capacity. Refer to Page D16 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

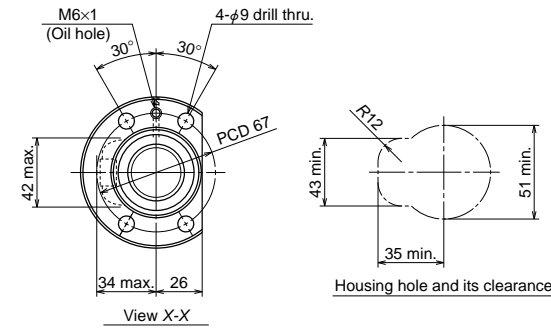
B299

Nut models: LPFT, LSFT

NSK

ø32×32

Unit: mm



Ball screw specifications			
Product classification	Preloaded	Precise clearance	
Shaft dia. x Lead / Direction of turn	32x32/Right		
Preload / Ball recirculation	P preload / Return tube		
Ball dia. / Ball circle dia.	4.762/33.25		
Screw shaft root diameter	28.3		
Effective turns of balls	1.5x1		
Accuracy grade / Preload / Axial play	C5/Z	C5/T	
Basic load rating (N)	Dynamic C _a	8800	11500
	Static C _{0a}	16600	24800
Axial play	0	0.005 or less	
Preload (N)	392	—	
Dynamic friction torque, (N·cm)	6.9 - 31.5	7.8 or less	
Spacer ball	Yes	None	
Factory packed grease	NSK grease LR3		
Internal spatial volume of nut (cm ³)	14		
Standard volume of grease replenishing (cm ³)	7		

Recommended support unit	Unit: mm	
	For drive side	For opposite to drive side
WBK25-01 (square)	<input type="radio"/>	<input type="radio"/>
WBK25S-01 (square)	<input type="radio"/>	<input type="radio"/>
WBK25-11 (round)	<input type="radio"/>	<input type="radio"/>

Screw shaft length			Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
L ₁	L _a	L ₀	T	e _p	v _a			Supporting condition	
								Fixed - Simple support	Fixed - Fixed
1180	1219	1376	0	0.046	0.030	0.090	9.3	2180	2180
1680	1719	1876	0	0.065	0.040	0.120	12.3	1570	2180
2180	2219	2376	0	0.077	0.046	0.160	15.4	920	1290
2780	2819	2976	0	0.093	0.054	0.200	19.1	560	790

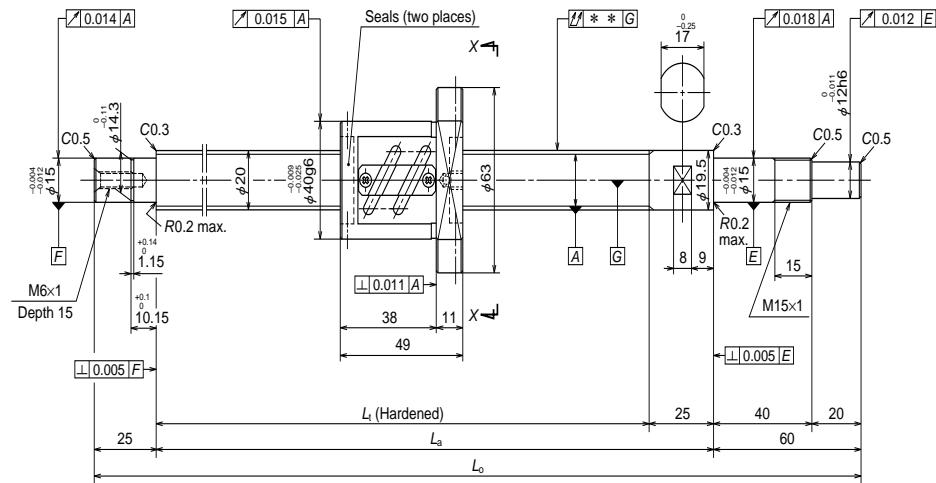
Unit: mm

B300

B300

Finished shaft end SA Type

(Fine lead) Dia. 20, Lead 4

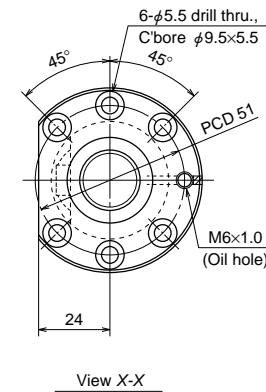


Nut models: PFT

NSK

ø20x4

Unit: mm



Ball screw specifications

Shaft dia. x Lead / Direction of turn	20x4/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	2.381/20.3	
Effective turns of balls	2.5x2	
Screw shaft root diameter	17.8	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_a	5420
	Static C_{0a}	10700
Preload (N)	294	
Dynamic friction torque, median, (N·cm)	3.9	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	2.7	
Standard volume of grease replenishing (cm ³)	1.4	

Recommended support unit	For drive side	For opposite to drive side
WBK15-01A (square)	○	
WBK15S-01 (square)		○
WBK15-11 (round)	○	

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W2002SA-1P-C5Z4	150	176	225	250	335
W2002SA-2P-C5Z4	200	226	275	300	385
W2003SA-1P-C5Z4	300	326	375	400	485
W2004SA-1P-C5Z4	400	426	475	500	585
W2005SA-1P-C5Z4	500	526	575	600	685
W2006SA-1P-C5Z4	600	626	675	700	785

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

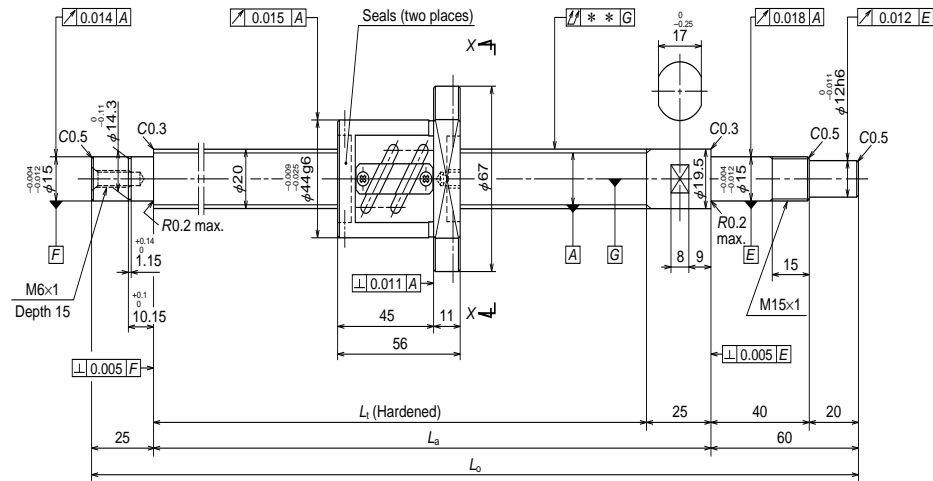
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e _p	v _u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.005	0.023	0.018	0.045	1.1	3000	3000
-0.007	0.023	0.018	0.045	1.2	3000	3000
-0.009	0.025	0.020	0.055	1.5	3000	3000
-0.011	0.027	0.020	0.070	1.7	3000	3000
-0.014	0.030	0.023	0.085	1.9	3000	3000
-0.016	0.035	0.025	0.085	2.1	3000	3000

B301

B302

Finished shaft end SA Type

(Fine lead) Dia. 20, Lead 5

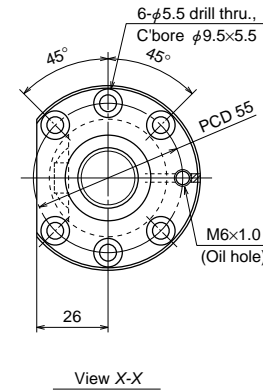


Nut models: PFT

NSK

ø20x5

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	20x5/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/20.5	
Screw shaft root diameter	17.2	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	9410
	Static C_0	17100
Preload (N)	490	
Dynamic friction torque, median, (N·cm)	7.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	4.3	
Standard volume of grease replenishing (cm ³)	2.2	

Recommended support unit		For drive side	For opposite to drive side
WBK15-01A	(square)	○	○
WBK15S-01	(square)	○	○
WBK15-11	(round)	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_t —Nut length)	L_t	L_a	L_0
W2002SA-3P-C5Z5	150	169	225	250	335
W2002SA-4P-C5Z5	200	219	275	300	385
W2003SA-2P-C5Z5	300	319	375	400	485
W2004SA-2P-C5Z5	400	419	475	500	585
W2005SA-2P-C5Z5	500	519	575	600	685
W2007SA-1P-C5Z5	700	719	775	800	885

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

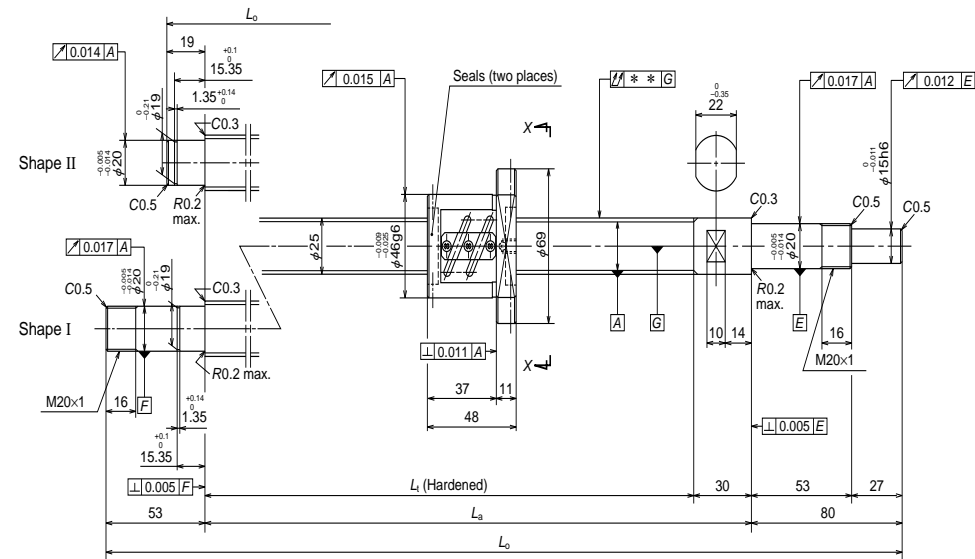
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e_p	v_u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.005	0.023	0.018	0.045	1.3	3000	3000
-0.007	0.023	0.018	0.045	1.4	3000	3000
-0.009	0.025	0.020	0.055	1.6	3000	3000
-0.011	0.027	0.020	0.070	1.8	3000	3000
-0.014	0.030	0.023	0.085	2.0	3000	3000
-0.019	0.035	0.025	0.110	2.5	3000	3000

B303

B304

Finished shaft end SA Type

(Fine lead) Dia. 25, Lead 4

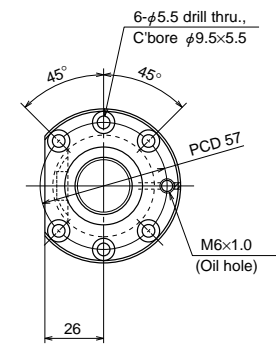


Nut models: PFT

NSK

$\phi 25 \times 4$

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	25x4/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	2.381/25.3	
Screw shaft root diameter	22.8	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	6020
	Static C_{0a}	13600
Preload (N)	290	
Dynamic friction torque, median, (N-cm)	4.9	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	3.2	
Standard volume of grease replenishing (cm ³)	1.6	

Recommended support unit	For drive side		For opposite to drive side	
	For drive side	For opposite to drive side	For drive side	For opposite to drive side
WBK20-01 (square)	○	○	○	○
WBK20S-01 (square)	○	○	○	○
WBK20-11 (round)	○	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _t —Nut length)	L _t	L _a	L _o
W2502SA-1P-C5Z4	150	172	220	250	349
W2502SA-2P-C5Z4	200	222	270	300	399
W2503SA-1P-C5Z4	300	322	370	400	499
W2504SA-1P-C5Z4	400	422	470	500	599
W2505SA-1P-C5Z4	500	522	570	600	733
W2507SA-1P-C5Z4	700	722	770	800	933

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.005	0.023	0.018	0.035	1.6	2800	—
II	-0.006	0.023	0.018	0.035	1.8	2800	—
II	-0.009	0.025	0.020	0.040	2.2	2800	—
II	-0.011	0.027	0.020	0.050	2.5	2800	—
I	-0.014	0.030	0.023	0.060	3.0	2800	2800
I	-0.018	0.035	0.025	0.075	3.7	2800	2800

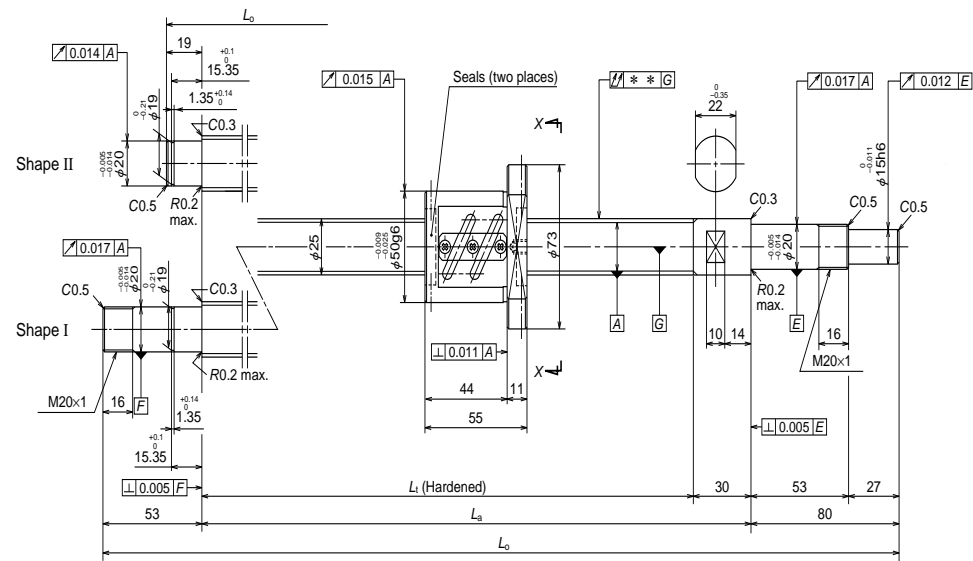
- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

B305

B306

Finished shaft end SA Type

(Fine lead) Dia. 25, Lead 5

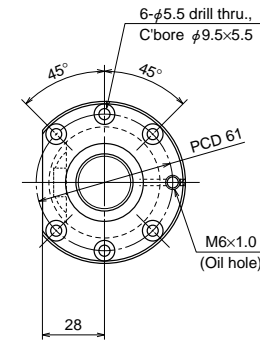


Nut models: PFT

NSK

ø25×5

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	25×5/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/25.5	
Screw shaft root diameter	22.2	
Effective turns of balls	2.5×2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	10400
	Static C_0	21900
Preload (N)	540	
Dynamic friction torque, median, (N·cm)	8.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	5.0	
Standard volume of grease replenishing (cm ³)	2.5	

Recommended support unit	For drive side		For opposite to drive side	
	(square)	(circle)	(square)	(circle)
WBK20-01	○	○	○	○
WBK20S-01	○	○	○	○
WBK20-11	○	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _c —Nut length)	L _t	L _a	L _o
W2502SA-3P-C5Z5	150	165	220	250	349
W2502SA-4P-C5Z5	200	215	270	300	399
W2503SA-2P-C5Z5	300	315	370	400	499
W2504SA-2P-C5Z5	400	415	470	500	599
W2505SA-2P-C5Z5	500	515	570	600	733
W2506SA-1P-C5Z5	600	615	670	700	833
W2507SA-2P-C5Z5	700	715	770	800	933
W2509SA-1P-C5Z5	900	915	970	1000	1133
W2511SA-1P-C5Z5	1000	1115	1170	1200	1333

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

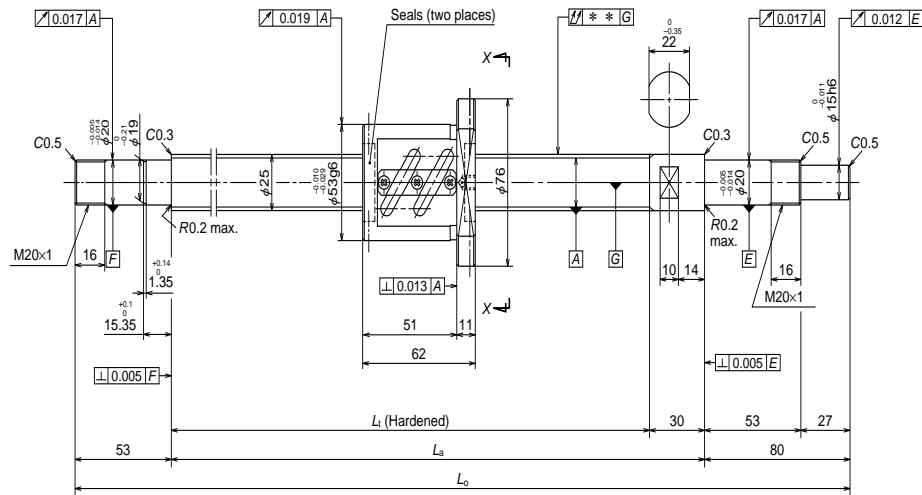
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.005	0.023	0.018	0.035	1.8	2800	—
II	-0.006	0.023	0.018	0.035	2.0	2800	—
II	-0.009	0.025	0.020	0.040	2.3	2800	—
II	-0.011	0.027	0.020	0.050	2.7	2800	—
I	-0.014	0.030	0.023	0.060	3.1	2800	2800
I	-0.016	0.035	0.025	0.075	3.4	2800	2800
I	-0.018	0.035	0.025	0.075	3.8	2800	2800
I	-0.023	0.040	0.027	0.090	4.5	2800	2800
I	-0.028	0.046	0.030	0.120	5.2	2480	2800

B307

B308

Finished shaft end SA Type

(Fine lead) Dia. 25, Lead 6



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _t —Nut length)	L _t	L _a	L _o
W2503SA-3P-C5Z6	250	308	370	400	533
W2505SA-3P-C5Z6	450	508	570	600	733
W2507SA-3P-C5Z6	650	708	770	800	933
W2511SA-2P-C5Z6	1050	1108	1170	1200	1333

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

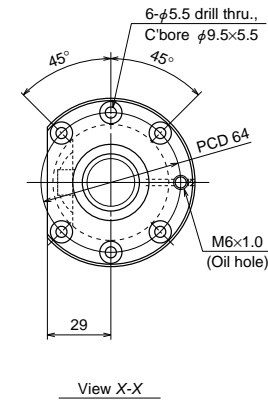
B309

Nut models: PFT

NSK

ø25×6

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	25x6/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.969/25.5	
Screw shaft root diameter	21.4	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C ₀	14100
	Static C _{0a}	26800
Preload (N)	685	
Dynamic friction torque, median, (N·cm)	13.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	7.0	
Standard volume of grease replenishing (cm ³)	3.5	

Recommended support unit	For drive side		For opposite to drive side	
	For drive side	For opposite to drive side	For drive side	For opposite to drive side
WBK20-01 (square)	○	○	○	○
WBK20S-01 (square)	○	○	○	○
WBK20-11 (round)	○	○	○	○

Unit: mm

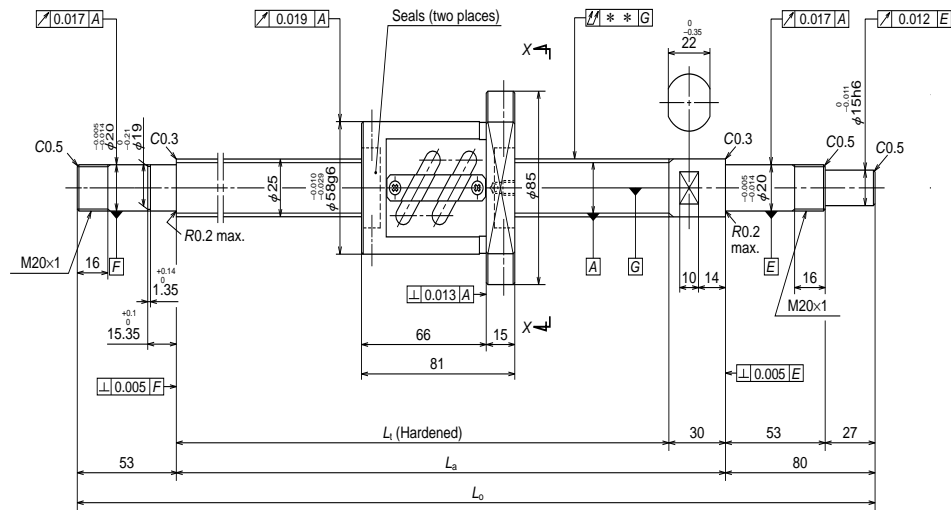
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e _p	v _u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.009	0.025	0.020	0.050	2.5	2800	2800
-0.014	0.030	0.023	0.060	3.2	2800	2800
-0.018	0.035	0.025	0.075	3.9	2800	2800
-0.028	0.046	0.030	0.120	5.2	2410	2800

B
310

B310

Finished shaft end SA Type

(Fine lead) Dia. 25, Lead 10

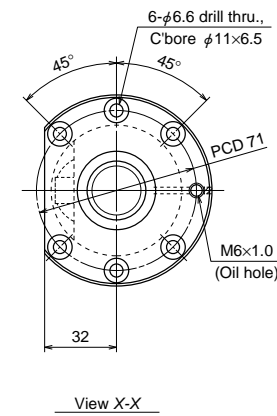


Nut models: PFT

NSK

ø25×10

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	25×10/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	4.762/25.5	
Screw shaft root diameter	20.5	
Effective turns of balls	1.5×2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	11600
	Static C_{0a}	19000
Preload (N)	585	
Dynamic friction torque, median, (N·cm)	13.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	9.5	
Standard volume of grease replenishing (cm ³)	4.8	

Recommended support unit	For drive side		For opposite to drive side	
	For drive side	For opposite to drive side	For drive side	For opposite to drive side
WBK20-01 (square)	○	○	○	○
WBK20S-01 (square)	○	○	○	○
WBK20-11 (round)	○	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_t —Nut length)	L_t	L_a	L_o
W2503SA-4P-C5Z10	250	289	370	400	533
W2505SA-4P-C5Z10	450	489	570	600	733
W2507SA-4P-C5Z10	650	689	770	800	933
W2509SA-2P-C5Z10	850	889	970	1000	1133
W2511SA-3P-C5Z10	1050	1089	1170	1200	1333
W2514SA-1P-C5Z10	1350	1389	1470	1500	1633

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

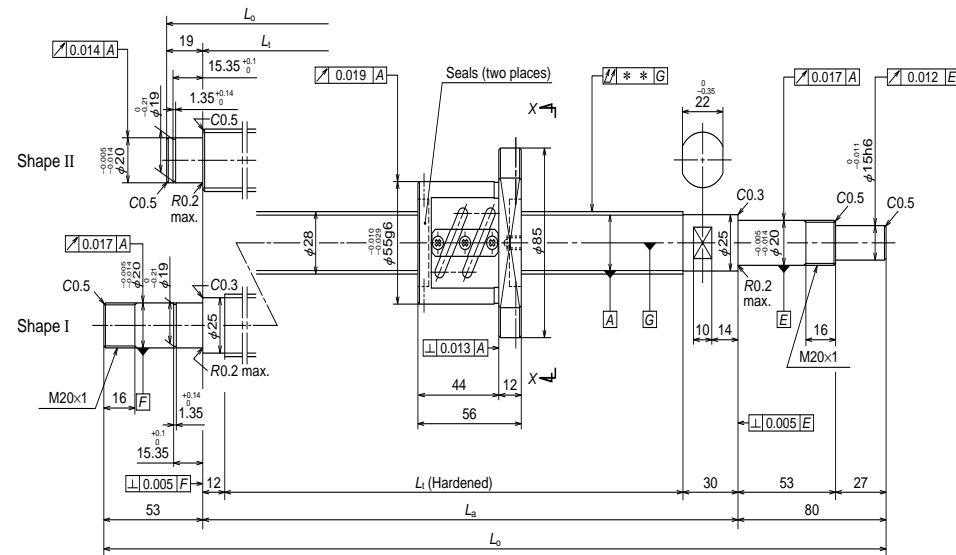
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e_p	v_u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.009	0.025	0.020	0.050	3.2	2800	2800
-0.014	0.030	0.023	0.060	3.8	2800	2800
-0.018	0.035	0.025	0.075	4.5	2800	2800
-0.023	0.040	0.027	0.090	5.2	2800	2800
-0.028	0.046	0.030	0.120	5.9	2340	2800
-0.035	0.054	0.035	0.150	6.9	1470	2050

B311

B312

Finished shaft end SA Type

(Fine lead) Dia. 28, Lead 5

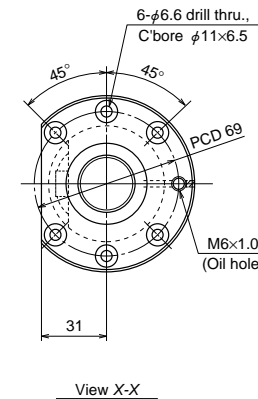


Nut models: PFT

NSK

ø28×5

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	28×5/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/28.5	
Screw shaft root diameter	25.2	
Effective turns of balls	2.5×2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	11000
	Static C_{0a}	24400
Preload (N)	540	
Dynamic friction torque, median, (N·cm)	9.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	6.0	
Standard volume of grease replenishing (cm ³)	3.0	

Recommended support unit	For drive side	For opposite to drive side	
		○	○
WBK20-01 (square)	○	○	○
WBK20S-01 (square)	○	○	○
WBK20-11 (round)	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _t —Nut length)	L _t	L _a	L _o
W2802SA-1P-C5Z5	200	214	270	300	399
W2803SA-1P-C5Z5	300	314	370	400	499
W2804SA-1P-C5Z5	400	414	470	500	599
W2805SA-1P-C5Z5	450	502	558	600	733
W2807SA-1P-C5Z5	650	702	758	800	933
W2809SA-1P-C5Z5	850	902	958	1000	1133
W2811SA-1P-C5Z5	1050	1102	1158	1200	1333

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.006	0.023	0.018	0.035	2.5	2500	—
II	-0.009	0.025	0.020	0.040	2.9	2500	—
II	-0.011	0.027	0.020	0.050	3.3	2500	—
I	-0.014	0.030	0.023	0.060	3.8	2500	2500
I	-0.018	0.035	0.025	0.075	4.7	2500	2500
I	-0.024	0.040	0.027	0.090	5.6	2500	2500
I	-0.028	0.046	0.030	0.120	6.5	2500	2500

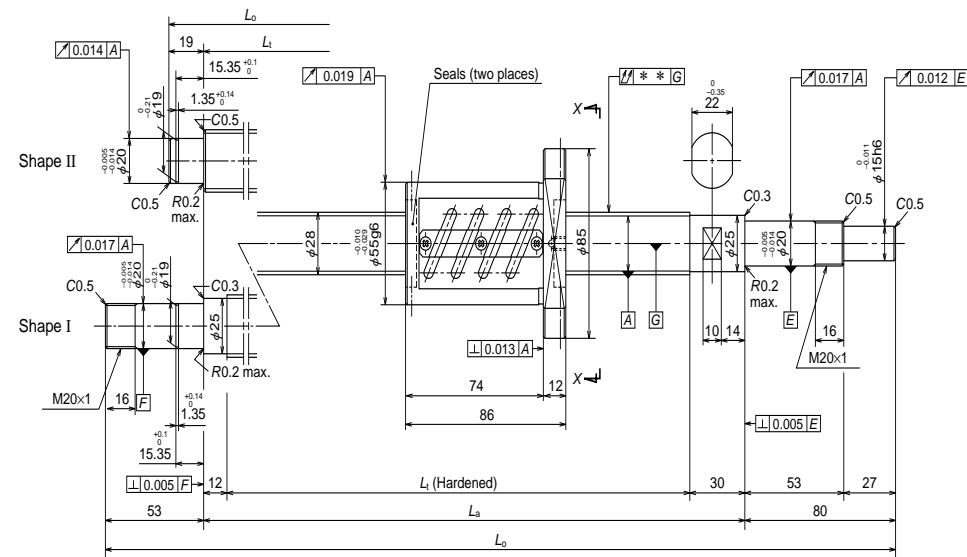
- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

B313

B314

Finished shaft end SA Type

(Fine lead) Dia. 28, Lead 5

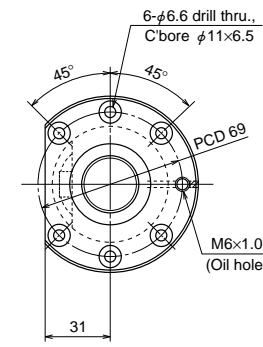


Nut models: ZFT

NSK

ø28x5

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	28x5/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	3.175/28.5	
Screw shaft root diameter	25.2	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	17400
	Static C_0	48800
Preload (N)	1220	
Dynamic friction torque, median, (N-cm)	21.5	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	9.0	
Standard volume of grease replenishing (cm ³)	4.5	

Recommended support unit	For drive side		For opposite to drive side	
	(square)	(circle)	(square)	(circle)
WBK20-01	○	○	○	○
WBK20S-01	○	○	○	○
WBK20-11	○	○	○	○

Unit: mm

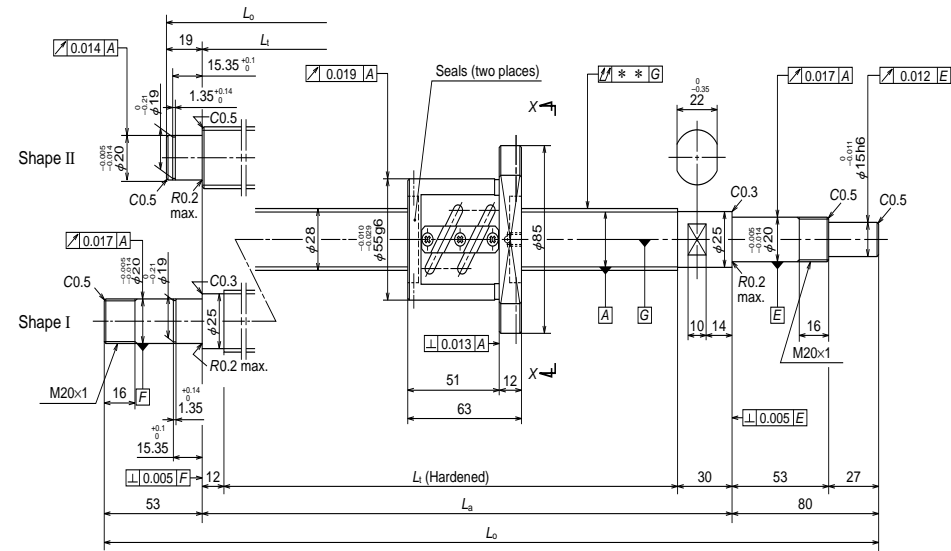
Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _t —Nut length)	L _t	L _a	L _o
			W2802SA-2Z-C5Z5	150	184
W2803SA-2Z-C5Z5	250	284	370	400	499
W2804SA-2Z-C5Z5	350	384	470	500	599
W2805SA-2Z-C5Z5	450	472	558	600	733
W2807SA-2Z-C5Z5	650	672	758	800	933
W2809SA-2Z-C5Z5	850	872	958	1000	1133
W2811SA-2Z-C5Z5	1050	1072	1158	1200	1333

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.006	0.023	0.018	0.035	2.8	2500	—
II	-0.009	0.025	0.020	0.040	3.2	2500	—
II	-0.011	0.027	0.020	0.050	3.7	2500	—
I	-0.013	0.030	0.023	0.060	4.2	2500	2500
I	-0.018	0.035	0.025	0.075	5.1	2500	2500
I	-0.023	0.040	0.027	0.090	5.9	2500	2500
I	-0.028	0.046	0.030	0.120	6.8	2500	2500

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Finished shaft end SA Type

(Fine lead) Dia. 28, Lead 6

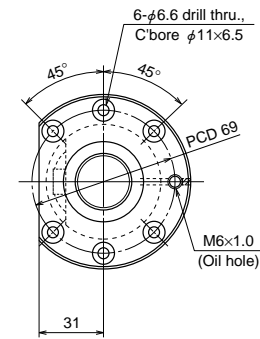


Nut models: PFT

NSK

ø28×6

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	28x6/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/28.5	
Screw shaft root diameter	25.2	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	11000
	Static C_0	24400
Preload (N)	540	
Dynamic friction torque, median, (N·cm)	11.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	6.0	
Standard volume of grease replenishing (cm ³)	3.0	

Recommended support unit	For drive side		For opposite to drive side	
	For drive side	For opposite to drive side	For drive side	For opposite to drive side
WBK20-01 (square)	○	○	○	○
WBK20S-01 (square)	○	○	○	○
WBK20-11 (round)	○	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L _t —Nut length)	L _t	L _a	L _o
W2803SA-3P-C5Z6	250	307	370	400	499
W2805SA-3P-C5Z6	450	507	570	600	699
W2807SA-3P-C5Z6	650	695	758	800	933
W2809SA-3P-C5Z6	850	895	958	1000	1133
W2811SA-3P-C5Z6	1050	1095	1158	1200	1333

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

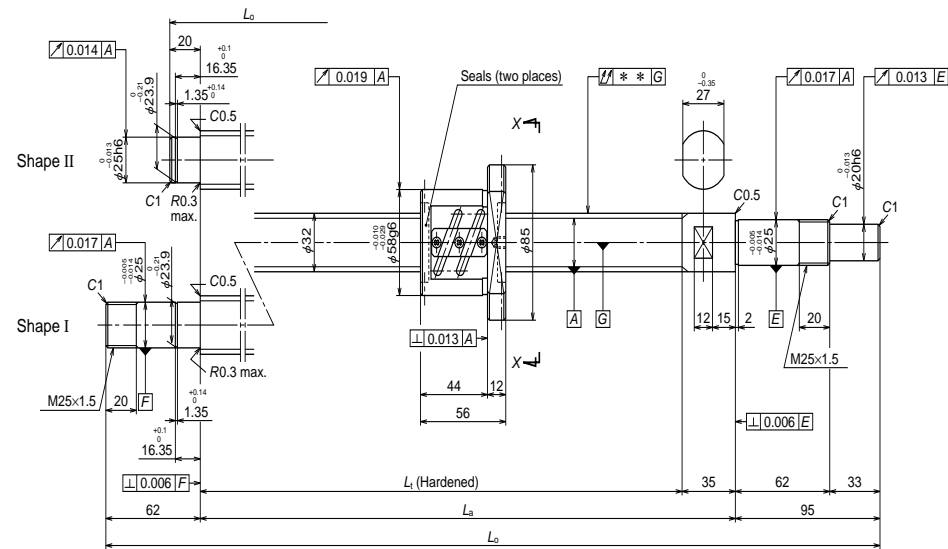
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _a			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.009	0.025	0.020	0.040	3.0	2500	—
II	-0.014	0.030	0.023	0.060	3.9	2500	—
I	-0.018	0.035	0.025	0.075	4.9	2500	2500
I	-0.023	0.040	0.027	0.090	5.8	2500	2500
I	-0.028	0.046	0.030	0.120	6.6	2500	2500

B317

B318

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 5

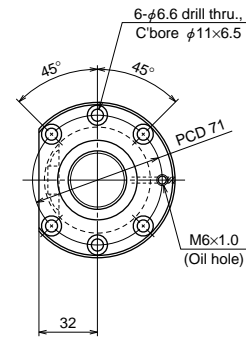


Nut models: PFT

NSK

$\phi 32 \times 5$

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32x5/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.175/32.5	
Screw shaft root diameter	29.2	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	11600
	Static C_0	28000
Preload (N)	590	
Dynamic friction torque, median, (N-cm)	11.8	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	7.0	
Standard volume of grease replenishing (cm ³)	3.5	

Recommended support unit	For drive side	For opposite to drive side
WBK25-01 (square)	<input type="radio"/>	<input type="radio"/>
WBK25S-01 (square)	<input type="radio"/>	<input type="radio"/>
WBK25-11 (round)	<input type="radio"/>	<input type="radio"/>

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L ₂	L ₃
W3202SA-1P-C5Z5	150	209	265	300	415
W3203SA-1P-C5Z5	250	309	365	400	515
W3204SA-1P-C5Z5	350	409	465	500	615
W3205SA-1P-C5Z5	450	509	565	600	715
W3206SA-1P-C5Z5	550	609	665	700	857
W3207SA-1P-C5Z5	650	709	765	800	957
W3209SA-1P-C5Z5	850	909	965	1000	1157
W3211SA-1P-C5Z5	1050	1109	1165	1200	1357
W3214SA-1P-C5Z5	1350	1409	1465	1500	1657

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

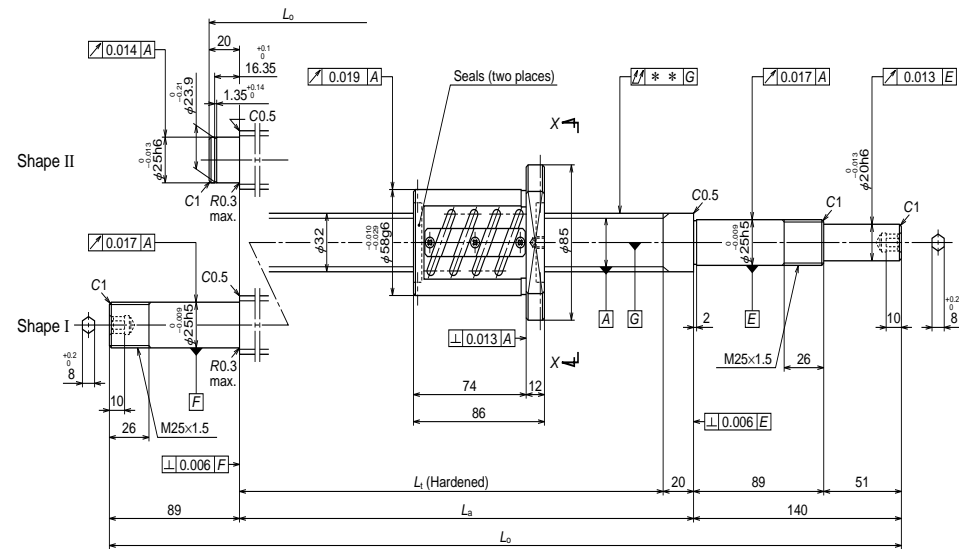
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.006	0.023	0.018	0.040	3.1	2180	—
II	-0.009	0.025	0.020	0.050	3.7	2180	—
II	-0.011	0.027	0.020	0.050	4.2	2180	—
II	-0.014	0.030	0.023	0.060	4.8	2180	—
I	-0.016	0.035	0.025	0.075	5.6	2180	2180
I	-0.018	0.035	0.025	0.075	6.1	2180	2180
I	-0.023	0.040	0.027	0.090	7.3	2180	2180
I	-0.028	0.046	0.030	0.120	8.5	2180	2180
I	-0.035	0.054	0.035	0.150	10.2	2070	2180

B321

B322

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 5



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W3202SA-2Z-C5Z5	150	194	280	300	460
W3203SA-2Z-C5Z5	250	294	380	400	560
W3204SA-2Z-C5Z5	350	394	480	500	660
W3205SA-2Z-C5Z5	450	494	580	600	760
W3206SA-2Z-C5Z5	550	594	680	700	929
W3207SA-2Z-C5Z5	650	694	780	800	1029
W3209SA-2Z-C5Z5	850	894	980	1000	1229
W3211SA-2Z-C5Z5	1050	1094	1180	1200	1429
W3214SA-2Z-C5Z5	1350	1394	1480	1500	1729

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

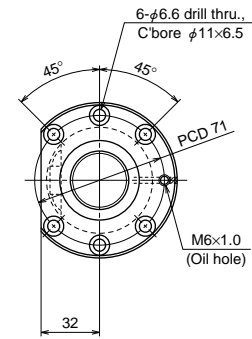
B323

Nut models: ZFT

NSK

ø32×5

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32x5/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	3.175/32.5	
Screw shaft root diameter	29.2	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C ₀	18500
	Static C _{0a}	56100
Preload (N)	1270	
Dynamic friction torque, median, (N·cm)	23.5	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	10	
Standard volume of grease replenishing (cm ³)	5	

Recommended support unit

WBK25DF-31	(round)
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Unit: mm

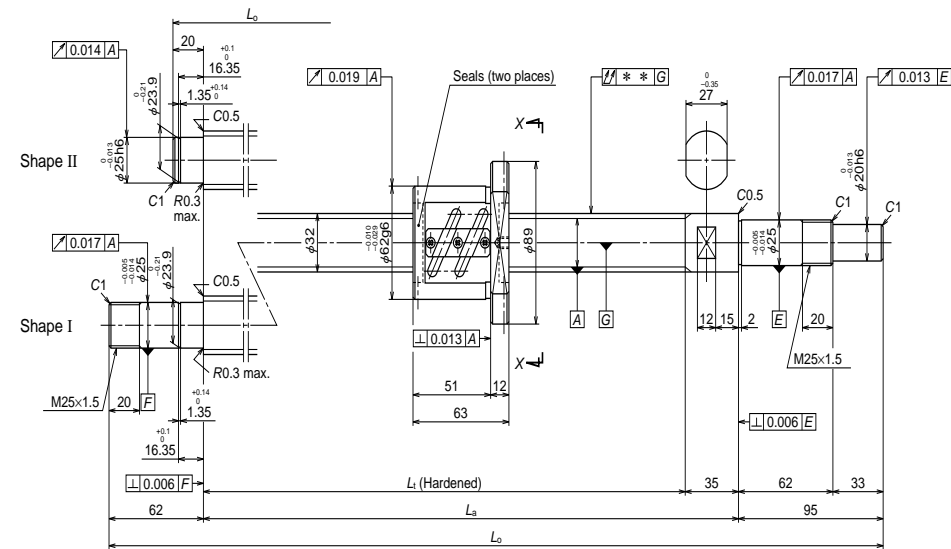
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.007	0.023	0.018	0.040	3.5	2180	—
II	-0.009	0.025	0.020	0.050	4.1	2180	—
II	-0.012	0.027	0.020	0.060	4.7	2180	—
II	-0.014	0.030	0.023	0.060	5.3	2180	—
I	-0.016	0.035	0.025	0.075	6.1	2180	2180
I	-0.019	0.035	0.025	0.090	6.7	2180	2180
I	-0.024	0.040	0.027	0.090	7.9	2180	2180
I	-0.028	0.046	0.030	0.120	9.0	2180	2180
I	-0.036	0.054	0.035	0.150	10.8	2040	2180

B
324

B324

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 6

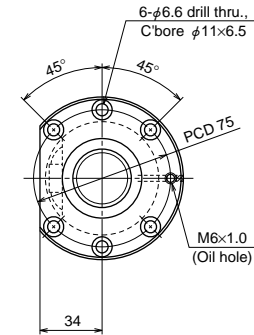


Nut models: PFT

NSK

ø32×6

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32x6/Right	
Preload / Ball recirculation	P preload / Return tube	
Ball dia. / Ball circle dia.	3.969/32.5	
Screw shaft root diameter	28.4	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	15500
	Static C_0	34700
Preload (N)	780	
Dynamic friction torque, median, (N·cm)	15.7	
Spacer ball	Yes	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	9.5	
Standard volume of grease replenishing (cm ³)	4.8	

Recommended support unit	For drive side	For opposite to drive side	
		○	○
WBK25-01 (square)	○	○	○
WBK25S-01 (square)	○	○	○
WBK25-11 (round)	○	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W3203SA-3P-C5Z6	250	302	365	400	515
W3205SA-3P-C5Z6	450	502	565	600	715
W3207SA-3P-C5Z6	650	702	765	800	957
W3209SA-3P-C5Z6	850	902	965	1000	1157
W3211SA-3P-C5Z6	1050	1102	1165	1200	1357
W3214SA-3P-C5Z6	1350	1402	1465	1500	1657

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.009	0.025	0.020	0.050	3.8	2180	—
II	-0.014	0.030	0.023	0.060	5.0	2180	—
I	-0.018	0.035	0.025	0.075	6.3	2180	2180
I	-0.023	0.040	0.027	0.090	7.4	2180	2180
I	-0.028	0.046	0.030	0.120	8.5	2180	2180
I	-0.035	0.054	0.035	0.150	10.2	2020	2180

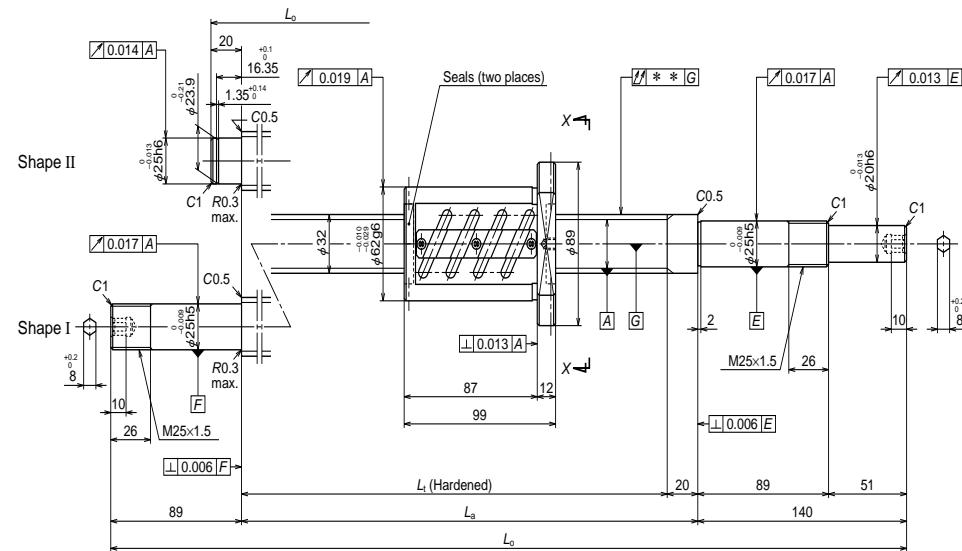
- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

B325

B326

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 6



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W3203SA-4Z-C5Z6	250	281	380	400	560
W3205SA-4Z-C5Z6	450	481	580	600	760
W3207SA-4Z-C5Z6	650	681	780	800	1029
W3209SA-4Z-C5Z6	850	881	980	1000	1229
W3211SA-4Z-C5Z6	1050	1081	1180	1200	1429
W3214SA-4Z-C5Z6	1350	1381	1480	1500	1729

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

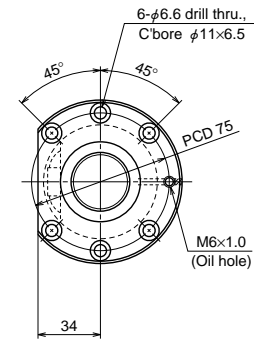
B327

Nut models: ZFT

NSK

ø32×6

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32×6/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	3.969/32.5	
Screw shaft root diameter	28.4	
Effective turns of balls	2.5×2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C ₀	24700
	Static C _{0a}	69400
Preload (N)	1710	
Dynamic friction torque, median, (N·cm)	35.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	14	
Standard volume of grease replenishing (cm ³)	7	

Recommended support unit

WBK25DF-31	(round)
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Unit: mm

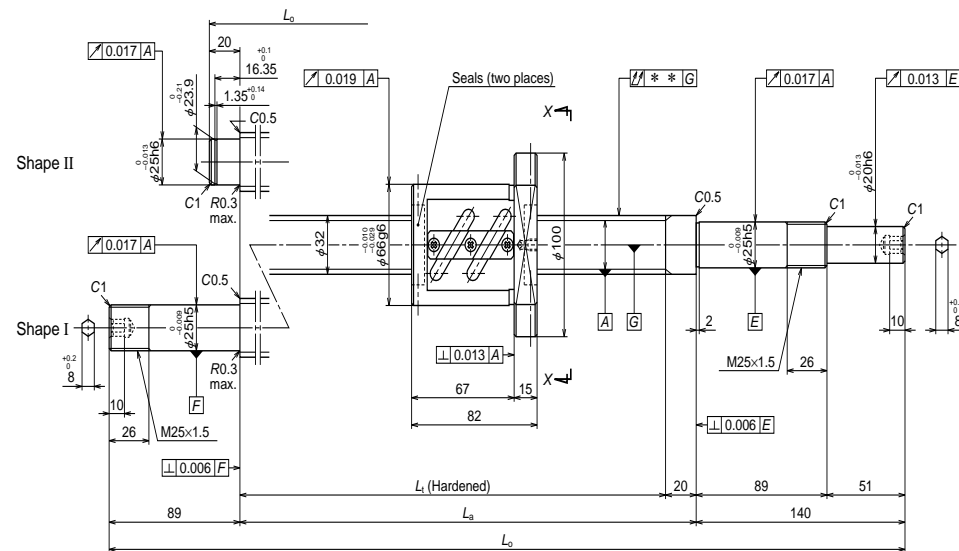
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.009	0.025	0.020	0.050	4.5	2180	—
II	-0.014	0.030	0.023	0.060	5.6	2180	—
I	-0.019	0.035	0.025	0.090	7.0	2180	2180
I	-0.024	0.040	0.027	0.090	8.1	2180	2180
I	-0.028	0.046	0.030	0.120	9.3	2180	2180
I	-0.036	0.054	0.035	0.150	11.0	2000	2180

B
328

B328

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 8



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ -Nut length)	L ₁	L _a	L ₀
W3203SA-5Z-C5Z8	250	298	380	400	560
W3205SA-5Z-C5Z8	450	498	580	600	760
W3207SA-5Z-C5Z8	650	698	780	800	1029
W3209SA-5Z-C5Z8	850	898	980	1000	1229
W3214SA-5Z-C5Z8	1350	1398	1480	1500	1729

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

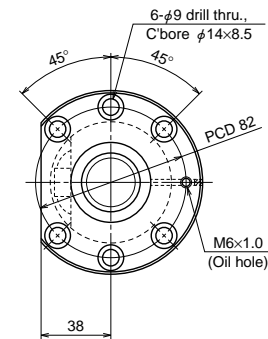
B329

Nut models: ZFT

NSK

ø32×8

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32×8/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	4.762/32.5	
Screw shaft root diameter	27.5	
Effective turns of balls	2.5×1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C ₀	17500
	Static C _{0a}	41000
Preload (N)	1320	
Dynamic friction torque, median, (N-cm)	31.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	13	
Standard volume of grease replenishing (cm ³)	6.5	

Recommended support unit

WBK25DF-31	(round)
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Unit: mm

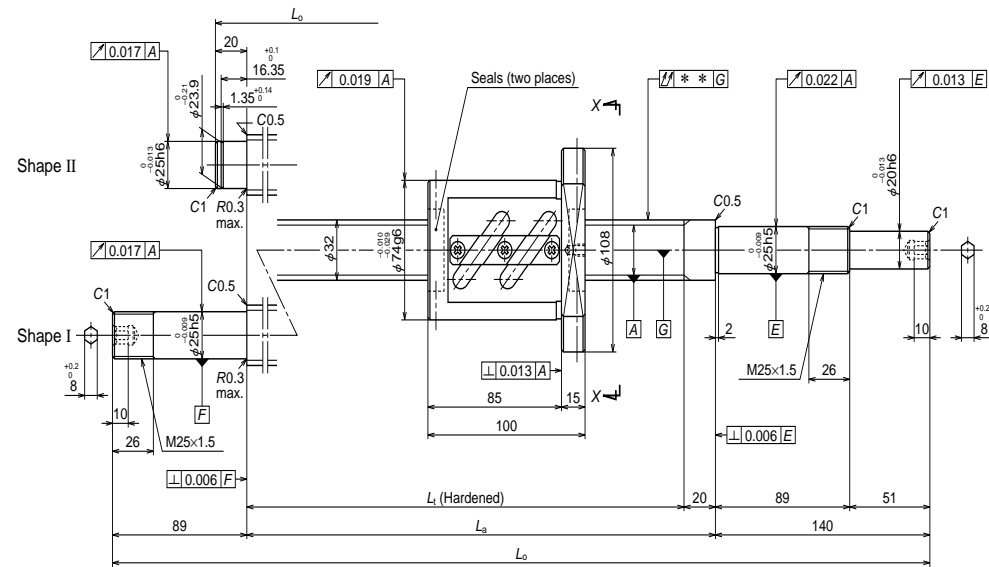
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.009	0.025	0.020	0.050	4.7	2180	—
II	-0.014	0.030	0.023	0.060	5.8	2180	—
I	-0.019	0.035	0.025	0.090	7.2	2180	2180
I	-0.024	0.040	0.027	0.090	8.3	2180	2180
I	-0.036	0.054	0.035	0.150	11.1	1920	2180

B
330

B330

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 10



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L ₂	L ₃
W3203SA-6Z-C5Z10	250	280	380	400	560
W3204SA-3Z-C5Z10	350	380	480	500	660
W3205SA-6Z-C5Z10	450	480	580	600	760
W3206SA-3Z-C5Z10	550	580	680	700	929
W3207SA-6Z-C5Z10	650	680	780	800	1029
W3209SA-6Z-C5Z10	850	880	980	1000	1229
W3211SA-5Z-C5Z10	1050	1080	1180	1200	1429
W3214SA-6Z-C5Z10	1350	1380	1480	1500	1729
W3217SA-1Z-C5Z10	1650	1680	1780	1800	2029

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

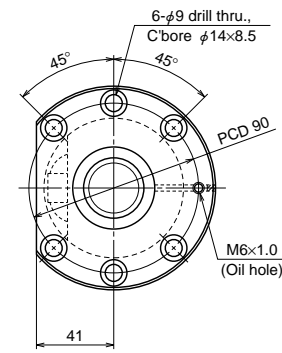
B331

Nut models: ZFT

NSK

ø32×10

Unit: mm



View X-X

Ball screw specifications		
Shaft dia. x Lead / Direction of turn	32x10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/33	
Screw shaft root diameter	26.4	
Effective turns of balls	2.5x1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C ₀	25500
	Static C _{0a}	54000
Preload (N)	1960	
Dynamic friction torque, median, (N·cm)	54.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	22	
Standard volume of grease replenishing (cm ³)	11	

Recommended support unit	
WBK25DF-31	(round)

Unit: mm

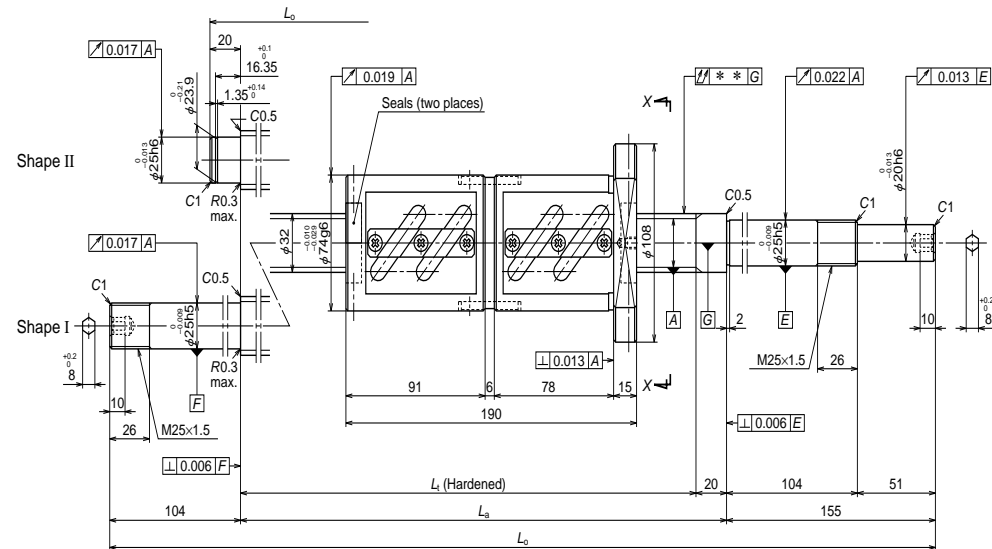
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v ₀			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.009	0.025	0.020	0.050	5.5	2180	—
II	-0.012	0.027	0.020	0.060	6.0	2180	—
II	-0.014	0.030	0.023	0.060	6.6	2180	—
I	-0.016	0.035	0.025	0.075	7.4	2180	2180
I	-0.019	0.035	0.025	0.090	7.9	2180	2180
I	-0.024	0.040	0.027	0.090	9.0	2180	2180
I	-0.028	0.046	0.030	0.120	10.1	2180	2180
I	-0.036	0.054	0.035	0.150	11.7	1860	2180
I	-0.043	0.065	0.040	0.200	13.3	1280	1820

B 332

B332

Finished shaft end SA Type

(Fine lead) Dia. 32, Lead 10

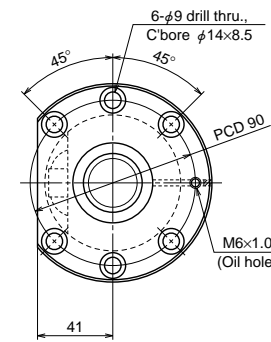


Nut models: DFT

NSK

ø32×10

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	32x10/Right	
Preload / Ball recirculation	D preload / Return tube	
Ball dia. / Ball circle dia.	6.35/33	
Screw shaft root diameter	26.4	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	46300
	Static C_0	108000
Preload (N)	3230	
Dynamic friction torque, median, (N·cm)	83.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	44	
Standard volume of grease replenishing (cm ³)	22	

Recommended support unit

WBK25DFD-31	(round)
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Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_1 —Nut length)	L_1	L_2	L_3
W3203SA-7D-C5Z10	150	190	380	400	575
W3204SA-4D-C5Z10	250	290	480	500	675
W3205SA-7D-C5Z10	350	390	580	600	775
W3206SA-4D-C5Z10	450	490	680	700	959
W3207SA-7D-C5Z10	550	590	780	800	1059
W3209SA-7D-C5Z10	750	790	980	1000	1259
W3211SA-6D-C5Z10	950	990	1180	1200	1459
W3214SA-7D-C5Z10	1250	1290	1480	1500	1759
W3217SA-2D-C5Z10	1550	1590	1780	1800	2059

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

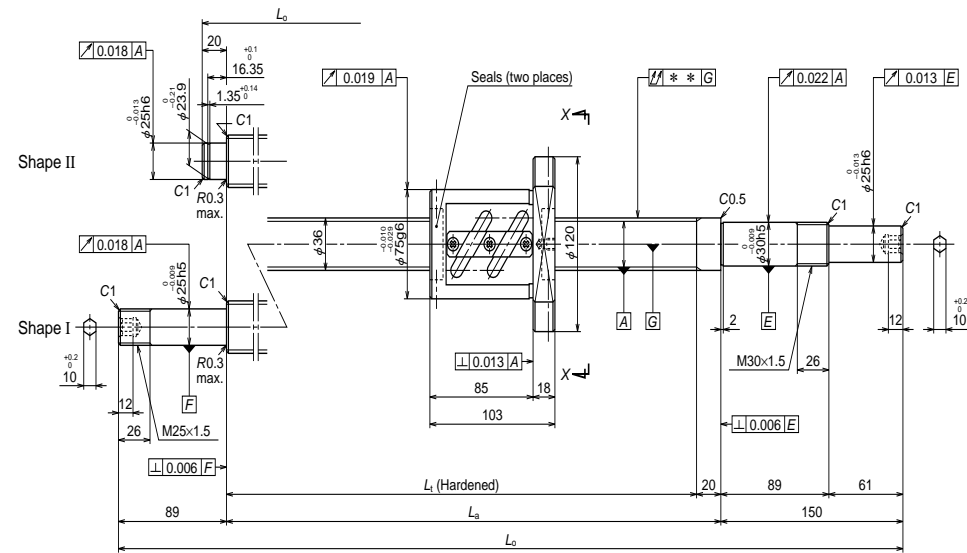
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e_p	v_u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.009	0.025	0.020	0.050	7.5	2180	—
II	-0.012	0.027	0.020	0.060	8.1	2180	—
II	-0.014	0.030	0.023	0.060	8.6	2180	—
I	-0.016	0.035	0.025	0.075	9.5	2180	2180
I	-0.019	0.035	0.025	0.090	10.0	2180	2180
I	-0.024	0.040	0.027	0.120	11.1	2180	2180
I	-0.028	0.046	0.030	0.120	12.2	2180	2180
I	-0.036	0.054	0.035	0.150	13.8	1980	2180
I	-0.043	0.065	0.040	0.200	15.4	1350	1910

B333

B334

Finished shaft end SA Type

(Fine lead) Dia. 36, Lead 10

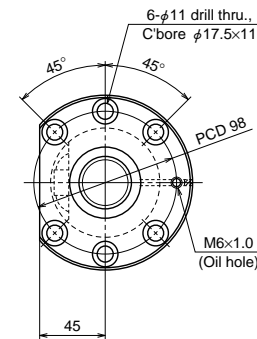


Nut models: ZFT

NSK

ø36×10

Unit: mm



View X-X

Ball screw specifications

Shaft dia. x Lead / Direction of turn	36x10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/37	
Screw shaft root diameter	30.4	
Effective turns of balls	2.5x1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	27200
	Static C_0	61300
Preload (N)	2060	
Dynamic friction torque, median, (N·cm)	59.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	32	
Standard volume of grease replenishing (cm ³)	16	

Recommended support unit	For drive side	For opposite to drive side
WBK30DF-31 (round)	○	○
WBK25DF-31 (round)		○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L _o
W3604SA-1Z-C5Z10	350	377	480	500	670
W3606SA-1Z-C5Z10	550	577	680	700	870
W3609SA-1Z-C5Z10	850	877	980	1000	1239
W3613SA-1Z-C5Z10	1250	1277	1380	1400	1639
W3617SA-1Z-C5Z10	1650	1677	1780	1800	2039

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

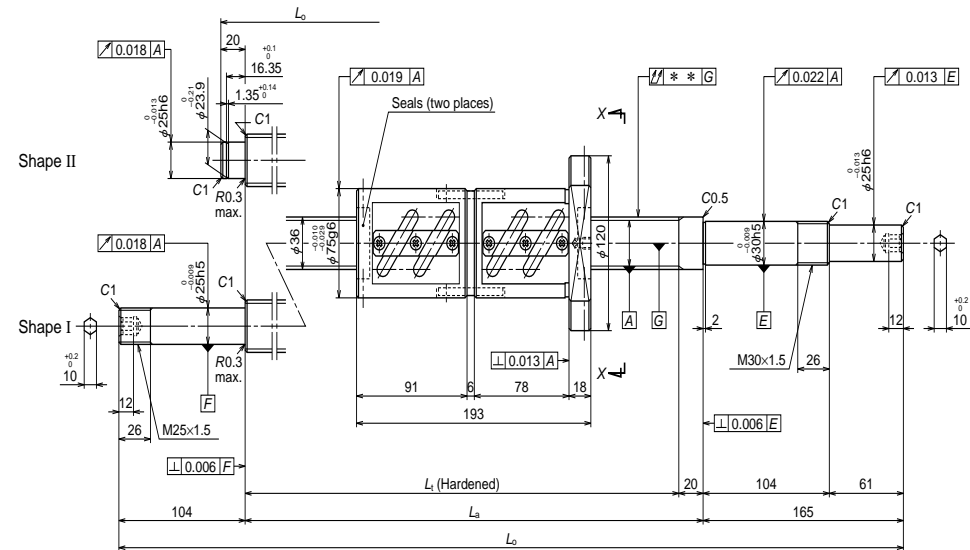
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.012	0.027	0.020	0.040	7.4	1940	—
II	-0.016	0.035	0.025	0.050	8.8	1940	—
I	-0.024	0.040	0.027	0.065	11.1	1940	1940
I	-0.033	0.054	0.035	0.100	13.9	1940	1940
I	-0.043	0.065	0.040	0.130	16.6	1480	1940

B335

B336

Finished shaft end SA Type

(Fine lead) Dia. 36, Lead 10

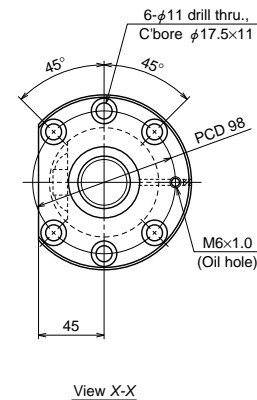


Nut models: DFT

NSK

ø36×10

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	36×10/Right	
Preload / Ball recirculation	D preload / Return tube	
Ball dia. / Ball circle dia.	6.35/37	
Screw shaft root diameter	30.4	
Effective turns of balls	2.5×2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	49300
	Static C_0	123000
Preload (N)	3430	
Dynamic friction torque, median, (N·cm)	93.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	64	
Standard volume of grease replenishing (cm ³)	27	

Recommended support unit	For drive side	For opposite to drive side
WBK30DFD-31 (round)	○	○
WBK25DFD-31 (round)	○	○

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W3604SA-2D-C5Z10	250	287	480	500	685
W3606SA-2D-C5Z10	450	487	680	700	885
W3609SA-2D-C5Z10	750	787	980	1000	1269
W3613SA-2D-C5Z10	1150	1187	1380	1400	1669
W3617SA-2D-C5Z10	1550	1587	1780	1800	2069

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

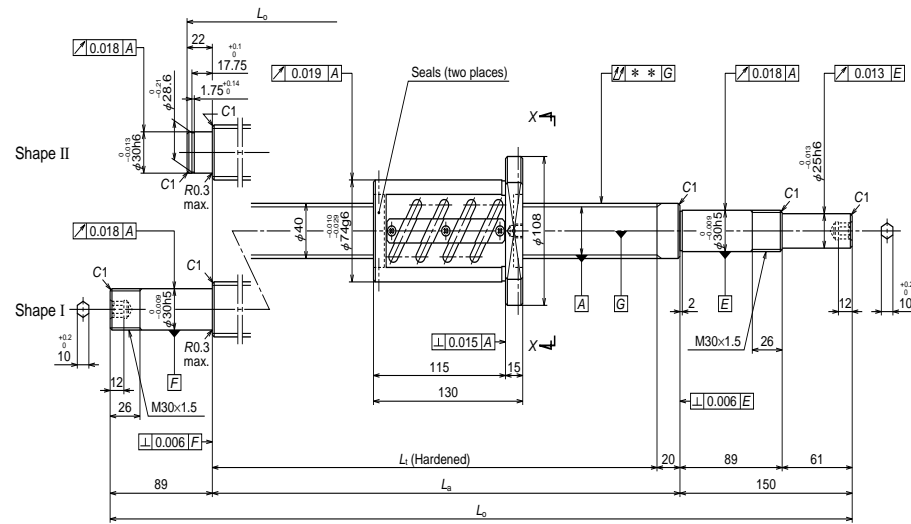
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.012	0.027	0.020	0.040	9.3	1940	—
II	-0.016	0.035	0.025	0.050	10.7	1940	—
I	-0.024	0.040	0.027	0.080	13.1	1940	1940
I	-0.033	0.054	0.035	0.100	15.9	1940	1940
I	-0.043	0.065	0.040	0.130	18.6	1540	1940

B337

B338

Finished shaft end SA Type

(Fine lead) Dia. 40, Lead 8

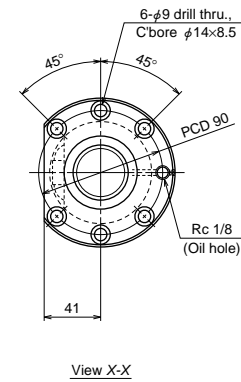


Nut models: ZFT

NSK

ø40x8

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	40x8/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	4.762/40.5	
Screw shaft root diameter	35.5	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	34900
	Static C_0	103000
Preload (N)	2450	
Dynamic friction torque, median, (N-cm)	64.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	27	
Standard volume of grease replenishing (cm ³)	14	

Recommended support unit		
WBK30DF-31	(round)	

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_1 -Nut length)	L_1	L_a	L_o
W4003SA-2Z-C5Z8	200	250	380	400	572
W4005SA-2Z-C5Z8	400	450	580	600	772
W4007SA-2Z-C5Z8	600	650	780	800	1039
W4009SA-2Z-C5Z8	800	850	980	1000	1239
W4011SA-2Z-C5Z8	1000	1050	1180	1200	1439
W4015SA-2Z-C5Z8	1400	1450	1580	1600	1839

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

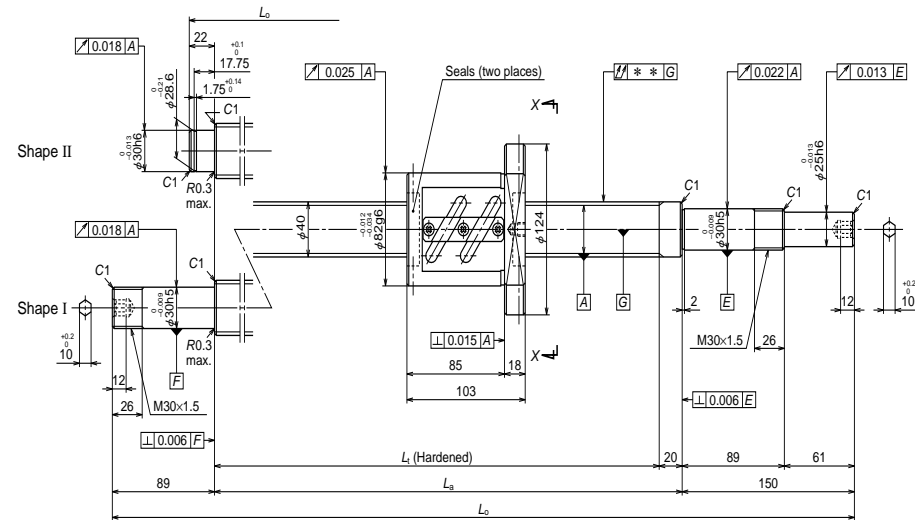
Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e_p	v_u			Supporting condition	
	Fixed - Simple support		Fixed - Fixed				
II	-0.009	0.025	0.020	0.035	7.4	1750	—
II	-0.014	0.030	0.023	0.040	9.2	1750	—
I	-0.019	0.035	0.025	0.065	11.3	1750	1750
I	-0.024	0.040	0.027	0.065	13.1	1750	1750
I	-0.028	0.046	0.030	0.080	14.9	1750	1750
I	-0.038	0.054	0.035	0.100	18.5	1750	1750

B341

B342

Finished shaft end SA Type

(Fine lead) Dia. 40, Lead 10

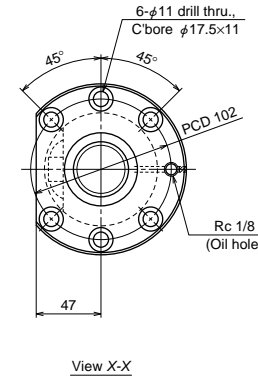


Nut models: ZFT

NSK

ø40x10

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	40x10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/41	
Screw shaft root diameter	34.4	
Effective turns of balls	2.5x1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	28600
	Static C_0	68600
Preload (N)	2160	
Dynamic friction torque, median, (N·cm)	64.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	30	
Standard volume of grease replenishing (cm ³)	15	

Recommended support unit	
WBK30DF-31	(round)

Unit: mm

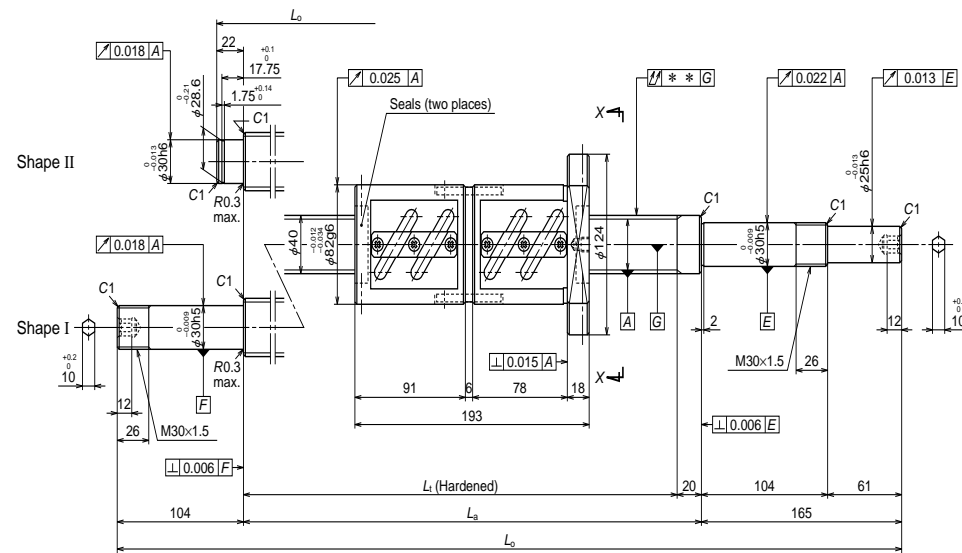
Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L ₀
W4004SA-1Z-C5Z10	350	377	480	500	672
W4005SA-3Z-C5Z10	450	477	580	600	772
W4006SA-1Z-C5Z10	550	577	680	700	872
W4007SA-3Z-C5Z10	650	677	780	800	1039
W4009SA-3Z-C5Z10	850	877	980	1000	1239
W4011SA-3Z-C5Z10	1050	1077	1180	1200	1439
W4013SA-1Z-C5Z10	1250	1277	1380	1400	1639
W4015SA-3Z-C5Z10	1450	1477	1580	1600	1839
W4017SA-1Z-C5Z10	1650	1677	1780	1800	2039
W4023SA-1Z-C5Z10	2250	2277	2380	2400	2639

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e _p	v _u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.012	0.027	0.020	0.040	8.7	1750	—
II	-0.014	0.030	0.023	0.040	9.6	1750	—
II	-0.016	0.035	0.025	0.050	10.4	1750	—
I	-0.019	0.035	0.025	0.065	11.7	1750	1750
I	-0.024	0.040	0.027	0.065	13.4	1750	1750
I	-0.028	0.046	0.030	0.080	15.1	1750	1750
I	-0.033	0.054	0.035	0.100	16.9	1750	1750
I	-0.038	0.054	0.035	0.100	18.6	1750	1750
I	-0.043	0.065	0.040	0.130	20.3	1670	1750
I	-0.057	0.077	0.046	0.170	25.5	930	1320

Remarks 1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Finished shaft end SA Type

(Fine lead) Dia. 40, Lead 10

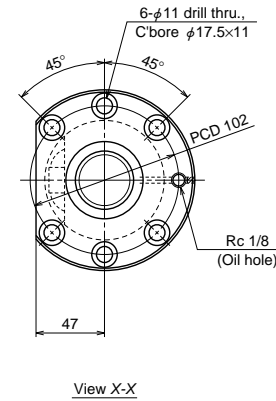


Nut models: DFT

NSK

ø40×10

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	40x10/Right	
Preload / Ball recirculation	D preload / Return tube	
Ball dia. / Ball circle dia.	6.35/41	
Screw shaft root diameter	34.4	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	52000
	Static C_{0a}	137000
Preload (N)	3630	
Dynamic friction torque, median, (N·cm)	108	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	59	
Standard volume of grease replenishing (cm ³)	30	

Recommended support unit	
WBK30DFD-31	(round)

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_1 —Nut length)	L_1	L_a	L_0
W4004SA-2D-C5Z10	250	287	480	500	687
W4005SA-4D-C5Z10	350	387	580	600	787
W4006SA-2D-C5Z10	450	487	680	700	887
W4007SA-4D-C5Z10	550	587	780	800	1069
W4009SA-4D-C5Z10	750	787	980	1000	1269
W4011SA-4D-C5Z10	950	987	1180	1200	1469
W4013SA-2D-C5Z10	1150	1187	1380	1400	1669
W4015SA-4D-C5Z10	1350	1387	1580	1600	1869
W4017SA-2D-C5Z10	1550	1587	1780	1800	2069
W4023SA-2D-C5Z10	2150	2187	2380	2400	2669

Left side shaft end	Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
	T	e_p	v_u			Supporting condition	
						Fixed - Simple support	Fixed - Fixed
II	-0.012	0.027	0.020	0.040	11.0	1750	—
II	-0.014	0.030	0.023	0.040	11.9	1750	—
II	-0.016	0.035	0.025	0.050	12.7	1750	—
I	-0.019	0.035	0.025	0.065	14.1	1750	1750
I	-0.024	0.040	0.027	0.080	15.8	1750	1750
I	-0.028	0.046	0.030	0.080	17.5	1750	1750
I	-0.033	0.054	0.035	0.100	19.3	1750	1750
I	-0.038	0.054	0.035	0.100	21.0	1750	1750
I	-0.043	0.065	0.040	0.130	22.7	1750	1750
I	-0.057	0.077	0.046	0.170	27.9	960	1370

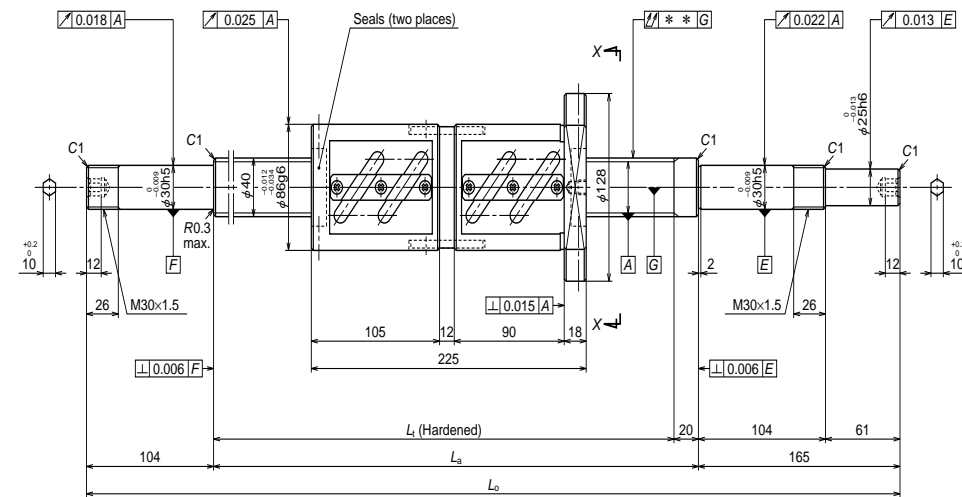
- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

B345

B346

Finished shaft end SA Type

(Fine lead) Dia. 40, Lead 12



Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_1 —Nut length)	L_1	L_2	L_3
W4006SA-4D-C5Z12	400	455	680	700	969
W4009SA-6D-C5Z12	700	755	980	1000	1269
W4013SA-4D-C5Z12	1100	1155	1380	1400	1669
W4017SA-4D-C5Z12	1500	1555	1780	1800	2069
W4024SA-2D-C5Z12	2200	2255	2480	2500	2769

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

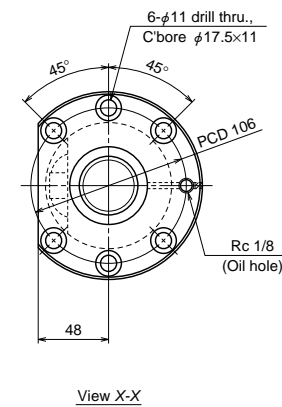
B349

Nut models: DFT

NSK

ø40×12

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	40x12/Right	
Preload / Ball recirculation	D preload / Return tube	
Ball dia. / Ball circle dia.	7.144/41.5	
Screw shaft root diameter	34.1	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	61000
	Static C_0	155000
Preload (N)	4310	
Dynamic friction torque, median, (N·cm)	137	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	76	
Standard volume of grease replenishing (cm ³)	38	

Recommended support unit	
WBK30DFD-31	(round)

Unit: mm

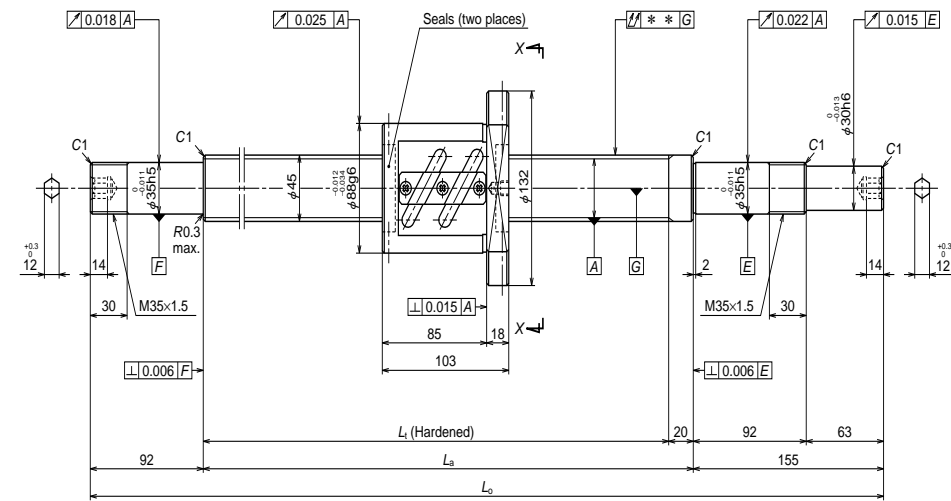
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e_p	v_u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.016	0.035	0.025	0.050	14.8	1750	1750
-0.024	0.040	0.027	0.080	17.4	1750	1750
-0.033	0.054	0.035	0.100	20.9	1750	1750
-0.043	0.065	0.040	0.130	24.3	1750	1750
-0.060	0.077	0.046	0.170	30.4	880	1260

B350

B350

Finished shaft end SA Type

(Fine lead) Dia. 45, Lead 10

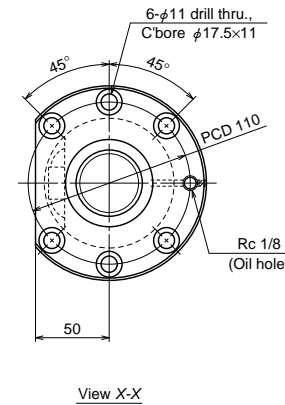


Nut models: ZFT

NSK

ø45×10

Unit: mm



Ball screw specifications		
Shaft dia. x Lead / Direction of turn	45×10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/46	
Screw shaft root diameter	39.4	
Effective turns of balls	2.5×1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	29900
	Static C_0	77300
Preload (N)	2260	
Dynamic friction torque, median, (N·cm)	69.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	33	
Standard volume of grease replenishing (cm ³)	17	

Recommended support unit	
WBK35DF-31	(round)

Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L_1 —Nut length)	L_1	L_a	L_o
W4506SA-1Z-C5Z10	550	577	680	700	947
W4509SA-1Z-C5Z10	850	877	980	1000	1247
W4513SA-1Z-C5Z10	1250	1277	1380	1400	1647
W4517SA-1Z-C5Z10	1650	1677	1780	1800	2047
W4524SA-1Z-C5Z10	2350	2377	2480	2500	2747

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

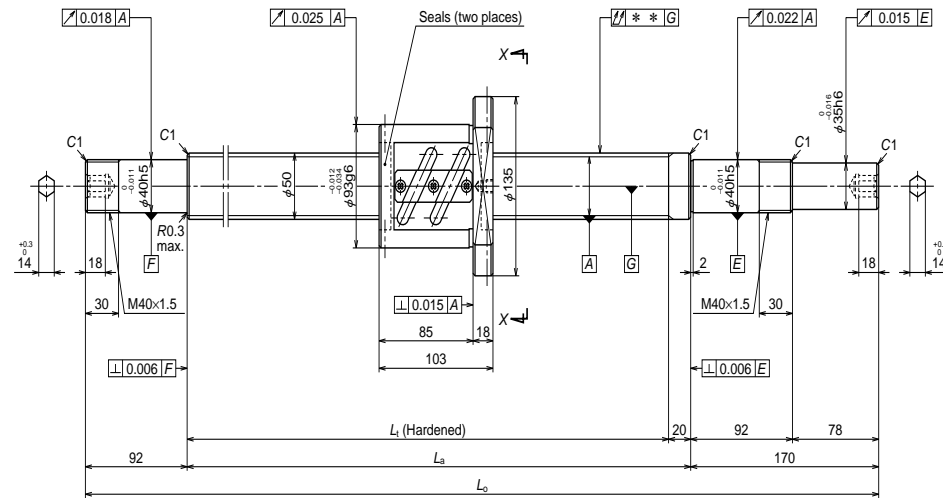
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e_p	v_u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.016	0.035	0.025	0.050	13.4	1550	1550
-0.024	0.040	0.027	0.065	16.7	1550	1550
-0.033	0.054	0.035	0.100	21.2	1550	1550
-0.043	0.065	0.040	0.130	25.6	1550	1550
-0.060	0.077	0.046	0.170	33.4	980	1400

B351

B352

Finished shaft end SA Type

(Fine lead) Dia. 50, Lead 10

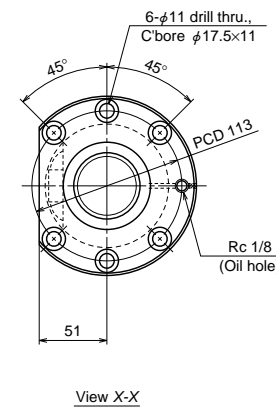


Nut models: ZFT

NSK

ø50×10

Unit: mm



Ball screw specifications

Shaft dia. x Lead / Direction of turn	50x10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/51	
Screw shaft root diameter	44.4	
Effective turns of balls	2.5x1	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	31800
	Static C_0	87400
Preload (N)	2450	
Dynamic friction torque, median, (N·cm)	79.0	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	37	
Standard volume of grease replenishing (cm ³)	19	

Recommended support unit

WBK40DF-31	(round)
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Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L ₂	L ₃
W5005SA-1Z-C5Z10	450	477	580	600	862
W5007SA-1Z-C5Z10	650	677	780	800	1062
W5009SA-1Z-C5Z10	850	877	980	1000	1262
W5011SA-1Z-C5Z10	1050	1077	1180	1200	1462
W5014SA-1Z-C5Z10	1350	1377	1480	1500	1762
W5019SA-1Z-C5Z10	1850	1877	1980	2000	2262
W5025SA-1Z-C5Z10	2450	2477	2580	2600	2862

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

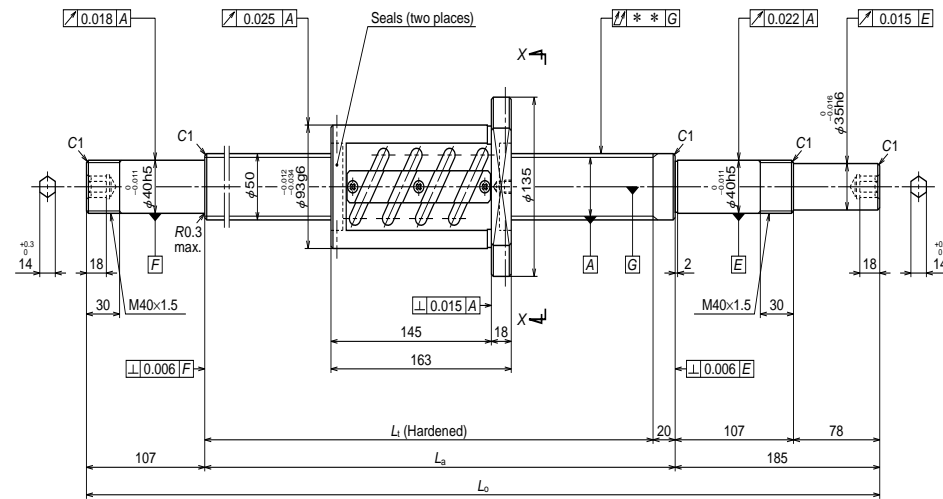
Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e _p	v _u			Supporting condition	
			Fixed - Simple support			Fixed - Fixed
-0.014	0.030	0.023	0.050	14.8	1400	1400
-0.019	0.035	0.025	0.065	17.6	1400	1400
-0.024	0.040	0.027	0.080	20.3	1400	1400
-0.028	0.046	0.030	0.080	23.1	1400	1400
-0.036	0.054	0.035	0.100	27.3	1400	1400
-0.048	0.065	0.040	0.130	34.2	1400	1400
-0.062	0.093	0.054	0.170	42.5	1020	1400

B353

B354

Finished shaft end SA Type

(Fine lead) Dia. 50, Lead 10

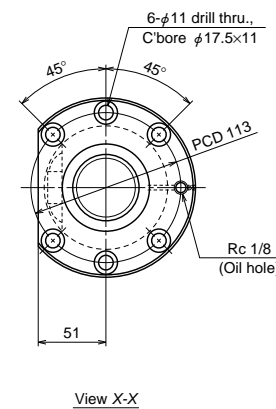


Nut models: ZFT

NSK

ø50×10

Unit: mm



Ball screw specifications

Shaft dia. x Lead / Direction of turn	50x10/Right	
Preload / Ball recirculation	Z preload / Return tube	
Ball dia. / Ball circle dia.	6.35/51	
Screw shaft root diameter	44.4	
Effective turns of balls	2.5x2	
Accuracy grade / Preload	C5/Z	
Basic load rating (N)	Dynamic C_d	57700
	Static C_0	175000
Preload (N)	4020	
Dynamic friction torque, median, (N·cm)	137	
Spacer ball	None	
Factory packed grease	Refer to Remarks 2.	
Internal spatial volume of nut (cm ³)	59	
Standard volume of grease replenishing (cm ³)	30	

Recommended support unit

WBK40DFD-31	(round)
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Unit: mm

Ball screw No.	Stroke		Screw shaft length		
	Nominal	Maximum (L ₁ —Nut length)	L ₁	L _a	L _o
W5005SA-2Z-C5Z10	350	417	580	600	892
W5007SA-2Z-C5Z10	550	617	780	800	1092
W5009SA-2Z-C5Z10	750	817	980	1000	1292
W5011SA-2Z-C5Z10	950	1017	1180	1200	1492
W5014SA-2Z-C5Z10	1250	1317	1480	1500	1792
W5019SA-2Z-C5Z10	1750	1817	1980	2000	2292
W5025SA-2Z-C5Z10	2350	2417	2580	2600	2892

- Remarks
1. We recommend NSK support unit. Refer to Page B433 for details.
 2. Only rust preventive agent is applied at time of delivery. Please apply lubricant (oil or grease) before use. Refer to Page D13 for details.
 3. Contact NSK if permissible rotational speed is to be exceeded.

Lead accuracy			Shaft run-out **	Mass (kg)	Permissible rotational speed N (min ⁻¹)	
T	e _p	v _u			Supporting condition	
					Fixed - Simple support	Fixed - Fixed
-0.014	0.030	0.023	0.050	16.8	1400	1400
-0.019	0.035	0.025	0.065	19.6	1400	1400
-0.024	0.040	0.027	0.080	22.3	1400	1400
-0.028	0.046	0.030	0.080	25.1	1400	1400
-0.036	0.054	0.035	0.100	29.3	1400	1400
-0.048	0.065	0.040	0.130	36.2	1400	1400
-0.062	0.093	0.054	0.170	44.6	1040	1400

B355

B356