NSK

NSK STANDARD BALL SCREWS
COMPACT FA SERIES



STAY IN MOTION. STAY IN CONTROL.

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COMBINATIONS OF SCREW SHAFT DIAMETER AND LEAD

Unit: mm

SCREW SHAFT DIA. \ LEAD	5	8	10	12	15	20	25	30	40	50	60
6		●		●							
8			●		●						
10	● ●		●								
12	● ●		● ●			●		●			
15	● ●		● ●			● ●		●			
20	●		● ●			● ●		●	●		●
25	●		● ●			● ●	● ●	●		●	

● PSS type ● USS type ● FSS type

NSK STANDARD BALL SCREWS: COMPACT FA SERIES

Compact FA Series ball screws incorporate NSK's ball recirculation system and offer quiet, high-speed performance. In order to respond quickly to a wide range of needs, NSK offers quick-ship delivery on common sizes. These high-performing ball screws are ready for use in a variety of industries including: semiconductor manufacturing, medical equipment, factory automation and general industrial use.

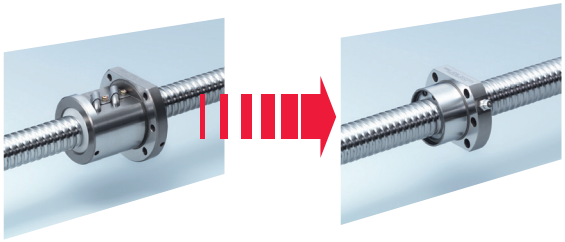
The Compact FA Series includes the following types to meet your application requirements:
- PSS Type for general use.
- USS Type for high accuracy and clean environment use.
- FSS Type for transfer equipment.

Features

QUICK DELIVERY
Domestic manufacturing and comprehensive stocking program ensure quick-ship delivery and reduced shipping costs.

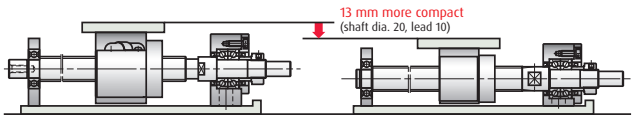
COMPACT BALL SCREW
The outside diameter of the ball nut is as much as 30% smaller than those of existing NSK products. Compact size enables all sorts of equipment and devices, such as linear stages, to be smaller. NSK has also designed low profile support units, specific for the Compact FA series, enabling a unique space-saving design.

Shaft dia. 25 mm, lead 5 mm



Existing FA Series Compact FA Series

Comparison of existing FA Series and Compact FA Series

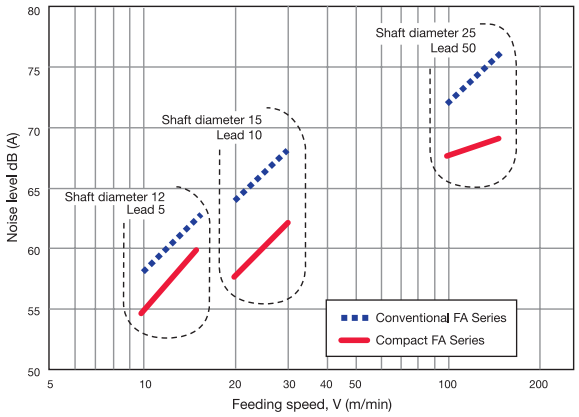




Existing support unit > Low-profile support unit

QUIET OPERATION
The noise level has been reduced by 6 dB, about half of what is sensed by the ear.

Noise data



(Microphone was positioned at a distance of 400 mm for all noise measurements.)

HIGH-SPEED OPERATION
Speeds up to 5000 min^{-1} dramatically expanding the range of service conditions.
Note: Please refer to the dimension table for details of permissible rotational speed.

GREASE FITTING PROVIDED AS STANDARD EQUIPMENT
Lubrication ports are provided in two locations to facilitate maintenance. The ball screws can be easily connected to an integrated lubrication system.

CONTACT SEAL
Compact, thin plastic seal is available to help minimize grease dispersion, maintain a clean work environment and reduce contamination entry.

COMPACT FA SERIES: PSS TYPE FOR GENERAL USE

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

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

SHAFT END SUPPORT

The low-profile support units are compatible with the Compact FA Series.

COMBINATIONS OF SHAFT DIAMETER, LEAD AND STROKE

SHAFT DIA. (mm)	LEAD (mm)	STROKE ( )														PAGE	RECOMMENDED SUPPORT UNIT	
		50	100	150	200	300	400	500	600	700	800	1000	1200	1600	2000		FIXED	SIMPLE
6	8			▲*												8-9	WBK04-01M (square) WBK04-11M (round)	-
	12			▲*														
8	10			▲*												10-11	WBK06-01M (square) WBK06-11M (round)	-
	15			▲*														
10	5	●	●		●	●	●									12-13	WBK08-01B	WBK08S-01B
	10		●		●	●	●											
12	5	●	●		●	●	●	●								14-15	WBK08-01B	WBK08S-01B
	10		●		●	●	●	●										
	20		▲		▲	▲	▲	▲										
	30		▲		▲	▲	▲	▲										
15	5	●	●		●	●	●	●	●							16-19	WBK12-01B WBK10-01B	WBK12S-01B
	10		●		●	●	●	●	●	●	●	●						
	20		▲		▲	▲	▲	▲	▲	▲	▲	▲						
	30		▲		▲	▲	▲	▲	▲	▲	▲	▲						
20	5			●	●	●	●	●	●	●	●					20-25	WBK15-01B	WBK15S-01B
	10				●	●	●	●	●	●	●	●	●					
	20					▲	▲	▲	▲	▲	▲	▲	▲	▲				
	30				▲	▲	▲	▲	▲	▲	▲	▲	▲					
	40						▲	▲	▲	▲	▲	▲	▲	▲	▲			
	60						▲	▲	▲	▲	▲	▲	▲	▲	▲			
25	5			●	●	●	●	●		●	●	●				26-31	WBK20-01	WBK20S-01
	10					●	●	●	●	●	●	●		●				
	20							●	●	●	●	●	●	●				
	25							●	●	●	●	●	●	●				
	30							▲	▲	▲	▲	▲	▲	▲	▲			
	50							▲	▲	▲	▲	▲	▲	▲	▲			

*For shaft diameter 6 and 8, length shown is overall length.

● Quick-ship delivery. ▲ Contact NSK for availability.

NSK PART NUMBERING FORMAT

PSS	15	05	N1D	0361
COMPACT FA PSS TYPE	SCREW SHAFT DIAMETER (MM)	LEAD (MM)	NSK CONTROL NUMBER	SCREW SHAFT LENGTH (MM)

COMPACT FA SERIES: USS TYPE FOR HIGH-ACCURACY AND CLEAN ROOM USE

APPLICATIONS

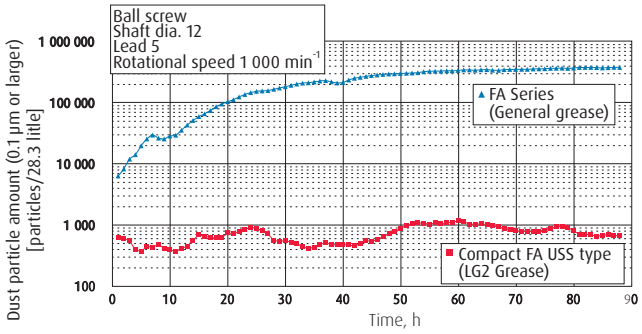
Semiconductor manufacturing equipment, LCD manufacturing equipment, and inspection equipment for clean room environments.

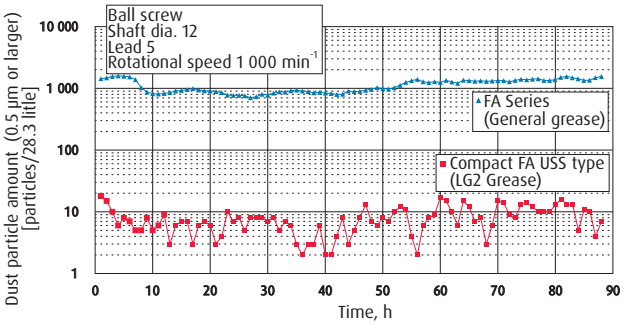
ACCURACY GRADE AND AXIAL PLAY

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

LOW-DUST EMISSION

- NSK LG2 clean grease is used as standard, dust partical generation is reduced to 1/100 as compared to conventional ball screws with standard grease.
- Ideal for clean room use





SHAFT END SUPPORT

Low-profile support units for clean environments are available.

COMBINATIONS OF SCREW SHAFT DIAMETER, LEAD AND STROKE

SHAFT DIA. (mm)	LEAD (mm)	STROKE (mm)					PAGE	RECOMMENDED SUPPORT UNIT		
		100	200	400	500	600		FIXED	SIMPLE	APPLICATION
10	5	▲	▲	▲			32-33	WBK08-01B	WBK08S-01B	Low
								WBK08-01C	WBK08S-01C	Cleanroom
12		▲	▲		▲		34-35	WBK08-01B	WBK08S-01B	Low
								WBK08-01C	WBK08S-01C	Cleanroom
15		▲	▲	▲		▲	36-37	WBK12-01B	WBK12S-01B	Low
								WBK12-01C	WBK12S-01C	Cleanroom

▲ Contact NSK for availability.

NSK PART NUMBERING FORMAT

USS	15	05	N1D	0361
COMPACT FA USS TYPE	SCREW SHAFT DIAMETER (MM)	LEAD (MM)	NSK CONTROL NUMBER	SCREW SHAFT LENGTH (MM)

COMPACT FA SERIES: FSS TYPE FOR TRANSFER EQUIPMENT

APPLICATIONS

Transfer equipment used in industrial fields such as automotive, semiconductor, and food medical equipment.

ACCURACY GRADE AND AXIAL PLAY

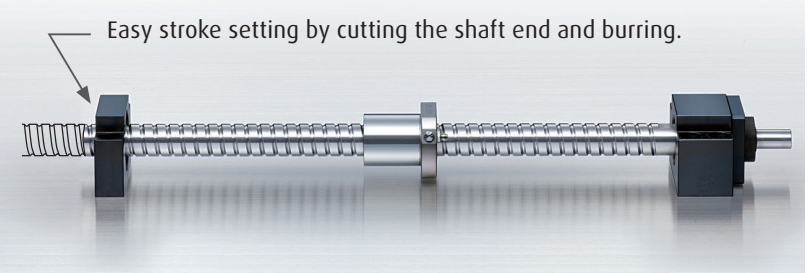
Accuracy grade: Ct7 grade of JIS Axial play: 0.010 mm or less

EASY STROKE SETTING

- Flexible stroke setting with fixed-simple support by means of mounting support unit (simple support side) directly to ball screw shaft outside diameter.
- Since corner cutting is not necessary, customers can cut ball screws, which results in reduced cost and lead time.
- NSK can cut shaft if requested. Contact NSK for more information.

PRECAUTIONS

- During the cutting process, be careful not to let metal particles or burrs fall inside the ball nut.
- 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 on the bearing bore.



SHAFT END SUPPORT

Fixed side: The low-profile support units compatible for compact FA PSS type are available.
Simple side: Proprietary support units are available.

DESIGN PRECAUTIONS

Permissible rotational speed varies when using cut screw shaft. To determine permissible rotational speed, compare both items below. Use smaller number to determine 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	▲		▲	▲			38-39	WBK08-01B	WBK12SF-01B
15	10		▲			▲	▲	40-41	WBK12-01B	WBK15SF-01B
	20		▲			▲	▲			
20	10			▲		▲	▲	42-43	WBK15-01B	WBK20SF-01B
	20			▲		▲	▲			
25	10			▲		▲	▲	44-45	WBK20-01	WBK25SF-01
	20			▲		▲	▲			
	25			▲		▲	▲			

▲ Contact NSK for availability.

NSK PART NUMBERING FORMAT

FSS	15	10	N1D	1000
COMPACT FA FSS TYPE	SCREW SHAFT DIAMETER (MM)	LEAD (MM)	NSK CONTROL NUMBER	SCREW SHAFT LENGTH (MM)

PRECAUTIONS

DESIGN

(1) If the left shaft end of a ball screw (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 NSK for 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 or 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.

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, contact NSK. We can perform inspection and repair if needed.

(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.



Usage

(1) Ball screws should be used in a clean environment. The ball screws should be installed 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.

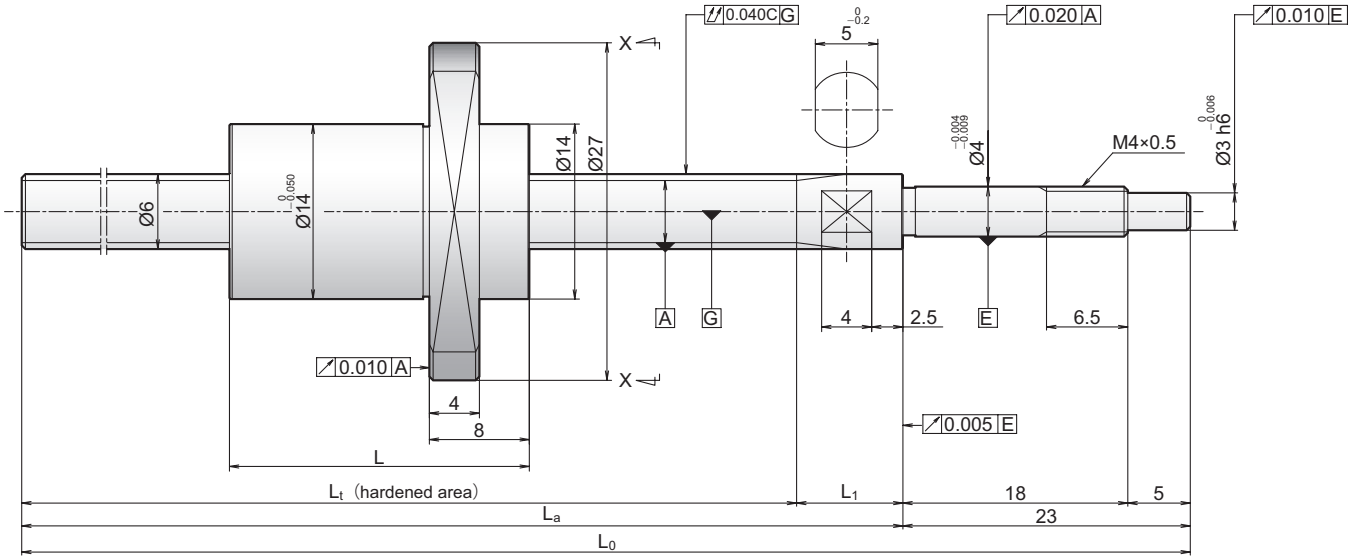


COMPACT FA SERIES OPTIONS

Consult with NSK for information regarding shaft end machining, reversing ball nut direction and other options.

COMPACT FA SERIES

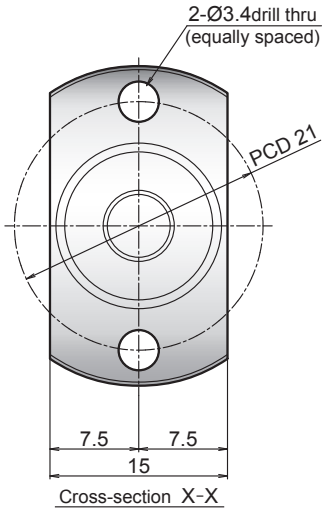
SCREW SHAFT DIAMETER 6 MM, LEAD 8 AND 12 MM



REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE	NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	MAX		L_t	L_a	L_0	L_1
PSS0608NAD0150	6	8	690	805	102.5	16	118.5	127	150	8.5
PSS0608NBD0150			1480	1940	94.5	24				
PSS0612NAD0150		12	665	800	97.0	20	117.0			10.0
PSS0612NBD0150			1430	1970	85.0	32				

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

PSS TYPE FOR GENERAL USE



Unit : mm

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

RECOMMENDED SUPPORT UNIT

FOR DRIVE SIDE (FIXED)	
WBK04-01M (square)	P 46-47
WBK04-11M (round)	P 48-49

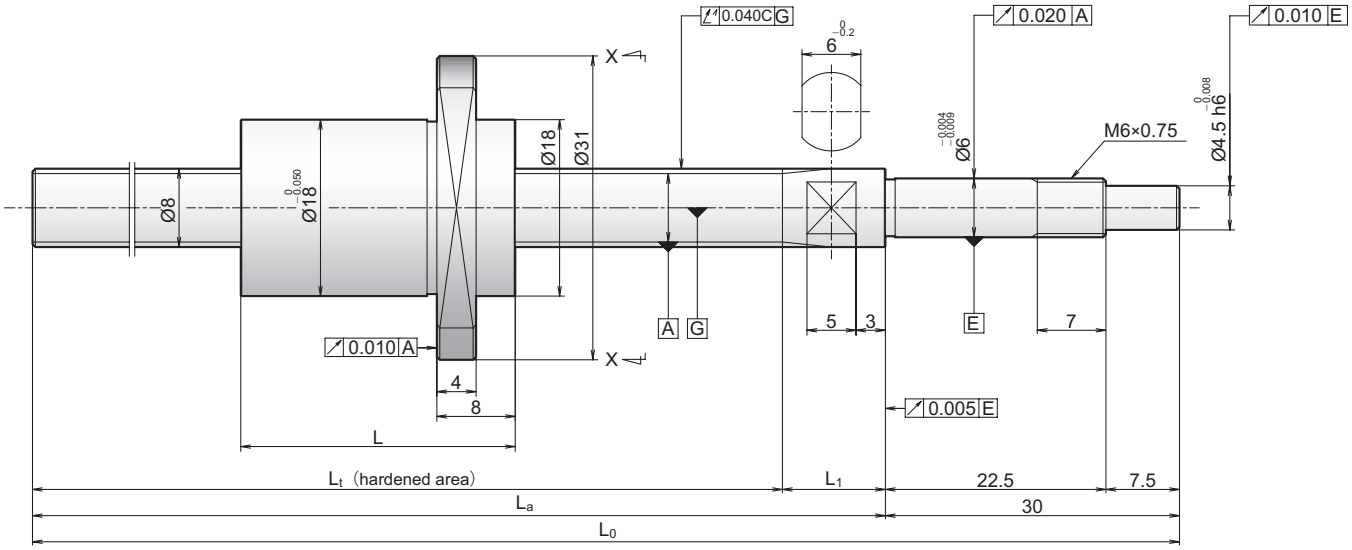
Unit : mm

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)
TARGET VALUE T	ERROR e_p	VARIATION V_u			FIXED-FREE		
0	0.020	0.018	0.5 or less	0.06	5 000	0.2	0.1
						0.3	0.2
						0.2	0.1
				0.07		0.3	0.2

2. Service temperature range is 0 to 80°C.
3. Use of NSK support unit is recommended. Refer to pages 46 to 49 for details.

COMPACT FA SERIES

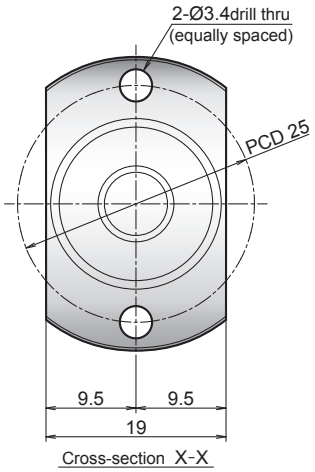
SCREW SHAFT DIAMETER 8 MM, LEAD 10 AND 15 MM



REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE	NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	MAX.		L_t	L_a	L_t	L_1
PSS0810NAD0150	8	10	1 150	1 420	91.5	18	109.5	120	150	10.5
PSS0810NBD0150			2 470	3 430	81.5	28				
PSS0815NAD0150		15	1 130	1 430	85.0	22	107.0			13.0
PSS0815NBD0150			2 410	3 520	70.0	37				

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

PSS TYPE FOR GENERAL USE



Unit : mm

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

RECOMMENDED SUPPORT UNIT

FOR DRIVE SIDE (FIXED)	
WBK06-01M (square)	P 46-47
WBK06-11M (round)	P 48-49

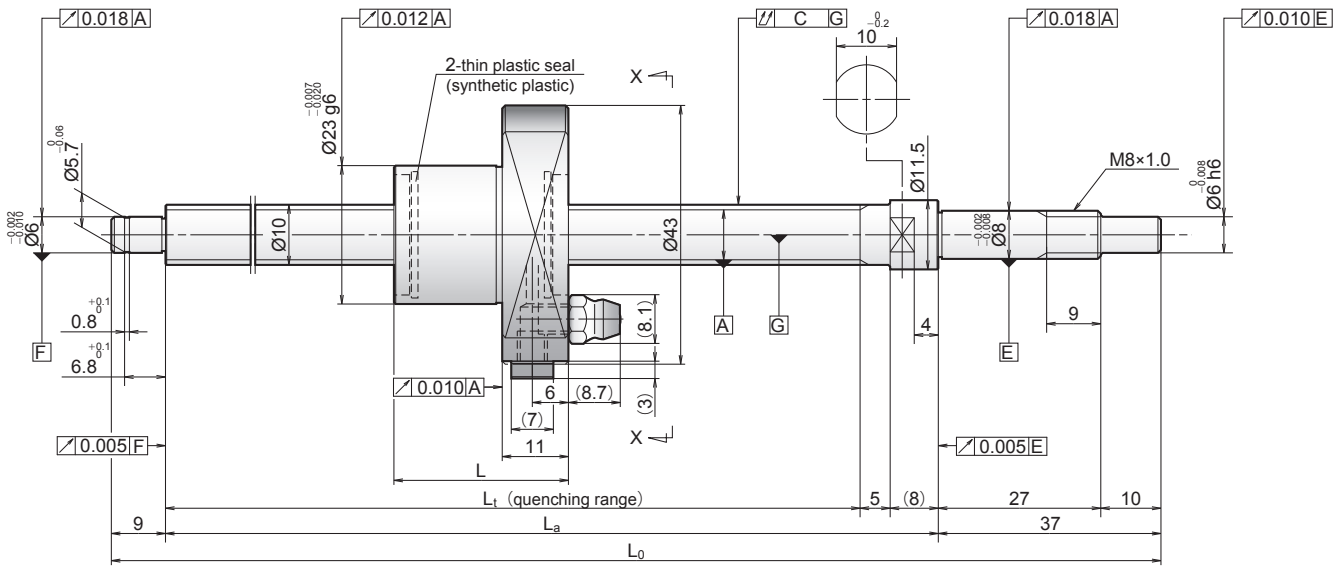
Unit : mm

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)
TARGET VALUE T	ERROR e_p	VARIATION V_u			FIXED-FREE		
0	0.020	0.018	0.5 or less	0.09	5 000	0.4	0.2
				0.11		0.5	0.3
				0.10		0.4	0.2
				0.12		0.6	0.3

2. Service temperature range is 0 to 80°C.
3. Use of NSK support unit is recommended. Refer to pages 46 to 49 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 10 MM, LEAD 5 AND 10 MM

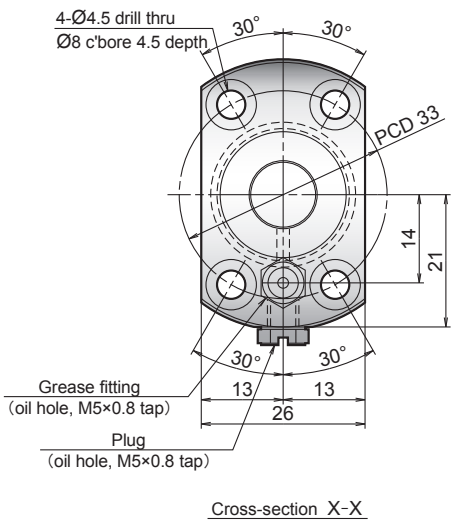


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0
PSS1005N1D0171	10	5	3 420	4 840	50	78	29	112	125	171
PSS1005N1D0221					100	128		162	175	221
PSS1005N1D0321					200	228		262	275	321
PSS1005N1D0421					300	328		362	375	421
PSS1005N1D0521					400	428		462	475	521
PSS1010N1D0221		10	2 290	2 980	100	125	32	162	175	221
PSS1010N1D0321					200	225		262	275	321
PSS1010N1D0421					300	325		362	375	421
PSS1010N1D0521					400	425		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.

PSS TYPE FOR GENERAL USE

Unit : mm



Cross-section X-X

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK08S-01B (square, low) P 50-51
WBK08-11 (round) P 48-49	-
WBK08-11B (round, high-load) P 48-49	-

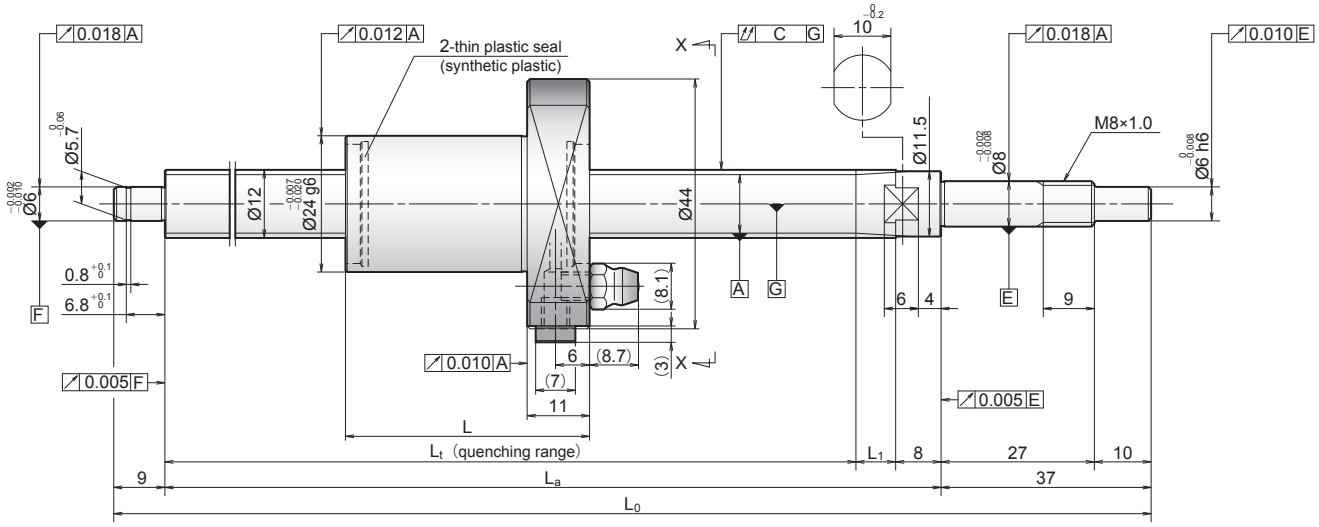
Unit : mm

LEAD ACCURACY			SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (k)*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	0.020	0.018	0.030	0.7 - 3.3	0.3	5 000	0.8	0.4
	0.020	0.018	0.045	0.7 - 3.3	0.3			
	0.023	0.018	0.060	0.6 - 4.3	0.3			
	0.025	0.020	0.070	0.6 - 4.3	0.4			
	0.027	0.020	0.085	0.4 - 4.9	0.5			
	0.020	0.018	0.045	0.7 - 3.3	0.3		0.7	
	0.023	0.018	0.060	0.6 - 4.3	0.4			
	0.025	0.020	0.070	0.6 - 4.3	0.4			
	0.027	0.020	0.0850	0.4 - 4.9	0.5			

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

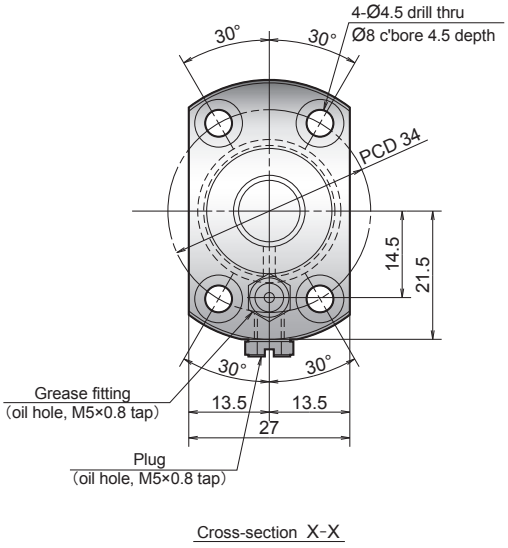
SCREW SHAFT DIAMETER 12 MM, LEAD 5, 10, 20 AND 30 MM



REFERENCE NO.	SCREW SHAFT DIA. 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					100	125		160	175	221	
PSS1205N1D0321					200	225		260	275	321	
PSS1205N1D0421					300	325		360	375	421	
PSS1205N1D0521					400	425		460	475	521	
PSS1205N1D0621					500	525		560	575	621	
PSS1210N1D0221		10	3 760	5 780	100	112	43	160	175	221	7
PSS1210N1D0321					200	212		260	275	321	
PSS1210N1D0421					300	312		360	375	421	
PSS1210N1D0521					400	412		460	475	521	
PSS1210N1D0621					500	512		560	575	621	
PSS1220N1D0271		20	2 330	3 600	100	153	50	208	225	271	9
PSS1220N1D0371					200	253		308	325	371	
PSS1220N1D0471					300	353		408	425	471	
PSS1220N1D0571					400	453		508	525	571	
PSS1220N1D0671					500	553		608	625	671	
PSS1230N1D0271		30	2 190	3 650	100	128	70	203	225	271	14
PSS1230N1D0371					200	228		303	325	371	
PSS1230N1D0471					300	328		403	425	471	
PSS1230N1D0571					400	428		503	525	571	
PSS1230N1D0671					500	528		603	625	671	

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.

PSS TYPE FOR GENERAL USE



Cross-section X-X

Unit : mm

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK08S-01B (square, low) P 50-51
WBK08-11 (round) P 48-49	-
WBK08-11B (round, high-load) P 48-49	-

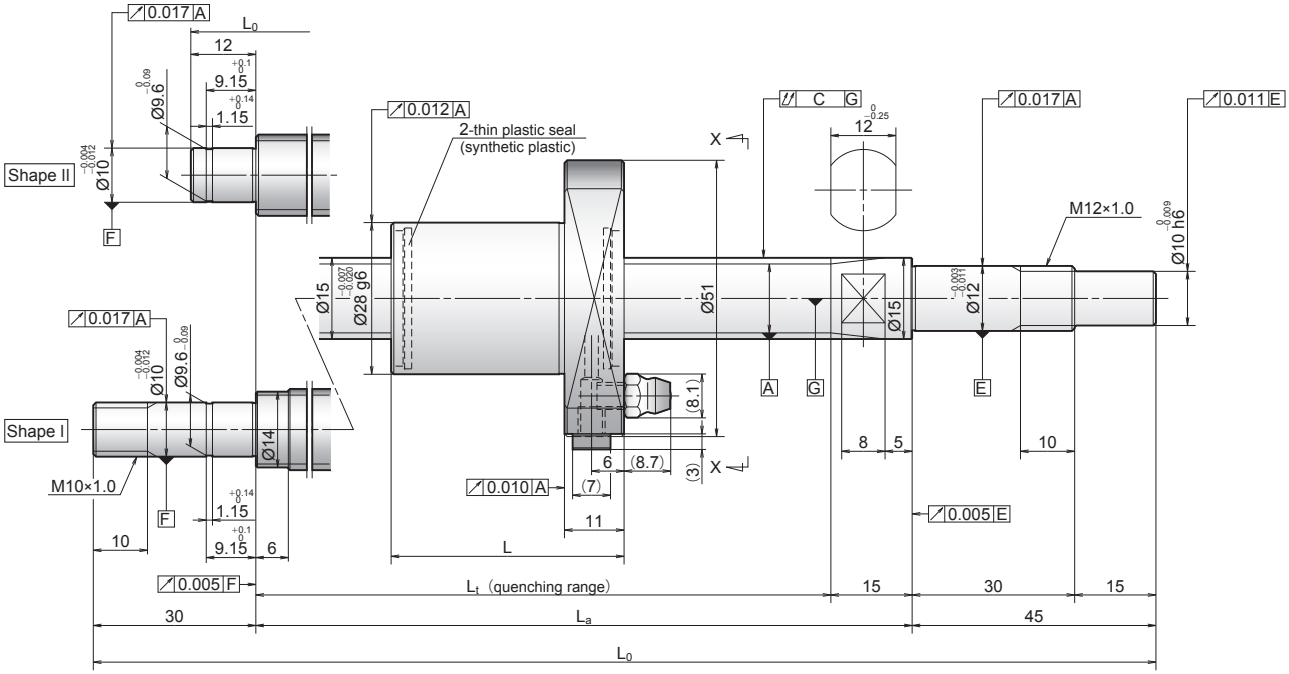
Unit : mm

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	0.020	0.018	0.030	0.7 - 3.3	0.3	5 000	1.0	0.5
	0.020	0.018	0.045	0.7 - 3.3	0.3			
	0.023	0.018	0.060	0.6 - 4.3	0.4			
	0.025	0.020	0.070	0.6 - 4.3	0.5			
	0.027	0.020	0.085	0.6 - 4.3	0.6			
	0.030	0.023	0.085	0.4 - 4.9	0.7			
	0.020	0.018	0.045	0.7 - 3.3	0.4	5 000	1.0	0.5
	0.023	0.018	0.060	0.6 - 4.3	0.5			
	0.025	0.020	0.070	0.6 - 4.3	0.5			
	0.027	0.020	0.085	0.6 - 4.3	0.6			
	0.030	0.023	0.085	0.4 - 4.9	0.7			
	0.023	0.018	0.045	1.4 - 4.5	0.4	5 000	1.2	0.6
	0.023	0.018	0.060	0.9 - 4.9	0.5			
	0.027	0.020	0.070	0.9 - 4.9	0.6			
	0.030	0.023	0.085	0.6 - 5.9	0.7			
	0.030	0.023	0.110	0.6 - 5.9	0.8	4 480		
	0.023	0.018	0.045	1.4 - 4.5	0.5	5 000	1.5	0.8
	0.023	0.018	0.060	0.9 - 4.9	0.6			
	0.027	0.020	0.070	0.9 - 4.9	0.7			
	0.030	0.023	0.085	0.6 - 5.9	0.7			
	0.030	0.023	0.110	0.6 - 5.9	0.8	4 720		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 15 MM, LEAD 5 AND 10 MM

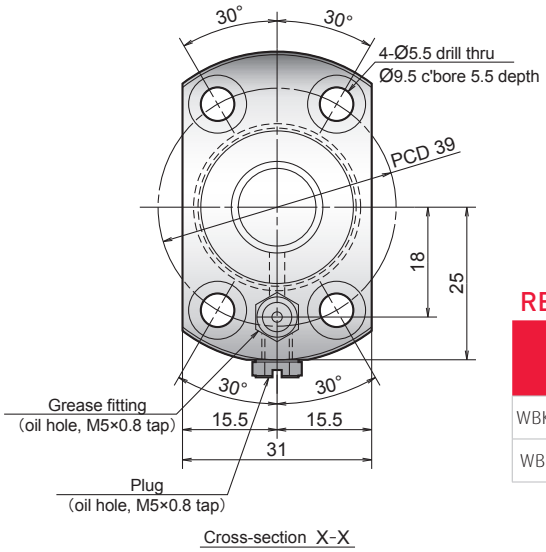


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0
PSS1505N1D0211	15	5	6 410	10 100	50	103	30	139	154	211
PSS1505N1D0261					100	153		189	204	261
PSS1505N1D0361					200	253		289	304	361
PSS1505N1D0461					300	353		389	404	461
PSS1505N1D0561					400	453		489	504	561
PSS1505N1D0661					500	553		589	604	661
PSS1505N1D0761					600	653		689	704	761
PSS1510N1D0261		10	6 530	10 200	100	140	43	189	204	261
PSS1510N1D0361					200	240		289	304	361
PSS1510N1D0461					300	340		389	404	461
PSS1510N1D0561					400	440		489	504	561
PSS1510N1D0661					500	540		589	604	661
PSS1510N1D0761					600	640		689	704	761
PSS1510N1D0879					700	740		789	804	879
PSS1510N1D0979					800	840		889	904	979
PSS1510N1D1179					1 000	1 040		1 089	1 104	1 179

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.

PSS TYPE FOR GENERAL USE

Unit : mm



BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK10-01B (square, low) P 46-47	WBK12S-01B (square, low) P 50-51
WBK12-11 (round) P 48-49	WBK10-11 (round) P 48-49	-

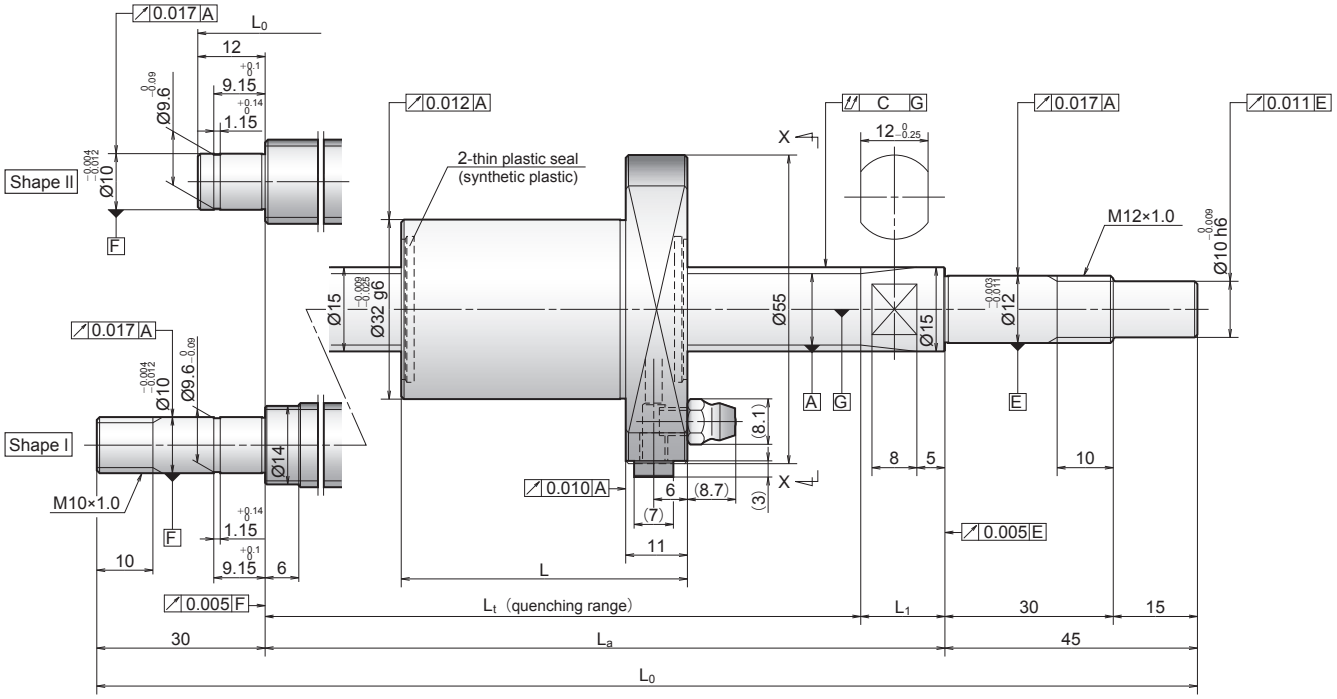
Unit : mm

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
		0.020	0.018	0.035	0.2 - 6.9	0.5				
		0.023	0.018	0.045	0.2 - 6.9	0.6				
		0.025	0.020	0.050	0.4 - 9.8	0.8				
		0.027	0.020	0.060	0.4 - 9.8	0.9				
		0.030	0.023	0.075	0.4 - 9.8	1.0				
		0.035	0.025	0.075	0.4 - 11.8	1.1	4 130			
II		0.020	0.018	0.035	0.6 - 7.4	0.6	5 000	–		
		0.023	0.018	0.045	0.6 - 7.4	0.7				
		0.025	0.020	0.050	0.4 - 9.8	0.8				
		0.027	0.020	0.060	0.4 - 9.8	1.0				
		0.030	0.023	0.075	0.4 - 9.8	1.1				
		0.035	0.025	0.075	0.4 - 11.8	1.2	4 210			
I		0.035	0.025	0.095	0.4 - 11.8	1.4	3 190	4 410		
		0.040	0.027	0.095	0.4 - 11.8	1.5	2 500	3 470		
		0.046	0.03	0.120	0.4 - 11.8	1.7	1 650	2 320		

3. Service temperature range is 0 to 80ºC.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 15 MM, LEAD 20 AND 30 MM

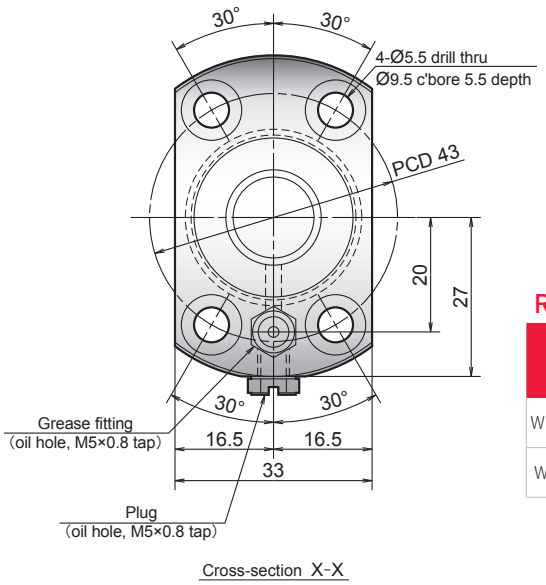


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0	L_1
PSS1520N1D0261	15	20	5 660	8 700	100	129	51	186	204	261	18
PSS1520N1D0361					200	229		286	304	361	
PSS1520N1D0461					300	329		386	404	461	
PSS1520N1D0561					400	429		486	504	561	
PSS1520N1D0661					500	529		586	604	661	
PSS1520N1D0761					600	629		686	704	761	
PSS1520N1D0879					700	729		786	804	879	
PSS1520N1D0979					800	829		886	904	979	
PSS1520N1D1179					1 000	1 029		1 086	1 104	1 179	
PSS1530N1D0311		30	5 500	8 580	100	153	71	230	254	311	24
PSS1530N1D0411					200	253		330	354	411	
PSS1530N1D0511					300	353		430	454	511	
PSS1530N1D0611					400	453		530	554	611	
PSS1530N1D0711					500	553		630	654	711	
PSS1530N1D0811					600	653		730	754	811	
PSS1530N1D0929					700	753		830	854	929	
PSS1530N1D1029					800	853		930	954	1 029	
PSS1530N1D1229					1 000	1 053		1 130	1 154	1 229	

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.

PSS TYPE FOR GENERAL USE

Unit : mm



Cross-section X-X

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK10-01B (square, low) P 46-47	WBK12S-01B (square, low) P 50-51
WBK12-11 (round) P 48-49	WBK10-11 (round) P 48-49	-

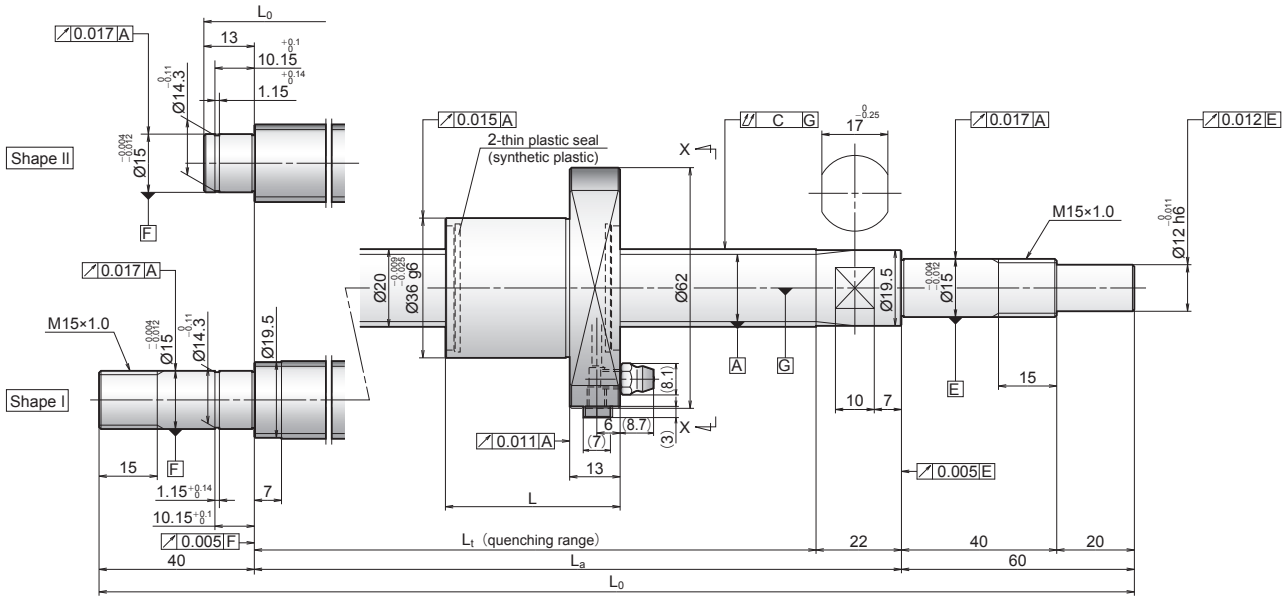
Unit : mm

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
		0.023	0.018	0.045	0.8 - 8.8	0.8				
		0.025	0.020	0.050	0.8 - 10.8	0.9				
		0.027	0.020	0.060	0.8 - 10.8	1.1				
		0.030	0.023	0.075	0.8 - 10.8	1.2				
		0.035	0.025	0.075	0.8 - 13.8	1.3	4 170			
I		0.035	0.025	0.095	0.8 - 13.8	1.5	3 150	4 310		
		0.040	0.027	0.095	0.8 - 13.8	1.6	2 460	3 390		
		0.046	0.030	0.120	0.8 - 13.8	1.9	1 620	2 260		
II		0.023	0.018	0.035	1.2 - 9.3	0.8	5 000	–	3.4	1.7
		0.025	0.020	0.050	0.8 - 10.8	1.0				
		0.027	0.020	0.060	0.8 - 10.8	1.1				
		0.030	0.023	0.060	0.8 - 10.8	1.2				
		0.030	0.023	0.075	0.8 - 13.8	1.4				
		0.035	0.025	0.095	0.8 - 13.8	1.5	3 770			
I		0.040	0.027	0.095	0.8 - 13.8	1.6	2 880	3 910		
		0.040	0.027	0.120	0.8 - 13.8	1.8	2 310	3 110		
		0.046	0.030	0.120	0.8 - 13.8	2.0	1 540	2 100		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 20 MM, LEAD 5 AND 10 MM

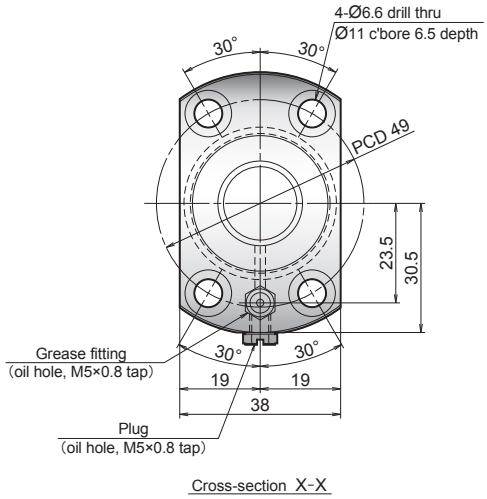


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0
PSS2005N1D0323	20	5	10 400	18 500	150	191	31	228	250	323
PSS2005N1D0373					200	241		278	300	373
PSS2005N1D0473					300	341		378	400	473
PSS2005N1D0573					400	441		478	500	573
PSS2005N1D0673					500	541		578	600	673
PSS2005N1D0773					600	641		678	700	773
PSS2005N1D0873					700	741		778	800	873
PSS2005N1D1000					800	839		878	900	1000
PSS2010N1D0387		10	10 200	18 600	200	241	45	292	314	387
PSS2010N1D0487					300	341		392	414	487
PSS2010N1D0587					400	441		492	514	587
PSS2010N1D0687					500	541		592	614	687
PSS2010N1D0787					600	641		692	714	787
PSS2010N1D0887					700	741		792	814	887
PSS2010N1D1014					800	839		892	914	1 014
PSS2010N1D1214					1 000	1 039		1 092	1 114	1 214
PSS2010N1D1414					1 200	1 239		1 292	1 314	1 414

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.

PSS TYPE FOR GENERAL USE

Unit : mm



Cross-section X-X

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK15-01B (square, low) P 46-47	WBK15S-01B (square, low) P 50
WBK15-11 (round) P 48-49	WBK15-11 (round) P 48-49	-

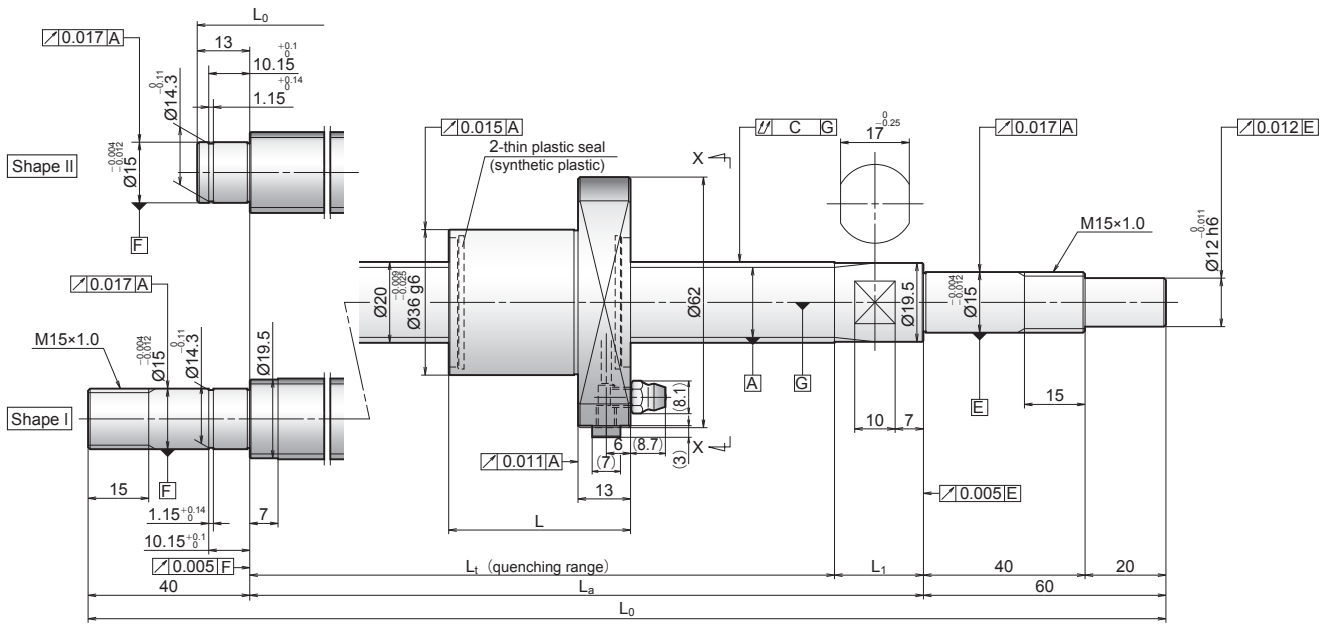
Unit : mm

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
		0.023	0.018	0.045	0.6 - 7.4	1.1				
		0.025	0.020	0.050	0.6 - 7.4	1.3				
		0.027	0.020	0.060	0.4 - 9.8	1.5				
		0.030	0.023	0.075	0.4 - 9.8	1.7				
		0.035	0.025	0.075	0.4 - 9.8	1.9				
		0.035	0.025	0.095	0.4 - 9.8	2.2	4 410			
I		0.040	0.027	0.095	0.4 - 11.8	2.4	3 450	4 710		
II		0.023	0.018	0.045	1.2 - 9.3	1.2	5 000	–	3.2	1.6
		0.025	0.020	0.050	1.2 - 9.3	1.4				
		0.027	0.020	0.060	0.8 - 10.8	1.7				
		0.030	0.023	0.075	0.8 - 10.8	1.9				
		0.035	0.025	0.075	0.8 - 10.8	2.1				
		0.035	0.025	0.095	0.8 - 10.8	2.4	4 330			
I		0.040	0.027	0.120	0.8 - 13.8	2.6	3 400	4 640		
		0.046	0.030	0.120	0.8 - 13.8	3.1	2 250	3 110		
		0.054	0.035	0.160	0.8 - 13.8	3.6	1 600	2 220		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

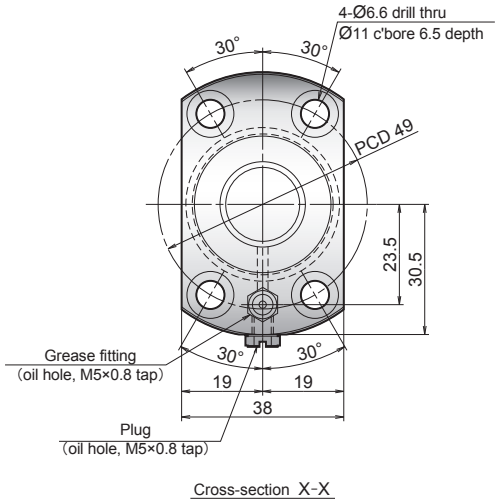
SCREW SHAFT DIAMETER 20 MM, LEAD 20 AND 30 MM



REFERENCE NO.	SCREW SHAFT DIA. 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
PSS2020N1D0508	20	20	6 790	11 800	300	353	54	413	435	508	22
PSS2020N1D0608					400	453		513	535	608	
PSS2020N1D0708					500	553		613	635	708	
PSS2020N1D0808					600	653		713	735	808	
PSS2020N1D0908					700	753		813	835	908	
PSS2020N1D1035					800	851		913	935	1 035	
PSS2020N1D1235					1 000	1 051		1 113	1 135	1 235	
PSS2020N1D1435					1 200	1 251		1 313	1 335	1 435	
PSS2020N1D1835					1 600	1 651		1 713	1 735	1 835	
PSS2030N1D0408		30	6 550	11 800	200	228	74	308	335	408	27
PSS2030N1D0508					300	328		408	435	508	
PSS2030N1D0608					400	428		508	535	608	
PSS2030N1D0708					500	528		608	635	708	
PSS2030N1D0808					600	628		708	735	808	
PSS2030N1D0908					700	728		808	835	908	
PSS2030N1D1035					800	828		908	935	1 035	
PSS2030N1D1235					1 000	1 026		1 108	1 135	1 235	
PSS2030N1D1435					1 200	1 226		1 308	1 335	1 435	

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.

PSS TYPE FOR GENERAL USE



Cross-section X-X

Unit : mm

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK15-01B (square, low) P 46-47	WBK15S-01B (square, low) P 50-51
WBK15-11 (round) P 48-49	WBK15-11 (round) P 48-49	-

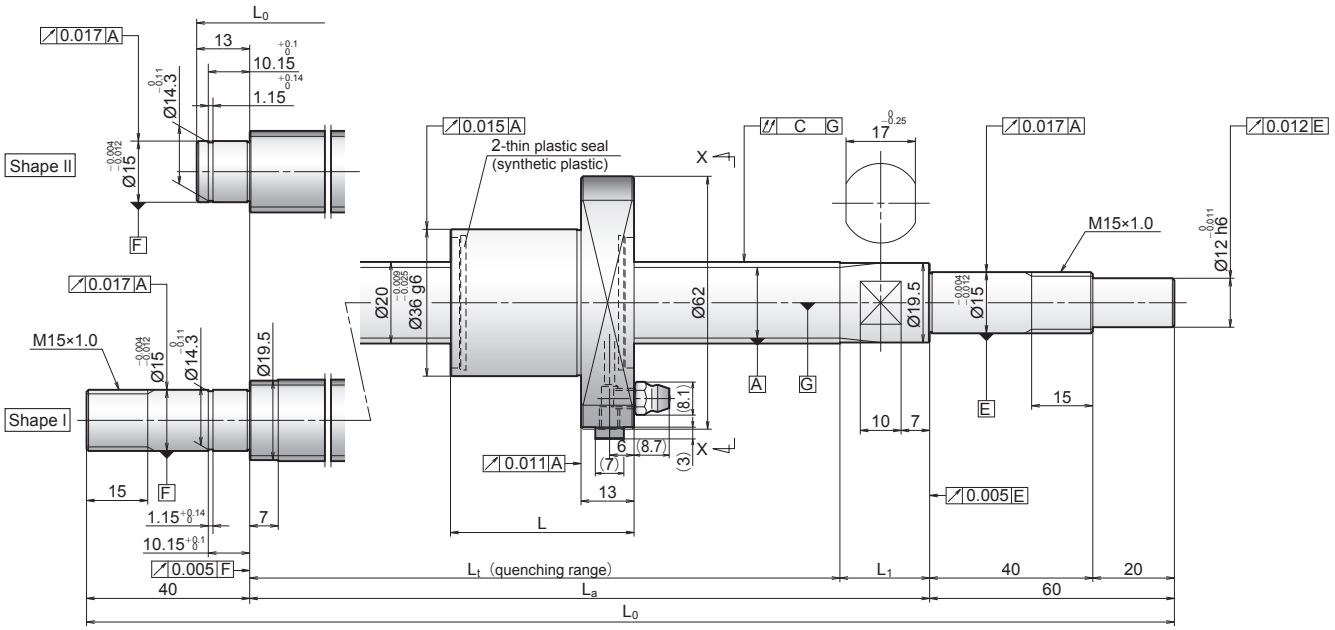
Unit : mm

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
		0.030	0.023	0.060	1.4 - 11.8	1.8				
		0.030	0.023	0.075	1.4 - 11.8	2.0				
		0.035	0.025	0.095	1.4 - 11.8	2.3				
		0.040	0.027	0.095	0.8 - 13.8	2.5	4 150			
I		0.040	0.027	0.120	0.8 - 13.8	2.8	3 270	4 470		
		0.046	0.030	0.120	0.8 - 13.8	3.3	2 180	3 010		
		0.054	0.035	0.160	0.8 - 13.8	3.8	1 550	2 170		
		0.065	0.040	0.200	0.8 - 13.8	4.7	900	1 270		
II		0.023	0.018	0.050	1.6 - 9.8	1.4	5 000	–	4.6	2.3
		0.027	0.020	0.060	1.4 - 11.8	1.7				
		0.030	0.023	0.060	1.4 - 11.8	1.9				
		0.030	0.023	0.075	1.4 - 11.8	2.1				
		0.035	0.025	0.095	1.4 - 11.8	2.4				
		0.040	0.027	0.095	0.8 - 13.8	2.6	4 310			
I		0.040	0.027	0.120	0.8 - 13.8	2.9	3 300	4 570		
		0.046	0.030	0.120	0.8 - 13.8	3.4	2 240	3 070		
		0.054	0.035	0.160	0.8 - 13.8	3.9	1 590	2 200		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

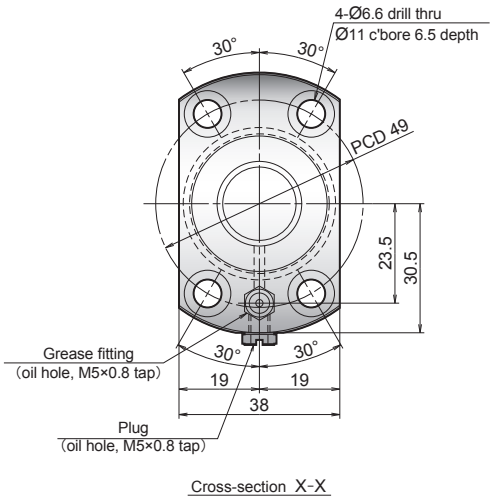
SCREW SHAFT DIAMETER 20 MM, LEAD 40 AND 60 MM



REFERENCE NO.	SCREW SHAFT DIA. 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
PSS2040N1D0658	20	40	6 380	11 600	400	455	92	553	585	658	32
PSS2040N1D0758					500	555		653	685	758	
PSS2040N1D0858					600	655		753	785	858	
PSS2040N1D0958					700	755		853	885	958	
PSS2040N1D1085					800	853		953	985	1 085	
PSS2040N1D1285					1 000	1 053		1 153	1 185	1 285	
PSS2040N1D1485					1 200	1 253		1 353	1 385	1 485	
PSS2040N1D1885					1 600	1 653		1 753	1 785	1 885	
PSS2040N1D2285					2 000	2 053		2 153	2 185	2 285	
PSS2060N1D0708		60	5 680	11 800	400	458	129	593	635	708	42
PSS2060N1D0808					500	558		693	735	808	
PSS2060N1D0908					600	658		793	835	908	
PSS2060N1D1008					700	758		893	935	1 008	
PSS2060N1D1135					800	856		993	1 035	1 135	
PSS2060N1D1335					1 000	1 056		1 193	1 235	1 335	
PSS2060N1D1535					1 200	1 256		1 393	1 435	1 535	
PSS2060N1D1935					1 600	1 656		1 793	1 835	1 935	
PSS2060N1D2335					2 000	2 056		2 193	2 235	2 335	

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.

PSS TYPE FOR GENERAL USE



Cross-section X-X

Unit : mm

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK15-01B (square, low) P 46-47	WBK15S-01B (square, low) P 50
WBK15-11 (round) P 48-49	WBK15-11 (round) P 48-49	-

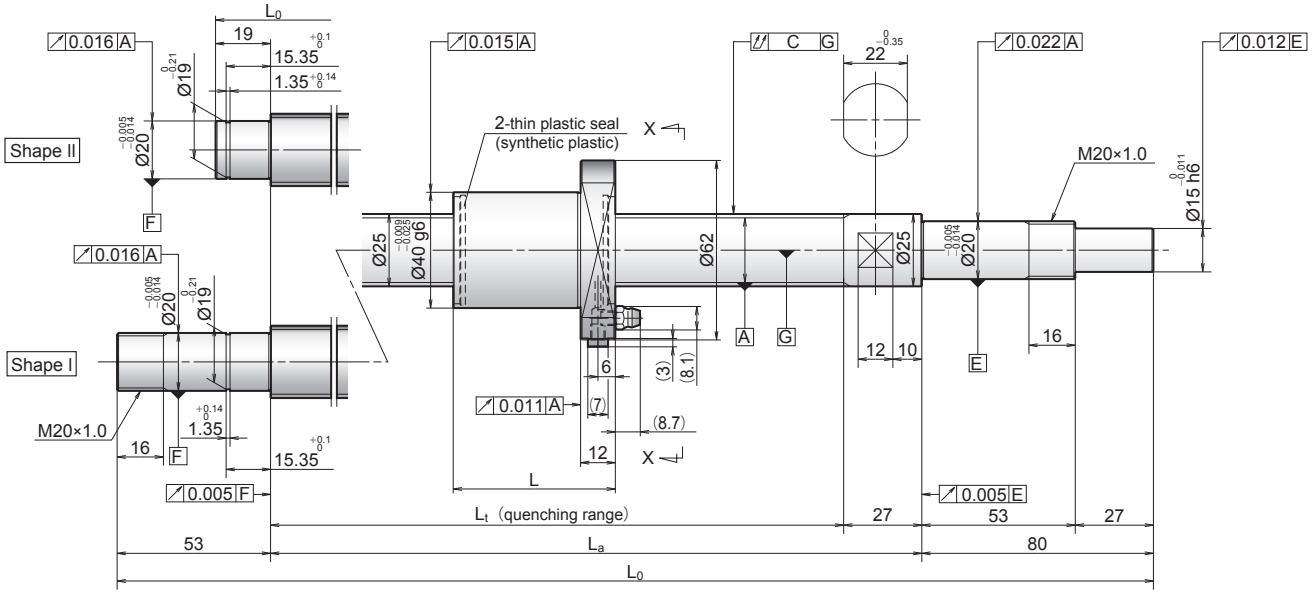
Unit : mm

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
		0.035	0.025	0.075	2.2 - 12.8	2.4				
		0.035	0.025	0.095	2.2 - 12.8	2.6				
		0.040	0.027	0.095	1.8 - 14.8	2.8	3 940			
I		0.040	0.027	0.120	1.8 - 14.8	3.1	3 120	4 190		
		0.046	0.030	0.160	1.8 - 14.8	3.6	2 100	2 850		
		0.054	0.035	0.160	1.8 - 14.8	4.1	1 500	2 070		
		0.065	0.040	0.200	1.8 - 14.8	5.1	880	1 230		
		0.077	0.046	0.240	1.8 - 14.8	6.0	580	810		
II		0.030	0.023	0.075	2.7 - 13.8	2.4	5 000	–	7.0	3.5
		0.035	0.025	0.095	2.7 - 13.8	2.6				
		0.035	0.025	0.095	2.7 - 13.8	2.9	4 830			
		0.040	0.027	0.120	1.8 - 14.8	3.1	3 740			
I		0.040	0.027	0.120	1.8 - 14.8	3.4	2 980	3 920		
		0.046	0.030	0.160	1.8 - 14.8	3.9	2 020	2 700		
		0.054	0.035	0.160	1.8 - 14.8	4.4	1 460	1 970		
		0.065	0.040	0.200	1.8 - 14.8	5.4	860	1 180		
		0.077	0.046	0.240	1.8 - 14.8	6.3	570	790		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

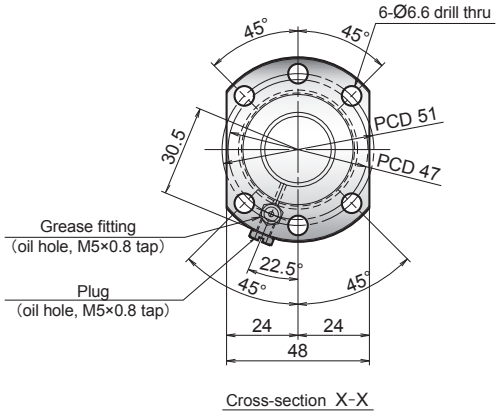
SCREW SHAFT DIAMETER 25 MM, LEAD 5 AND 10 MM



REFERENCE NO.	SCREW SHAFT DIA. 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
PSS2505N1D0349	25	5	11 500	23 500	150	185	32	223	250	349
PSS2505N1D0399					200	235		273	300	399
PSS2505N1D0499					300	335		373	400	499
PSS2505N1D0599					400	435		473	500	599
PSS2505N1D0699					500	535		573	600	699
PSS2505N1D0899					700	735		773	800	899
PSS2505N1D0999					800	835		873	900	999
PSS2505N1D1233					1 000	1 027		1 073	1 100	1 233
PSS2510N1D0549		10	15 000	32 400	300	361	56	423	450	549
PSS2510N1D0649					400	461		523	550	649
PSS2510N1D0749					500	561		623	650	749
PSS2510N1D0849					600	661		723	750	849
PSS2510N1D0949					700	761		823	850	949
PSS2510N1D1049					800	861		923	950	1 049
PSS2510N1D1283					1 000	1 053		1 123	1 150	1 283
PSS2510N1D1883					1 600	1 653		1 723	1 750	1 883

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.

PSS TYPE FOR GENERAL USE



Cross-section X-X

Unit : mm

BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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) P 46-47	WBK20-01 (square) P 46-47	WBK20S-01 (square) P 50
WBK20-11 (round) P 48-49	WBK20-11 (round) P 48-49	-

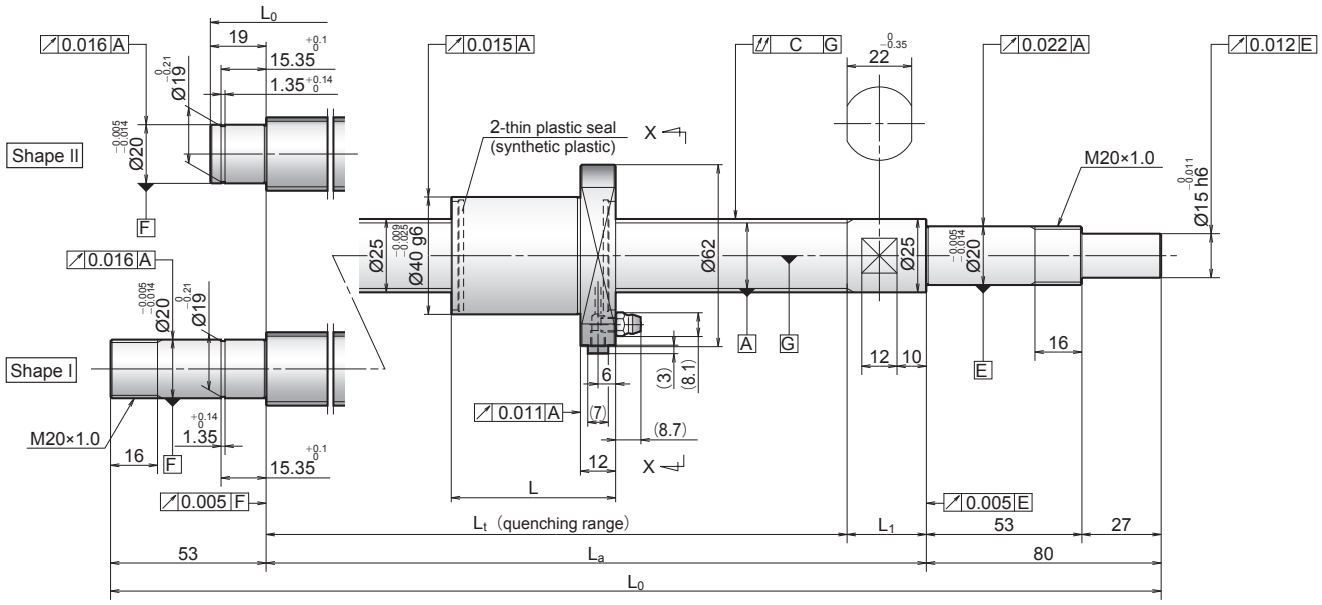
Unit : mm

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
		0.023	0.018	0.035	1.2 - 9.3	1.6				
		0.025	0.020	0.040	1.2 - 9.3	2.0				
		0.027	0.020	0.045	1.2 - 9.3	2.3				
		0.030	0.023	0.055	0.8 - 10.8	2.7				
		0.035	0.025	0.065	0.8 - 10.8	3.4				
		0.040	0.027	0.065	0.8 - 10.8	3.7	4 490			
I		0.046	0.030	0.080	0.8 - 13.8	4.5	2 960	4 060		
II		0.027	0.020	0.045	3.1 - 11.8	2.4	5000	-	4.7	2.4
		0.030	0.023	0.055	2.2 - 12.8	2.7				
		0.030	0.023	0.055	2.2 - 12.8	3.1				
		0.035	0.025	0.065	2.2 - 12.8	3.5				
		0.040	0.027	0.065	2.2 - 12.8	3.8				
		0.040	0.027	0.080	2.2 - 12.8	4.2	4 120			
I		0.046	0.030	0.100	1.8 - 14.8	5.0	2 760	3 790		
		0.065	0.040	0.130	1.8 - 14.8	7.2	1 150	1 620		

3. Service temperature range is 0 to 80ºC.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 25 MM, LEAD 20 AND 25 MM

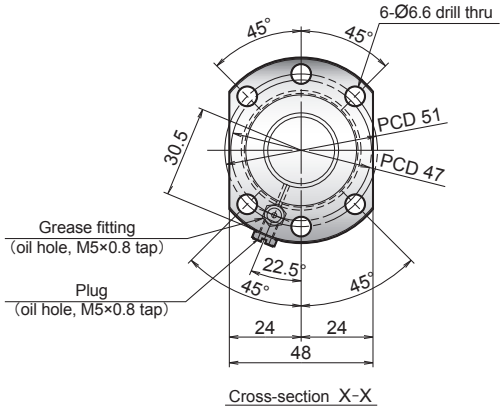


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0	L_1
PSS2520N1D0729	25	20	7 650	14 800	500	544	54	604	630	729	26
PSS2520N1D0829					600	644		704	730	829	
PSS2520N1D0929					700	744		804	830	929	
PSS2520N1D1029					800	844		904	930	1 029	
PSS2520N1D1263					1 000	1 036		1 104	1 130	1 263	
PSS2520N1D1463					1 200	1 236		1 304	1 330	1 463	
PSS2520N1D1863					1 600	1 636		1 704	1 730	1 863	
PSS2520N1D2263					2 000	2 036		2 104	2 130	2 263	
PSS2525N1D0779		25	7 490	14 600	500	581	63	650	680	779	30
PSS2525N1D0879					600	681		750	780	879	
PSS2525N1D0979					700	781		850	880	979	
PSS2525N1D1079					800	881		950	980	1 079	
PSS2525N1D1313					1 000	1 073		1 150	1 180	1 313	
PSS2525N1D1513					1 200	1 273		1 350	1 380	1 513	
PSS2525N1D1913					1 600	1 673		1 750	1 780	1 913	
PSS2525N1D2313					2 000	2 073		2 150	2 180	2 313	

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.

PSS TYPE FOR GENERAL USE

Unit : mm



BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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)		FOR OPPOSITE TO DRIVE SIDE (SIMPLE)	
WBK20-01 (square)	P 46-47	WBK20-01 (square)	P 46-47	WBK20S-01 (square)	P 50
WBK20-11 (round)	P 48-49	WBK20-11 (round)	P 48-49	-	

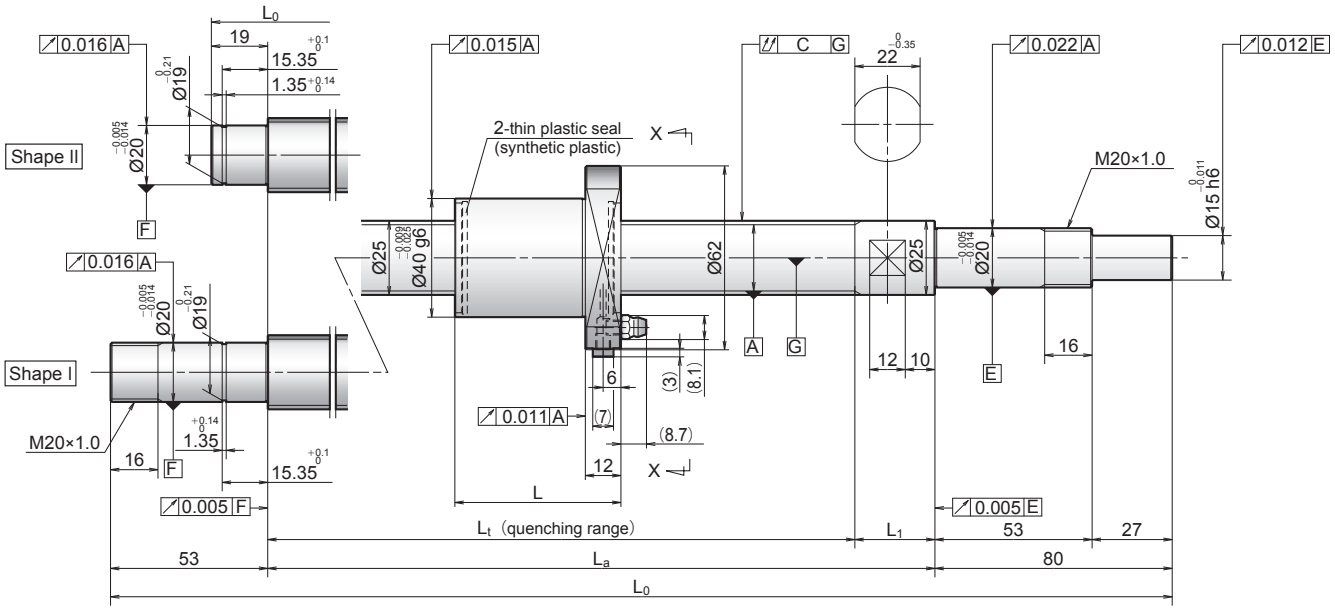
Unit : mm

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
		0.035	0.025	0.065	2.2 - 12.8	3.4				
		0.040	0.027	0.065	2.2 - 12.8	3.8				
		0.040	0.027	0.080	2.2 - 12.8	4.2	4 280			
I		0.046	0.030	0.100	1.8 - 14.8	5.0	2 850	3 920		
		0.054	0.035	0.100	1.8 - 14.8	5.8	2 030	2 820		
		0.065	0.040	0.130	1.8 - 14.8	7.3	1 180	1 650		
		0.077	0.046	0.170	1.8 - 14.8	8.8	770	1 080		
II		0.035	0.025	0.055	2.7 - 13.8	3.3	5 000	–	4.3	2.2
		0.035	0.025	0.065	2.7 - 13.8	3.7				
		0.040	0.027	0.065	2.7 - 13.8	4.1	4 910			
		0.040	0.027	0.080	2.7 - 13.8	4.4	3 910			
I		0.046	0.030	0.100	1.8 - 14.8	5.3	2 640	3 620		
		0.054	0.035	0.100	1.8 - 14.8	6.0	1 900	2 630		
		0.065	0.040	0.130	1.8 - 14.8	7.5	1 120	1 570		
		0.077	0.046	0.170	1.8 - 14.8	9.1	740	1 040		

3. Service temperature range is 0 to 80ºC.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 25 MM, LEAD 30 AND 50 MM

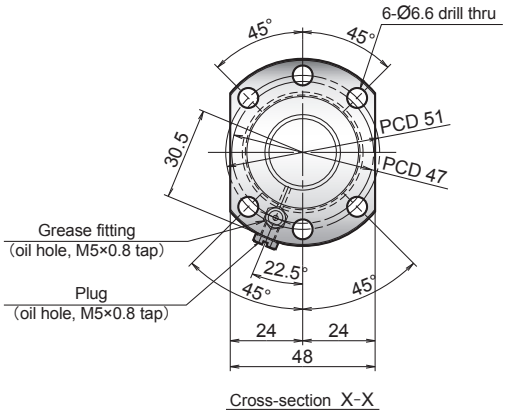


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.		L_t	L_a	L_0	L_1
PSS2530N1D0779	25	30	7 490	14 600	500	570	74	650	680	779	30
PSS2530N1D0879					600	670		750	780	879	
PSS2530N1D0979					700	770		850	880	979	
PSS2530N1D1079					800	870		950	980	1 079	
PSS2530N1D1313					1 000	1 062		1 150	1 180	1 313	
PSS2530N1D1513					1 200	1 262		1 350	1 380	1 513	
PSS2530N1D1913					1 600	1 662		1 750	1 780	1 913	
PSS2530N1D2313					2 000	2 062		2 150	2 180	2 313	
PSS2550N1D0829		50	6 910	14 700	500	570	114	690	730	829	40
PSS2550N1D0929					600	670		790	830	929	
PSS2550N1D1029					700	770		890	930	1 029	
PSS2550N1D1129					800	870		990	1 030	1 129	
PSS2550N1D1363					1 000	1 062		1 190	1 230	1 363	
PSS2550N1D1563					1 200	1 262		1 390	1 430	1 563	
PSS2550N1D1963					1 600	1 662		1 790	1 830	1 963	
PSS2550N1D2363					2 000	2 062		2 190	2 230	2 363	

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.

PSS TYPE FOR GENERAL USE

Unit : mm



BALL SCREW SPECIFICATION	
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	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)		FOR OPPOSITE TO DRIVE SIDE (SIMPLE)	
WBK20-01 (square)	P 46-47	WBK20-01 (square)	P 46-47	WBK20S-01 (square)	P 50
WBK20-11 (round)	P 48-49	WBK20-11 (round)	P 48-49	-	

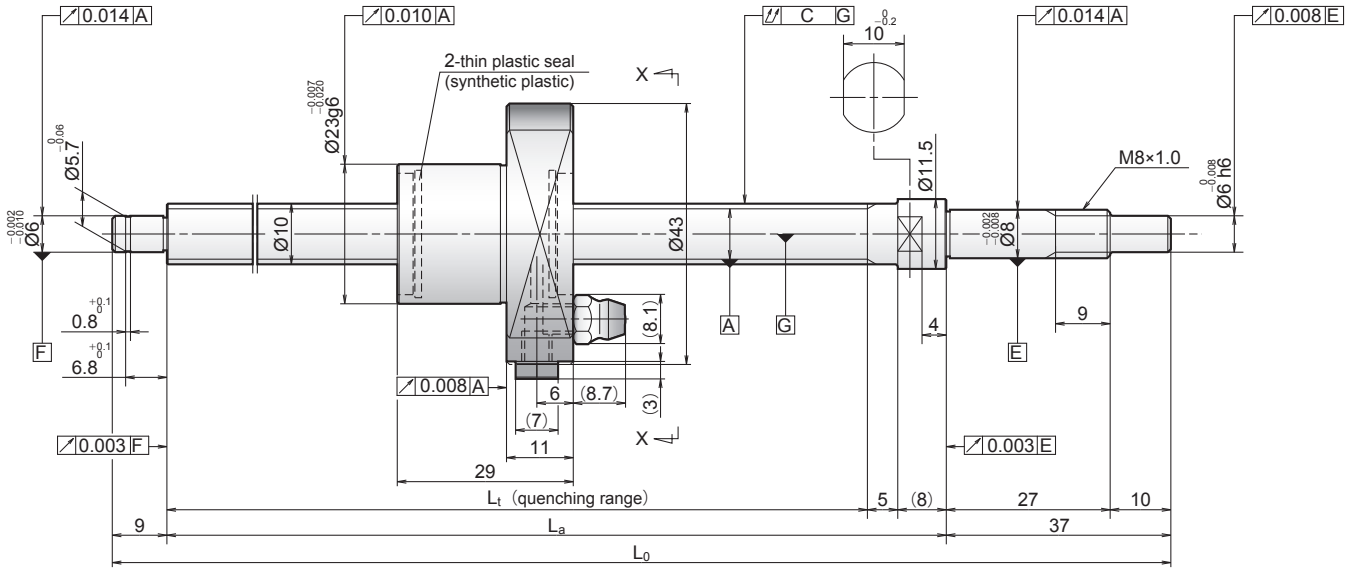
Unit : mm

LEFT SHAFT END (OPPOSITE DRIVEN SIDE)	LEAD ACCURACY TARGET VALUE T	LEAD ACCURACY ERROR e_p	LEAD ACCURACY VARIATION V_u	SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (N·cm)[*1]	MASS (kg)	PERMISSIBLE ROTATIONAL SPEED (min^{-1})[*2] FIXED-SIMPLE	PERMISSIBLE ROTATIONAL SPEED (min^{-1})[*2] FIXED-FIXED	INTERNAL SPATIAL VOLUME OF NUT (cm^3)	STANDARD VOLUME OF GREASE REPLENISHING (cm^3)
II	0	0.035	0.025	0.055	2.7 - 13.8	3.4	5 000	–	5.5	2.8
		0.035	0.025	0.065	2.7 - 13.8	3.7				
		0.040	0.027	0.065	2.7 - 13.8	4.1	4 980			
		0.040	0.027	0.080	2.7 - 13.8	4.5	3 960			
I		0.046	0.030	0.100	1.8 - 14.8	5.3	2 670	3 650		
		0.054	0.035	0.100	1.8 - 14.8	6.1	1 920	2 650		
		0.065	0.040	0.130	1.8 - 14.8	7.6	1 130	1 580		
		0.077	0.046	0.170	1.8 - 14.8	9.1	740	1 040		
II		0.035	0.025	0.065	5.4 - 17.6	3.8	5 000	–	7.7	3.9
		0.035	0.025	0.065	5.4 - 17.6	4.1				
		0.040	0.027	0.080	5.4 - 17.6	4.5	4 750			
		0.040	0.027	0.080	5.4 - 17.6	4.9	3 790			
I		0.046	0.030	0.100	4.1 - 19.6	5.8	2 570	3 470		
		0.054	0.035	0.100	4.1 - 19.6	6.5	1 860	2 540		
		0.065	0.040	0.130	4.1 - 19.6	8.0	1 100	1 520		
		0.077	0.046	0.170	4.1 - 19.6	9.6	730	1 020		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 51 for details.

COMPACT FA SERIES

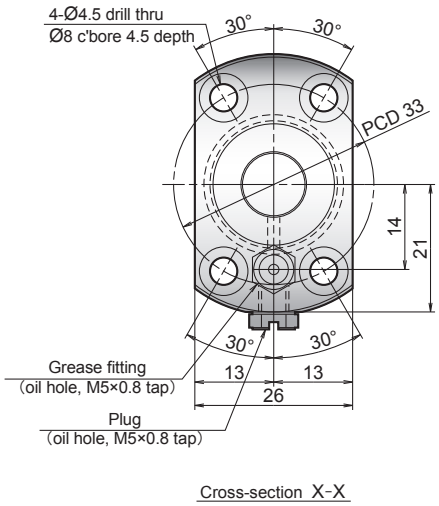
SCREW SHAFT DIAMETER 10 MM, LEAD 5 MM



REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX.	L_t	L_a	L_0
USS1005N1D0221	10	5	3 420	4 840	100	133	162	175	221
USS1005N1D0321					200	233	262	275	321
USS1005N1D0521					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.

USS TYPE FOR HIGH-ACCURACY AND CLEANROOM USE



Cross-section X-X

Unit : mm

BALL SCREW SPECIFICATION	
Shaft dia.	Ø10
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	2.000 / 8.2
Ball circle dia.	10.3
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK clean grease LG2

RECOMMENDED SUPPORT UNIT

FOR DRIVE SIDE (FIXED)		FOR OPPOSITE TO DRIVE SIDE (SIMPLE)	
WBK08-01C (square, clean)	P 46-47	WBK08S-01C (square, clean)	P 50
WBK08-11C (round, clean)	P 48-49	WBK08S-01B (square, low)	P 50
WBK08-01B (square, low)	P 46-47	-	
WBK08-11 (round)	P 48-49	-	

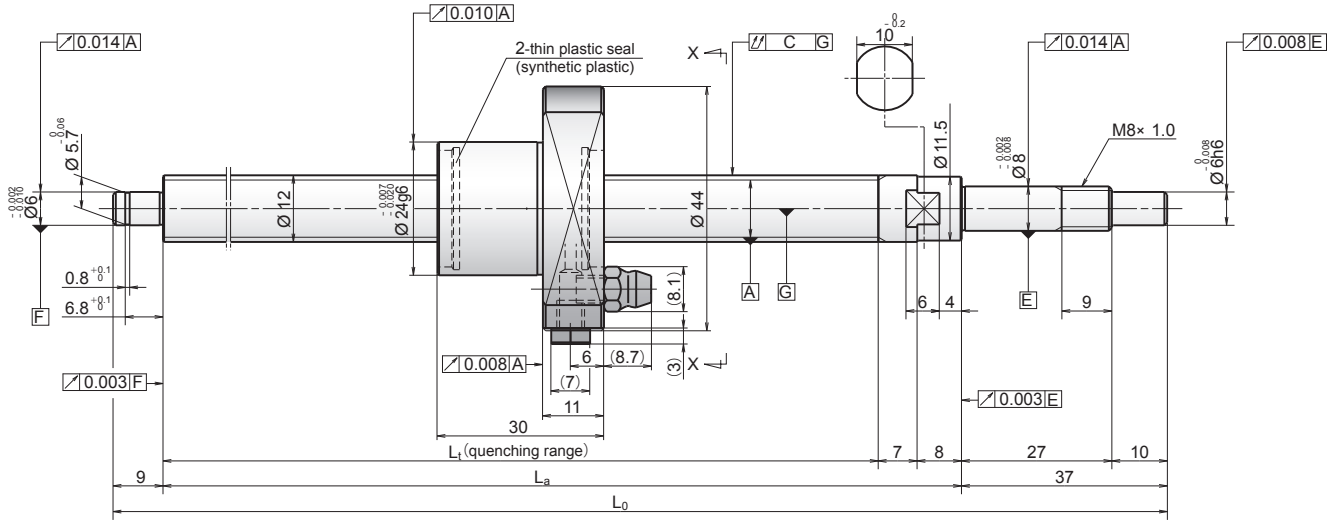
Unit : mm

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 (cm³)	STANDARD VOLUME OF GREASE REPLENISHING (cm³)
TARGET VALUE T	ERROR e_p	VARIATION V_u				FIXED-SIMPLE		
0	0.010	0.008	0.035	0.2 - 1.8	0.3	5 000	0.8	0.4
	0.012	0.008	0.045	0.2 - 2.0	0.3			
	0.015	0.010	0.070	0.2 - 3.0	0.5			

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 50 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 12 MM, LEAD 5 MM

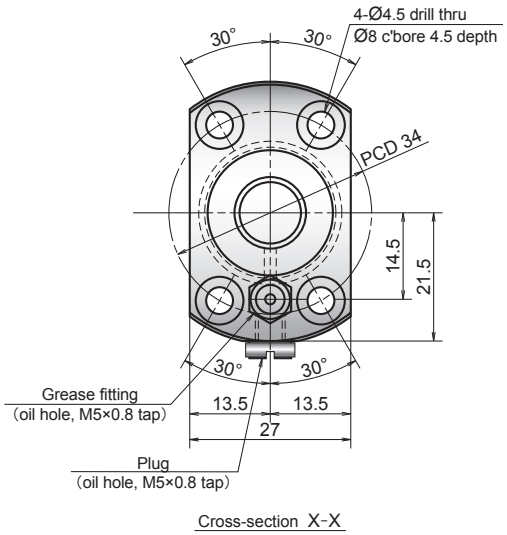


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX	L_t	L_a	L_0
USS1205N1D0221	12	5	3 750	5 810	100	130	160	175	221
USS1205N1D0321					200	230	260	275	321
USS1205N1D0621					500	530	560	575	621

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.

USS TYPE FOR HIGH-ACCURACY AND CLEANROOM USE

Unit : mm



BALL SCREW SPECIFICATION	
Shaft dia.	Ø12
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	2.000 / 10.2
Ball circle dia.	12.3
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK clean grease LG2

RECOMMENDED SUPPORT UNIT

FOR DRIVE SIDE (FIXED)		FOR OPPOSITE TO DRIVE SIDE (SIMPLE)	
WBK08-01C (square, clean)	P 46-47	WBK08S-01C (square, clean)	P 50
WBK08-11C (round, clean)	P 48-49	WBK08S-01B (square, low)	P 50
WBK08-01B (square, low)	P 46-47	-	
WBK08-11 (round)	P 48-49	-	

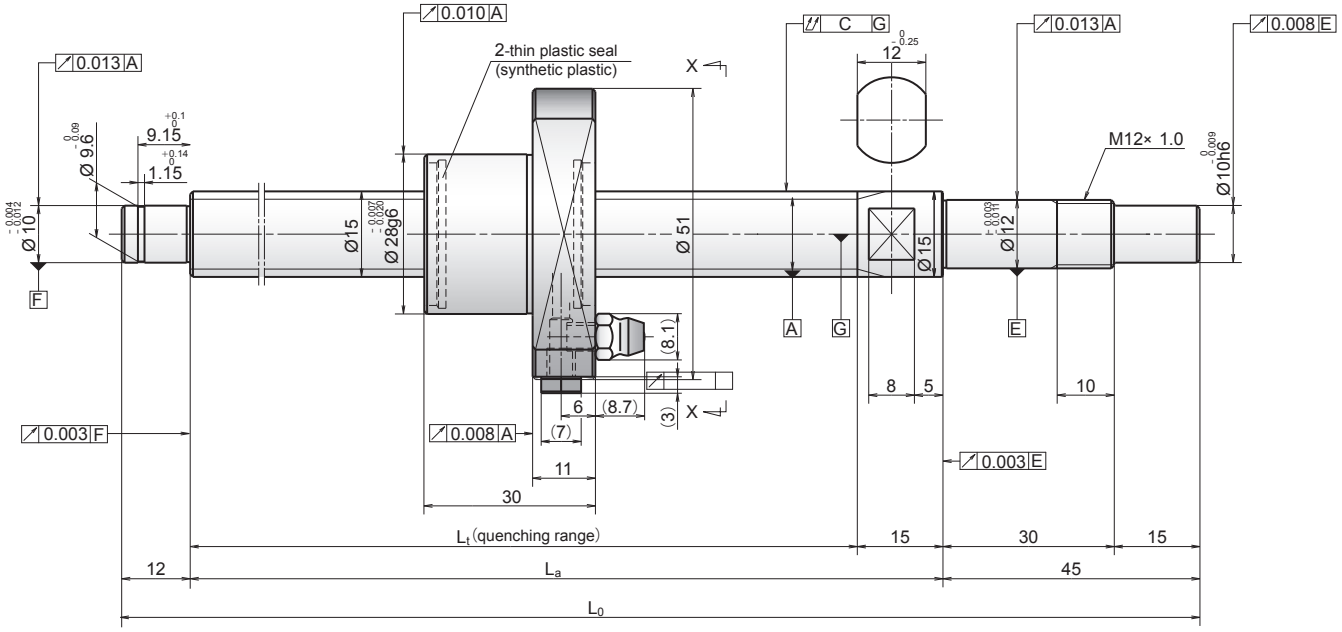
Unit : mm

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	0.035	0.2 - 1.8	0.3	5 000	1.0	0.5
	0.012	0.008	0.045	0.2 - 2.0	0.3			
	0.016	0.012	0.070	0.2 - 3.0	0.7			

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 50 for details.

COMPACT FA SERIES

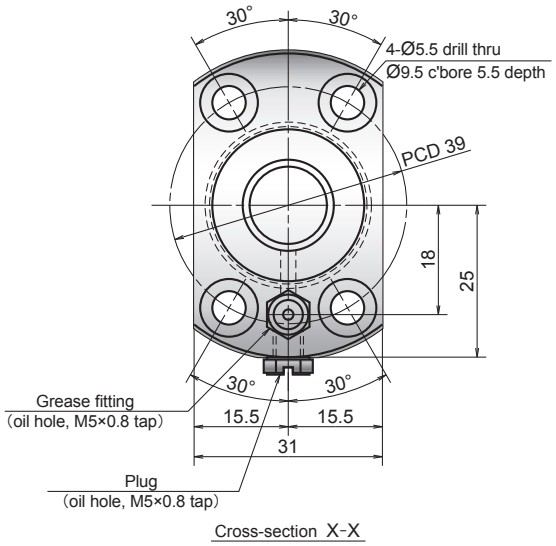
SCREW SHAFT DIAMETER 15 MM, LEAD 5 MM



REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		SCREW SHAFT DIMENSIONS		
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX	L_t	L_a	L_0
USS1505N1D0261	15	5	6 410	10 100	100	159	189	204	261
USS1505N1D0361					200	259	289	304	361
USS1505N1D0561					400	459	489	504	561
USS1505N1D0761					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.

USS TYPE FOR HIGH-ACCURACY AND CLEANROOM USE



Unit : mm

BALL SCREW SPECIFICATION	
Shaft dia.	Ø15
Preload type	Oversize ball (P-preload)
Ball dia./screw shaft root dia.	2.778 / 12.6
Ball circle dia.	15.5
Accuracy grade/axial play	C3 / 0
Factory-packed grease	NSK clean grease LG2

RECOMMENDED SUPPORT UNIT

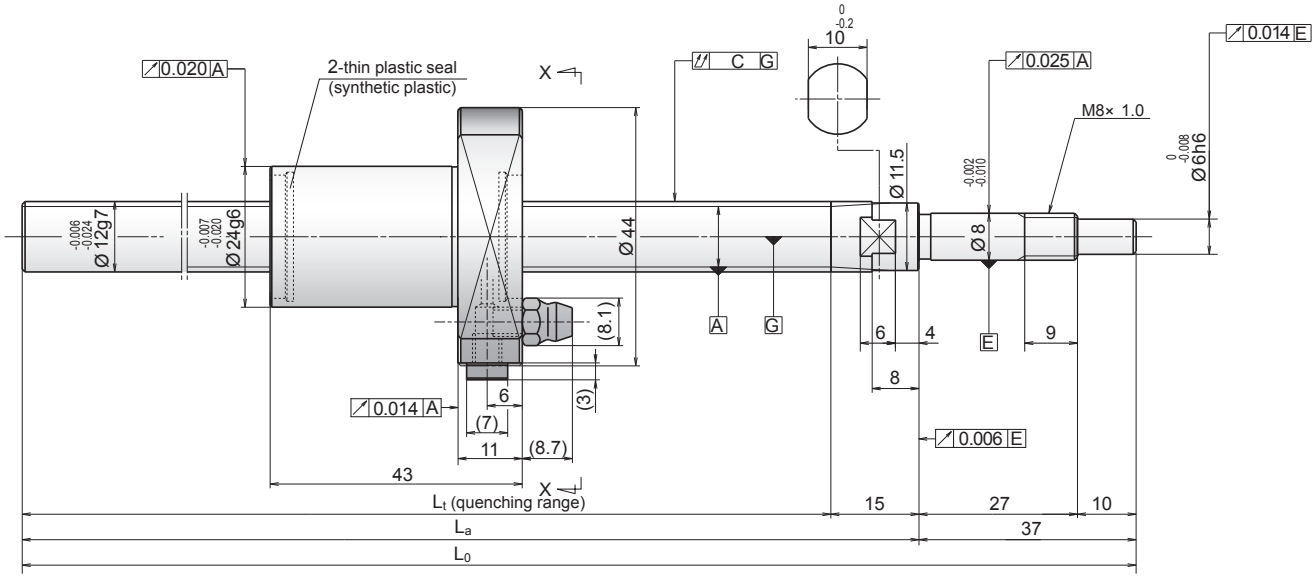
FOR DRIVE SIDE (FIXED)	FOR OPPOSITE TO DRIVE SIDE (SIMPLE)
WBK12-01C (square, clean) P 46-47	WBK12S-01C (square, clean) P 50
WBK12-11C (round, clean) P 48-49	WBK12S-01B (square, low) P 50
WBK12-01B (square, low) P 46-47	-
WBK12-11 (round) P 48-49	-

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
	0.012	0.008	0.035	0.2 - 5.0	0.6			
	0.015	0.010	0.045	0.2 - 6.0	0.9			
	0.018	0.013	0.060	0.2 - 8.0	1.1	4 130		

3. Service temperature range is 0 to 80°C.
4. Use of NSK support unit is recommended. Refer to pages 46 to 50 for details.

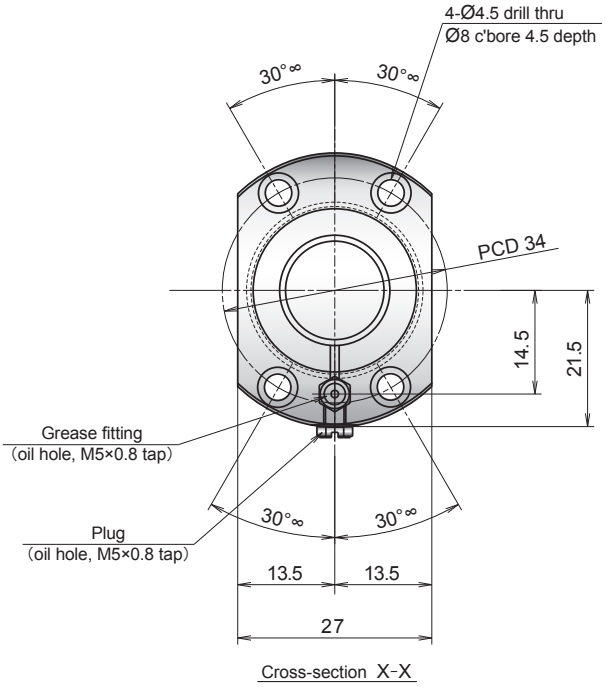
SCREW SHAFT DIAMETER 12 MM, LEAD 10 MM



REFERENCE NO.	SCREW SHAFT DIA. 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
FSS1210N1D0400	12	10	3 760	5 780	250	287	43	348	363	400	15
FSS1210N1D0600					450	487		548	563	600	
FSS1210N1D0900					750	787		848	863	900	

Notes:
1. Indicates ball screw preload control value. Approximately 2.0 N•cm of torque is added due to thin plastic seals.
2. 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.
3. Contact NSK if permissible rotational speed is to be exceeded.

FSS TYPE FOR TRANSFER EQUIPMENT



Unit : mm

BALL SCREW SPECIFICATION	
Ball dia./screw shaft root dia.	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 (square, low)	P 46-47	WBK12SF-01B (square, low)	P 51

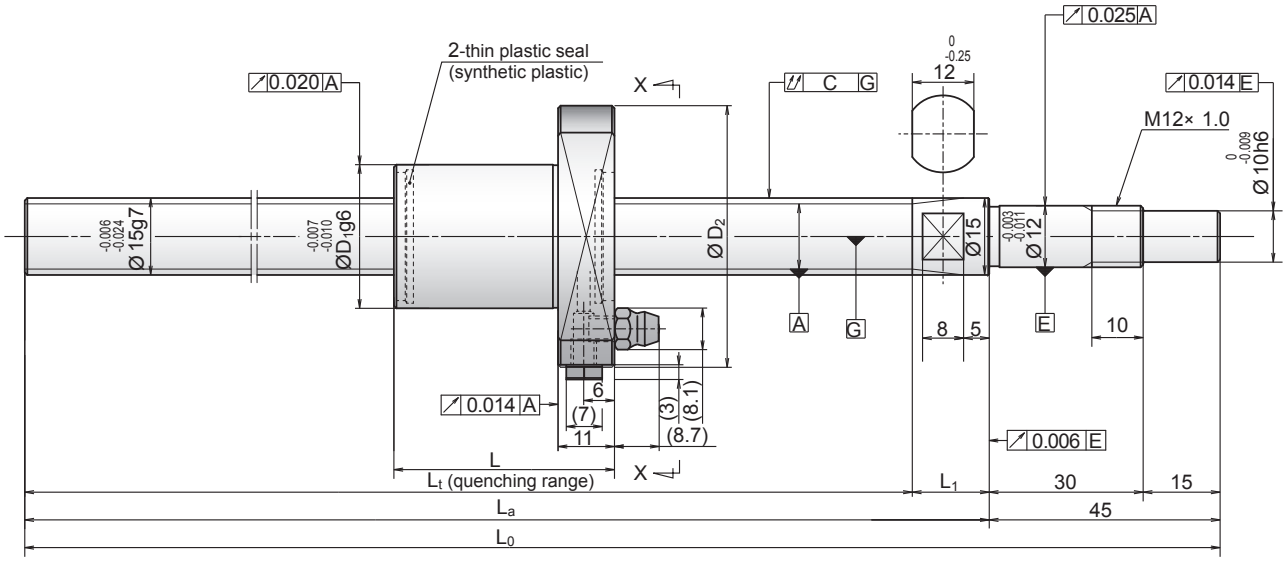
Unit : mm

LEAD ACCURACY			SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (N·cm)	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	0.120	0.052	0.08	-	0.5	5 000	1.0	0.5
	0.195		0.12		0.7			
	0.310		0.18		1.0	2 300		

4. Service temperature range is 0 to 80°C.
5. Use of NSK support unit is recommended. See pages 46-51 for details.

COMPACT FA SERIES

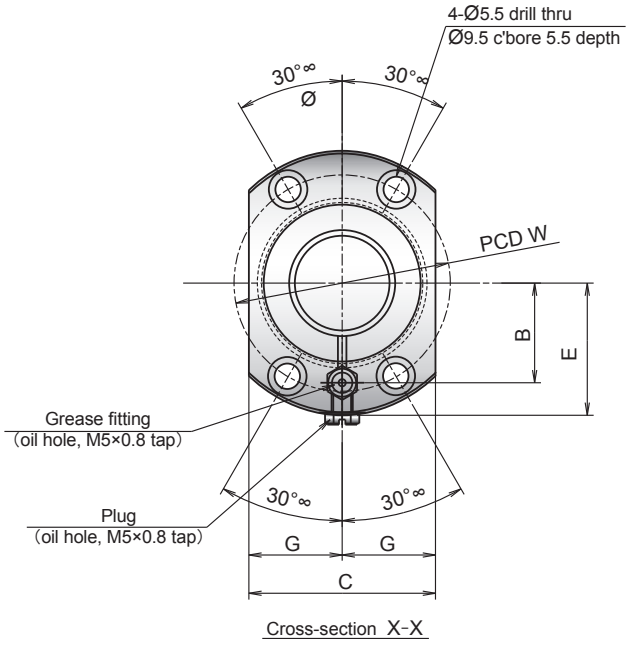
SCREW SHAFT DIAMETER 15 MM, LEAD 10 AND 20 MM



REFERENCE NO.	SCREW SHAFT DIA. 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_u
FSS1510N1D0500	15	10	6 530	10 200	350	379	440	455	500	15	0	0.155	0.052
FSS1510N1D1000					850	879	940	955	1 000			0.310	
FSS1510N1D1450					1 300	1 329	1 390	1 405	1 450			0.490	
FSS1520N1D0500		20	5 660	8 700	350	368	437	455	500	18		0.155	
FSS1520N1D1000					850	868	937	955	1 000			0.310	
FSS1520N1D1450					1 300	1 318	1 387	1 405	1 450			0.490	

Notes:
1. Indicates ball screw preload control value. Approximately 2.0 N•cm of torque is added due to thin plastic seals.
2. 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.
3. Contact NSK if permissible rotational speed is to be exceeded.

FSS TYPE FOR TRANSFER EQUIPMENT



Unit : mm

BALL SCREW SPECIFICATION		
Lead	10	20
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK15SF-01B (square, low) P 51

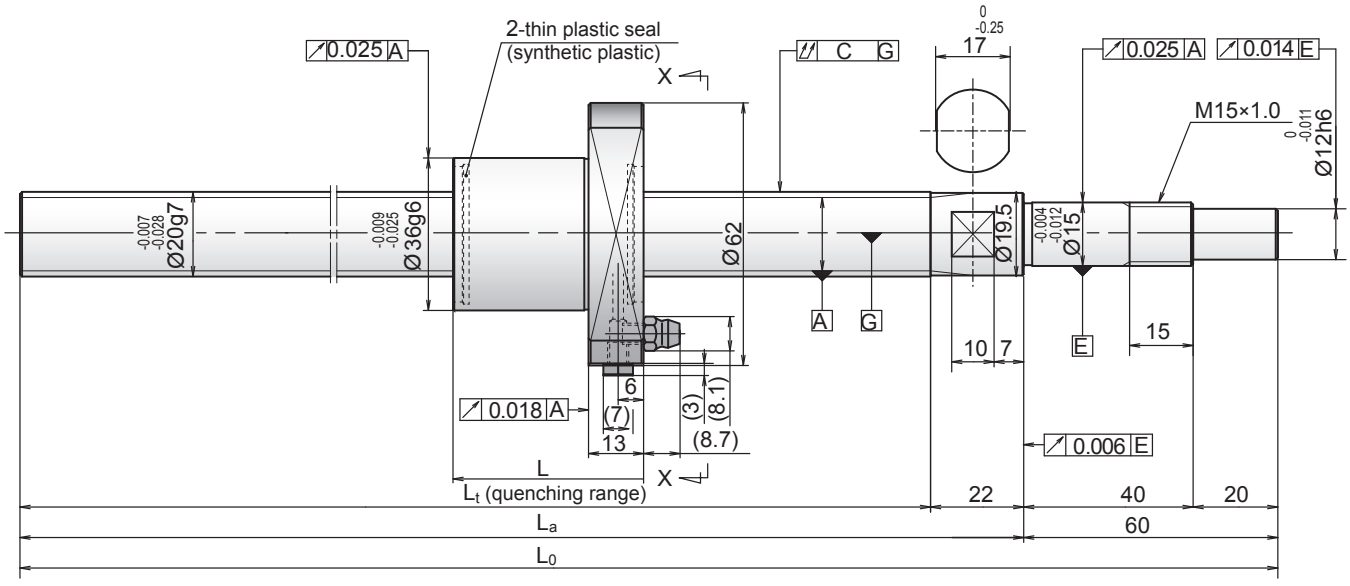
Unit : mm

NUT DIMENSIONS								SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (N·cm)	MASS (kg)	PERMISSIBLE ROTATIONAL SPEED (min^{-1})*2	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
								0.125		1.7	2 300		
								0.200		2.3	1 020		
51	32	55	43	20	33	27	16.5	0.070		1.0	5 000	2.8	1.4
								0.125		1.7	2 260		
								0.200		2.3	1 000		

4. Service temperature range is 0 to 80°C.
5. Use of NSK support unit is recommended. See pages 46-51 for details.

COMPACT FA SERIES

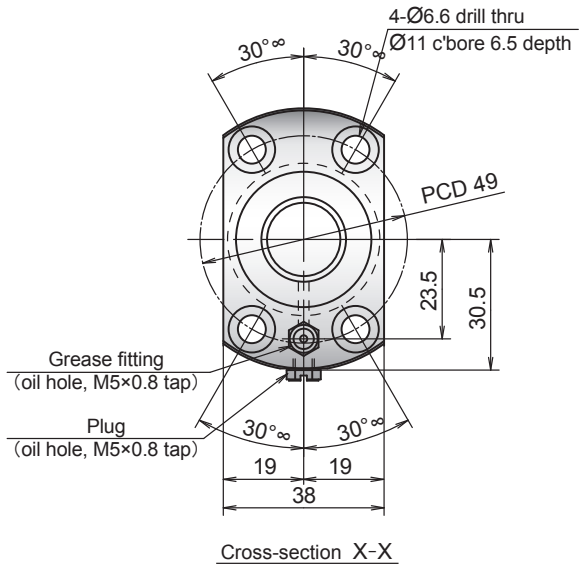
SCREW SHAFT DIAMETER 20 MM, LEAD 10 AND 20 MM



REFERENCE NO.	SCREW SHAFT DIA. 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
FSS2010N1D0600	20	10	10 200	18 600	400	451	45	518	540	600	22
FSS2010N1D1000					800	851		918	940	1 000	
FSS2010N1D1450					1 250	1 301		1 368	1 390	1 450	
FSS2020N1D0600		20	6 790	11 800	400	442	54	518	540	600	
FSS2020N1D1000					800	842		918	940	1 000	
FSS2020N1D1450					1 250	1 292		1 368	1 390	1 450	

Notes:
1. Indicates ball screw preload control value. Approximately 2.0 N•cm of torque is added due to thin plastic seals.
2. 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.
3. Contact NSK if permissible rotational speed is to be exceeded.

FSS TYPE FOR TRANSFER EQUIPMENT



Unit : mm

BALL SCREW SPECIFICATION	
Ball dia./screw shaft root dia.	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 (square, low) P 46-47	WBK20SF-01B (square, low) P 51

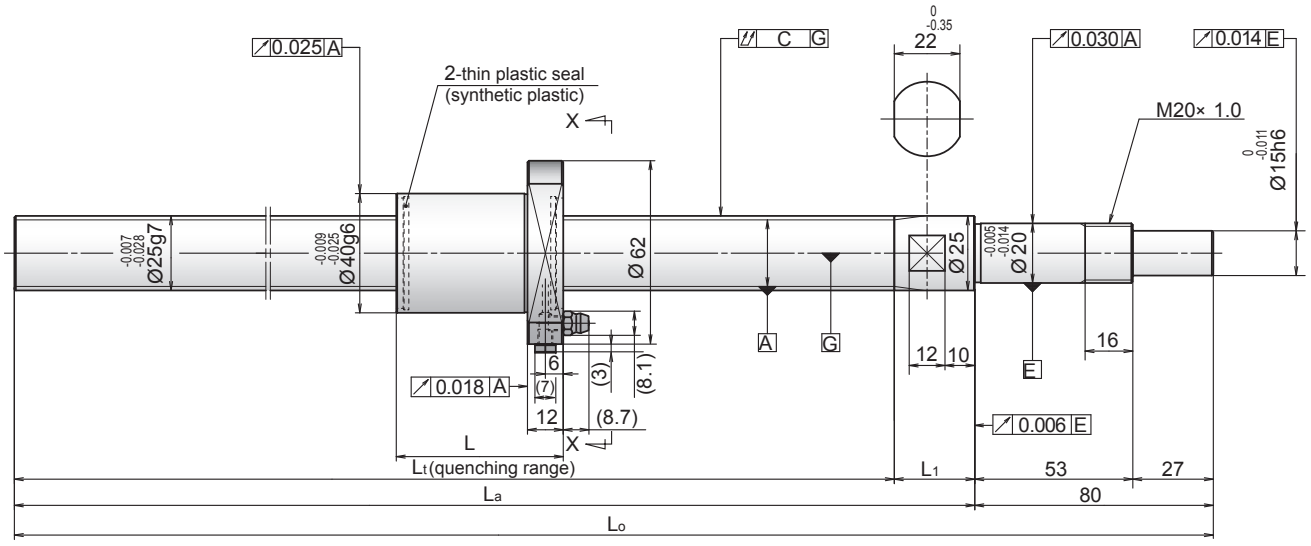
Unit : mm

LEAD ACCURACY			SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (N·cm)	MASS (kg)	INTERNAL SPATIAL VOLUME OF NUT (cm^3)	PERMISSIBLE ROTATIONAL SPEED (min^{-1})*2	STANDARD V OLUME OF GREASE REPLENISHING (cm^3)
TARGET VALUE T	ERROR e_p	VARIATION V_u					FIXED-SIMPLE	
0	0.195	0.052	0.085	-	1.7	3.2	5 000	1.6
	0.310		0.125		2.6		3 310	
	0.490		0.200		3.6		1 450	
	0.195		0.085		1.8		5 000	
	0.310		0.125		2.7		3 350	
	0.490		0.200		3.8		1 460	

4. Service temperature range is 0 to 80°C.
5. Use of NSK support unit is recommended. See pages 46-51 for details.

COMPACT FA SERIES

SCREW SHAFT DIAMETER 25 MM, LEAD 10, 20 AND 25 MM

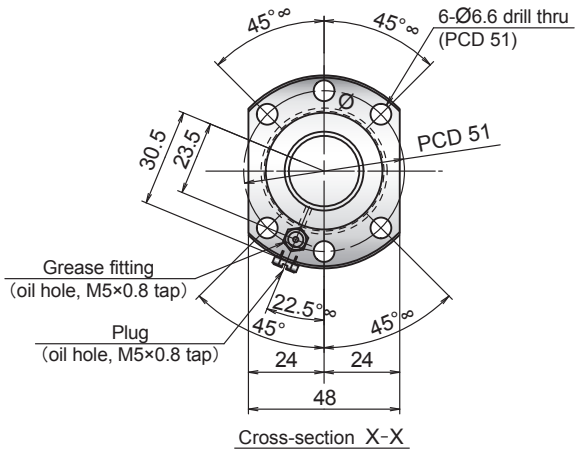


REFERENCE NO.	SCREW SHAFT DIA. d	LEAD ℓ	BASIC LOAD RATINGS (N)		STROKE		NUT LENGTH L	SCREW SHAFT DIMENSIONS			
			DYNAMIC C_a	STATIC C_{0a}	NOMINAL	MAX		L_t	L_a	L_0	L_1
FSS2510N1D0600	25	10	15 000	32 400	400	415	56	493	520	600	27
FSS2510N1D1000					800	815		893	920	1 000	
FSS2510N1D1450					1 250	1 265		1 343	1 370	1 450	
FSS2520N1D0600		20	7 650	14 800	400	418	54	494	520	600	26
FSS2520N1D1000					800	818		894	920	1 000	
FSS2520N1D1450					1 250	1 268		1 344	1 370	1 450	
FSS2525N1D0600		25	7 490	14 600	400	405	63	490	520	600	30
FSS2525N1D1000					800	805		890	920	1 000	
FSS2525N1D1450					1250	1 255		1 340	1 370	1 450	

Notes:
1. Indicates ball screw preload control value. Approximately 2.0 N•cm of torque is added due to thin plastic seals.
2. 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.
3. Contact NSK if permissible rotational speed is to be exceeded.

FSS TYPE FOR TRANSFER EQUIPMENT

Unit : mm



BALL SCREW SPECIFICATION	
Ball dia./screw shaft root dia.	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)	P 46-47	WBK25SF-01 (square)	P 51

Unit : mm

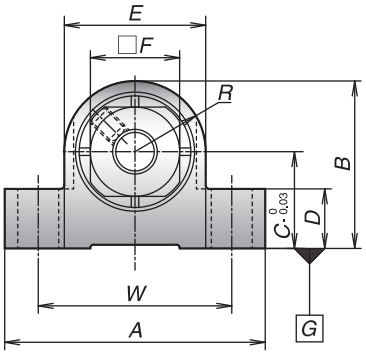
LEAD ACCURACY			SHAFT RUN-OUT C	DYNAMIC PRELOAD TORQUE (N·cm)	MASS (kg)	PERMISSIBLE ROTATIONAL SPEED $(min^{-1})^{*2}$	INTERNAL SPATIAL VOLUME OF NUT (cm^3)	STANDARD VOLUME OF GREASE REPLENISHING (cm^3)
TARGET VALUE T	ERROR e_p	VARIATION V_u				FIXED-SIMPLE		
0	0.155	0.052	0.065	-	2.6	5 000	4.7	2.4
	0.310		0.090		4.0	4 590		
	0.490		0.130		5.8	1 970		
	0.155		0.065		2.6	5 000	3.9	2.0
	0.310		0.090		4.0	4 570		
	0.490		0.130		5.8	1 960		
	0.155		0.065		2.6	5 000	4.3	2.2
	0.310		0.090		4.1	4 660		
	0.490		0.130		5.8	1 990		

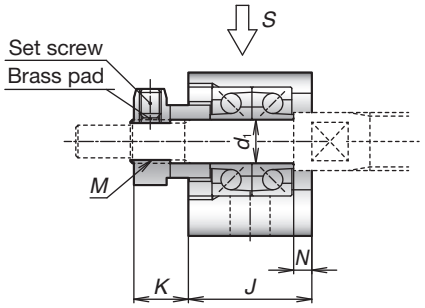
4. Service temperature range is 0 to 80°C.
5. Use of NSK support unit is recommended. See pages 46-51 for details.

SUPPORT UNITS

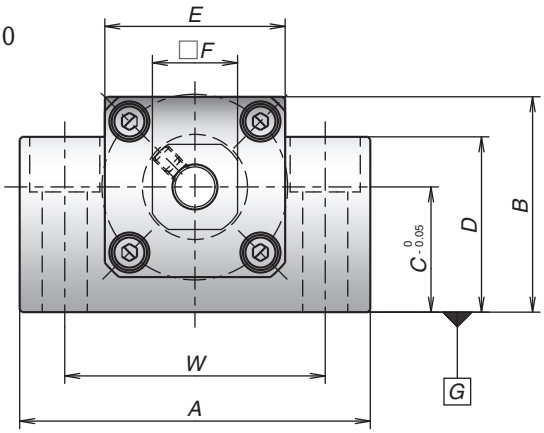
FIXED SUPPORT SIDE SUPPORT UNIT (SQUARE TYPE)

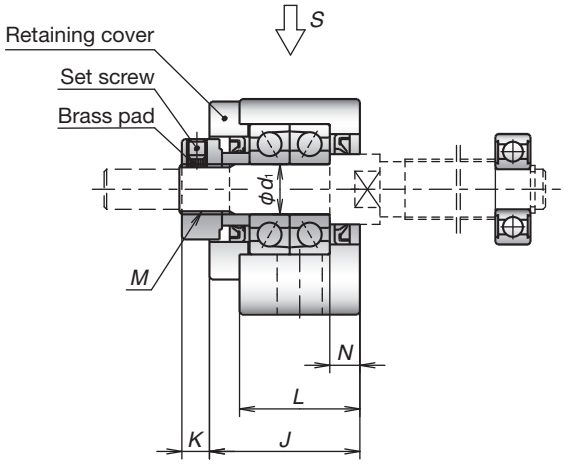
WBK04 and 06





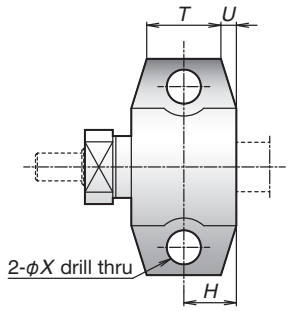
WBK08 to 20





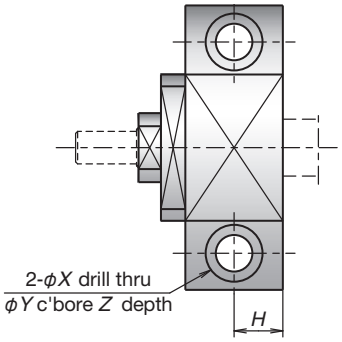
REFERENCE NO.	USE	d_1	A	B	C	D	E	F	L	J	K	R	T	U	N
WBK04-01M	General	4	27	17.0	10.0	6	14	10	-	14.0	5.5	7.0	9	1.5	2.0
WBK06-01M	General	6	35	22.5	13.0	8	19	12	-	17.0	7.5	9.5	12	2.5	2.5
WBK08-01A	General	8	52	32.0	17.0	26	25	14	23.0	23.0	7.0	-	-	-	4.0
WBK08-01B	Low type		62	31.0	15.5	31	-		21.5	25.5	4.5				3.5
WBK08-01C	Cleanroom		52	32.0	17.0	26	25		23.0	23.0	7.0				4.0
WBK10-01A	General	10	70	43.0	25.0	35	36	17	24.0	30.0	5.5	-	-	-	6.0
WBK10-01B	Low type			38.0	20.0	38	-								
WBK10-01C	Cleanroom			43.0	25.0	35	36								
WBK12-01A	General	12	70	43.0	25.0	35	36	19	24.0	30.0	5.5	-	-	-	6.0
WBK12-01B	Low type			38.0	20.0	38	-								
WBK12-01C	Cleanroom			43.0	25.0	35	36								
WBK15-01A	General	15	80	50.0	30.0	40	41	22	25.0	31.0	12.0	-	-	-	5.0
WBK15-01B	Low type			42.0	22.0	42	-								
WBK15-01C	Cleanroom			50.0	30.0	40	41								
WBK20-01	General	20	95	58.0	30.0	45	56	30	42.0	52.0	10.0	-	-	-	10.0

Notes
1. Use datum surface G 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.

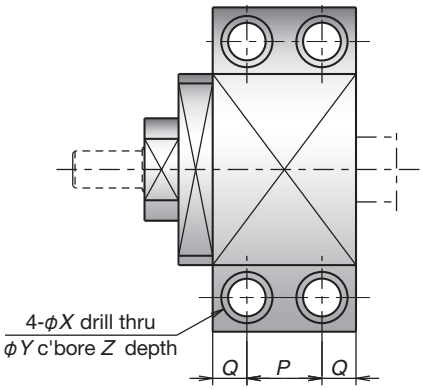


View S (WBK04 and 06)

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)
WBK20-**	1 670	147 (M4)



View S (WBK08 to 15)



View S (WBK20)

Unit : mm

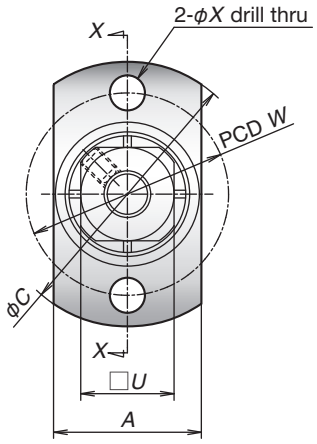
COUNTERBORE DIMENSIONS							MASS (kg)	SPECIFICATION				LOCKNUT SCREW M	ATTACHED BEARING FOR SUPPORT SIDE
								AXIAL DIRECTION					
H	P	Q	W	X	Y	Z		BASIC DYNAMIC LOAD RATING C_a(N)	LOAD LIMIT N	RIGIDITY (N/μm)	MAXIMUM STARTING TORQUE (N·cm)		
7.0	-	-	21	3.5	-	-	0.03	1 470	464	39	0.20	M4×0.50	-
8.5	-	-	26	5.5	-	-	0.05	2 760	854	60	0.35	M6×0.75	-
11.5	-	-	38	6.6	11	12	0.25	4 400	1 450	49	0.88	M8×1.0	606ZZ
11.0			46	9.0	14	18	0.30	6 600	2 730	94	1.90		
11.5			38	6.6	11	12	0.25	3 100	1 100	36	0.52		606VV
12.0	-	-	52	9.0	14	11	0.50	6 600	2 730	94	1.90	M10×1.0	608ZZ
						19	0.45	6 600	2 730	94	1.90		
						11	0.50	4 250	1 364	50	1.10		608VV
12.0	-	-	52	9.0	14	11	0.50	7 100	3 040	104	2.10	M12×1.0	6000ZZ
						19	0.40	7 100	3 040	104	2.10		
						11	0.50	4 700	2 443	57	1.20		6000VV
12.5	-	-	60	11.0	17	15	0.70	7 600	3 380	113	2.40	M15×1.0	6002ZZ
						23	0.60	7 600	3 380	113	2.40		
						15	0.70	5 100	2 757	63	1.30		6002VV
-	22	10	75	11.0	17	15	1.40	17 900	8 240	155	6.20	M20×1.0	6204ZZ

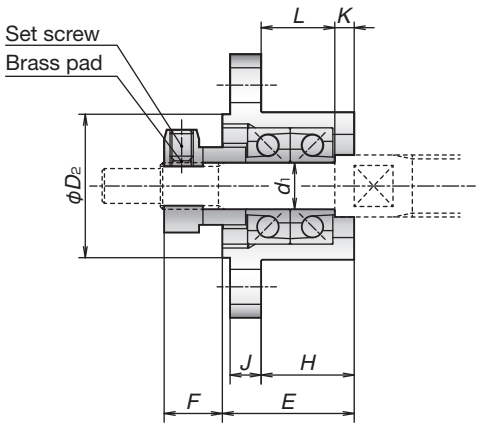
4. Deep groove ball bearing and snap ring are also provided for simple support side. (except WBK04-01M, WBK06-01M).
5. For retaining cover side of WBK08-01A and WBK08-01C, there are no seals.
6. For WBK04-01M and WBK06-01M, non-contact metal seals are installed in both sides of bearings.
7. Contact NSK if the rotational speed is 50 min-1 and below.

SUPPORT UNITS

FIXED SUPPORT SIDE SUPPORT UNIT (ROUND TYPE)

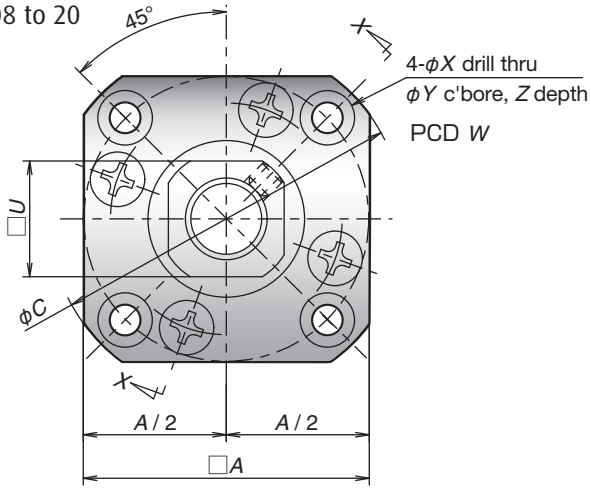
WBK04 and 06

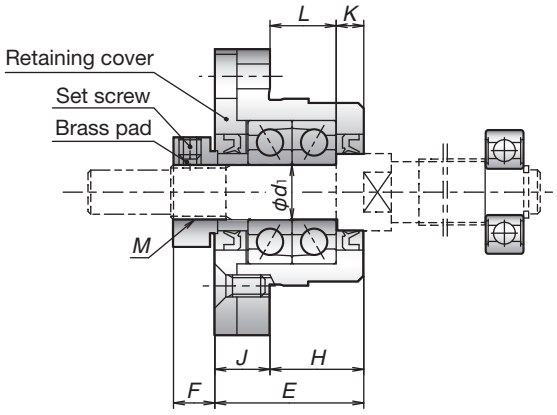




Cross section X-X (Example 1)

WBK08 to 20

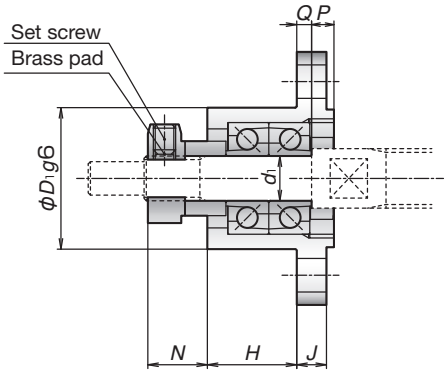




View X-X (Example 1)

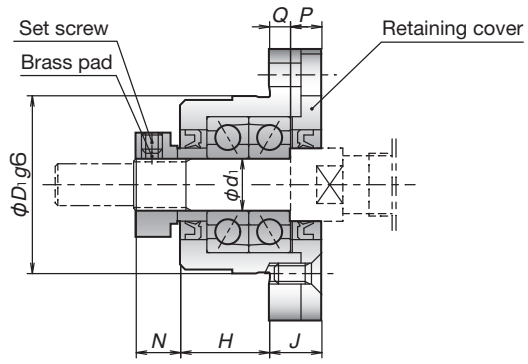
REFERENCE NO.	USE	d_1	A	C	D_1	D_2	E	H	L	K	F	N	U	P	Q
WBK04-11M	General	4	14	26	14	14.0	13.5	8.5	7.0	1.5	5.5	6.6	10	2.6	2.4
WBK06-11M	General	6	19	34	19	18.5	17.0	12.0	9.5	2.5	7.5	8.0	12	3.0	2.0
WBK08-11B	High-load	8	42	52	34	-	25.5	15.5	12.0	3.5	4.5	7.0	14	6.0	4.0
WBK08-11	General		35	43	28		23.0	14.0	10.0	4.0	7.0	8.0		5.0	
WBK08-11C	Cleanroom														
WBK10-11	General	10	42	52	34	-	27.0	17.0	12.0	5.0	7.5	8.5	17	6.0	4.0
WBK10-11C	Cleanroom														
WBK12-11	General	12	44	54	36	-	27.0	17.0	12.0	5.0	7.5	8.5	19	6.0	4.0
WBK12-11C	Cleanroom														
WBK15-11	General	15	52	63	40	-	32.0	17.0	11.0	6.0	12.0	14.0	22	8.0	7.0
WBK15-11C	Cleanroom														
WBK20-11	General	20	68	85	57		52.0	30.0	20.0	10.0	10.0	14.0	30	14.0	8.0

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 and WBK06-11M).



Cross section X-X (Example 2)

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)
WBK20-**	1 670	147 (M4)



View X-X (Example 2)

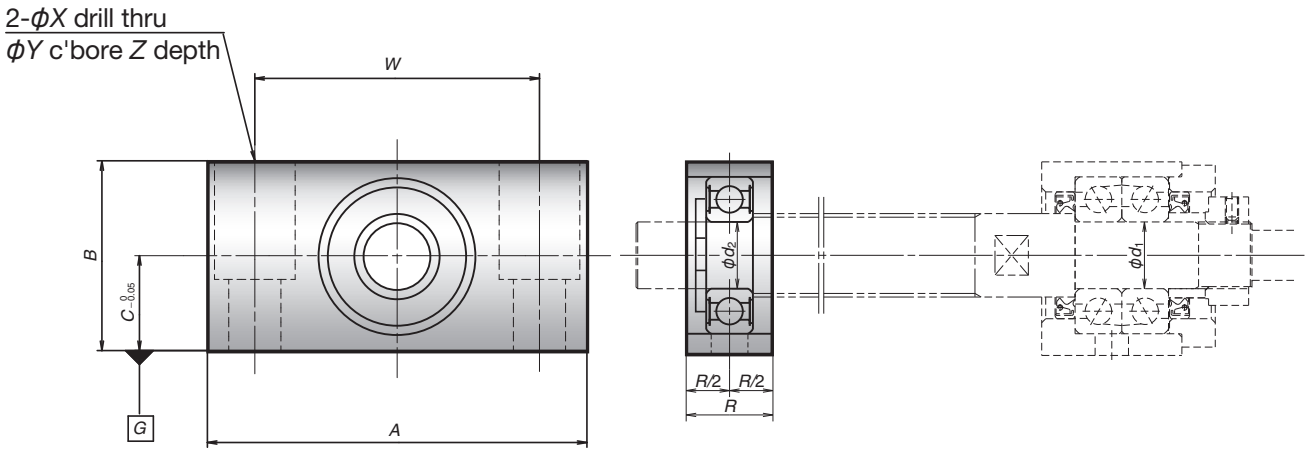
Unit : mm

COUNTERBORE DIMENSIONS					MASS (kg)	SPECIFICATION				LOCKNUT SCREW M	ATTACHED BEARING FOR SUPPORT SIDE
						AXIAL DIRECTION			MAXIMUM STARTING TORQUE (N·cm)		
J	W	X	Y	Z		BASIC DYNAMIC LOAD RATING C_a(N)	LOAD LIMIT N	RIGIDITY (N/μm)			
3	20	3.5	-	-	0.02	1 470	464	39	0.20	M4 × 0.50	-
4	26	4.5	-	-	0.04	2 760	854	60	0.35	M6 × 0.75	-
10	42	4.5	8.0	4	0.20	6 600	2 730	94	1.90	M8 × 1.0	606ZZ
9	35	3.4	6.5		0.15	4 400	1 450	49	0.88		606ZZ
						3 100	1 100	36	0.52		606VV
10	42	4.5	8.0	4	0.20	6 600	2 730	94	1.90	M10 × 1.0	608ZZ
						4 250	1 364	50	1.10		608VV
10	44	4.5	8.0	4	0.25	7 100	3 040	104	2.10	M12 × 1.0	6000ZZ
						4 700	2 443	57	1.20		6000VV
15	50	5.5	9.5	6	0.40	7 600	3 380	113	2.40	M15 × 1.0	6002ZZ
						5 100	2 757	63	1.30		6002VV
22	70	6.6	11.0	10	1.10	17 900	8 240	155	6.20	M20 × 1.0	6204ZZ

4. For retaining cover side of WBK08-11 and WBK08-11C, there are no seals.
5. For WBK04-11M and WBK06-11M, non-contact metal seals are installed in both sides of bearings.
6. Contact NSK if the rotational speed is 50 min-1 and below.

SUPPORT UNITS FOR SIMPLE SUPPORT SIDE

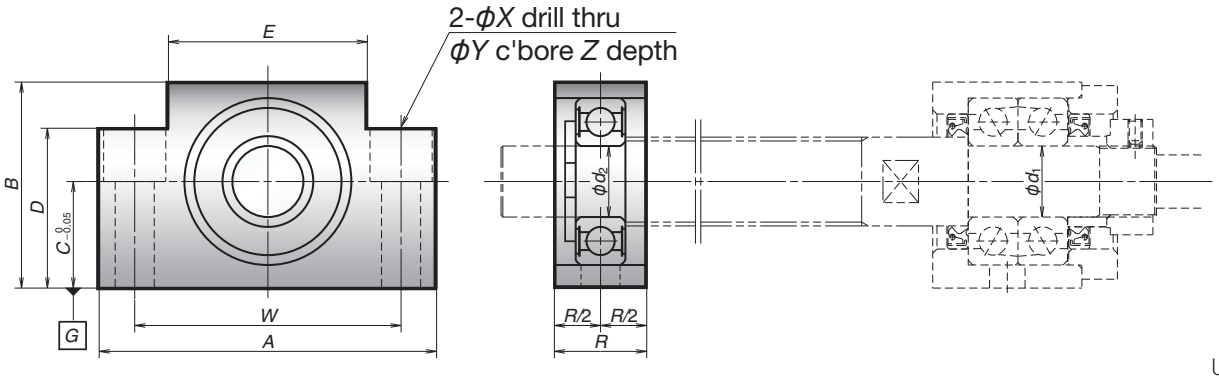
SIMPLE SUPPORT SIDE SUPPORT UNIT FOR PSS AND USS TYPES



Unit : mm

REFERENCE NO.	USE	d_2	A	B	C	R	COUNTERBORE DIMENSIONS				MASS (kg)	BEARING REFERENCE NO.	RADAL DIRECTION BASIC DYNAMIC LOAD RATING (N)
							W	X	Y	Z			
WBK08S-01B	Low	6	62	31	15.5	16	46	9	14	18	0.2	606ZZ	2 260
WBK12S-01B	Low	10	70	38	20.0	20	52	9	14	19	0.4	6000ZZ	4 550
WBK15S-01B	Low	15	80	42	22.0	20	60	9	14	23	0.4	6002ZZ	5 600

Note 1. Use datum surface G for mounting to machine base.

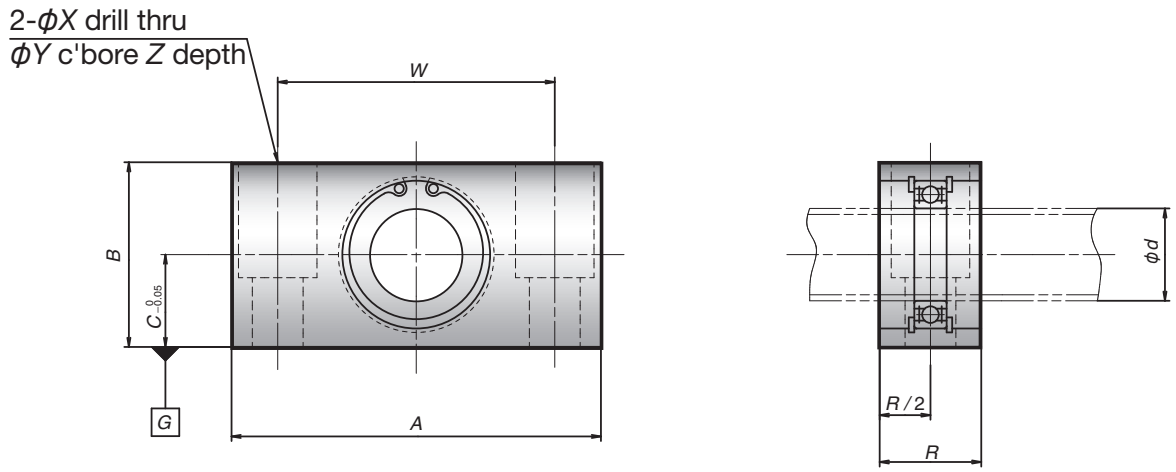


Unit : mm

REFERENCE NO.	USE	d_2	A	B	C	D	E	R	COUNTERBORE DIMENSIONS				MASS (kg)	BEARING REFERENCE NO.	RADAL DIRECTION BASIC DYNAMIC LOAD RATING (N)
									W	X	Y	Z			
WBK08S-01	General	6	52	32	17	26	25	15	38	6.6	11	12	0.15	606ZZ	2 260
WBK08S-01C	Cleanroom													606VV	2 260
WBK10S-01	General	8	70	43	25	35	36	20	52	9.0	14	11	0.40	608ZZ	3 300
WBK10S-01C	Cleanroom													608VV	3 300
WBK12S-01	General	10	70	43	25	35	36	20	52	9.0	14	11	0.35	6000ZZ	4 550
WBK12S-01C	Cleanroom													6000VV	4 550
WBK15S-01	General	15	80	50	30	40	41	20	60	9.0	14	11	0.45	6002ZZ	5 600
WBK15S-01C	Cleanroom													6002VV	5 600
WBK20S-01	General	20	95	58	30	45	56	26	75	11.0	17	15	0.80	6204ZZ	12 800

Note 1. Use datum surface G for mounting to machine base.

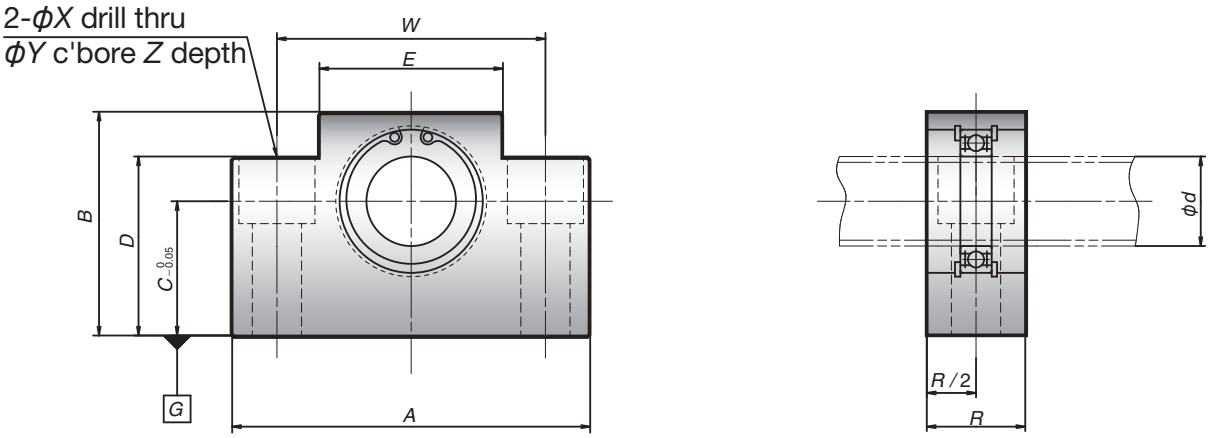
SIMPLE SUPPORT SIDE SUPPORT UNIT FOR FSS TYPES



Unit : mm

REFERENCE NO.	d	A	B	C	R	COUNTERBORE DIMENSIONS				MASS (kg)	BEARING REFERENCE NO.	RADIAL DIRECTION BASIC DYNAMIC LOAD RATING (N)
						W	X	Y	Z			
WBK12SF-01B	12	62	31	15.5	18	46	9	14	18	0.2	6801ZZ	1 920
WBK15SF-01B	15	70	38	20.0	18	52	9	14	19	0.3	6902ZZ	4 350
WBK20SF-01B	20	80	42	22.0	22	60	11	17	23	0.4	6804ZZ	4 000

Note 1. Use datum surface G for mounting to machine base.



Unit : mm

REFERENCE NO.	d	A	B	C	D	E	R	COUNTERBORE DIMENSIONS				MASS (kg)	BEARING REFERENCE NO.	RADIAL DIRECTION BASIC DYNAMIC LOAD RATING (N)
								W	X	Y	Z			
WBK25SF-01	25	95	58	30	45	56	22	75	11	17	15	0.55	6005ZZ	10 100

Note 1. Use datum surface G for mounting to machine base.



NSK

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