

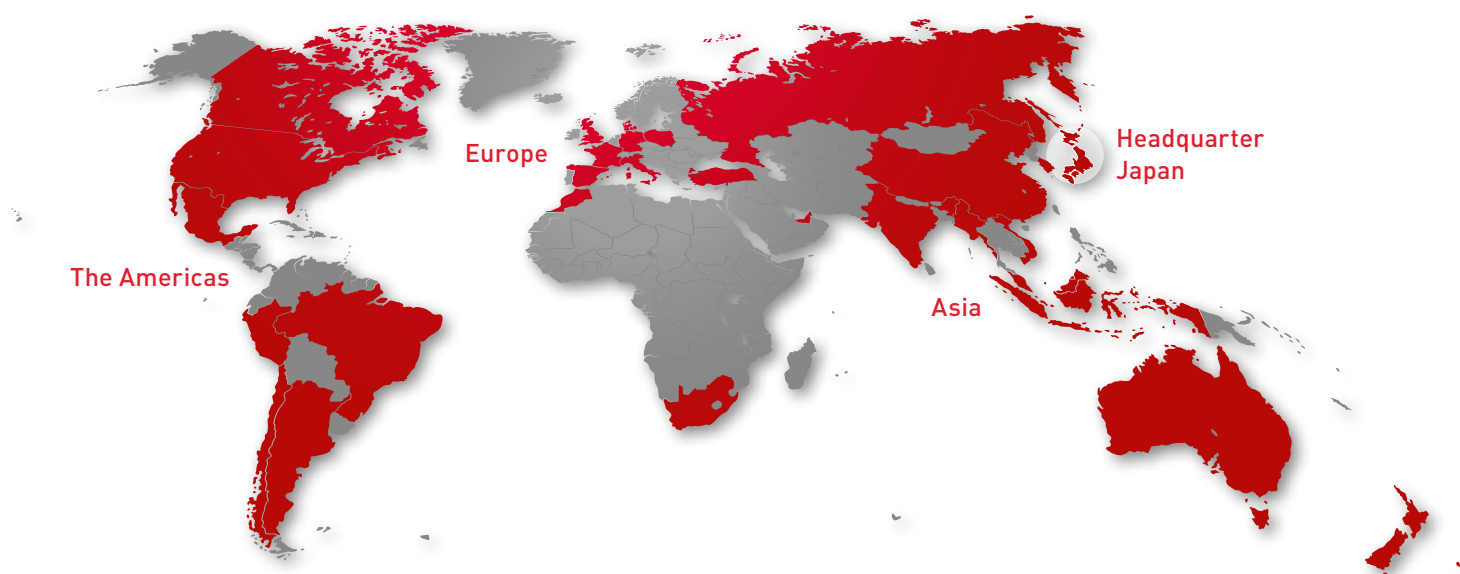
STANDARD BALL SCREWS COMPACT FA SERIES



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SETTING THE FUTURE IN MOTION

We are among the leading manufacturers for rolling bearings, linear technology components and steering systems worldwide. We can be found on almost every continent – with production facilities, sales offices and technology centres – because our customers appreciate short decision-making channels, prompt deliveries and local service.



The NSK company

NSK commenced operations as the first Japanese manufacturer of rolling bearings back in 1916. Ever since, we have been continuously expanding and improving not only our product portfolio but also our range of services for various industrial sectors. In this context our worldwide research and production facilities are linked together in a global network. Here we concentrate not only on the

development of new technologies, but also on the continuous optimisation of quality – at every process stage. Among other things, our research activities include product design, simulation applications using a variety of analytical systems and the development of different steels and lubricants for rolling bearings.

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OUR MOST IMPORTANT PRODUCT: OUR CUSTOMERS' SATISFACTION

One thing keeps us moving: we want to help you increase the reliability of your vehicles and equipment, not only with excellent products, but above all with excellent service. Our experienced engineers have a deep understanding of systems – together with you, they work to optimise products and processes and develop solutions for the future. The goal that we are dedicated to every day is ensuring that you remain competitive over the long run.

More about NSK on www.nsk europe.com



NSK STANDARD BALL SCREWS COMPACT FA SERIES

**Compact FA Series has a broad lineup to meet various industrial needs.
Low noise and space-compact design is achieved.**

The compact FA series of ball screws includes the following types to quickly and easily meet your requirements:

- PSS Type which offers various sizes for general use.
- USS Type for high accuracy and clean environment use.
- FSS Type for transfer equipment.

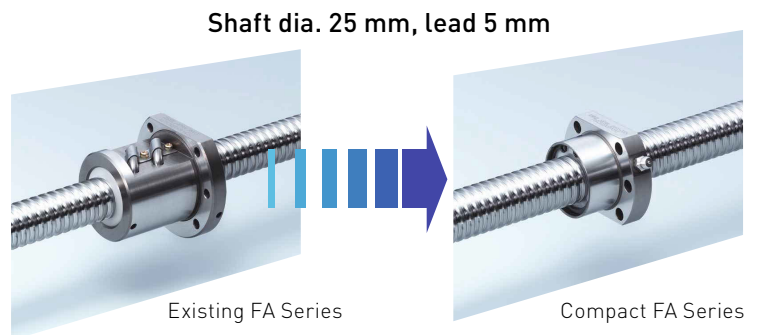
Features

Quick delivery

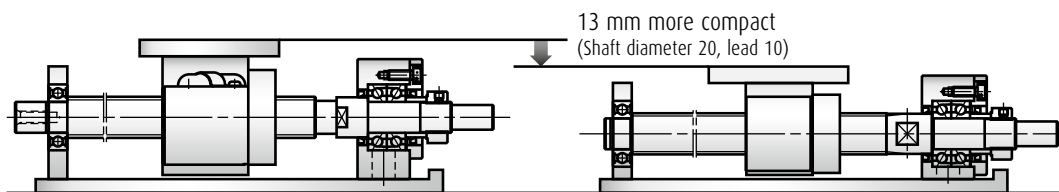
Ball screws and support units in the catalog are in stock.

Compact

The outside diameter of the ball nut is as much as 30% smaller than those of existing NSK products, and the low-profile support units especially compatible with the compact FA series are available. These contribute to more compact design of equipment and devices.



Comparison of existing FA Series and Compact FA Series



High-speed, low-noise

Used with the end-deflector recirculation system. Maximum rotational speed of 5 000 min⁻¹ is achieved, and noise reduced by 6 dB(A) compared with the tube recirculation system. The vibration is reduced as well.

Thin plastic seal

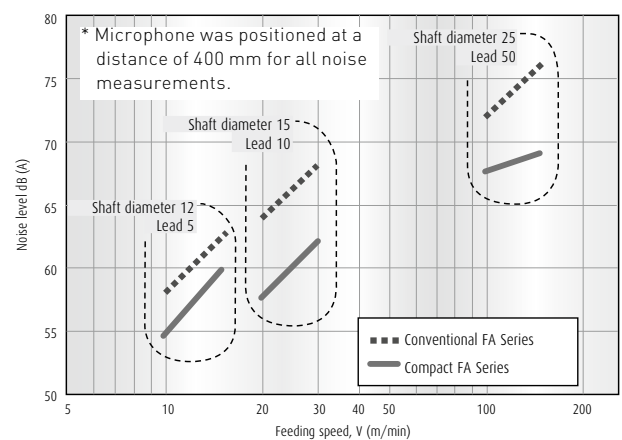
Screw shafts with diameters of 10 to 25 mm are equipped with a thin layer of sealing, which minimizes spattering of grease and helps to achieve a clean environment.

* Screws with shaft diameters of 6 mm or 8 mm are not sealed.

Grease fitting

A grease fitting (M5 × 0.8) is provided as a standard equipment for shaft dia. of 10 to 25 mm.

Two lubrication ports are provided to facilitate easy maintenance.



LINE UP

Selection of ball screws

Three types of compact FA Series are available. Choose optimal types for application.

NSK Standard Ball Screws

Compact FA PSS Type for general uses

Accuracy grade: C5 grade of JIS
 Axial play: shaft dia. 6 and 8 mm; 0.005 mm or less
 shaft dia. 10 mm or over; 0

Page 6,
10 to 33

Compact FA USS Type for high-accuracy and clean environments

Accuracy grade: C3 grade of JIS Axial play: 0

Page 7,
34 to 39

Compact FA FSS type for transfer equipment

Accuracy grade: Ct7 grade of JIS Axial play: 0.010 mm or less

Page 8,
40 to 47

Combinations of screw shaft diameter and lead

Unit: mm

Lead Screw shaft dia.	5	8	10	12	15	20	25	30	40	50	60
6		●		●							
8			●		●						
10	● ■		●								
12	● ■		● ▲			●		●			
15	● ■		● ▲			● ▲		●			
20	●		● ▲			● ▲		●	●		●
25	●		● ▲			● ▲	● ▲	●		●	

● PSS type ■ USS type ▲ FSS type

Support Unit

Shape	Square type	Round type	Page 48 to 54
Applications	<ul style="list-style-type: none"> - For general uses - For clean uses - Space-saving (low-profile type) 	<ul style="list-style-type: none"> - For general uses - For clean uses 	

COMPACT FA SERIES PSS TYPE FOR GENERAL USES

Applications

Semiconductor manufacturing equipment, LCD manufacturing equipment, material handling equipment, measuring equipment, medical equipment etc.

Accuracy grade and axial play

Accuracy grade: C5 grade of JIS Axial play 1) Shaft dia. 6 and 8 mm: 0.005 mm or less
 2) Shaft dia. 10 mm or over: 0 (Oversize ball preload)

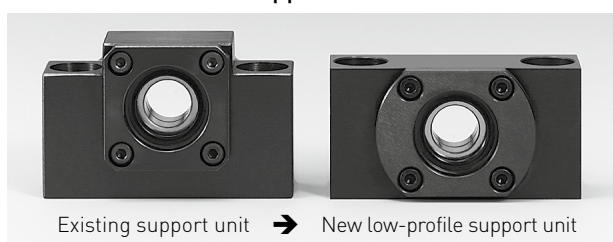
Wide variation

Abundant combinations of shaft diameter, lead and stroke are available to meet a wide range of customer needs.

Shaft end support

The low-profile support units especially compatible with the compact FA series are available. Since the ends of ball screw shafts are shaped to accommodate the shapes of support units, no detailed design after purchase is necessary.

Support unit



Combinations of shaft diameter, lead and stroke

Shaft dia.	Lead	Stroke (overall shaft length for shaft dia. 6 and 8 mm)												Page	Recommended support unit				
		50	100	150	200	300	400	500	600	700	800	1 000	1 200		1 600	2 000	Fixed	Simple	
6	8		●														10-11	WBK04-01M (square) WBK04-11M (round)	-
	12	●																	
8	10	●															12-13	WBK06-01M (square) WBK06-11M (round)	-
	15	●																	
10	5	●	●		●	●	●										14-15	WBK08-01B	WBK08S-01B
	10	●	●		●	●	●												
12	5	●	●		●	●	●	●									16-17	WBK08-01B	WBK08S-01B
	10	●	●		●	●	●	●											
	20	●	●		●	●	●	●											
	30	●	●		●	●	●	●											
15	5	●	●		●	●	●	●	●								18-21	WBK12-01B	WBK12S-01B
	10	●	●		●	●	●	●	●	●									
	20	●	●		●	●	●	●	●	●	●								
	30	●	●		●	●	●	●	●	●	●								
20	5			●	●	●	●	●	●	●							22-27	WBK15-01B	WBK15S-01B
	10			●	●	●	●	●	●	●	●		●						
	20				●	●	●	●	●	●	●	●	●	●					
	30				●	●	●	●	●	●	●	●	●	●	●				
	40					●	●	●	●	●	●	●	●	●	●	●			
25	5			●	●	●	●	●	●	●							28-33	WBK20-01	WBK20S-01
	10				●	●	●	●	●	●	●		●						
	20					●	●	●	●	●	●	●	●	●	●				
	25						●	●	●	●	●	●	●	●	●	●			
	30							●	●	●	●	●	●	●	●	●			
	50							●	●	●	●	●	●	●	●	●			

Reference number Compact FA PSS type Screw shaft length (mm)

Example **PSS** **15** **05** **N1D** **0361**

 ↑ ↑ ↑

 Screw shaft diameter (mm) Lead (mm) NSK control number

COMPACT FA SERIES USS TYPE FOR HIGH-ACCURACY AND CLEAN USES

Applications

Clean uses for semiconductor manufacturing equipment, LCD manufacturing equipment, inspection equipment etc.

Accuracy grade and axial play

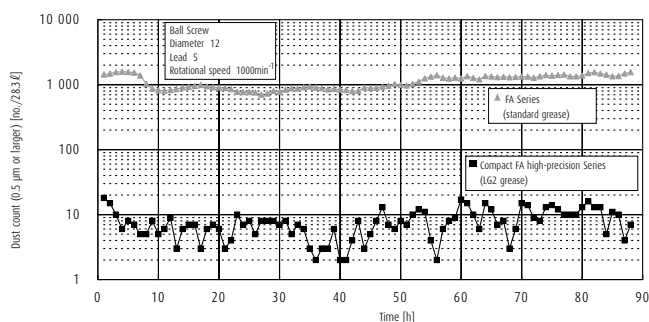
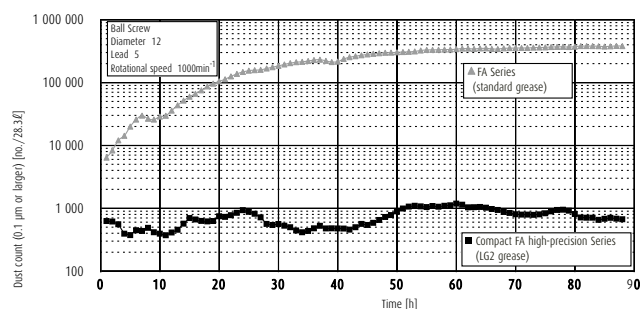
Accuracy grade: C3 grade of JIS Axial play: 0 (Oversize ball preload)

Low-dust emissions

Dust particles are reduced by 90% compared to general lithium grease because LG2 clean grease is used as the standard.

Low-dust emissions (LG2 Grease)

- 1/100 of dust emissions comparing with existing FA series
- Ideal for clean environmental use due to superb low-dust feature

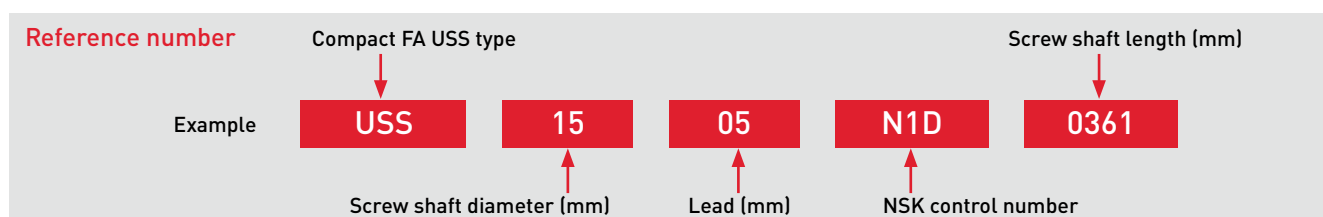


Shaft end support

Low-profile support unit especially compatible with Compact FA Series and support unit for clean environments are available.

Combinations of screw shaft diameter, lead and stroke

Shaft dia.	Lead	Stroke					Page	Recommended support unit		
		100	200	400	500	600		Fixed	Simple	Application
10	5	●	●	●			34-35	WBK08-01B	WBK08S-01B	Low
								WBK08-01C	WBK08S-01C	Clean
12		●	●		●		36-37	WBK08-01B	WBK08S-01B	Low
								WBK08-01C	WBK08S-01C	Clean
15		●	●	●		●	38-39	WBK12-01B	WBK12S-01B	Low
								WBK12-01C	WBK12S-01C	Clean



COMPACT FA SERIES FSS TYPE FOR TRANSFER EQUIPMENT

Applications

Transfer equipment for abundant industrial fields such as automobile, semiconductor, food and medical equipment.

Accuracy grade and axial play

Accuracy grade: Ct7 grade of JIS Axial play: 0.010 mm or less

Easy stroke setting

Flexible stroke setting with fixed-simple support by means of mounting support unit (simple support side) directly onto ball screw thread outside diameter.

Since corner cutting is not necessary, it is easy for customers to cut the screws, which contributes to reduction in cost and lead time.

If necessary, NSK will accept orders for cutting.

Precautions

During the cutting process, be careful not to let metal particles or burrs fall inside the nuts.

Customers are also advised to treat the cut surface.

When inserting the support unit (simple support side), apply oil or grease on the outside of the shaft and inside the bearing.

Shaft end support

Fixed side: The low-profile support units especially compatible with the compact FA PSS type are available.

Simple side: Proprietary support units are available.



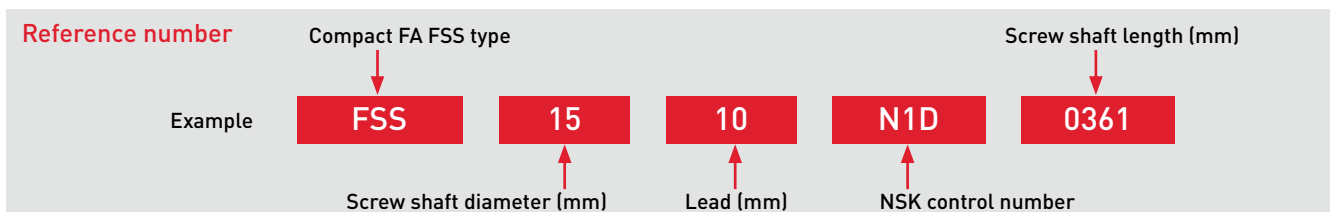
Design precautions

Permissible rotational speed varies when using cut screw shaft. It is necessary to calculate two items below, and whichever smaller is the permissible rotational speed.

- Critical speed which is the resonance vibration of the shaft. (Refer to the technical description of the catalog "Precision Machine Components".)
- Maximum rotational speed 5 000 min⁻¹

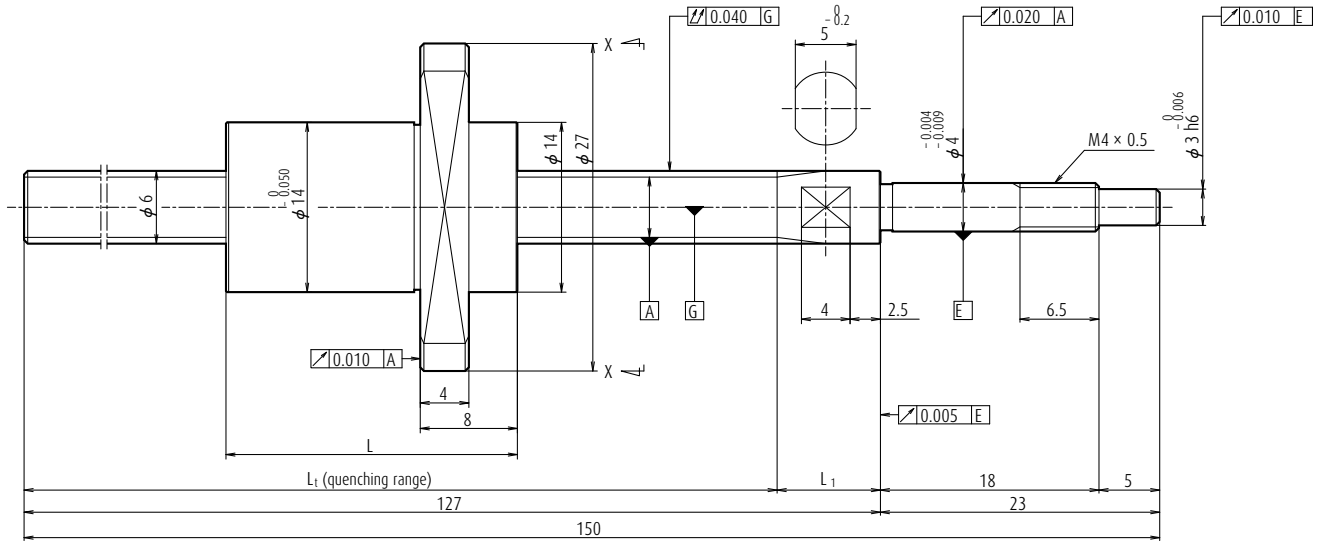
Combinations of shaft diameter, lead and shaft length

Shaft dia.	Lead	Overall shaft length						Page	Recommended support unit	
		400	500	600	900	1 000	1 450		Fixed	Simple
12	10	●		●	●			40-41	WBK08-01B	WBK12SF-01B
15	10		●			●	●	42-43	WBK12-01B	WBK15SF-01B
	20		●			●	●			
20	10			●		●	●	44-45	WBK15-01B	WBK20SF-01B
	20			●		●	●			
25	10			●		●	●	46-47	WBK20-01	WBK25SF-01
	20			●		●	●			
	25			●		●	●			





COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Effective turns of balls	Basic load ratings (N)		Maximum stroke	Nut length L	Screw shaft dimensions	
				Dynamic C_a	Static C_{0a}			L_t	L_1
PSS0608NAD0150	6	8	2	690	805	102.5	16	118.5	8.5
PSS0608NBD0150	6	8	4	1 480	1 940	94.5	24	118.5	8.5
PSS0612NAD0150	6	12	2	665	800	97	20	117	10
PSS0612NBD0150	6	12	4	1 430	1 970	85	32	117	10

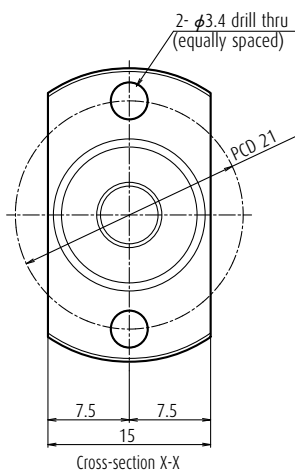
Note 1. Contact NSK if permissible rotational speed is to be exceeded.

PSS TYPE FOR GENERAL USES

Screw shaft $\phi 6$

Lead 8, 12

Unit: mm



Ball screw specification

Ball diameter/screw shaft root diameter	1.2 / 4.9
Ball circle dia.	6.2
Accuracy grade/axial play	C5 / 0.005 or less
Factory-packed grease	NSK grease PS2

Recommended support unit

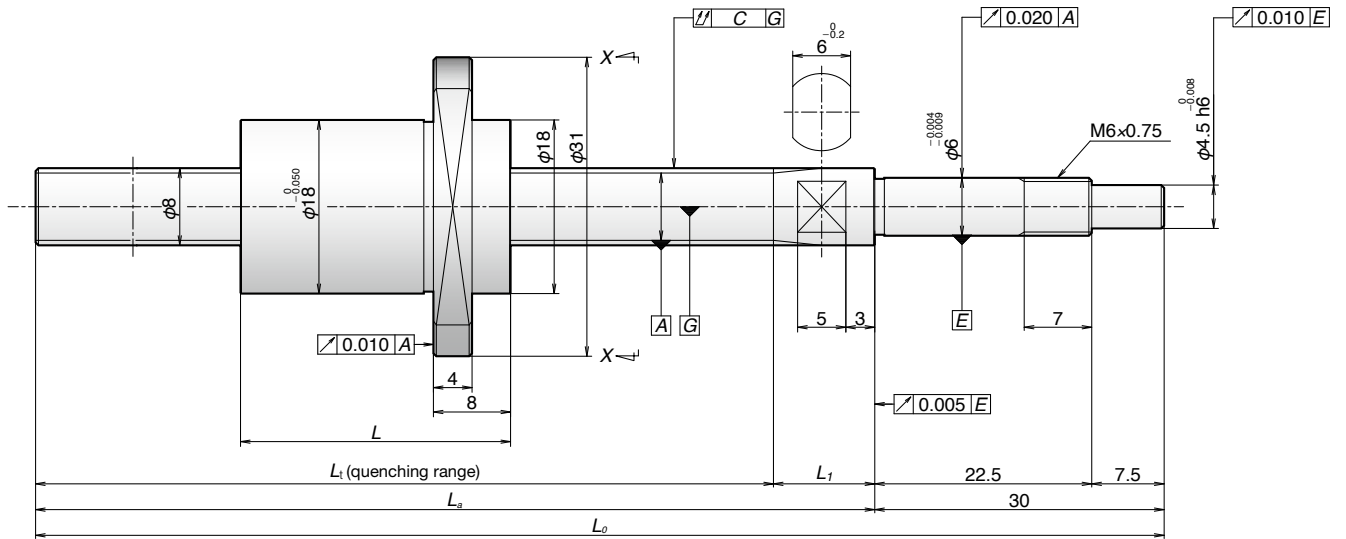
For drive side (Fixed)
WBK04-01M (square)
WBK04-11M (round)

Unit: mm

Target value T	Lead accuracy		Dynamic preload torque (N·cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *1	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Error e _p	Variation v _u					
0	0.020	0.018	~0.5	0.06	5 000	0.2	0.1
0	0.020	0.018	~0.5	0.06	5 000	0.3	0.2
0	0.020	0.018	~0.5	0.06	5 000	0.2	0.1
0	0.020	0.018	~0.5	0.07	5 000	0.3	0.2

- Service temperature range is 0 to 80°C.
- Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Effective turns of balls	Basic load ratings (N)		Maximum stroke	Nut length L	Screw shaft dimensions	
				Dynamic C_a	Static C_{0a}			L_t	L_1
PSS0810NAD0150	8	10	2	1 150	1 420	91.5	18	109.5	10.5
PSS0810NBD0150	8	10	4	2 470	3 430	81.5	28	109.5	10.5
PSS0815NAD0150	8	15	2	1 130	1 430	85	22	107	13
PSS0815NBD0150	8	15	4	2 410	3 520	70	37	107	13

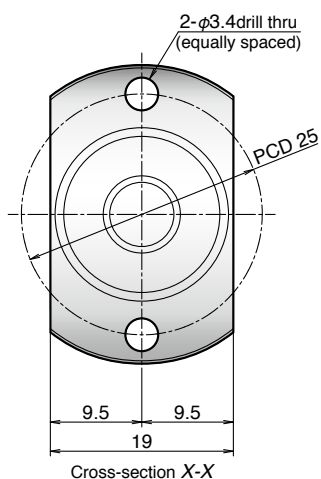
Note 1. Contact NSK if permissible rotational speed is to be exceeded.

PSS TYPE FOR GENERAL USES

Screw shaft $\phi 8$

Lead 10, 15

Unit: mm



Ball screw specification

Ball diameter/screw shaft root diameter	1.588 / 6.6
Ball circle dia.	8.3
Accuracy grade/axial play	C5 / 0.005 or less
Factory-packed grease	NSK grease PS2

Recommended support unit

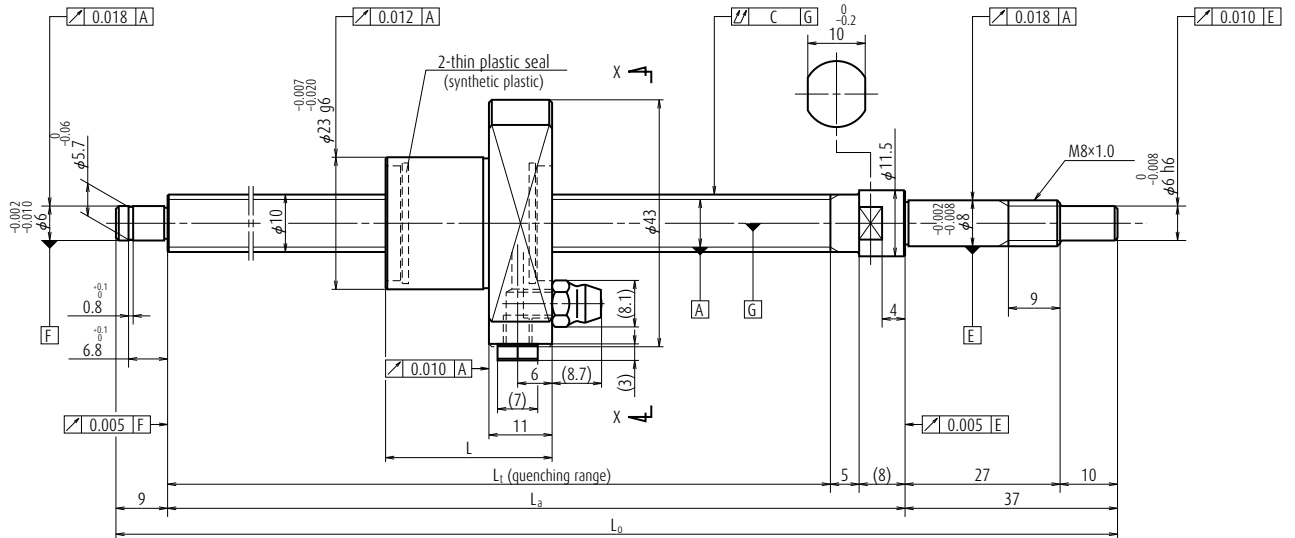
For drive side (Fixed)
WBK06-01M (square)
WBK06-11M (round)

Unit: mm

Target value	Lead accuracy		Dynamic preload torque (N·cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *1	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Error	Variation					
T	e_p	v_u					
0	0.020	0.018	~0.5	0.09	5 000	0.4	0.2
0	0.020	0.018	~0.5	0.11	5 000	0.5	0.3
0	0.020	0.018	~0.5	0.1	5 000	0.4	0.2
0	0.020	0.018	~0.5	0.12	5 000	0.6	0.3

- Service temperature range is 0 to 80°C.
- Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions		
			Dynamic C _a	Static C _{0a}	Nominal	max.		L _t	L _a	L _o
PSS1005N1D0171	10	5	3 420	4 840	50	78	29	112	125	171
PSS1005N1D0221	10	5	3 420	4 840	100	128	29	162	175	221
PSS1005N1D0321	10	5	3 420	4 840	200	228	29	262	275	321
PSS1005N1D0421	10	5	3 420	4 840	300	328	29	362	375	421
PSS1005N1D0521	10	5	3 420	4 840	400	428	29	462	475	521
PSS1010N1D0221	10	10	2 290	2 980	100	125	32	162	175	221
PSS1010N1D0321	10	10	2 290	2 980	200	225	32	262	275	321
PSS1010N1D0421	10	10	2 290	2 980	300	325	32	362	375	421
PSS1010N1D0521	10	10	2 290	2 980	400	425	32	462	475	521

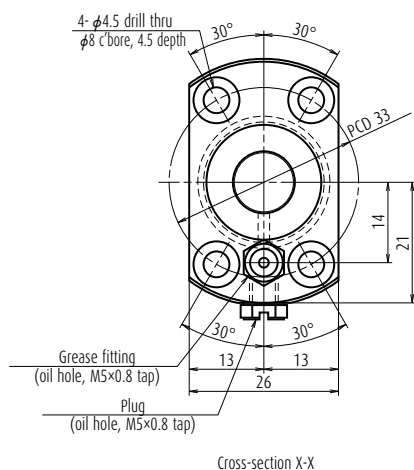
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80°C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 10

Lead 5, 10

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.000 / 8.2
Ball circle dia.	10.3
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease PS2

Recommended support unit

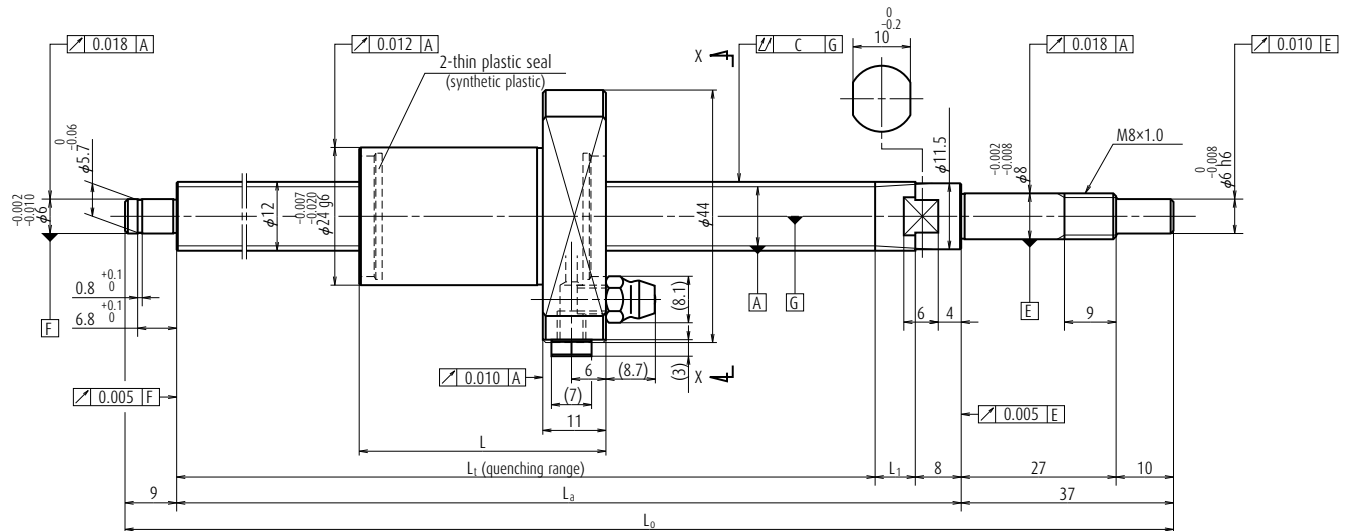
For drive side (Fixed)	For opposite to drive side (Simple)
WBK08-01B (low-profile, square)	WBK08S-01B (low-profile, square)
WBK08-11 (round)	
WBK08-11B (round, high load)	

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation v _u						
0	0.020	0.018	0.030	0.7 – 3.3	0.3	5 000	0.8	0.4
0	0.020	0.018	0.045	0.7 – 3.3	0.3	5 000	0.8	0.4
0	0.023	0.018	0.060	0.6 – 4.3	0.3	5 000	0.8	0.4
0	0.025	0.020	0.070	0.6 – 4.3	0.4	5 000	0.8	0.4
0	0.027	0.020	0.085	0.4 – 4.9	0.5	5 000	0.8	0.4
0	0.020	0.018	0.045	0.7 – 3.3	0.3	5 000	0.7	0.4
0	0.023	0.018	0.060	0.6 – 4.3	0.4	5 000	0.7	0.4
0	0.025	0.020	0.070	0.6 – 4.3	0.4	5 000	0.7	0.4
0	0.027	0.020	0.085	0.4 – 4.9	0.5	5 000	0.7	0.4

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C _a	Static C _{0a}	Nominal	max.		L _t	L _a	L ₀	L ₁
PSS1205N1D0171	12	5	3 750	5 810	50	75	30	110	125	171	7
PSS1205N1D0221	12	5	3 750	5 810	100	125	30	160	175	221	7
PSS1205N1D0321	12	5	3 750	5 810	200	225	30	260	275	321	7
PSS1205N1D0421	12	5	3 750	5 810	300	325	30	360	375	421	7
PSS1205N1D0521	12	5	3 750	5 810	400	425	30	460	475	521	7
PSS1205N1D0621	12	5	3 750	5 810	500	525	30	560	575	621	7
PSS1210N1D0221	12	10	3 760	5 780	100	112	43	160	175	221	7
PSS1210N1D0321	12	10	3 760	5 780	200	212	43	260	275	321	7
PSS1210N1D0421	12	10	3 760	5 780	300	312	43	360	375	421	7
PSS1210N1D0521	12	10	3 760	5 780	400	412	43	460	475	521	7
PSS1210N1D0621	12	10	3 760	5 780	500	512	43	560	575	621	7
PSS1220N1D0271	12	20	2 330	3 600	100	153	50	208	225	271	9
PSS1220N1D0371	12	20	2 330	3 600	200	253	50	308	325	371	9
PSS1220N1D0471	12	20	2 330	3 600	300	353	50	408	425	471	9
PSS1220N1D0571	12	20	2 330	3 600	400	453	50	508	525	571	9
PSS1220N1D0671	12	20	2 330	3 600	500	553	50	608	625	671	9
PSS1230N1D0271	12	30	2 190	3 650	100	128	70	203	225	271	14
PSS1230N1D0371	12	30	2 190	3 650	200	228	70	303	325	371	14
PSS1230N1D0471	12	30	2 190	3 650	300	328	70	403	425	471	14
PSS1230N1D0571	12	30	2 190	3 650	400	428	70	503	525	571	14
PSS1230N1D0671	12	30	2 190	3 650	500	528	70	603	625	671	14

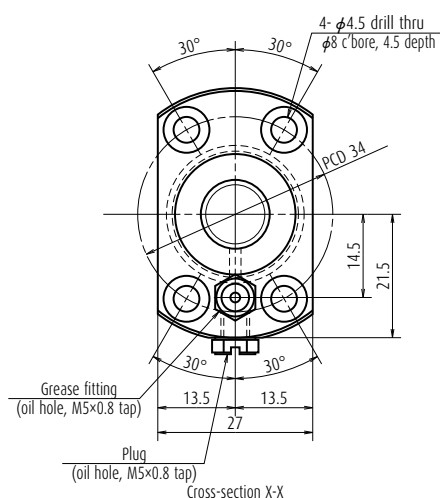
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80°C.

PSS TYPE FOR GENERAL USES

Screw shaft $\phi 12$

Lead 5, 10, 20, 30

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.000 / 10.2
Ball circle dia.	12.3
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease PS2

Recommended support unit

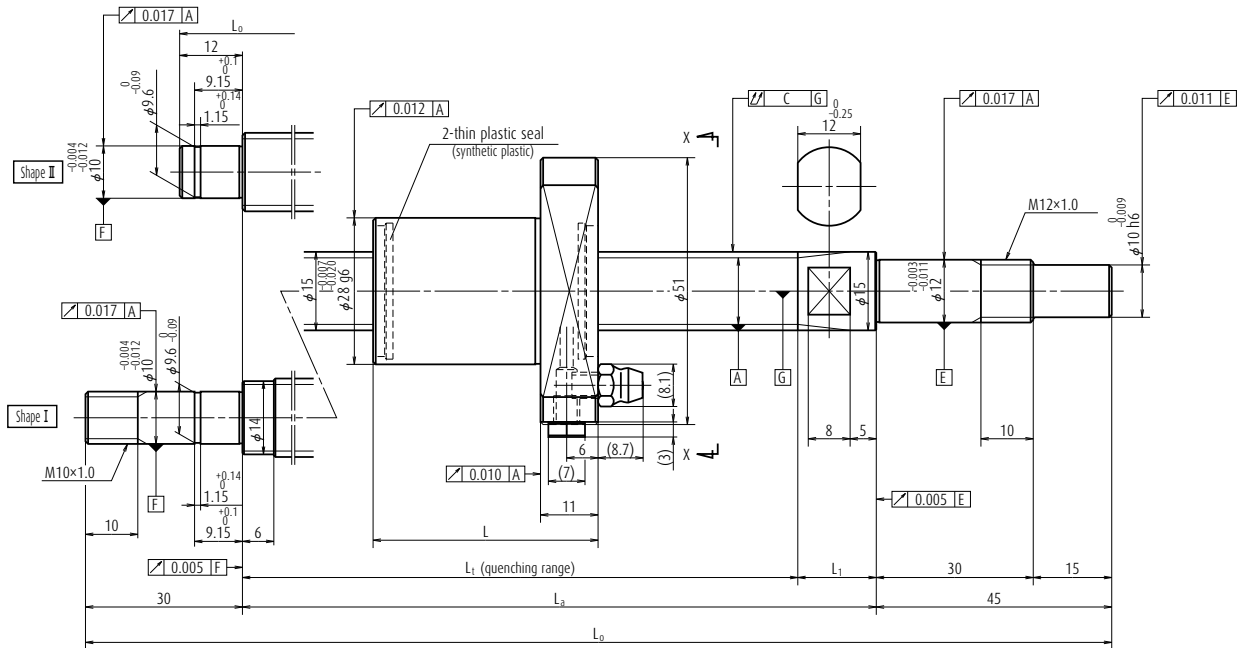
For drive side (Fixed)	For opposite to drive side (Simple)
WBK08-01B (low-profile, square)	WBK08S-01B (low-profile, square)
WBK08-11 (round)	
WBK08-11B (round, high load)	

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation v _u						
0	0.020	0.018	0.030	0.7 - 3.3	0.3	5 000	1.0	0.5
0	0.020	0.018	0.045	0.7 - 3.3	0.3	5 000	1.0	0.5
0	0.023	0.018	0.060	0.6 - 4.3	0.4	5 000	1.0	0.5
0	0.025	0.020	0.070	0.6 - 4.3	0.5	5 000	1.0	0.5
0	0.027	0.020	0.085	0.6 - 4.3	0.6	5 000	1.0	0.5
0	0.030	0.023	0.085	0.4 - 4.9	0.7	5 000	1.0	0.5
0	0.020	0.018	0.045	0.7 - 3.3	0.4	5 000	1.0	0.5
0	0.023	0.018	0.060	0.6 - 4.3	0.5	5 000	1.0	0.5
0	0.025	0.020	0.070	0.6 - 4.3	0.5	5 000	1.0	0.5
0	0.027	0.020	0.085	0.6 - 4.3	0.6	5 000	1.0	0.5
0	0.030	0.023	0.085	0.4 - 4.9	0.7	5 000	1.0	0.5
0	0.023	0.018	0.045	1.4 - 4.5	0.4	5 000	1.2	0.6
0	0.023	0.018	0.060	0.9 - 4.9	0.5	5 000	1.2	0.6
0	0.027	0.020	0.070	0.9 - 4.9	0.6	5 000	1.2	0.6
0	0.030	0.023	0.085	0.6 - 5.9	0.7	5 000	1.2	0.6
0	0.030	0.023	0.110	0.6 - 5.9	0.8	4 480	1.2	0.6
0	0.023	0.018	0.045	1.4 - 4.5	0.5	5 000	1.5	0.8
0	0.023	0.018	0.060	0.9 - 4.9	0.6	5 000	1.5	0.8
0	0.027	0.020	0.070	0.9 - 4.9	0.7	5 000	1.5	0.8
0	0.030	0.023	0.085	0.6 - 5.9	0.7	5 000	1.5	0.8
0	0.030	0.023	0.110	0.6 - 5.9	0.8	4 720	1.5	0.8

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.		L_t	L_a	L_o	L_1
PSS1505N1D0211	15	5	6 410	10 100	50	103	30	139	154	211	15
PSS1505N1D0261	15	5	6 410	10 100	100	153	30	189	204	261	15
PSS1505N1D0361	15	5	6 410	10 100	200	253	30	289	304	361	15
PSS1505N1D0461	15	5	6 410	10 100	300	353	30	389	404	461	15
PSS1505N1D0561	15	5	6 410	10 100	400	453	30	489	504	561	15
PSS1505N1D0661	15	5	6 410	10 100	500	553	30	589	604	661	15
PSS1505N1D0761	15	5	6 410	10 100	600	653	30	689	704	761	15
PSS1510N1D0261	15	10	6 530	10 200	100	140	43	189	204	261	15
PSS1510N1D0361	15	10	6 530	10 200	200	240	43	289	304	361	15
PSS1510N1D0461	15	10	6 530	10 200	300	340	43	389	404	461	15
PSS1510N1D0561	15	10	6 530	10 200	400	440	43	489	504	561	15
PSS1510N1D0661	15	10	6 530	10 200	500	540	43	589	604	661	15
PSS1510N1D0761	15	10	6 530	10 200	600	640	43	689	704	761	15
PSS1510N1D0879	15	10	6 530	10 200	700	740	43	789	804	879	15
PSS1510N1D0979	15	10	6 530	10 200	800	846	43	889	904	979	15
PSS1510N1D1179	15	10	6 530	10 200	1 000	1 040	43	1 089	1 104	1 179	15

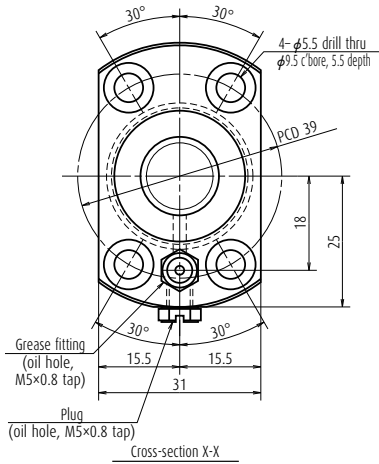
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80°C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 15

Lead 5, 10

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.778 / 12.6
Ball circle dia.	15.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

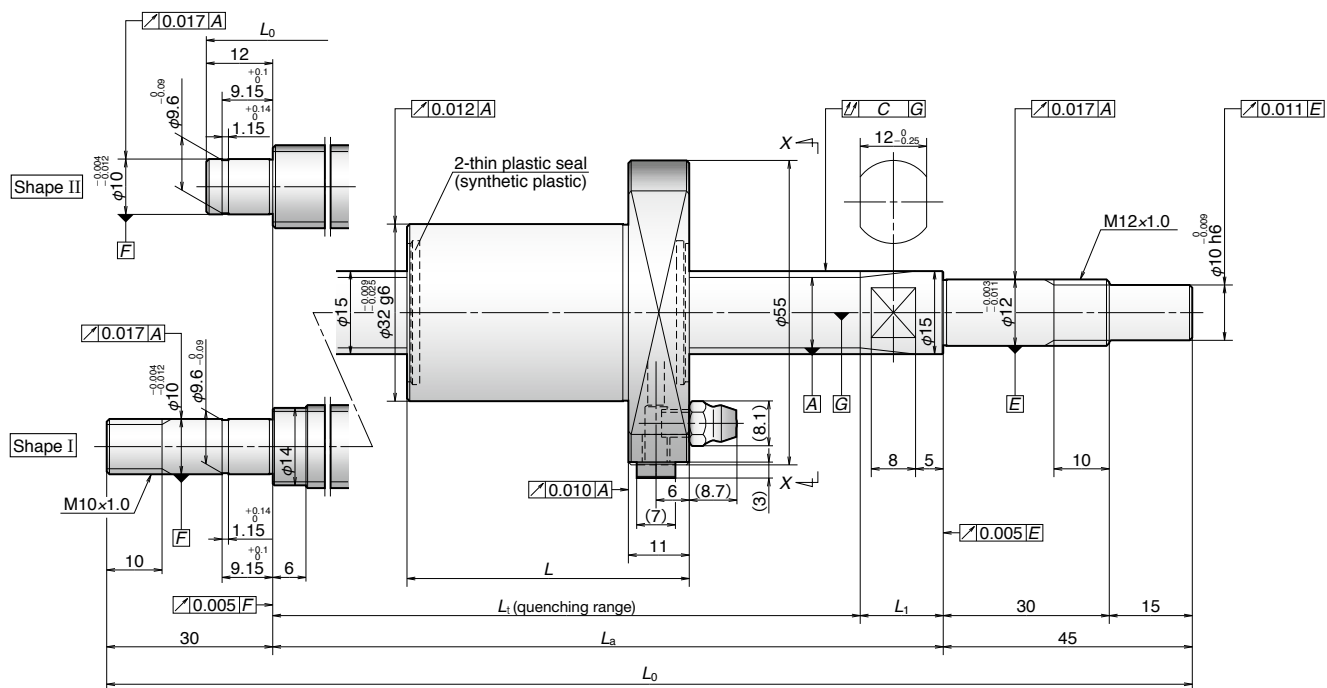
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK12-01B (low-profile, square)	WBK10-01B (low-profile, square)	WBK12S-01B (low-profile, square)
WBK12-11 (round)	WBK10-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N-cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.020	0.018	0.035	0.2 – 6.9	0.5	5 000	–	2.0	1.0
II	0	0.020	0.018	0.035	0.2 – 6.9	0.5	5 000	–	2.0	1.0
II	0	0.023	0.018	0.045	0.2 – 6.9	0.6	5 000	–	2.0	1.0
II	0	0.025	0.020	0.050	0.4 – 9.8	0.8	5 000	–	2.0	1.0
II	0	0.027	0.020	0.060	0.4 – 9.8	0.9	5 000	–	2.0	1.0
II	0	0.030	0.023	0.075	0.4 – 9.8	1.0	5 000	–	2.0	1.0
II	0	0.035	0.025	0.075	0.4 – 11.8	1.1	4 130	–	2.0	1.0
II	0	0.020	0.018	0.035	0.6 – 7.4	0.6	5 000	–	2.0	1.0
II	0	0.023	0.018	0.045	0.6 – 7.4	0.7	5 000	–	2.0	1.0
II	0	0.025	0.020	0.050	0.4 – 9.8	0.8	5 000	–	2.0	1.0
II	0	0.027	0.020	0.060	0.4 – 9.8	1.0	5 000	–	2.0	1.0
II	0	0.030	0.023	0.075	0.4 – 9.8	1.1	5 000	–	2.0	1.0
II	0	0.035	0.025	0.075	0.4 – 11.8	1.2	4 210	–	2.0	1.0
I	0	0.035	0.025	0.095	0.4 – 11.8	1.4	3 190	4 410	2.0	1.0
I	0	0.040	0.027	0.095	0.4 – 11.8	1.5	2 500	3 470	2.0	1.0
I	0	0.046	0.030	0.120	0.4 – 11.8	1.7	1 650	2 320	2.0	1.0

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic Ca	Static C0a	Nominal	max.		Lt	La	Lo	L1
PSS1520N1D0261	15	20	5 660	8 700	100	129	51	186	204	261	18
PSS1520N1D0361	15	20	5 660	8 700	200	229	51	286	304	361	18
PSS1520N1D0461	15	20	5 660	8 700	300	329	51	386	404	461	18
PSS1520N1D0561	15	20	5 660	8 700	400	429	51	486	504	561	18
PSS1520N1D0661	15	20	5 660	8 700	500	529	51	586	604	661	18
PSS1520N1D0761	15	20	5 660	8 700	600	629	51	686	704	761	18
PSS1520N1D0879	15	20	5 660	8 700	700	729	51	786	804	879	18
PSS1520N1D0979	15	20	5 660	8 700	800	829	51	886	904	979	18
PSS1520N1D1179	15	20	5 660	8 700	1 000	1 029	51	1 086	1 104	1 179	18
PSS1530N1D0311	15	30	5 500	8 580	100	153	71	230	254	311	24
PSS1530N1D0411	15	30	5 500	8 580	200	253	71	330	354	411	24
PSS1530N1D0511	15	30	5 500	8 580	300	353	71	430	454	511	24
PSS1530N1D0611	15	30	5 500	8 580	400	453	71	530	554	611	24
PSS1530N1D0711	15	30	5 500	8 580	500	553	71	630	654	711	24
PSS1530N1D0811	15	30	5 500	8 580	600	653	71	730	754	811	24
PSS1530N1D0929	15	30	5 500	8 580	700	753	71	830	854	929	24
PSS1530N1D1029	15	30	5 500	8 580	800	853	71	930	954	1 029	24
PSS1530N1D1229	15	30	5 500	8 580	1 000	1 053	71	1 130	1 154	1 229	24

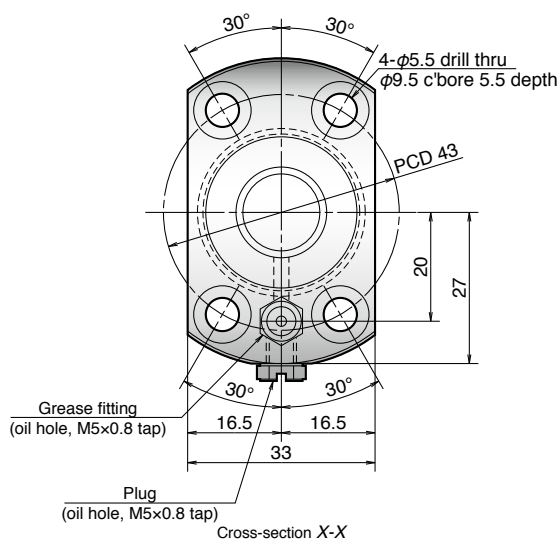
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 15

Lead 20, 30

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 12.2
Ball circle dia.	15.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

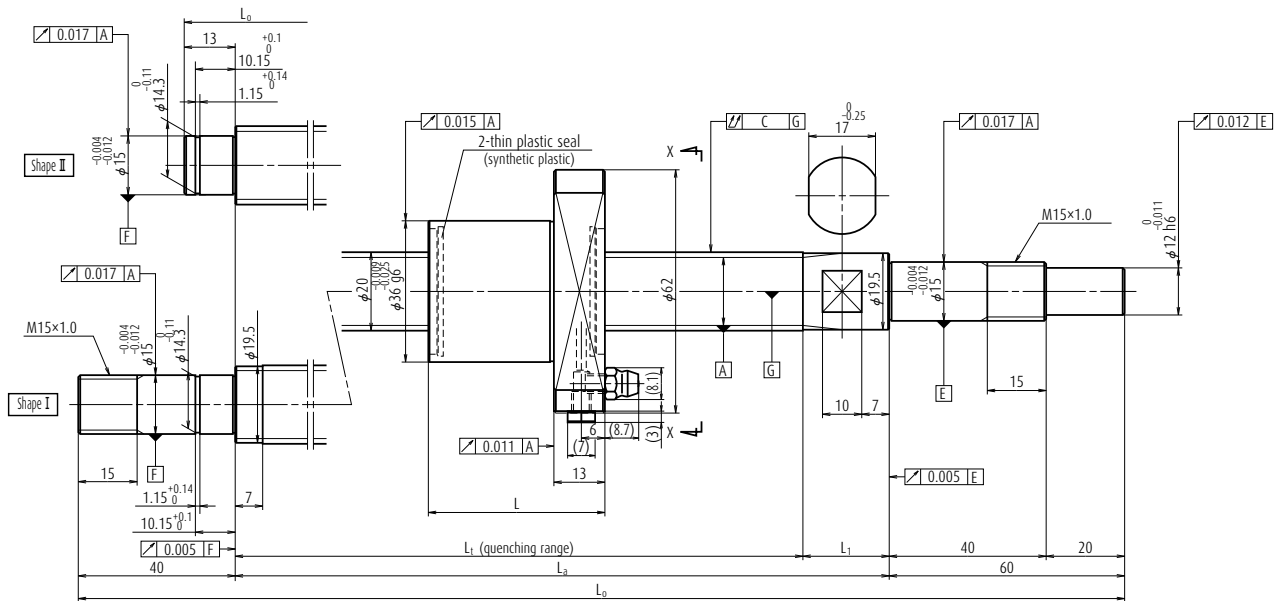
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK12-01B (low-profile, square)	WBK10-01B (low-profile, square)	WBK12S-01B (low-profile, square)
WBK12-11 (round)	WBK10-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.020	0.018	0.035	0.8 – 8.8	0.7	5 000	—	2.8	1.4
II	0	0.023	0.018	0.045	0.8 – 8.8	0.8	5 000	—	2.8	1.4
II	0	0.025	0.020	0.050	0.8 – 10.8	0.9	5 000	—	2.8	1.4
II	0	0.027	0.020	0.060	0.8 – 10.8	1.1	5 000	—	2.8	1.4
II	0	0.030	0.023	0.075	0.8 – 10.8	1.2	5 000	—	2.8	1.4
II	0	0.035	0.025	0.075	0.8 – 13.8	1.3	4 170	—	2.8	1.4
I	0	0.035	0.025	0.095	0.8 – 13.8	1.5	3 150	4 310	2.8	1.4
I	0	0.040	0.027	0.095	0.8 – 13.8	1.6	2 460	3 390	2.8	1.4
I	0	0.046	0.030	0.120	0.8 – 13.8	1.9	1 620	2 260	2.8	1.4
II	0	0.023	0.018	0.035	1.2 – 9.3	0.8	5 000	—	3.4	1.7
II	0	0.025	0.020	0.050	0.8 – 10.8	1.0	5 000	—	3.4	1.7
II	0	0.027	0.020	0.060	0.8 – 10.8	1.1	5 000	—	3.4	1.7
II	0	0.030	0.023	0.060	0.8 – 10.8	1.2	5 000	—	3.4	1.7
II	0	0.030	0.023	0.075	0.8 – 13.8	1.4	5 000	—	3.4	1.7
II	0	0.035	0.025	0.095	0.8 – 13.8	1.5	3 770	—	3.4	1.7
I	0	0.040	0.027	0.095	0.8 – 13.8	1.6	2 880	3 910	3.4	1.7
I	0	0.040	0.027	0.120	0.8 – 13.8	1.8	2 310	3 110	3.4	1.7
I	0	0.046	0.030	0.120	0.8 – 13.8	2.0	1 540	2 100	3.4	1.7

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic Ca	Static C0a	Nominal	max.		Lt	La	Lo	L1
PSS2005N1D0323	20	5	10 400	18 500	150	191	31	228	250	323	22
PSS2005N1D0373	20	5	10 400	18 500	200	241	31	278	300	373	22
PSS2005N1D0473	20	5	10 400	18 500	300	341	31	378	400	473	22
PSS2005N1D0573	20	5	10 400	18 500	400	441	31	478	500	573	22
PSS2005N1D0673	20	5	10 400	18 500	500	541	31	578	600	673	22
PSS2005N1D0773	20	5	10 400	18 500	600	641	31	678	700	773	22
PSS2005N1D0873	20	5	10 400	18 500	700	741	31	778	800	873	22
PSS2005N1D1000	20	5	10 400	18 500	800	839	31	878	900	1 000	22
PSS2010N1D0387	20	10	10 200	18 600	200	241	45	292	314	387	22
PSS2010N1D0487	20	10	10 200	18 600	300	341	45	392	414	487	22
PSS2010N1D0587	20	10	10 200	18 600	400	441	45	492	514	587	22
PSS2010N1D0687	20	10	10 200	18 600	500	541	45	592	614	687	22
PSS2010N1D0787	20	10	10 200	18 600	600	641	45	692	714	787	22
PSS2010N1D0887	20	10	10 200	18 600	700	741	45	792	814	887	22
PSS2010N1D1014	20	10	10 200	18 600	800	839	45	892	914	1 014	22
PSS2010N1D1214	20	10	10 200	18 600	1 000	1 039	45	1 092	1 114	1 214	22
PSS2010N1D1414	20	10	10 200	18 600	1 200	1 239	45	1 292	1 314	1 414	22

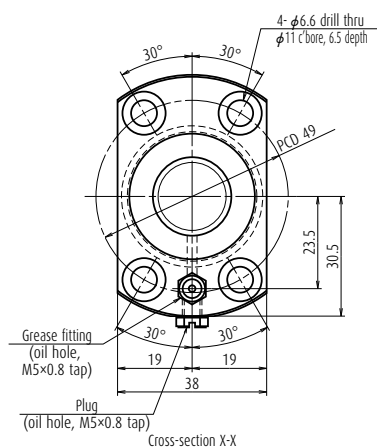
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 20

Lead 5, 10

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 17.2
Ball circle dia.	20.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

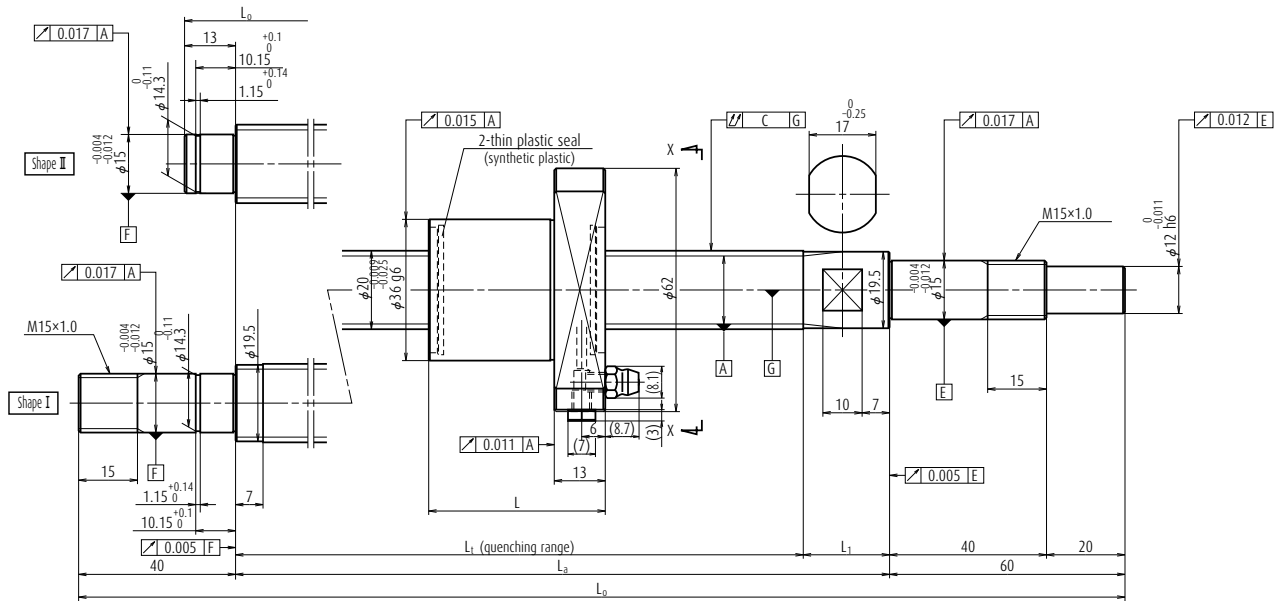
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK15-01B (low-profile, square)	WBK15-01B (low-profile, square)	WBK15S-01B (low-profile, square)
WBK15-11 (round)	WBK15-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.023	0.018	0.045	0.6 - 7.4	1.0	5 000	—	3.4	1.7
II	0	0.023	0.018	0.045	0.6 - 7.4	1.1	5 000	—	3.4	1.7
II	0	0.025	0.020	0.050	0.6 - 7.4	1.3	5 000	—	3.4	1.7
II	0	0.027	0.020	0.060	0.4 - 9.8	1.5	5 000	—	3.4	1.7
II	0	0.030	0.023	0.075	0.4 - 9.8	1.7	5 000	—	3.4	1.7
II	0	0.035	0.025	0.075	0.4 - 9.8	1.9	5 000	—	3.4	1.7
II	0	0.035	0.025	0.095	0.4 - 9.8	2.2	4 410	—	3.4	1.7
I	0	0.040	0.027	0.095	0.4 - 11.8	2.4	3 450	4 710	3.4	1.7
II	0	0.023	0.018	0.045	1.2 - 9.3	1.2	5 000	—	3.2	1.6
II	0	0.025	0.020	0.050	1.2 - 9.3	1.4	5 000	—	3.2	1.6
II	0	0.027	0.020	0.060	0.8 - 10.8	1.7	5 000	—	3.2	1.6
II	0	0.030	0.023	0.075	0.8 - 10.8	1.9	5 000	—	3.2	1.6
II	0	0.035	0.025	0.075	0.8 - 10.8	2.1	5 000	—	3.2	1.6
II	0	0.035	0.025	0.095	0.8 - 10.8	2.4	4 330	—	3.2	1.6
I	0	0.040	0.027	0.120	0.8 - 13.8	2.6	3 400	4 640	3.2	1.6
I	0	0.046	0.030	0.120	0.8 - 13.8	3.1	2 250	3 110	3.2	1.6
I	0	0.054	0.035	0.160	0.8 - 13.8	3.6	1 600	2 220	3.2	1.6

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.		L_t	L_a	L_o	L_1
PSS2020N1D0508	20	20	6 790	11 800	300	353	54	413	435	508	22
PSS2020N1D0608	20	20	6 790	11 800	400	453	54	513	535	608	22
PSS2020N1D0708	20	20	6 790	11 800	500	553	54	613	635	708	22
PSS2020N1D0808	20	20	6 790	11 800	600	653	54	713	735	808	22
PSS2020N1D0908	20	20	6 790	11 800	700	753	54	813	835	908	22
PSS2020N1D1035	20	20	6 790	11 800	800	851	54	913	935	1 035	22
PSS2020N1D1235	20	20	6 790	11 800	1 000	1 051	54	1 113	1 135	1 235	22
PSS2020N1D1435	20	20	6 790	11 800	1 200	1 251	54	1 313	1 335	1 435	22
PSS2020N1D1835	20	20	6 790	11 800	1 600	1 651	54	1 713	1 735	1 835	22
PSS2030N1D0408	20	30	6 550	11 800	200	228	74	308	335	408	27
PSS2030N1D0508	20	30	6 550	11 800	300	328	74	408	435	508	27
PSS2030N1D0608	20	30	6 550	11 800	400	428	74	508	535	608	27
PSS2030N1D0708	20	30	6 550	11 800	500	528	74	608	635	708	27
PSS2030N1D0808	20	30	6 550	11 800	600	628	74	708	735	808	27
PSS2030N1D0908	20	30	6 550	11 800	700	728	74	808	835	908	27
PSS2030N1D1035	20	30	6 550	11 800	800	826	74	908	935	1 035	27
PSS2030N1D1235	20	30	6 550	11 800	1 000	1 026	74	1 108	1 135	1 235	27
PSS2030N1D1435	20	30	6 550	11 800	1 200	1 226	74	1 308	1 335	1 435	27

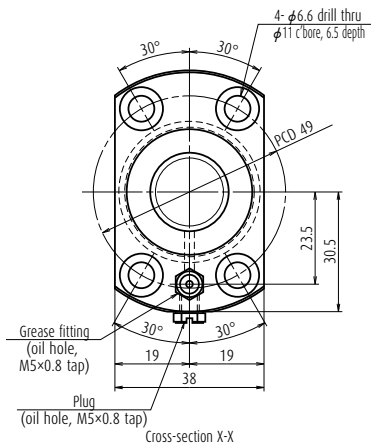
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft $\phi 20$

Lead 20, 30

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 17.2
Ball circle dia.	20.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

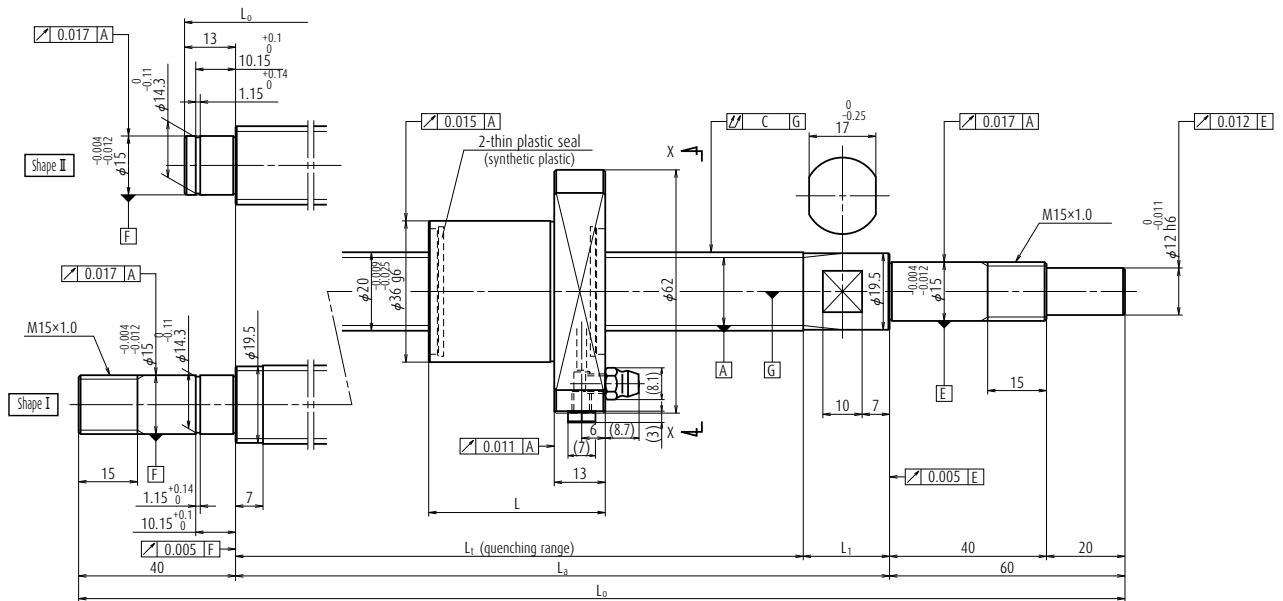
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK15-01B (low-profile, square)	WBK15-01B (low-profile, square)	WBK15S-01B (low-profile, square)
WBK15-11 (round)	WBK15-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.027	0.020	0.060	1.4 – 11.8	1.6	5 000	—	3.2	1.6
II	0	0.030	0.023	0.060	1.4 – 11.8	1.8	5 000	—	3.2	1.6
II	0	0.030	0.023	0.075	1.4 – 11.8	2.0	5 000	—	3.2	1.6
II	0	0.035	0.025	0.095	1.4 – 11.8	2.3	5 000	—	3.2	1.6
II	0	0.040	0.027	0.095	0.8 – 13.8	2.5	4 150	—	3.2	1.6
I	0	0.040	0.027	0.120	0.8 – 13.8	2.8	3 270	4 470	3.2	1.6
I	0	0.046	0.030	0.120	0.8 – 13.8	3.3	2 180	3 010	3.2	1.6
I	0	0.054	0.035	0.160	0.8 – 13.8	3.8	1 550	2 170	3.2	1.6
I	0	0.065	0.040	0.200	0.8 – 13.8	4.7	900	1 270	3.2	1.6
II	0	0.023	0.018	0.050	1.6 – 9.8	1.4	5 000	—	4.6	2.3
II	0	0.027	0.020	0.060	1.4 – 11.8	1.7	5 000	—	4.6	2.3
II	0	0.030	0.023	0.060	1.4 – 11.8	1.9	5 000	—	4.6	2.3
II	0	0.030	0.023	0.075	1.4 – 11.8	2.1	5 000	—	4.6	2.3
II	0	0.035	0.025	0.095	1.4 – 11.8	2.4	5 000	—	4.6	2.3
II	0	0.040	0.027	0.095	0.8 – 13.8	2.6	4 310	—	4.6	2.3
I	0	0.040	0.027	0.120	0.8 – 13.8	2.9	3 380	4 570	4.6	2.3
I	0	0.046	0.030	0.120	0.8 – 13.8	3.4	2 240	3 070	4.6	2.3
I	0	0.054	0.035	0.160	0.8 – 13.8	3.9	1 590	2 200	4.6	2.3

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.		L_t	L_a	L_o	L_1
PSS2040N1D0658	20	40	6 380	11 600	400	455	92	553	585	658	32
PSS2040N1D0758	20	40	6 380	11 600	500	555	92	653	685	758	32
PSS2040N1D0858	20	40	6 380	11 600	600	655	92	753	785	858	32
PSS2040N1D0958	20	40	6 380	11 600	700	755	92	853	885	958	32
PSS2040N1D1085	20	40	6 380	11 600	800	853	92	953	985	1 085	32
PSS2040N1D1285	20	40	6 380	11 600	1 000	1 053	92	1 153	1 185	1 285	32
PSS2040N1D1485	20	40	6 380	11 600	1 200	1 253	92	1 353	1 385	1 485	32
PSS2040N1D1885	20	40	6 380	11 600	1 600	1 653	92	1 753	1 785	1 885	32
PSS2040N1D2285	20	40	6 380	11 600	2 000	2 053	92	2 153	2 185	2 285	32
PSS2060N1D0708	20	60	5 680	11 800	400	458	129	593	635	708	42
PSS2060N1D0808	20	60	5 680	11 800	500	558	129	693	735	808	42
PSS2060N1D0908	20	60	5 680	11 800	600	658	129	793	835	908	42
PSS2060N1D1008	20	60	5 680	11 800	700	758	129	893	935	1 008	42
PSS2060N1D1135	20	60	5 680	11 800	800	856	129	993	1 035	1 135	42
PSS2060N1D1335	20	60	5 680	11 800	1 000	1 056	129	1 193	1 235	1 335	42
PSS2060N1D1535	20	60	5 680	11 800	1 200	1 256	129	1 393	1 435	1 535	42
PSS2060N1D1935	20	60	5 680	11 800	1 600	1 656	129	1 793	1 835	1 935	42
PSS2060N1D2335	20	60	5 680	11 800	2 000	2 056	129	2 193	2 235	2 335	42

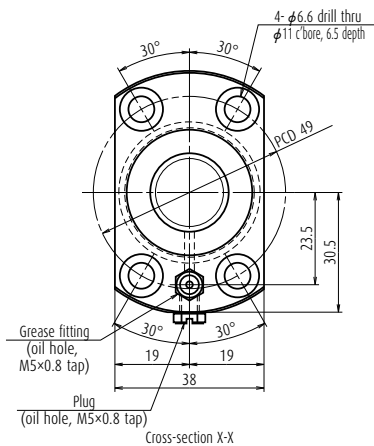
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 20

Lead 40, 60

Unit: mm



Ball screw specification	
Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 17.2
Ball circle dia.	20.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

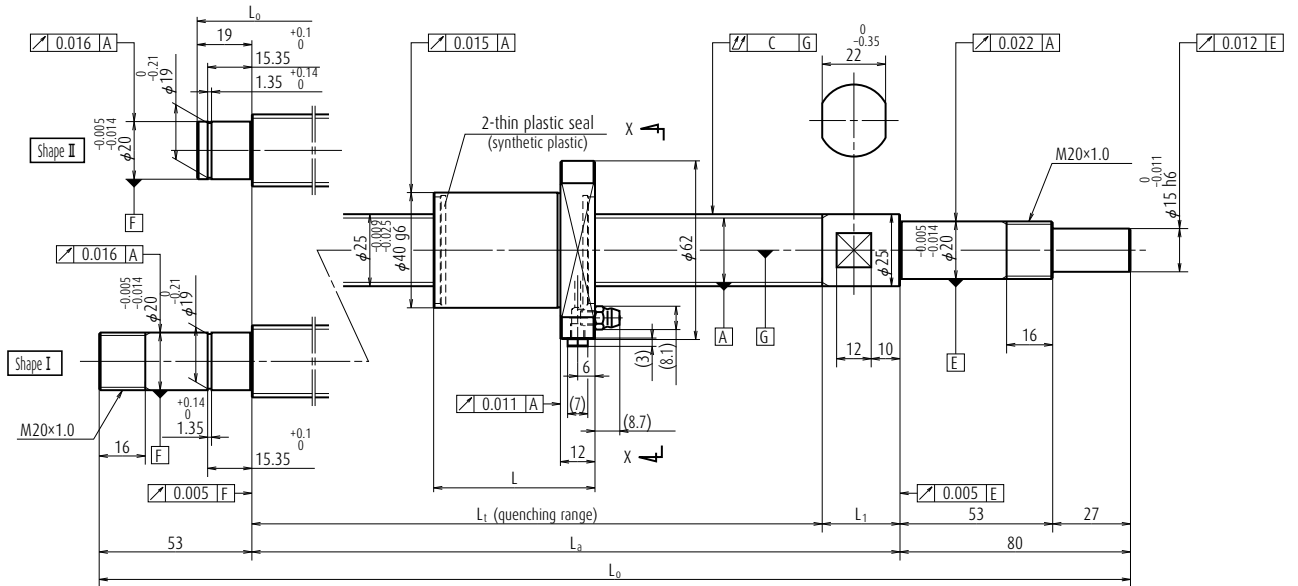
Recommended support unit		
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK15-01B (low-profile, square)	WBK15-01B (low-profile, square)	WBK15S-01B (low-profile, square)
WBK15-11 (round)	WBK15-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.030	0.023	0.075	2.2 – 12.8	2.1	5 000	—	5.3	2.7
II	0	0.035	0.025	0.075	2.2 – 12.8	2.4	5 000	—	5.3	2.7
II	0	0.035	0.025	0.095	2.2 – 12.8	2.6	5 000	—	5.3	2.7
II	0	0.040	0.027	0.095	1.8 – 14.8	2.8	3 940	—	5.3	2.7
I	0	0.040	0.027	0.120	1.8 – 14.8	3.1	3 120	4 190	5.3	2.7
I	0	0.046	0.030	0.160	1.8 – 14.8	3.6	2 100	2 850	5.3	2.7
I	0	0.054	0.035	0.160	1.8 – 14.8	4.1	1 500	2 070	5.3	2.7
I	0	0.065	0.040	0.200	1.8 – 14.8	5.1	880	1 230	5.3	2.7
I	0	0.077	0.046	0.240	1.8 – 14.8	6.0	580	810	5.3	2.7
II	0	0.030	0.023	0.075	2.7 – 13.8	2.4	5 000	—	7.0	3.5
II	0	0.035	0.025	0.095	2.7 – 13.8	2.6	5 000	—	7.0	3.5
II	0	0.035	0.025	0.095	2.7 – 13.8	2.9	4 830	—	7.0	3.5
II	0	0.040	0.027	0.120	1.8 – 14.8	3.1	3 740	—	7.0	3.5
I	0	0.040	0.027	0.120	1.8 – 14.8	3.4	2 980	3 920	7.0	3.5
I	0	0.046	0.030	0.160	1.8 – 14.8	3.9	2 020	2 700	7.0	3.5
I	0	0.054	0.035	0.160	1.8 – 14.8	4.4	1 460	1 970	7.0	3.5
I	0	0.065	0.040	0.200	1.8 – 14.8	5.4	860	1 180	7.0	3.5
I	0	0.077	0.046	0.240	1.8 – 14.8	6.3	570	790	7.0	3.5

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic Ca	Static C0a	Nominal	max.		Lt	La	L0	L1
PSS2505N1D0349	25	5	11 500	23 500	150	185	32	223	250	349	27
PSS2505N1D0399	25	5	11 500	23 500	200	235	32	273	300	399	27
PSS2505N1D0499	25	5	11 500	23 500	300	335	32	373	400	499	27
PSS2505N1D0599	25	5	11 500	23 500	400	435	32	473	500	599	27
PSS2505N1D0699	25	5	11 500	23 500	500	535	32	573	600	699	27
PSS2505N1D0899	25	5	11 500	23 500	700	735	32	773	800	899	27
PSS2505N1D0999	25	5	11 500	23 500	800	835	32	873	900	999	27
PSS2505N1D1233	25	5	11 500	23 500	1 000	1 027	32	1 073	1 100	1 233	27
PSS2510N1D0549	25	10	15 000	32 400	300	361	56	423	450	549	27
PSS2510N1D0649	25	10	15 000	32 400	400	461	56	523	550	649	27
PSS2510N1D0749	25	10	15 000	32 400	500	561	56	623	650	749	27
PSS2510N1D0849	25	10	15 000	32 400	600	661	56	723	750	849	27
PSS2510N1D0949	25	10	15 000	32 400	700	761	56	823	850	949	27
PSS2510N1D1049	25	10	15 000	32 400	800	861	56	923	950	1 049	27
PSS2510N1D1283	25	10	15 000	32 400	1 000	1 053	56	1 123	1 150	1 283	27
PSS2510N1D1883	25	10	15 000	32 400	1 600	1 653	56	1 723	1 750	1 883	27

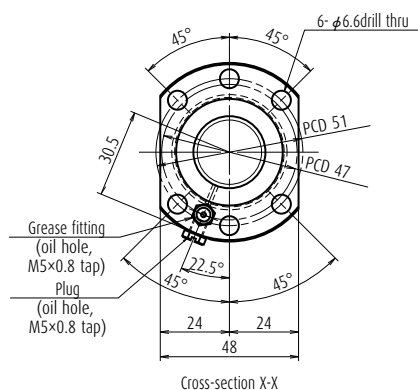
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 25

Lead 5, 10

Unit: mm



Ball screw specification	
Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 22.2
Ball circle dia.	25.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

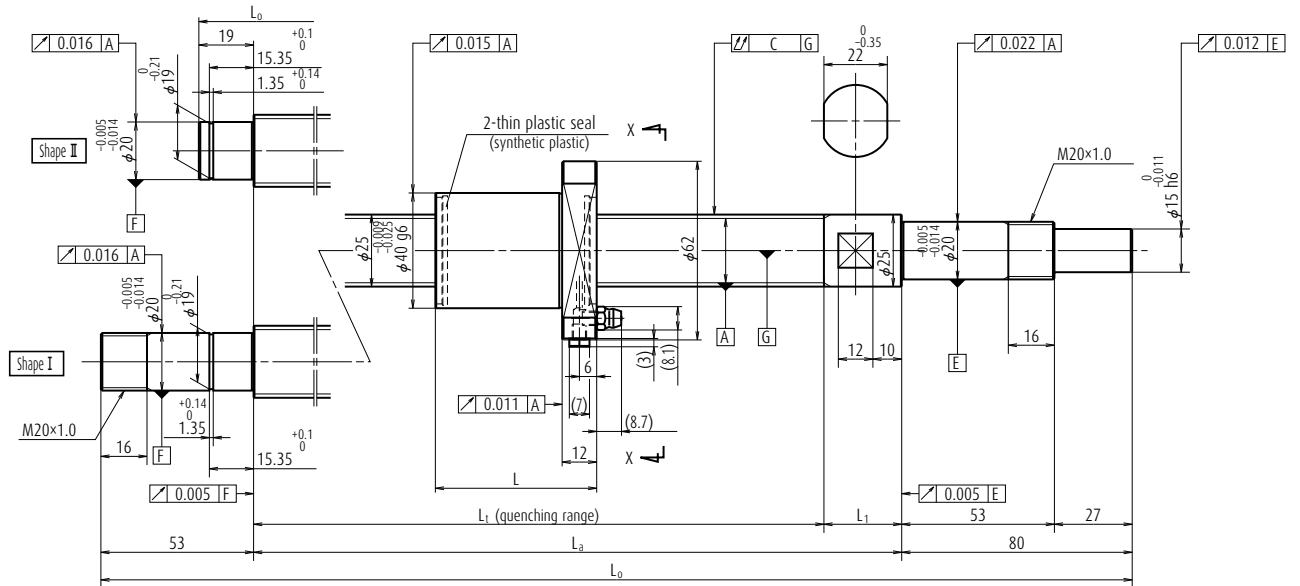
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK20-01 (square)	WBK20-01 (square)	WBK20S-01 (square)
WBK20-11 (round)	WBK20-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.023	0.018	0.035	1.2 - 9.3	1.5	5 000	—	4.4	2.2
II	0	0.023	0.018	0.035	1.2 - 9.3	1.6	5 000	—	4.4	2.2
II	0	0.025	0.020	0.040	1.2 - 9.3	2.0	5 000	—	4.4	2.2
II	0	0.027	0.020	0.045	1.2 - 9.3	2.3	5 000	—	4.4	2.2
II	0	0.030	0.023	0.055	0.8 - 10.8	2.7	5 000	—	4.4	2.2
II	0	0.035	0.025	0.065	0.8 - 10.8	3.4	5 000	—	4.4	2.2
II	0	0.040	0.027	0.065	0.8 - 10.8	3.7	4 490	—	4.4	2.2
I	0	0.046	0.030	0.080	0.8 - 13.8	4.5	2 960	4 060	4.4	2.2
II	0	0.027	0.020	0.045	3.1 - 11.8	2.4	5 000	—	4.7	2.4
II	0	0.030	0.023	0.055	2.2 - 12.8	2.7	5 000	—	4.7	2.4
II	0	0.030	0.023	0.055	2.2 - 12.8	3.1	5 000	—	4.7	2.4
II	0	0.035	0.025	0.065	2.2 - 12.8	3.5	5 000	—	4.7	2.4
II	0	0.040	0.027	0.065	2.2 - 12.8	3.8	5 000	—	4.7	2.4
II	0	0.040	0.027	0.080	2.2 - 12.8	4.2	4 120	—	4.7	2.4
I	0	0.046	0.030	0.100	1.8 - 14.8	5.0	2 760	3 790	4.7	2.4
I	0	0.065	0.040	0.130	1.8 - 14.8	7.2	1 150	1 620	4.7	2.4

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic Ca	Static C0a	Nominal	max.		Lt	La	L0	L1
PSS2520N1D0729	25	20	7 650	14 800	500	544	54	604	630	729	26
PSS2520N1D0829	25	20	7 650	14 800	600	644	54	704	730	829	26
PSS2520N1D0929	25	20	7 650	14 800	700	744	54	804	830	929	26
PSS2520N1D1029	25	20	7 650	14 800	800	844	54	904	930	1 029	26
PSS2520N1D1263	25	20	7 650	14 800	1 000	1 036	54	1 104	1 130	1 263	26
PSS2520N1D1463	25	20	7 650	14 800	1 200	1 236	54	1 304	1 330	1 463	26
PSS2520N1D1863	25	20	7 650	14 800	1 600	1 636	54	1 704	1 730	1 863	26
PSS2520N1D2263	25	20	7 650	14 800	2 000	2 036	54	2 104	2 130	2 263	26
PSS2525N1D0779	25	25	7 490	14 600	500	581	63	650	680	779	30
PSS2525N1D0879	25	25	7 490	14 600	600	681	63	750	780	879	30
PSS2525N1D0979	25	25	7 490	14 600	700	781	63	850	880	979	30
PSS2525N1D1079	25	25	7 490	14 600	800	881	63	950	980	1 079	30
PSS2525N1D1313	25	25	7 490	14 600	1 000	1 073	63	1 150	1 180	1 313	30
PSS2525N1D1513	25	25	7 490	14 600	1 200	1 273	63	1 350	1 380	1 513	30
PSS2525N1D1913	25	25	7 490	14 600	1 600	1 673	63	1 750	1 780	1 913	30
PSS2525N1D2313	25	25	7 490	14 600	2 000	2 073	63	2 150	2 180	2 313	30

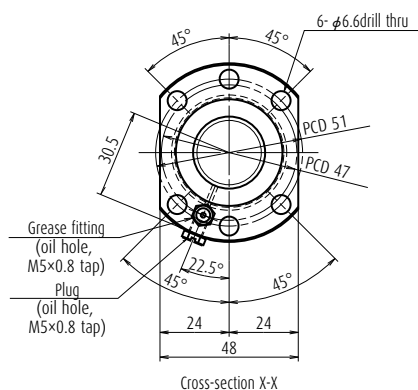
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 25

Lead 20, 25

Unit: mm



Ball screw specification	
Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 22.2
Ball circle dia.	25.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

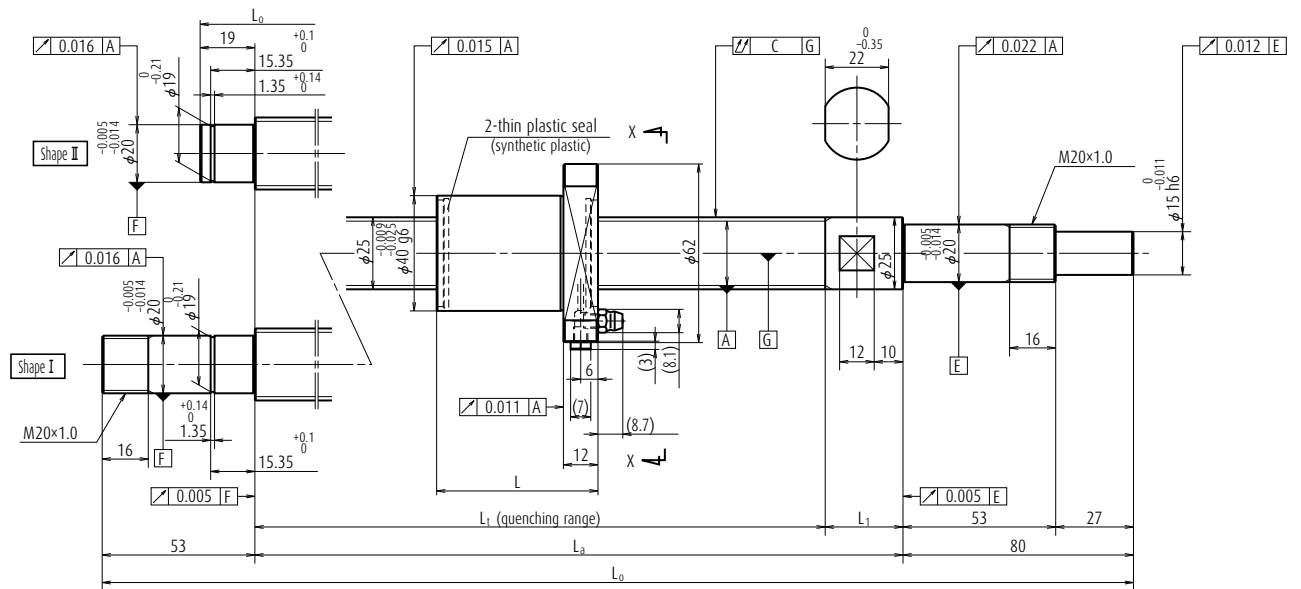
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK20-01 (square)	WBK20-01 (square)	WBK20S-01 (square)
WBK20-11 (round)	WBK20-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.030	0.023	0.055	2.2 – 12.8	3.1	5 000	—	3.9	2.0
II	0	0.035	0.025	0.065	2.2 – 12.8	3.4	5 000	—	3.9	2.0
II	0	0.040	0.027	0.065	2.2 – 12.8	3.8	5 000	—	3.9	2.0
II	0	0.040	0.027	0.080	2.2 – 12.8	4.2	4 280	—	3.9	2.0
I	0	0.046	0.030	0.100	1.8 – 14.8	5.0	2 850	3 920	3.9	2.0
I	0	0.054	0.035	0.100	1.8 – 14.8	5.8	2 030	2 820	3.9	2.0
I	0	0.065	0.040	0.130	1.8 – 14.8	7.3	1 180	1 650	3.9	2.0
I	0	0.077	0.046	0.170	1.8 – 14.8	8.8	770	1 080	3.9	2.0
II	0	0.035	0.025	0.055	2.7 – 13.8	3.3	5 000	—	4.3	2.2
II	0	0.035	0.025	0.065	2.7 – 13.8	3.7	5 000	—	4.3	2.2
II	0	0.040	0.027	0.065	2.7 – 13.8	4.1	4 910	—	4.3	2.2
II	0	0.040	0.027	0.080	2.7 – 13.8	4.4	3 910	—	4.3	2.2
I	0	0.046	0.030	0.100	1.8 – 14.8	5.3	2 640	3 620	4.3	2.2
I	0	0.054	0.035	0.100	1.8 – 14.8	6.0	1 900	2 630	4.3	2.2
I	0	0.065	0.040	0.130	1.8 – 14.8	7.5	1 120	1 570	4.3	2.2
I	0	0.077	0.046	0.170	1.8 – 14.8	9.1	740	1 040	4.3	2.2

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.		L_t	L_a	L_0	L_1
PSS2530N1D0779	25	30	7 490	14 600	500	570	74	650	680	779	30
PSS2530N1D0879	25	30	7 490	14 600	600	670	74	750	780	879	30
PSS2530N1D0979	25	30	7 490	14 600	700	770	74	850	880	979	30
PSS2530N1D1079	25	30	7 490	14 600	800	870	74	950	980	1 079	30
PSS2530N1D1313	25	30	7 490	14 600	1 000	1 062	74	1 150	1 180	1 313	30
PSS2530N1D1513	25	30	7 490	14 600	1 200	1 262	74	1 350	1 380	1 513	30
PSS2530N1D1913	25	30	7 490	14 600	1 600	1 662	74	1 750	1 780	1 913	30
PSS2530N1D2313	25	30	7 490	14 600	2 000	2 062	74	2 150	2 180	2 313	30
PSS2550N1D0829	25	50	6 910	14 700	500	570	114	690	730	829	40
PSS2550N1D0929	25	50	6 910	14 700	600	670	114	790	830	929	40
PSS2550N1D1029	25	50	6 910	14 700	700	770	114	890	930	1 029	40
PSS2550N1D1129	25	50	6 910	14 700	800	870	114	990	1 030	1 129	40
PSS2550N1D1363	25	50	6 910	14 700	1 000	1 062	114	1 190	1 230	1 363	40
PSS2550N1D1563	25	50	6 910	14 700	1 200	1 262	114	1 390	1 430	1 563	40
PSS2550N1D1963	25	50	6 910	14 700	1 600	1 662	114	1 790	1 830	1 963	40
PSS2550N1D2363	25	50	6 910	14 700	2 000	2 062	114	2 190	2 230	2 363	40

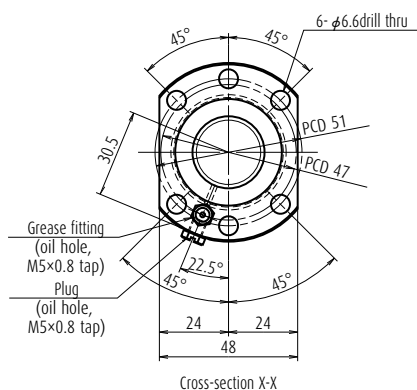
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80°C.

PSS TYPE FOR GENERAL USES

Screw shaft ϕ 25

Lead 30, 50

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	3.175 / 22.2
Ball circle dia.	25.5
Accuracy grade/axial play	C5 / 0
Factory-packed grease	NSK grease LR3

Recommended support unit

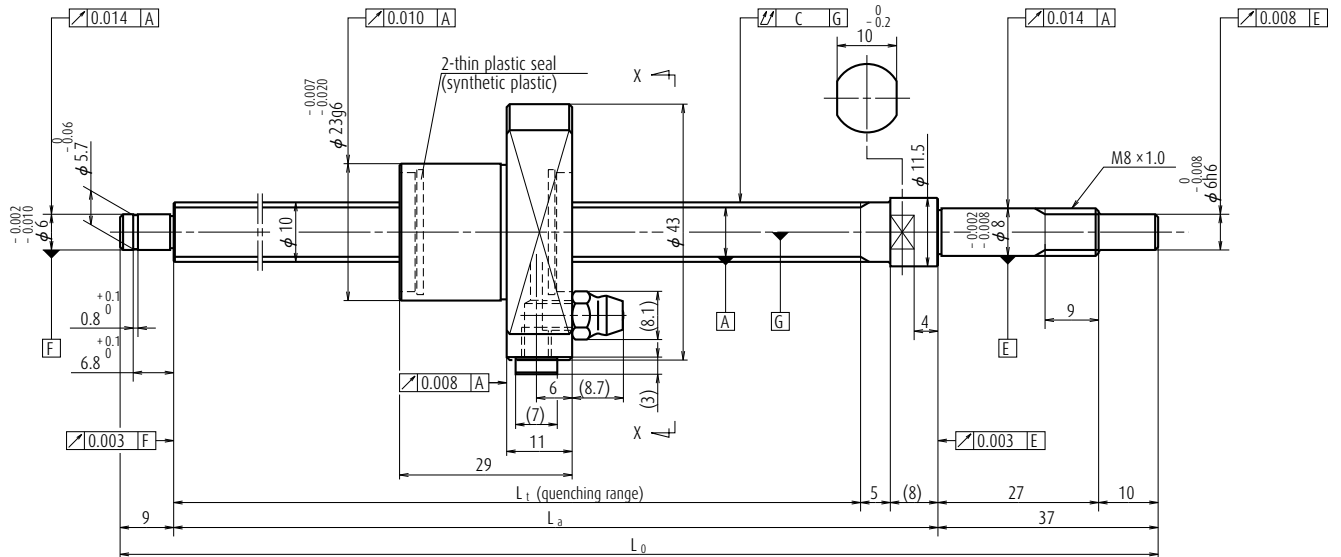
For drive side (Fixed)	For opposite to drive side	
	(Fixed)	(Simple)
WBK20-01 (square)	WBK20-01 (square)	WBK20S-01 (square)
WBK20-11 (round)	WBK20-11 (round)	

Unit: mm

Left shaft end (opposite driven side)	Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2		Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
	Target value T	Error e _p	Variation v _u				Fixed-Simple	Fixed-Fixed		
II	0	0.035	0.025	0.055	2.7 – 13.8	3.4	5 000	—	5.5	2.8
II	0	0.035	0.025	0.065	2.7 – 13.8	3.7	5 000	—	5.5	2.8
II	0	0.040	0.027	0.065	2.7 – 13.8	4.1	4 980	—	5.5	2.8
II	0	0.040	0.027	0.080	2.7 – 13.8	4.5	3 960	—	5.5	2.8
I	0	0.046	0.030	0.100	1.8 – 14.8	5.3	2 670	3 650	5.5	2.8
I	0	0.054	0.035	0.100	1.8 – 14.8	6.1	1 920	2 650	5.5	2.8
I	0	0.065	0.040	0.130	1.8 – 14.8	7.6	1 130	1 580	5.5	2.8
I	0	0.077	0.046	0.170	1.8 – 14.8	9.1	740	1 040	5.5	2.8
II	0	0.035	0.025	0.065	5.4 – 17.6	3.8	5 000	—	7.7	3.9
II	0	0.035	0.025	0.065	5.4 – 17.6	4.1	5 000	—	7.7	3.9
II	0	0.040	0.027	0.080	5.4 – 17.6	4.5	4 750	—	7.7	3.9
II	0	0.040	0.027	0.080	5.4 – 17.6	4.9	3 790	—	7.7	3.9
I	0	0.046	0.030	0.100	4.1 – 19.6	5.8	2 570	3 470	7.7	3.9
I	0	0.054	0.035	0.100	4.1 – 19.6	6.5	1 860	2 540	7.7	3.9
I	0	0.065	0.040	0.130	4.1 – 19.6	8.0	1 100	1 520	7.7	3.9
I	0	0.077	0.046	0.170	4.1 – 19.6	9.6	730	1 020	7.7	3.9

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Screw shaft dimensions		
			Dynamic C _a	Static C _{0a}	Nominal	max.	L _t	L _a	L _o
USS1005N1D0221	10	5	3 420	4 840	100	133	162	175	221
USS1005N1D0321	10	5	3 420	4 840	200	233	262	275	321
USS1005N1D0521	10	5	3 420	4 840	400	433	462	475	521

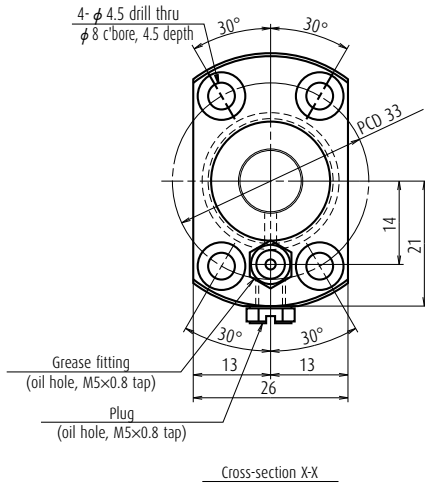
- Notes**
1. Indicates ball screw preload control value. Approximately 0.5 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

USS TYPE FOR HIGH-ACCURACY AND CLEAN USES

Screw shaft ϕ 10

Lead 5

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.000 / 8.2
Ball circle dia.	10.3
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK grease LG2

Recommended support unit

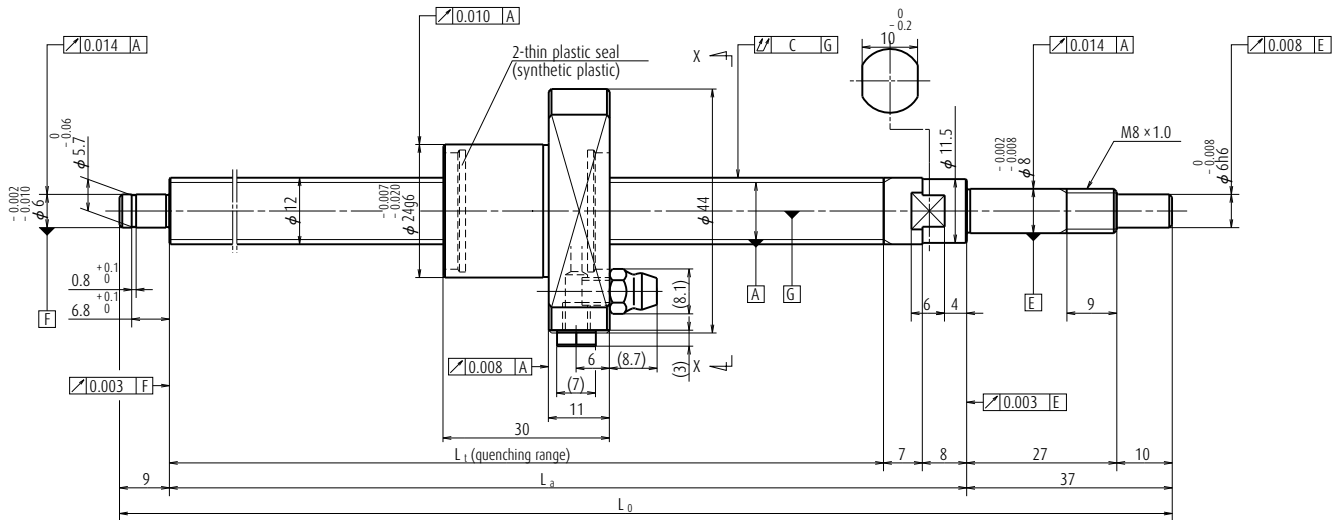
For drive side (Fixed)	For opposite to drive side (Simple)
WBK08-01 (low-profile, square)	WBK08S-01B (low-profile, square)
WBK08-11 (round)	WBK08S-01C (square, clean)
WBK08-01C (square, clean)	
WBK08-11C (round, clean)	

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V _u						
0	0.010	0.008	0.035	0.2 – 1.8	0.3	5 000	0.8	0.4
0	0.012	0.008	0.045	0.2 – 2.0	0.3	5 000	0.8	0.4
0	0.015	0.010	0.070	0.2 – 3.0	0.5	5 000	0.8	0.4

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Screw shaft dimensions		
			Dynamic C _a	Static C _{0a}	Nominal	max.	L _t	L _a	L _o
USS1205N1D0221	12	5	3 750	5 810	100	130	160	175	221
USS1205N1D0321	12	5	3 750	5 810	200	230	260	275	321
USS1205N1D0621	12	5	3 750	5 810	500	530	560	575	621

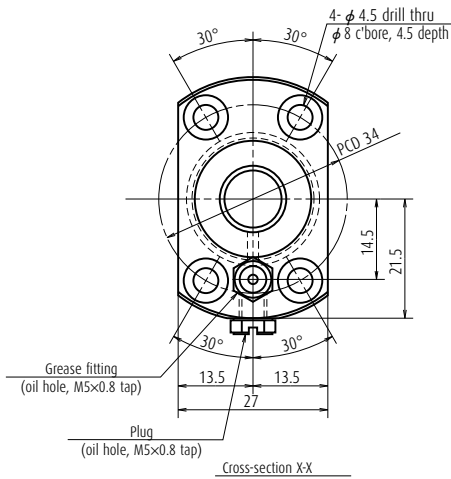
- Notes**
1. Indicates ball screw preload control value. Approximately 0.5 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80°C.

USS TYPE FOR HIGH-ACCURACY AND CLEAN USES

Screw shaft ϕ 12

Lead 5

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.000 / 10.2
Ball circle dia.	12.3
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK grease LG2

Recommended support unit

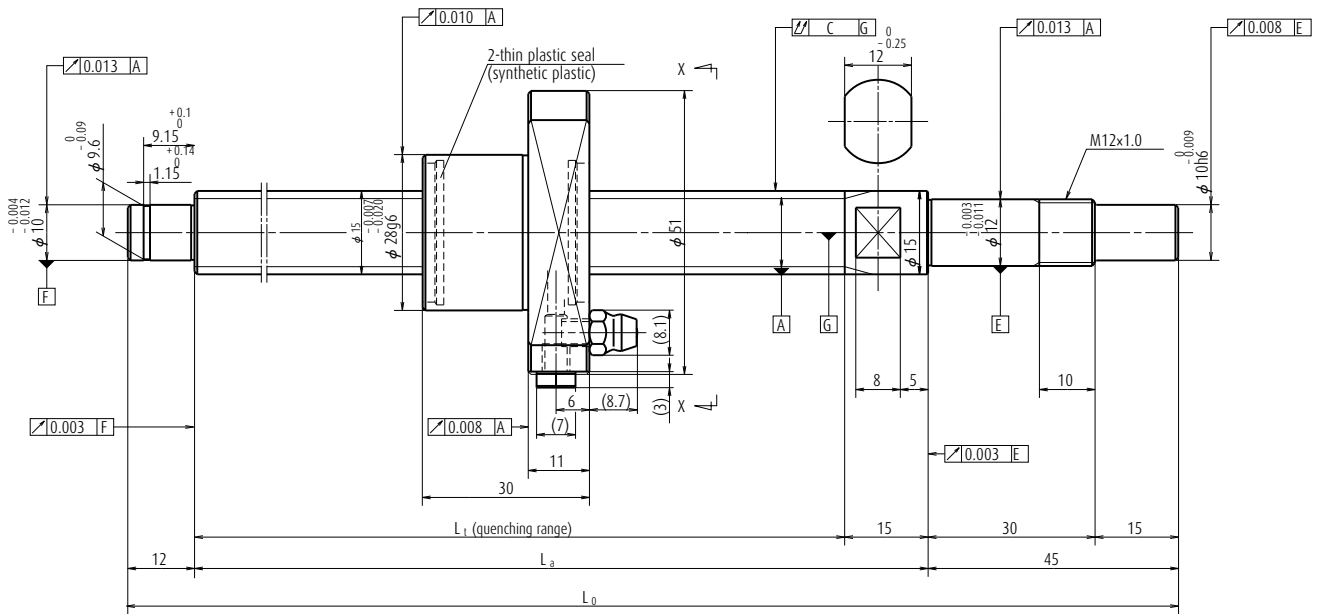
For drive side (Fixed)	For opposite to drive side (Simple)
WBK08-01B (low-profile, square)	WBK08S-01B (low-profile, square)
WBK08-11 (round)	WBK08S-01C (square, clean)
WBK08-01C (square, clean)	
WBK08-11C (round, clean)	

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V _u						
0	0.010	0.008	0.035	0.2 – 1.8	0.3	5 000	1.0	0.5
0	0.012	0.008	0.045	0.2 – 2.0	0.3	5 000	1.0	0.5
0	0.016	0.012	0.070	0.2 – 3.0	0.7	5 000	1.0	0.5

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Screw shaft dimensions		
			Dynamic C _a	Static C _{0a}	Nominal	max.	L _t	L _a	L _o
USS1505N1D0261	15	5	6 410	10 100	100	159	189	204	261
USS1505N1D0361	15	5	6 410	10 100	200	259	289	304	361
USS1505N1D0561	15	5	6 410	10 100	400	459	489	504	561
USS1505N1D0761	15	5	6 410	10 100	600	659	689	704	761

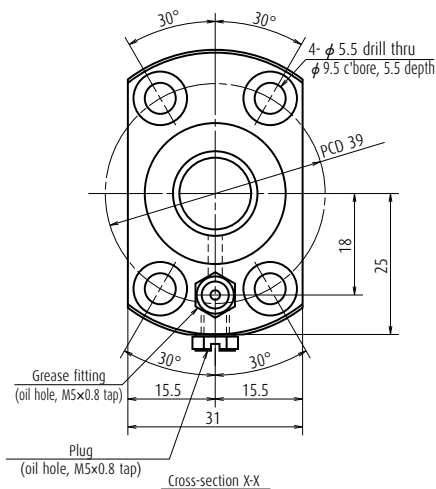
- Notes**
1. Indicates ball screw preload control value. Approximately 0.5 N·cm of torque is added due to thin plastic seals.
 2. Contact NSK if permissible rotational speed is to be exceeded.
 3. Service temperature range is 0 to 80 °C.

USS TYPE FOR HIGH-ACCURACY AND CLEAN USES

Screw shaft ϕ 15

Lead 5

Unit: mm



Ball screw specification

Preload type	Oversize ball preload (P-preload)
Ball diameter/screw shaft root diameter	2.778 / 12.6
Ball circle dia.	15.5
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK grease LG2

Recommended support unit

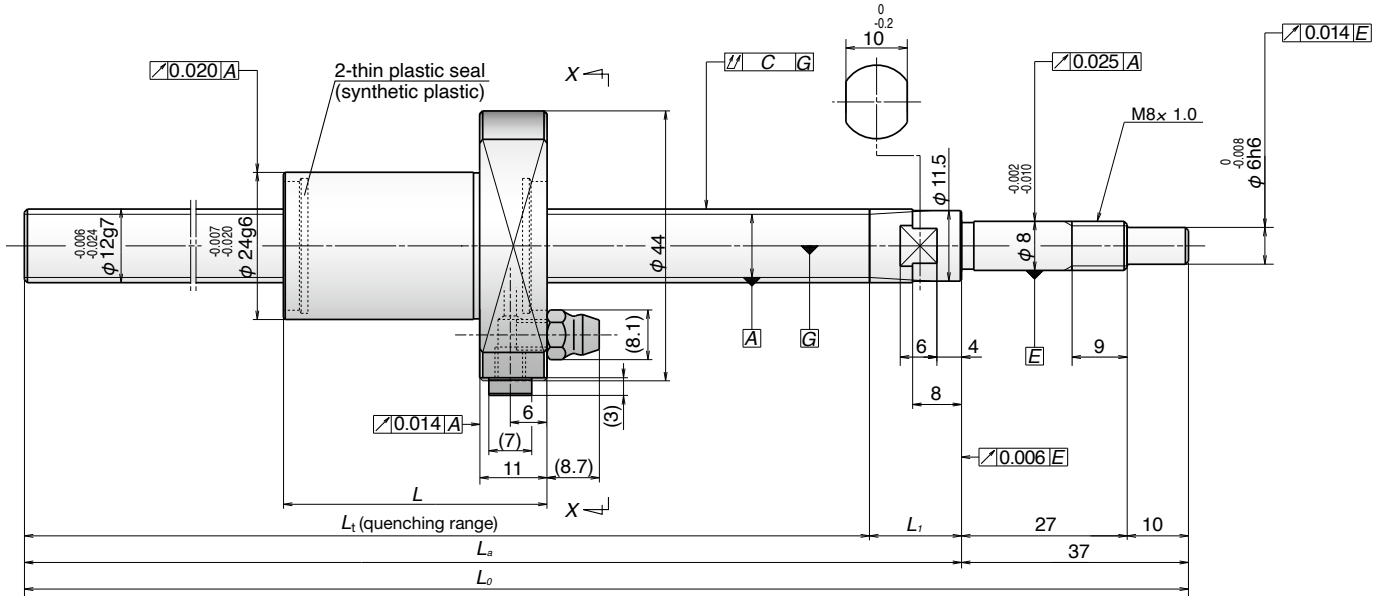
For drive side (Fixed)	For opposite to drive side (Simple)
WBK12-01B (low-profile, square)	WBK12S-01B (low-profile, square)
WBK12-11 (round)	WBK12S-01C (square, clean)
WBK12-01C (square, clean)	
WBK12-11C (round, clean)	

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm) *1	Mass (kg)	Permissible rotational speed (min ⁻¹) *2	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V _u				Fixed-Simple		
0	0.010	0.008	0.025	0.2 – 5.0	0.5	5 000	2.0	1.0
0	0.012	0.008	0.035	0.2 – 5.0	0.6	5 000	2.0	1.0
0	0.015	0.010	0.045	0.2 – 6.0	0.9	5 000	2.0	1.0
0	0.018	0.013	0.060	0.2 – 8.0	1.1	4 130	2.0	1.0

4. Use of NSK support unit is recommended. Refer to page 50-54 for details.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C _a	Static C _{0a}	Nominal	max.		L _t	L _a	L _o	L ₁
FSS1210N1D0400	12	10	3 760	5 780	250	287	43	348	363	400	15
FSS1210N1D0600	12	10	3 760	5 780	450	487	43	548	563	600	15
FSS1210N1D0900	12	10	3 760	5 780	750	787	43	848	863	900	15

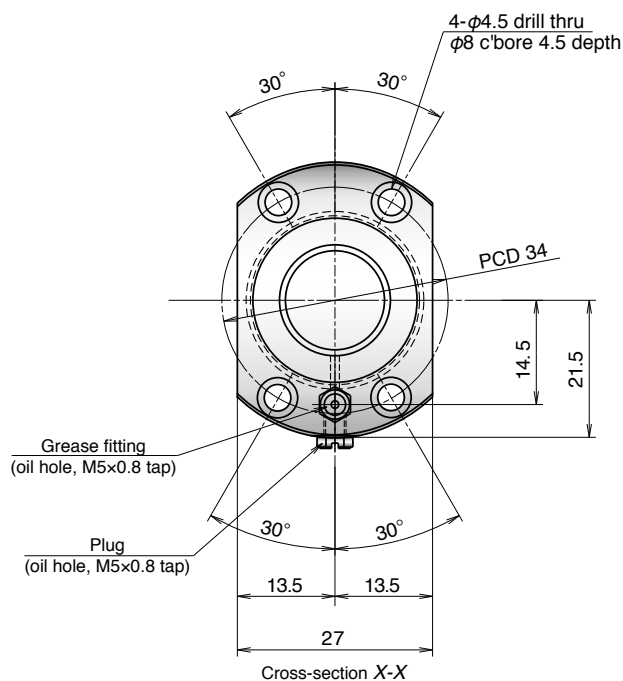
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Service temperature range is 0 to 80°C.
 3. Use of NSK support unit is recommended. Refer to page 50-54 for details.

FSS TYPE FOR TRANSFER EQUIPMENT

Screw shaft ϕ 12

Lead 10

Unit: mm



Ball screw specification

Ball diameter/ screw shaft root diameter	2.000 / 10.2
Ball circle dia.	12.3
Accuracy grade/axial play	Ct7 / 0.010 or less
Factory-packed grease	NSK grease LR3

Recommended support unit

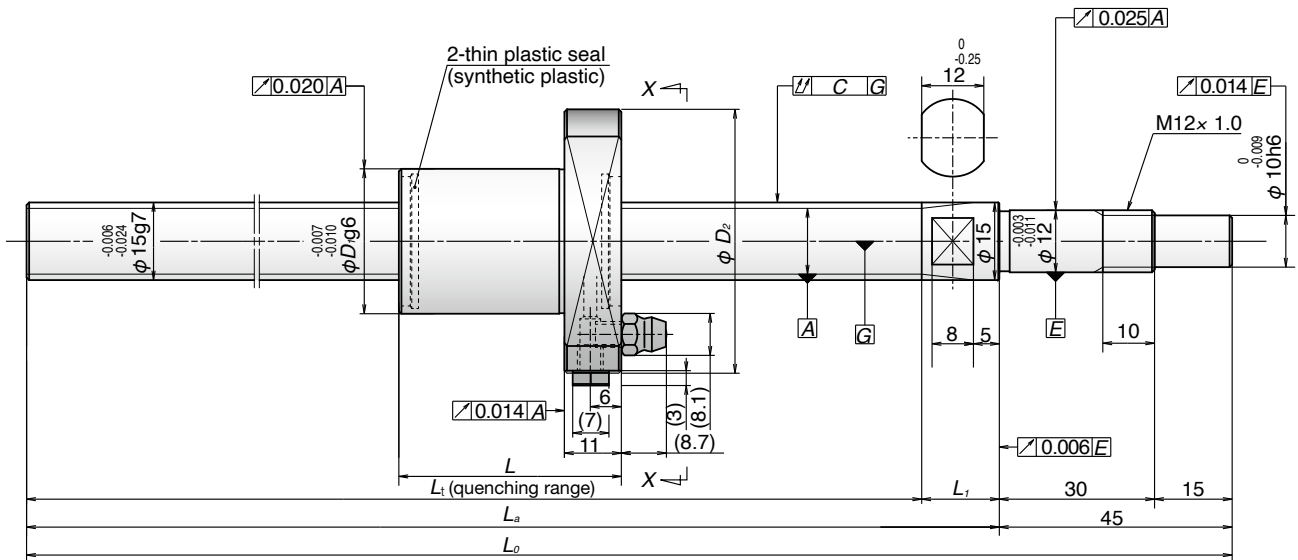
For drive side (Fixed)	For opposite to drive side (Simple)
WBK08-01B (low-profile, square)	WBK12SF-01B (low-profile, square)

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *4	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V ₃₀₀						
0	0.120	0.052	0.080	—	0.5	5 000	1.0	0.5
0	0.195	0.052	0.120	—	0.7	5 000	1.0	0.5
0	0.310	0.052	0.180	—	1.0	2 300	1.0	0.5

4. The stroke and permissible rotational speed shown in the table are the values when the support unit recommended by NSK is used and Fixed-Supported (ball screw mounting method) is selected.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Screw shaft dimensions				Lead accuracy		
			Dynamic C_a	Static C_{0a}	Nominal	max.	L_t	L_a	L_0	L_1	Target value T	Error e_p	Variation V_{300}
FSS1510N1D0500	15	10	6 530	10 200	350	379	440	455	500	15	0	0.155	0.052
FSS1510N1D1000	15	10	6 530	10 200	850	879	940	955	1 000	15	0	0.310	0.052
FSS1510N1D1450	15	10	6 530	10 200	1 300	1 329	1 390	1 405	1 450	15	0	0.490	0.052
FSS1520N1D0500	15	20	5 660	8 700	350	368	437	455	500	18	0	0.155	0.052
FSS1520N1D1000	15	20	5 660	8 700	850	868	937	955	1 000	18	0	0.310	0.052
FSS1520N1D1450	15	20	5 660	8 700	1 300	1 318	1 387	1 405	1 450	18	0	0.490	0.052

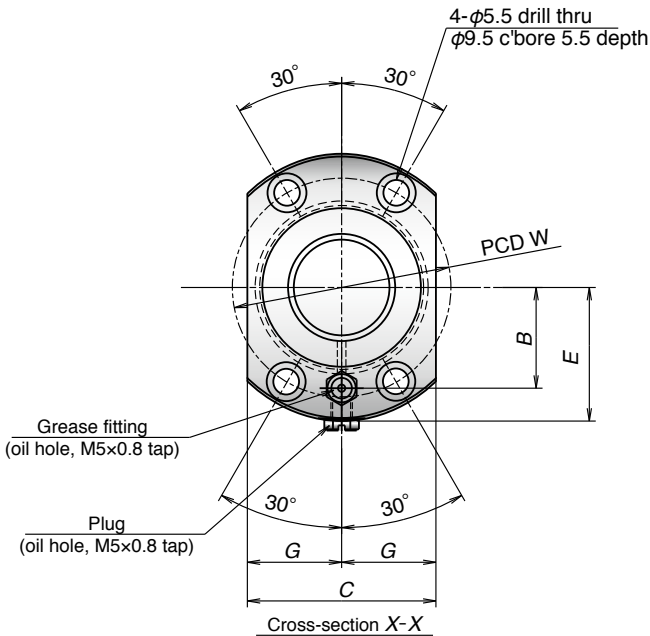
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N·cm of torque is added due to thin plastic seals.
 2. Service temperature range is 0 to 80°C.
 3. Use of NSK support unit is recommended. Refer to page 50-54 for details.

FSS TYPE FOR TRANSFER EQUIPMENT

Screw shaft ϕ 15

Lead 10, 20

Unit: mm



Ball screw specification		
Lead	10	20
Ball diameter/ screw shaft root diameter	2.778 / 12.6	3.175 / 12.2
Ball circle dia.	15.5	
Accuracy grade/axial play	Ct7 / 0.010 or less	
Factory-packed grease	NSK grease LR3	

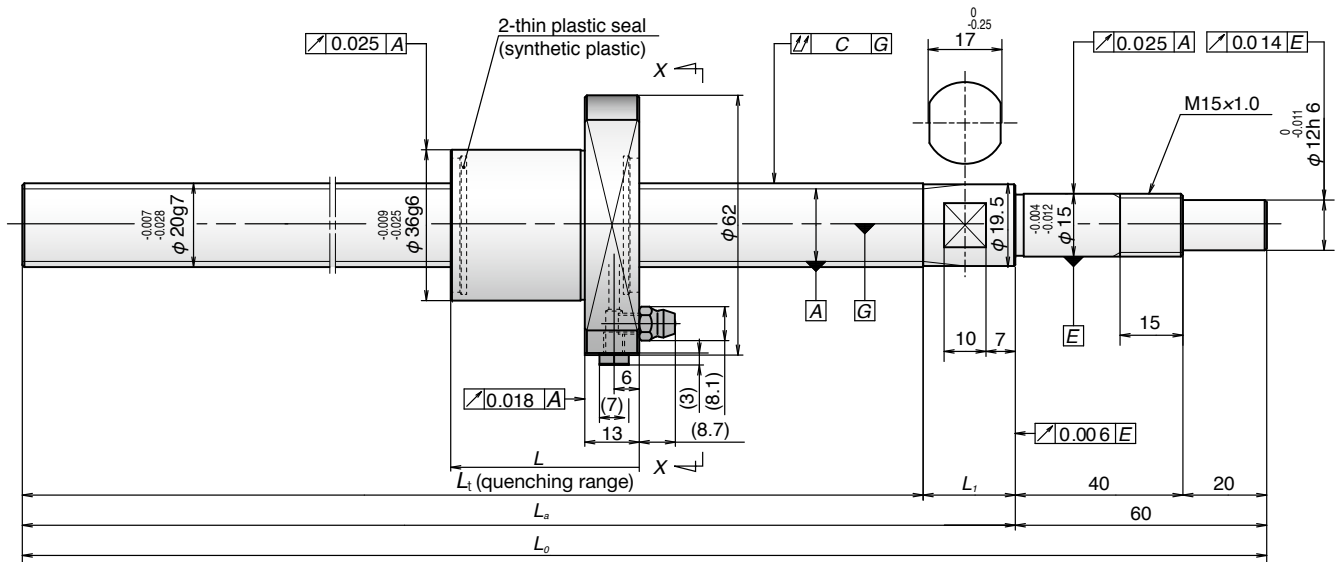
Recommended support unit	
For drive side (Fixed)	For opposite to drive side (Simple)
WBK12-01B (low-profile, square)	WBK15SF-01B (low-profile, square)

Unit: mm

Nut dimensions								Shaft run-out C	Dynamic preload torque (N·cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *4	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
L	D ₁	D ₂	W	B	C	E	G				Fixed-Simple		
43	28	51	39	18	31	25	15.5	0.070	—	0.9	5 000	2.0	1.0
43	28	51	39	18	31	25	15.5	0.125	—	1.7	2 300	2.0	1.0
43	28	51	39	18	31	25	15.5	0.200	—	2.3	1 020	2.0	1.0
51	32	55	43	20	33	27	16.5	0.070	—	1.0	5 000	2.8	1.4
51	32	55	43	20	33	27	16.5	0.125	—	1.7	2 260	2.8	1.4
51	32	55	43	20	33	27	16.5	0.200	—	2.3	1 000	2.8	1.4

4. The stroke and permissible rotational speed shown in the table are the values when the support unit recommended by NSK is used and Fixed-Supported (ball screw mounting method) is selected.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.	L	L_t	L_a	L_o	L_1
FSS2010N1D0600	20	10	10 200	18 600	400	451	45	518	540	600	22
FSS2010N1D1000	20	10	10 200	18 600	800	851	45	918	940	1 000	22
FSS2010N1D1450	20	10	10 200	18 600	1 250	1 301	45	1 368	1 390	1 450	22
FSS2020N1D0600	20	20	6 790	11 800	400	442	54	518	540	600	22
FSS2020N1D1000	20	20	6 790	11 800	800	842	54	918	940	1 000	22
FSS2020N1D1450	20	20	6 790	11 800	1 250	1 292	54	1 368	1 390	1 450	22

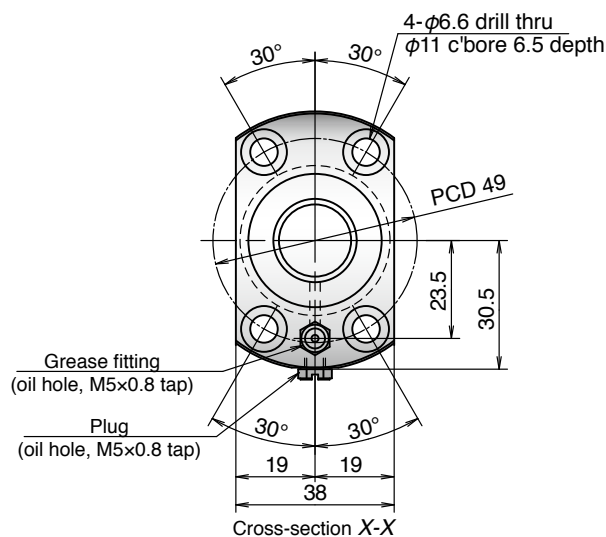
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Service temperature range is 0 to 80°C.
 3. Use of NSK support unit is recommended. Refer to page 50-54 for details.

FSS TYPE FOR TRANSFER EQUIPMENT

Screw shaft ϕ 20

Lead 10, 20

Unit: mm



Ball screw specification	
Ball diameter/ screw shaft root diameter	3.175 / 17.2
Ball circle dia.	20.5
Accuracy grade/axial play	Ct7 / 0.010 or less
Factory-packed grease	NSK grease LR3

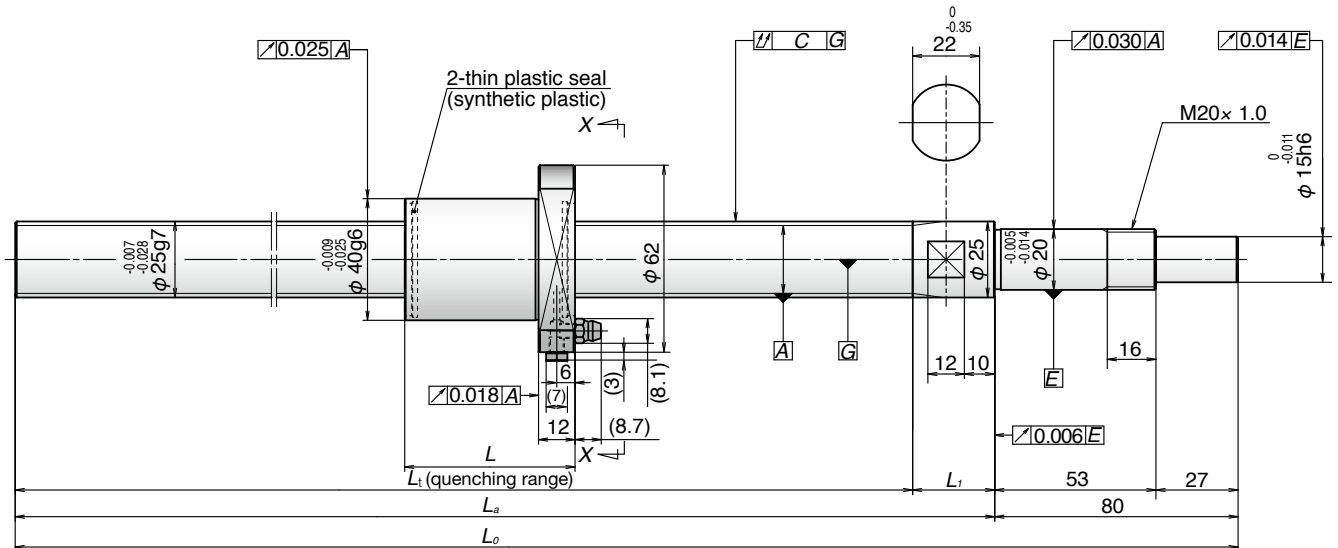
Recommended support unit	
For drive side (Fixed)	For opposite to drive side (Simple)
WBK15-01B (low-profile, square)	WBK20SF-01B (low-profile, square)

Unit: mm

Lead accuracy			Shaft run-out C	Dynamic preload torque (N·cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *4	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V ₃₀₀				Fixed-Simple		
0	0.195	0.052	0.085	—	1.7	5 000	3.2	1.6
0	0.310	0.052	0.125	—	2.6	3 310	3.2	1.6
0	0.490	0.052	0.200	—	3.6	1 450	3.2	1.6
0	0.195	0.052	0.085	—	1.8	5 000	3.2	1.6
0	0.310	0.052	0.125	—	2.7	3 350	3.2	1.6
0	0.490	0.052	0.200	—	3.8	1 460	3.2	1.6

4. The stroke and permissible rotational speed shown in the table are the values when the support unit recommended by NSK is used and Fixed-Supported (ball screw mounting method) is selected.

COMPACT FA SERIES



Reference no.	Screw shaft diameter d	Lead l	Basic load ratings (N)		Stroke		Nut length L	Screw shaft dimensions			
			Dynamic C_a	Static C_{0a}	Nominal	max.		L_t	L_a	L_o	L_1
FSS2510N1D0600	25	10	15 000	32 400	400	415	56	493	520	600	27
FSS2510N1D1000	25	10	15 000	32 400	800	815	56	893	920	1 000	27
FSS2510N1D1450	25	10	15 000	32 400	1 250	1 265	56	1 343	1 370	1 450	27
FSS2520N1D0600	25	20	7 650	14 800	400	418	54	494	520	600	26
FSS2520N1D1000	25	20	7 650	14 800	800	818	54	894	920	1 000	26
FSS2520N1D1450	25	20	7 650	14 800	1 250	1 268	54	1 344	1 370	1 450	26
FSS2525N1D0600	25	25	7 490	14 600	400	405	63	490	520	600	30
FSS2525N1D1000	25	25	7 490	14 600	800	805	63	890	920	1 000	30
FSS2525N1D1450	25	25	7 490	14 600	1 250	1 255	63	1 340	1 370	1 450	30

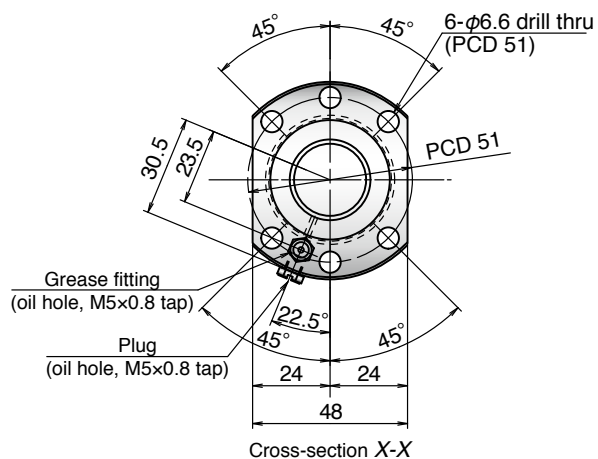
- Notes**
1. Indicates ball screw preload control value. Approximately 2.0 N-cm of torque is added due to thin plastic seals.
 2. Service temperature range is 0 to 80°C.
 3. Use of NSK support unit is recommended. Refer to page 50-54 for details.

FSS TYPE FOR TRANSFER EQUIPMENT

Screw shaft ϕ 25

Lead 10, 20, 25

Unit: mm



Ball screw specification	
Ball diameter/ screw shaft root diameter	3.175 / 22.2
Ball circle dia.	25.5
Accuracy grade/axial play	Ct7 / 0.010 or less
Factory-packed grease	NSK grease LR3

Recommended support unit	
For drive side (Fixed)	For opposite to drive side (Simple)
WBK20-01 (square)	WBK25SF-01 (square)

Unit: mm

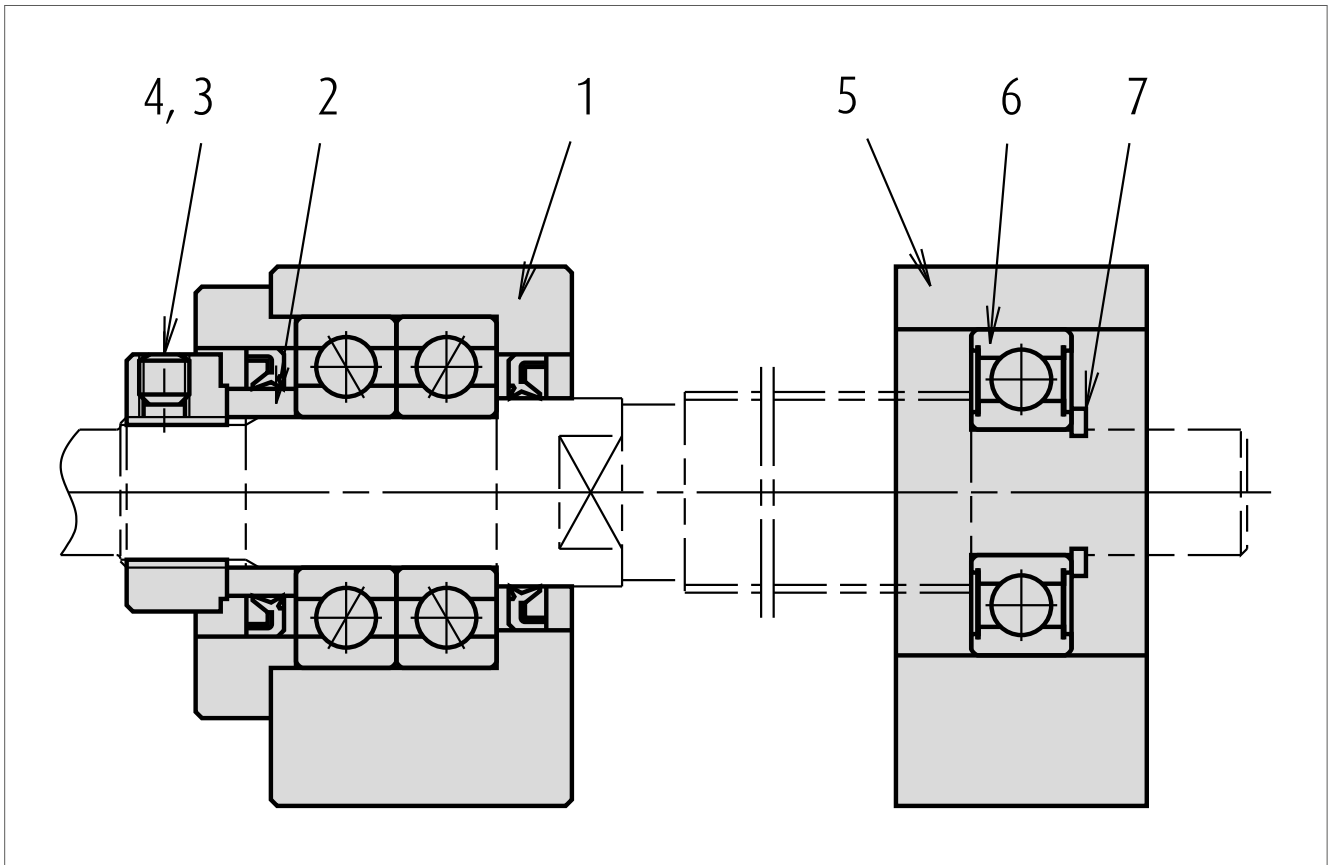
Lead accuracy			Shaft run- out C	Dynamic preload torque (N-cm)	Mass (kg)	Permissible rotational speed (min ⁻¹) *4	Internal spatial volume of nut (cm ³)	Standard volume of grease replenishing (cm ³)
Target value T	Error e _p	Variation V ₃₀₀						
0	0.155	0.052	0.065	—	2.6	5 000	4.7	2.4
0	0.310	0.052	0.090	—	4.0	4 590	4.7	2.4
0	0.490	0.052	0.130	—	5.8	1 970	4.7	2.4
0	0.155	0.052	0.065	—	2.6	5 000	3.9	2.0
0	0.310	0.052	0.090	—	4.0	4 570	3.9	2.0
0	0.490	0.052	0.130	—	5.8	1 960	3.9	2.0
0	0.155	0.052	0.065	—	2.6	5 000	4.3	2.2
0	0.310	0.052	0.090	—	4.1	4 660	4.3	2.2
0	0.490	0.052	0.130	—	5.8	1 990	4.3	2.2

4. The stroke and permissible rotational speed shown in the table are the values when the support unit recommended by NSK is used and Fixed-Supported (ball screw mounting method) is selected.

SUPPORT UNIT

Support units provide everything necessary for mounting ball screws to machines.
 (Please refer to the table below.)

* Do not disassemble fixed support side units as they are equipped with bearings and oil seals.



Fixed support side		Simple support side	
Part No.	Name of parts	Part No.	Name of parts
1	Bearing housing	5	Bearing housing
2	Spacer	6	Bearing
3	Locknut	7	Snap ring
4	Set screw with brass pad		

SUPPORT UNIT

Reference number coding

(For light load)

Example: **WBK 08 S - 01 A**

Product code for support unit

Nominal size code*

Mounting code

No code: Fixed support unit

S: Simple support unit

SF: Simple support unit (for FSS and VFA)

R: Fixed support unit (support kit for miniature ball screws)

No code or A: For general use

B: Low-profile type (only for square type)

C: For clean environment use

M: Miniature general-purpose use

W: Lost-wax product

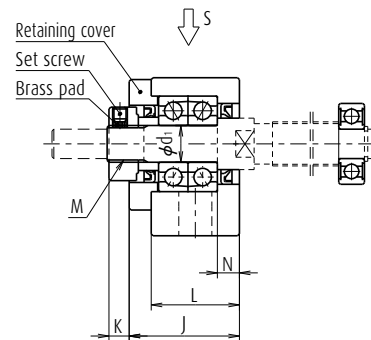
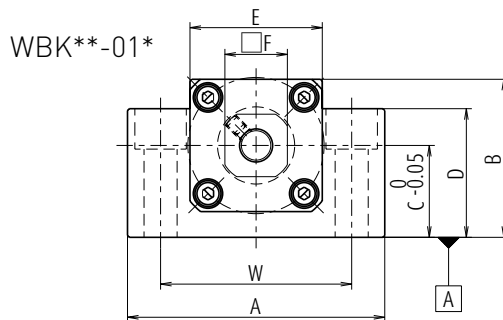
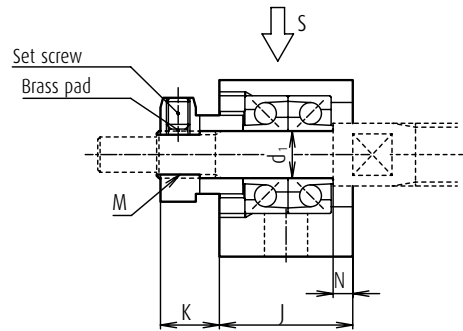
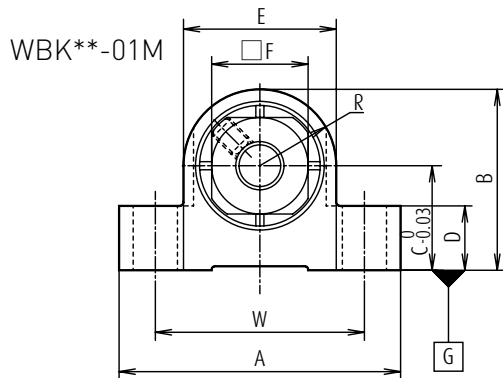
01: Square type

11: Round type

*) In case of simple support unit, please note that the nominal size code of 12 or less does not strictly represent internal bore of bearing in millimeters. Please refer to the dimensional table for internal bore of bearing.

SUPPORT UNIT

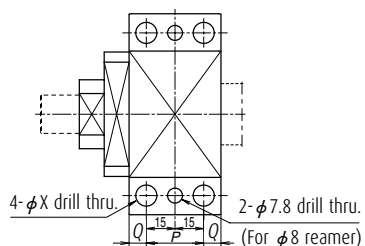
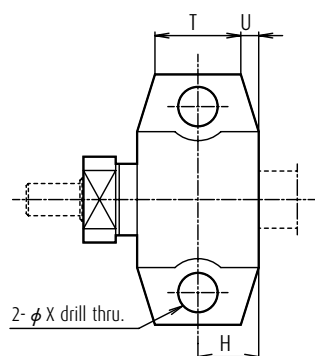
Fixed support side support unit (square type)



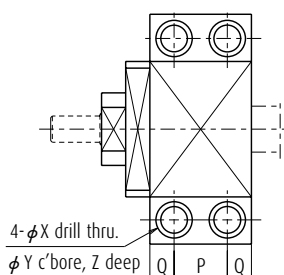
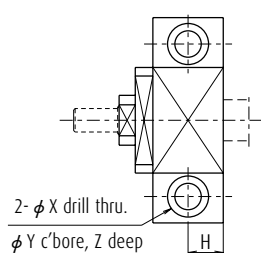
Reference No.	Use	d ₁	A	B	C	D	E	F	L	J	K	R
WBK04-01M	General	4	27	17	10	6	14	10	—	14	5.5	7
WBK06-01M	General	6	35	22.5	13	8	19	12	—	17	7.5	9.5
WBK06-01A*1	General	6	42	25	13	20	18	12	20	20	5.5	—
WBK08-01A*1	General	8	52	32	17	26	25	14	23	23	7	—
WBK08-01B	Low type	8	62	31	15.5	31	—	14	21.5	25.5	4.5	—
WBK08-01C*1	Clean environment	8	52	32	17	26	25	14	23	23	7	—
WBK10-01A	General	10	70	43	25	35	36	17	24	30	5.5	—
WBK10-01B	Low type	10	70	38	20	38	—	17	24	30	5.5	—
WBK10-01C	Clean environment	10	70	43	25	35	36	17	24	30	5.5	—
WBK12-01A	General	12	70	43	25	35	36	19	24	30	5.5	—
WBK12-01B	Low type	12	70	38	20	38	—	19	24	30	5.5	—
WBK12-01C	Clean environment	12	70	43	25	35	36	19	24	30	5.5	—
WBK15-01A	General	15	80	50	30	40	41	22	25	31	12	—
WBK15-01B	Low type	15	80	42	22	42	—	22	25	31	12	—
WBK15-01C	Clean environment	15	80	50	30	40	41	22	25	31	12	—
WBK17-01A	General	17	86	64	39	55	50	24	35	44	7	—
WBK20-01	General	20	95	58	30	45	56	30	42	52	10	—
WBK25-01W	General	25	105	68	35	25	66	36	48	61	13	—

Notes

1. Use datum surface A for mounting to machine base.
2. Tighten set screw after locknut has been adjusted and tightened.
3. Insert brass pad provided with unit into locknut set screw hole, then insert and tighten the set screw.
4. Deep groove ball bearing and snap ring are also provided for simple support side.
(except WBK04-01M and WBK06-01M)



View S (WBK25)



View S (WBK06 – 15)

View S (WBK17 – 20)

Reference No.	Tightening torque (reference) [N·cm]	
	Locknut	Set screw
WBK04-**-	100	69 (M3)
WBK06-**-	190	69 (M3)
WBK08-**-	230	69 (M3)
WBK10-**-	280	147 (M4)
WBK12-**-	630	147 (M4)
WBK15-**-	790	147 (M4)
WBK17-**-	910	147 (M4)
WBK20-**-	1670	147 (M4)
WBK25-**-	2060	490 (M6)

Unit: mm

T	U	N	Counterbore dimensions							Mass (kg)	Locknut screw M	Attached bearing for support side
			H	P	Q	W	X	Y	Z			
9	2.5	2	7	—	—	21	3.5	—	—	0.03	M4×0.5	—
12	2.5	2.5	8.5	—	—	26	5.5	—	—	0.05	M6×0.75	—
—	—	3.5	10	—	—	30	5.5	9.5	11	0.15	M6×0.75	—
—	—	4	11.5	—	—	38	6.6	11	12	0.25	M8×1	606ZZ
—	—	3.5	11	—	—	46	9	14	18	0.3	M8×1	606ZZ
—	—	4	11.5	—	—	38	6.6	11	12	0.25	M8×1	606ZZ
—	—	6	12	—	—	52	9	14	11	0.5	M10×1	608ZZ
—	—	6	12	—	—	52	9	14	19	0.45	M10×1	608ZZ
—	—	6	12	—	—	52	9	14	11	0.5	M10×1	608VV
—	—	6	12	—	—	52	9	14	11	0.5	M12×1	6000ZZ
—	—	6	12	—	—	52	9	14	19	0.4	M12×1	6000ZZ
—	—	6	12	—	—	52	9	14	11	0.5	M12×1	6000VV
—	—	5	12.5	—	—	60	11	17	15	0.7	M15×1	6002ZZ
—	—	5	12.5	—	—	60	11	17	23	0.6	M15×1	6002ZZ
—	—	5	12.5	—	—	60	11	17	15	0.7	M15×1	6002VV
—	—	7	—	19	8	68	9	14	11	1.3	M17×1	6203ZZ
—	—	10	—	22	10	75	11	17	15	1.4	M20×1	6204ZZ
—	—	14	—	30	9	85	11	—	—	1.9	M25×1.5	6205ZZ

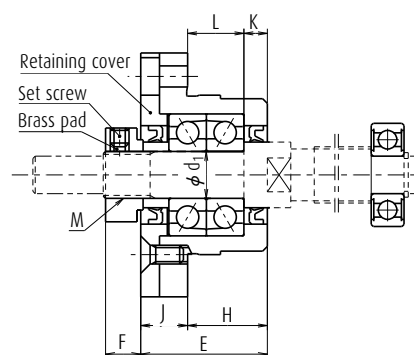
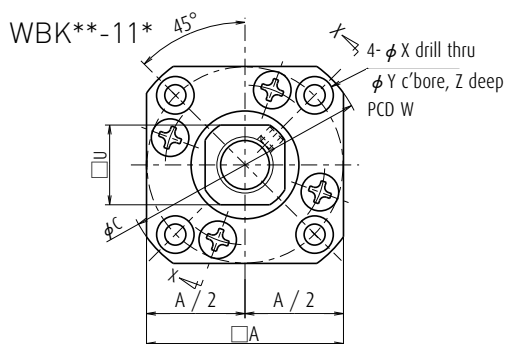
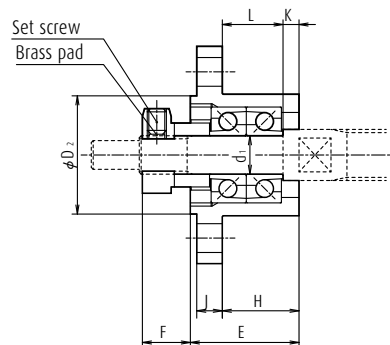
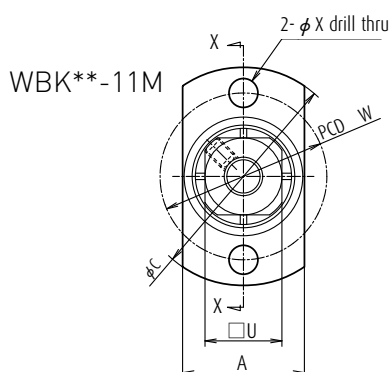
5. Bearings for WBK04-01M and WBK06-01M are equipped with non-contact metal shield.

*1) For retaining cover side of WBK06-01A, WBK08-01A, and WBK08-01C, there are no seals.

6. Contact NSK if the rotational speed is 50 min⁻¹ and below.

ROUND TYPE SUPPORT UNIT

Fixed support side support unit (round type)

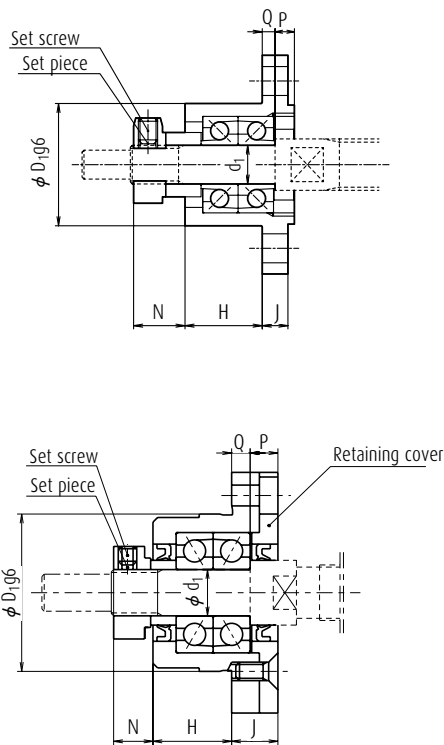


View X-X (example 1)

Reference No.	Use	d ₁	A	C	D ₁	D ₂	E	H	L	K	F	N
WBK04-11M	General	4	14	26	14	14	13.5	8.5	7	1.5	5.5	6.6
WBK06-11M	General	6	19	34	19	18.5	17	12	9.5	2.5	7.5	8
WBK06-11*	General	6	28	35	22	—	20	13	9.5	3.5	5.5	6.5
WBK08-11B	High-load type	8	42	52	34	—	25.5	15.5	12	3.5	4.5	7
WBK08-11*	General	8	35	43	28	—	23	14	10	4	7	8
WBK08-11C*	Clean environment	8	35	43	28	—	23	14	10	4	7	8
WBK10-11	General	10	42	52	34	—	27	17	12	5	7.5	8.5
WBK10-11C	Clean environment	10	42	52	34	—	27	17	12	5	7.5	8.5
WBK12-11	General	12	44	54	36	—	27	17	12	5	7.5	8.5
WBK12-11C	Clean environment	12	44	54	36	—	27	17	12	5	7.5	8.5
WBK15-11	General	15	52	63	40	—	32	17	11	6	12	14
WBK15-11C	Clean environment	15	52	63	40	—	32	17	11	6	12	14
WBK20-11	General	20	68	85	57	—	52	30	20	10	10	14
WBK25-11	General	25	79	98	63	—	57	30	20	10	13	20

Notes

1. Tighten set screw after locknut has been adjusted and tightened.
2. Insert brass pad provided with unit into locknut set screw hole, then insert and tighten the set screw.
3. Deep groove ball bearing and snap ring are also provided for simple support side.
(except WBK04-11M, WBK06-11M and WBK06-11)



(example 2)

Unit: mm

Reference No.	Tightening torque (reference) [N·cm]	
	Locknut	Set screw
WBK04-**	100	69 (M3)
WBK06-**	190	69 (M3)
WBK08-**	230	69 (M3)
WBK10-**	280	147 (M4)
WBK12-**	630	147 (M4)
WBK15-**	790	147 (M4)
WBK17-**	910	147 (M4)
WBK20-**	1670	147 (M4)
WBK25-**	2060	490 (M6)

U	P	Q	Counterbore dimensions					Mass (kg)	Locknut screw M	Attached bearing for support side
			J	W	X	Y	Z			
10	2.6	2.4	3	20	3.5	—	—	0.02	M4×0.5	—
12	3	2	4	26	4.5	—	—	0.04	M6×0.75	—
12	4.5	2.5	7	28	2.9	5.5	3.5	0.1	M6×0.75	—
14	6	4	10	42	4.5	8	4	0.2	M8×1	606ZZ
14	5	4	9	35	3.4	6.5	4	0.15	M8×1	606ZZ
14	5	4	9	35	3.4	6.5	4	0.15	M8×1	606VV
17	6	4	10	42	4.5	8	4	0.2	M10×1	608ZZ
17	6	4	10	42	4.5	8	4	0.2	M10×1	608VV
19	6	4	10	44	4.5	8	4	0.25	M12×1	6000ZZ
19	6	4	10	44	4.5	8	4	0.25	M12×1	6000VV
22	8	7	15	50	5.5	9.5	6	0.4	M15×1	6002ZZ
22	8	7	15	50	5.5	9.5	6	0.4	M15×1	6002VV
30	14	8	22	70	6.6	11	10	1.1	M20×1	6204ZZ
36	17	10	27	80	9	15	13	1.5	M25×1.5	6205ZZ

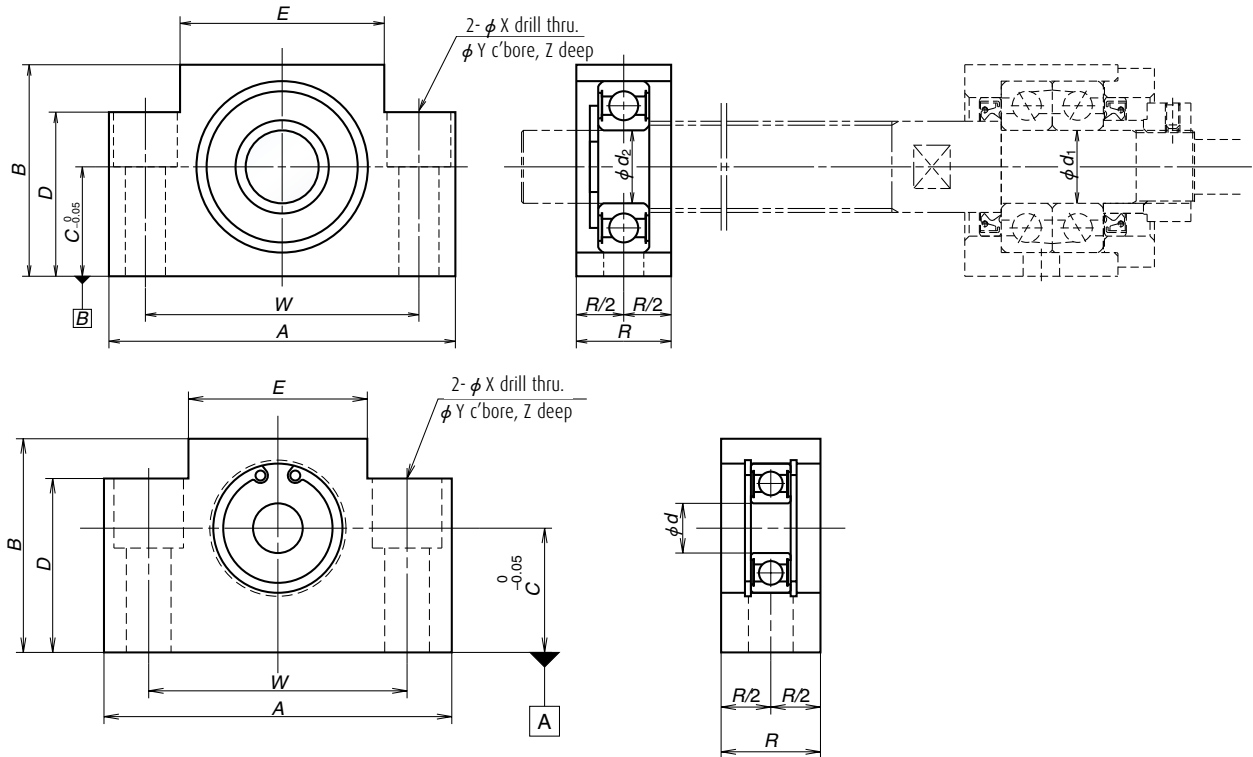
4. Bearings for WBK04-11M and WBK06-11M are equipped with non-contact metal shield.

*For retaining cover side of WBK06-11, WBK08-11 und WBK-11C, there are no seals.

5. Contact NSK if the rotational speed is 50 min⁻¹ and below.

SQUARE TYPE SUPPORT UNIT FOR SIMPLE SUPPORT SIDE

Simple support side support unit (square type)



Unit: mm

Reference No.	Use	d ₂	A	B	C	D	E	R	Counterbore dimensions				Mass (kg)
									W	X	Y	Z	
WBK08S-01	General	6	52	32	17	26	25	15	38	6.6	11	12	0.15
WBK08S-01B	Low type	6	62	31	15.5	31	—	16	46	9	14	18	0.2
WBK08S-01C	Clean environment	6	52	32	17	26	25	15	38	6.6	11	12	0.15
WBK10S-01	General	8	70	43	25	35	36	20	52	9	14	11	0.4
WBK10S-01C	Clean environment	8	70	43	25	35	36	20	52	9	14	11	0.4
WBK12S-01	General	10	70	43	25	35	36	20	52	9	14	11	0.35
WBK12S-01B	Low type	10	70	38	20	38	—	20	52	9	14	19	0.4
WBK12S-01C	Clean environment	10	70	43	25	35	36	20	52	9	14	11	0.35
WBK12SF-01* ²	General	12	70	43	25	35	36	20	52	9	14	11	0.3
WBK12SF-01B* ¹	Low type	12	62	31	15.5	31	—	18	46	9	14	18	0.2
WBK15S-01	General	15	80	50	30	40	41	20	60	9	14	11	0.45
WBK15S-01B	Low type	15	80	42	22	42	—	20	60	9	14	23	0.4
WBK15S-01C	Clean environment	15	80	50	30	40	41	20	60	9	14	11	0.45
WBK15SF-01* ²	General	15	70	43	25	35	36	20	52	9	14	11	0.3
WBK15SF-01B* ¹	Low type	15	70	38	20	38	—	18	52	9	14	19	0.3
WBK17S-01	General	17	86	64	39	55	50	23	68	9	14	11	0.8
WBK20S-01	General	20	95	58	30	45	56	26	75	11	17	15	0.8
WBK20SF-01B	Low type	20	80	42	22	42	—	22	60	11	17	23	0.4
WBK25S-01W	General	25	105	68	35	25	66	30	85	11	—	—	0.9
WBK25SF-01* ¹	General	25	95	58	30	45	56	22	75	11	17	15	0.55

Notes

1. Use datum surface B for mounting to machine base.
2. For reference No. 12 or lower numbers, note that the reference numbers and inner dimensions of the bearing are different.
3. WBK ** SF is a type supporting screw shaft OD.
4. *1 is exclusive for FSS type.
*2 is exclusive for VFA type.

Precautions

Design

- (1) If a ball screw of which left shaft end (opposite driven side) is the shape I, and is supported with the "fixed-fixed" supporting method, you should be aware that the operating life of support bearings may drop due to thermal expansion of the screw shaft, depending on usage conditions. In this case, you should consider a structure that can absorb thermal expansion of the screw shaft if necessary. Please consult with NSK for a detailed examination.
- (2) If using an NSK linear guide, the maximum speed of a linear guide of standard specifications under ordinary conditions is limited to 100 m/min. A linear guide with high-speed specifications is available if higher operating speed is required. Contact NSK for further information.
- (3) For general precautions concerning ball screws, please see NSK Catalog No. E3162 "Precision Machine Components."

Usage and handling

Ball screws are precision products and should be treated as follows:

[Lubrication]

- (1) Compact FA Series ball screws are packed and coated with lubrication grease at the factory, and require no further lubrication under ordinary circumstances. If the surface of the grease becomes contaminated with dirt and metal powder under operation, clean it with white kerosene and replenish with new grease of the same kind through the oil hole (grease fitting) on the ball nut. Avoid mixing different types of grease.
- (2) Lubricant should be checked after the first 2 to 3 months of operation. If excessively dirty, we recommend you wipe away the old grease and replenish with a generous quantity of grease.
After that, grease should be checked and replenished once a year under ordinary circumstances, but the period may vary depending upon the service environment.



Check lubrication

[Handling]

- (1) Never disassemble the ball screw, otherwise dirt may contaminate the inside of the unit and affect precision or result in equipment failure.
- (2) Compact FA Series ball screws incorporate a new ball re-circulation system. Consequently, only NSK authorized plants should conduct disassembly and reassembly. If the nut accidentally comes off the screw shaft or is dropped, NSK will check precision, problems or perform repairs at your expense.
- (3) When the ball screw is erected upright, the screw shaft or nut could fall by force of its own weight and result in injury. If dropped, the ball grooves could be dented or re-circulation parts damaged, resulting in loss of function. This would require the ball screw to be inspected by NSK. If so, be sure to send the ball screw to NSK and we will check it for a fee.



Do not disassemble



Beware of dropping

[Usage]

- (1) Ball screws should be used in a clean environment. The ball screws should be provided with a dust cover to prevent the entry of debris such as dust and metal powder. If foreign matter is allowed to contaminate the ball screw, this could not only cause the ball screw to lose some of its function, but also result in clogging and damaging the re-circulation system parts, or cause the table to fall or a similar serious accident.
- (2) Compact FA Series ball screws are designed to be used in a service temperature environment of 80°C or lower. Do not allow the service temperature limit to be exceeded. In some cases, using ball screws in temperatures above 80°C might lead to damage of re-circulation system parts or seal parts. Contact NSK if 80°C must be exceeded.



Dust control



Caution max. temperature

Compact FA Series options

Consult with NSK for information about such as shaft end machining, reverse direction and alternative preload.

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