

B-3-1.7 Accessories

Accessories to use with NSK ball screws are available.

Table 1 Support unit categories

Application	Shape	Support side	Bearing in use	Bearing bore, Bearing seat diameter	Page			
Small equipment, light load	Square		WBK**-01*		Fixed support side	Angular contact ball bearing	$\phi 4 - \phi 25$	B395 -
			WBK**-S-01*		Simple support side	Deep groove ball bearing	$\phi 6 - \phi 25$	B399 -
			WBK**-SF-01		Deep groove ball bearing	$\phi 12, \phi 15$ (exclusive for VFA type)	B402	

Application	Shape	Support side	Bearing in use	Bearing bore, Bearing seat diameter	Page			
Small equipment, light load	Round		WBK**-R-11 (Support kit)		Fixed support side	Deep groove ball bearing (arranged to have angular contact)	$\phi 4, \phi 6$ (exclusive for RMA and RMS types)	B401
			WBK**-11*		Angular contact ball bearing	$\phi 4 - \phi 25$	B397 -	
Machine tools, high speed, heavy load	Round		WBK**-DF*-31H		Fixed support side	Thrust angular contact ball bearing	$\phi 17 - \phi 40$	B407 -

1. Classification

Ball screw support units are classified into categories by their shape (Table 1). Select the type that best suits your particular needs.

2. Features

●Bearings and seals

On the fixed support side, the angular contact ball bearing is used. It has great rigidity and low friction torque, which match the rigidity of the ball screw. The thrust angular contact ball bearing with high precision and great rigidity is another choice for the fixed support side.

An oil seal is installed to the fixed support side used with an angular contact ball bearing. Fine clearance may occur with this seal.

A deep-groove ball bearing with a shield on both sides is used on the simple support side.

●Lock nut is provided.

A lock nut with fine grade finish is provided to fix the bearing with high precision.

The lock nuts are designed to be difficult to loosen, but they can still loosen if subjected to strong mechanical vibration. If necessary, this should be prevented by applying threadlocking adhesive or taking similar precautions.

3. 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.

(For high speed and heavy load)

Example: **WBK 25 DF - 31H**

Product code for support unit

Nominal size code (internal bore of bearing)

H: High speed type

Bearing combination code

- DF: Face to face duplex combination
- DFD: Face to face triplex combination
- DFF: Face to face quadruplex combination

(1) Support Units for Light Load and Small Equipment

Support units for light load and small equipment provide both fixed and support side bearing assemblies to support screw shafts. They provide all required parts such as bearing locknuts so that you can mount them directly to NSK standard ball screws, of which shaft ends are machined.

Please refer to the dimensions listed on the dimension table for the configuration of standard screw shaft ends for NSK standard ball screws with blank shaft ends. For ball screws for transfer equipment, you require optional spacers when mounting fixed support side support units.

(a) Features

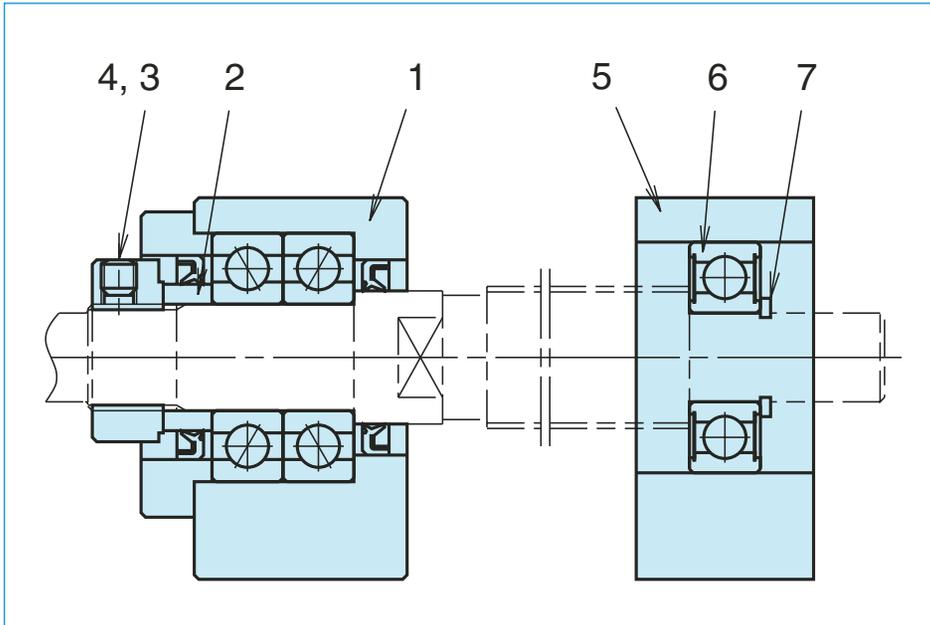
- Prompt delivery
Support units are standard products.
- Best selection of bearings for your application
General use support units for fixed support side are equipped with highly rigid angular contact ball bearings that have been assembled with proper preload, and packed with the appropriate volume of grease. On the other hand, clean support units for fixed support side uses low dust emission grease, and low torque special bearings. Sealed deep groove ball bearings are used for simple support side units for both general and clean environment use.

Accessories

● Accessories

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.



● Antirust treatment

The table on the right shows the surface treatment for the bearing housing, and material of small parts.

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		

	General support unit
Bearings and grease	Angular contact ball bearings, PS2
Surface treatment	Black oxide
Screws and snap rings	Standard material

(b) Features of Clean Support Unit

● Outstanding low dust emission

Clean support unit uses "NSK clean grease LG2" which has a proven feature of low dust emission. It reduces dust emission to 1/10 of general support units.

● Low torque

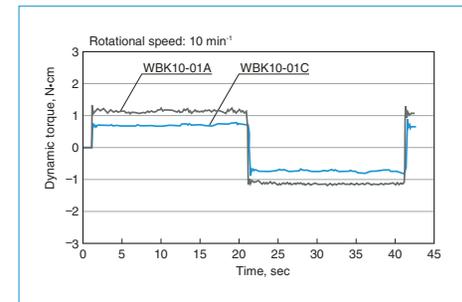
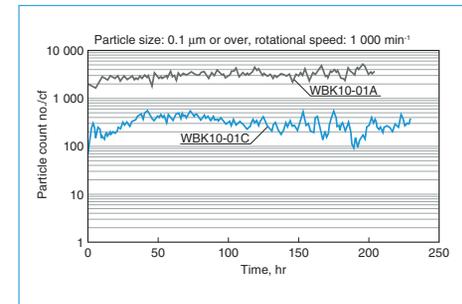
It features low torque characteristics because of special bearings. (50% lower than general support unit.)

● High antirust specification

Low temperature chrome plating is applied to bearing housings, retaining plates, locknuts and spacers to improve antirust properties. Moreover, bolts and snap rings are made of stainless steel.

The table below shows the surface treatment of the bearing housing and material of small parts.

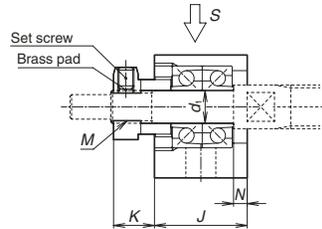
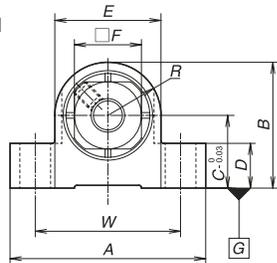
	Clean support unit
Bearing • grease	Special bearings, LG2
Surface treatment	Low temperature chrome plating
Set screw and snap ring material	Stainless steel



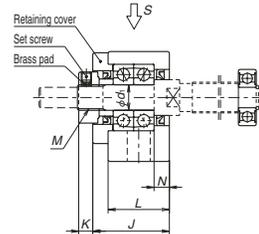
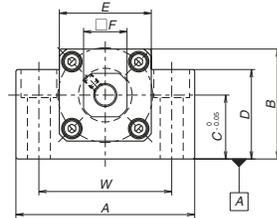
Accessories

Support Units for Light Load and Small Equipment

WBK**-01M



WBK**-01*



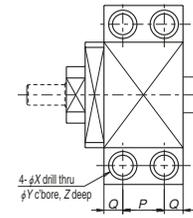
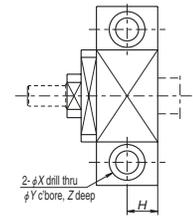
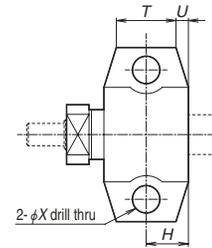
Fixed support side support unit (square type)

Reference No.	Use	d_i	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		62	31	15.5	31	—		21.5	25.5	4.5	
WBK08-01C*1	Clean environment		52	32	17	26	25		—	23	23	
WBK10-01A	General	10	70	43	25	35	36	17	24	30	5.5	—
WBK10-01B	Low type			38	20	38	—					
WBK10-01C	Clean environment			43	25	35	36					
WBK12-01A	General	12	70	43	25	35	36	19	24	30	5.5	—
WBK12-01B	Low type			38	20	38	—					
WBK12-01C	Clean environment			43	25	35	36					
WBK15-01A	General	15	80	50	30	40	41	22	25	31	12	—
WBK15-01B	Low type			42	22	42	—					
WBK15-01C	Clean environment			50	30	40	41					
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)

Support Unit (Support Units for Light Load and Small Equipment)

NSK



View S (WBK06 – 15)

View S (WBK17 – 25)

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)

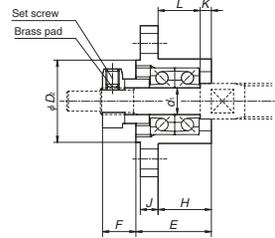
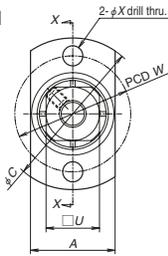
Units: mm

T	U	N	Counterbore dimensions							Mass (kg)	Locknut screw M	Attached bearing for support side	
			H	P	Q	W	X	Y	Z				
9	1.5	2	7	—	—	21	3.5	—	—	0.03	M4x0.5	—	
12	2.5	2.5	8.5	—	—	26	5.5	—	—	0.05	M6x0.75	—	
—	—	3.5	10	—	—	30	5.5	9.5	11	0.15	M6x0.75	—	
—	—	4	11.5	—	—	38	6.6	11	12	0.25	M8x1	606ZZ	
—	—	3.5	11	—	—	46	9	14	18	0.3		606ZZ	
—	—	4	11.5	—	—	38	6.6	11	12	0.25		606VV	
—	—	6	12	—	—	52	9	14	—	11	0.5	M10x1	608ZZ
—	—	—	—	—	—	—	—	—	—	19	0.45		608ZZ
—	—	—	—	—	—	—	—	—	—	11	0.5		608VV
—	—	6	12	—	—	52	9	14	—	11	0.5	M12x1	6000ZZ
—	—	—	—	—	—	—	—	—	—	19	0.4		6000ZZ
—	—	—	—	—	—	—	—	—	—	11	0.5		6000VV
—	—	5	12.5	—	—	60	11	17	—	15	0.7	M15x1	6002ZZ
—	—	—	—	—	—	—	—	—	—	23	0.6		6002ZZ
—	—	—	—	—	—	—	—	—	—	15	0.7		6002VV
—	—	7	—	19	8	68	9	14	11	1.3	M17x1	6203ZZ	
—	—	10	—	22	10	75	11	17	15	1.4	M20x1	6204ZZ	
—	—	14	—	30	9	85	11	—	—	1.9	M25x1.5	6205ZZ	

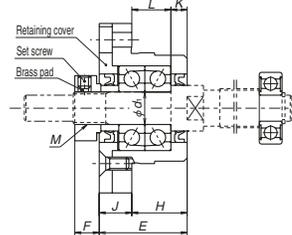
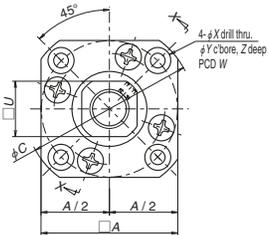
5. Bearings for WBK04-01M and WBK06-01M are equipped with non-contact metal seal.
- *1) For retaining cover side of WBK06-01A, WBK08-01A, and WBK08-01C, there are no seals.
6. Contact NSK if the rotational speed is 50 min⁻¹ and below.

Accessories

WBK**-11M

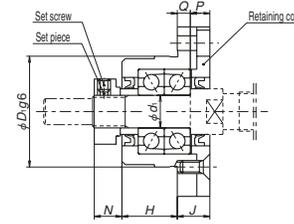
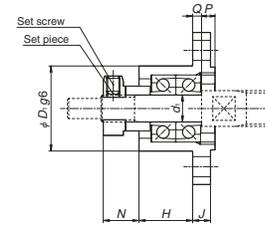


WBK**-11*



View X-X (example 1)

Support Unit (Support Units for Light Load and Small Equipment)



(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)
WBK17-**	910	147 (M4)
WBK20-**	1670	147 (M4)
WBK25-**	2060	490 (M6)

Fixed support side support unit (round type)

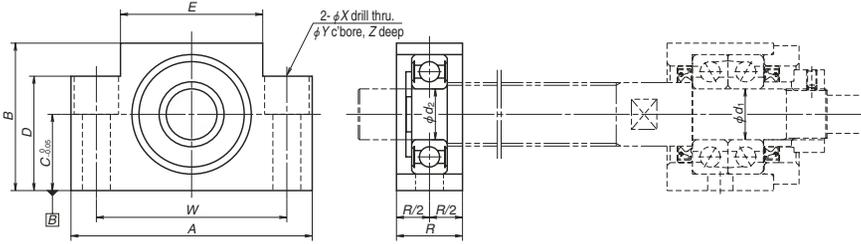
Units: mm

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		35	43	28		23	14	10	4	7	8
WBK08-11C*	Clean environment		—	—	—		—	—	—	—	—	—
WBK10-11	General	10	42	52	34	—	27	17	12	5	7.5	8.5
WBK10-11C	Clean environment		—	—	—		—	—	—	—	—	—
WBK12-11	General	12	44	54	36	—	27	17	12	5	7.5	8.5
WBK12-11C	Clean environment		—	—	—		—	—	—	—	—	—
WBK15-11	General	15	52	63	40	—	32	17	11	6	12	14
WBK15-11C	Clean environment		—	—	—		—	—	—	—	—	—
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 and WBK06-11M)

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	M4x0.5	—
12	3	2	4	26	4.5	—	—	0.04	M6x0.75	—
12	4.5	2.5	7	28	2.9	5.5	3.5	0.1	M6x0.75	—
14	6	4	10	42	4.5	8	4	0.2	M8x1	606ZZ
	5		9	35	3.4	6.5		0.15		606VZ
17	6	4	10	42	4.5	8	4	0.2	M10x1	608ZZ 608VZ
19	6	4	10	44	4.5	8	4	0.25	M12x1	6000ZZ 6000VZ
22	8	7	15	50	5.5	9.5	6	0.4	M15x1	6002ZZ 6002VZ
30	14	8	22	70	6.6	11	10	1.1	M20x1	6204ZZ
36	17	10	27	80	9	15	13	1.5	M25x1.5	6205ZZ

4. Bearings for WBK04-01M and WBK06-01M are equipped with non-contact metal seal.
- *For retaining cover side of WBK06-01A, WBK08-01A, and WBK08-01C, there are no seals.
5. Contact NSK if the rotational speed is 50 min⁻¹ and below.



Simple support side support unit (square type)

Units: 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		62	31	15.5	31	—	16	46	9	14	18	0.2
WBK08S-01C	Clean environment		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												
WBK12S-01	General	10	70	43	25	35	36	20	52	9	14	11	0.35
WBK12S-01B	Low type			38	20	38	—					19	0.4
WBK12S-01C	Clean environment			43	25	35	36					11	0.35
WBK12SF-01B	Low type	12	62	31	15.5	31	—	18	46	—	—	18	0.2
WBK15S-01	General	15	80	50	30	40	41	20	60	9	14	11	0.45
WBK15S-01B	Low type			42	22	42	—					23	0.4
WBK15S-01C	Clean environment			50	30	40	41					11	0.45
WBK15SF-01B	Low type	—	70	38	20	38	—	18	52	—	—	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		80	42	22	42	—	22	60			23	0.4
WBK25S-01W	General	25	105	68	35	25	66	30	85	11	—	—	0.9
WBK25SF-01			95	58	30	45	56	22	75	11	17	15	0.55

Notes: 1. Use datum surface B for mounting to machine base.

Specifications of support unit

Reference No.	Use	Fixed support side support unit				Simple support side support unit		
		Basic dynamic load rating Ca [N]	Load limit [N]	Rigidity [N/μm]	Maximum starting torque [N-cm]	Reference No.	Bearing reference No.	Radial direction Basic dynamic load rating C [N]
WBK04-01M	General	1 470	464	39	0.2	—	—	—
WBK04-11M	General	1 470	464	39	0.2	—	—	—
WBK06-01A	General	2 670	1 040	28	0.49	—	—	—
WBK06-01M	General	2 760	854	60	0.35	—	—	—
WBK06-11	General	2 670	1 040	28	0.49	—	—	—
WBK06-11M	General	2 760	854	60	0.35	—	—	—
WBK08-01A	General	4 400	1 450	49	0.88	WBK08S-01	606ZZ	2 260
WBK08-01B	Low type	6 600	2 730	94	1.9	WBK08S-01B	606ZZ	2 260
						WBK12SF-01B*1	6801ZZ	1 920
WBK08-01C	Clean environment	3 100	1 100	36	0.52	WBK08S-01C	606VV	2 260
WBK08-11	General	4 400	1 450	49	0.88	WBK08S-01	606ZZ	2 260
WBK08-11B	Low type	6 600	2 730	94	1.9	—	606ZZ	2 260
WBK08-11C	Clean environment	3 100	1 100	36	0.52	WBK08S-01C	606VV	2 260
WBK10-01A	General	6 600	2 730	94	1.9	WBK10S-01	608ZZ	3 300
						WBK12SF-01*2	6001ZZ	5 100
WBK10-01B	Low type	6 600	2 730	94	1.9	—	608ZZ	3 300
WBK10-01C	Clean environment	4 250	1 364	50	1.1	WBK10S-01C	608VV	3 300
WBK10-11	General	6 600	2 730	94	1.9	WBK10S-01	608ZZ	3 300
WBK10-11C	Clean environment	4 250	1 364	50	1.1	WBK10S-01C	608VV	3 300
WBK12-01A	General	7 100	3 040	104	2.1	WBK12S-01	6000ZZ	4 550
						WBK15SF-01*2	6902ZZ	4 350
WBK12-01B	Low type	7 100	3 040	104	2.1	WBK12S-01B	6000ZZ	4 550
						WBK15SF-01B*1	6902ZZ	4 350
WBK12-01C	Clean environment	4 700	2 443	57	1.2	WBK12S-01C	6000VV	4 550
WBK12-11	General	7 100	3 040	104	2.1	WBK12S-01	6000ZZ	4 550
WBK12-11C	Clean environment	4 700	2 443	57	1.2	WBK12S-01C	6000VV	4 550
WBK15-01A	General	7 600	3 380	113	2.4	WBK15S-01	6002ZZ	5 600
						WBK15S-01B	6002ZZ	5 600
WBK15-01B	Low type	7 600	3 380	113	2.4	WBK20SF-01B*1	6804ZZ	4 000
						WBK15S-01C	6002VV	5 600
WBK15-01C	Clean environment	5 100	2 757	63	1.3	WBK15S-01C	6002VV	5 600
WBK15-11	General	7 600	3 380	113	2.4	WBK15S-01	6002ZZ	5 600
WBK15-11C	Clean environment	5 100	2 757	63	1.3	WBK15S-01C	6002VV	5 600
WBK17-01A	General	13 400	5 800	120	3.5	WBK17S-01	6203ZZ	9 550
WBK20-01	General	17 900	8 240	155	6.2	WBK20S-01	6204ZZ	12 800
						WBK25SF-01*1	6005ZZ	10 100
WBK20-11	General	17 900	8 240	155	6.2	WBK20S-01	6204ZZ	12 800
WBK25-01W	General	20 200	10 000	192	7.2	WBK25S-01W	6205ZZ	14 000
WBK25-11	General	20 200	10 000	192	7.2	WBK25S-01W	6205ZZ	14 000
WBK04R-11	General	615	490	6.5	0.59	—	—	—
WBK06R-11	General	1 280	930	9	0.59	—	—	—

*1: Exclusive for FSS type.

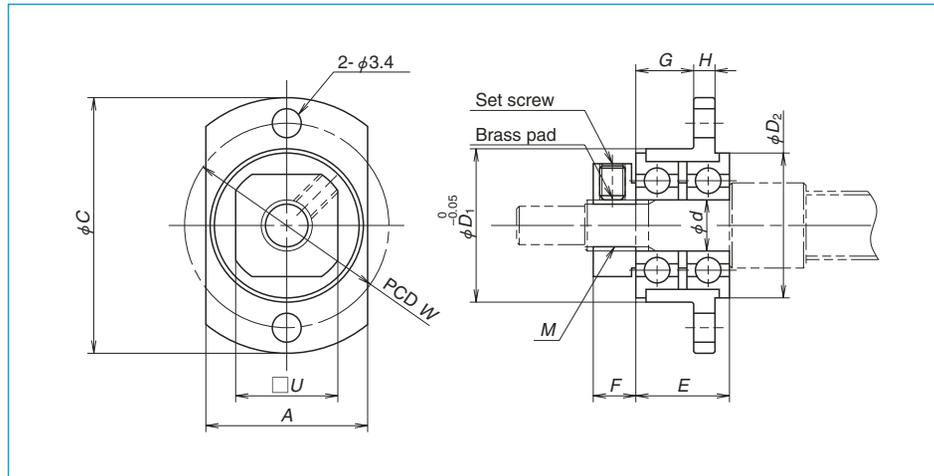
*2: Exclusive for VFA type.

Accessories

Support kits for ball screws for transfer equipment

Support kits are for RMA type ball screw.

In case of RMA1002 or larger rolled ball screws, please use support units for general use.



Units: mm

Reference No.	A	C	d	D ₁	D ₂	E	F	G	H	W	U	M	Mass (kg)
WBK04R-11	14	25	4	13	12.5	9	5	5	2.5	19	10	M4×0.5	0.13
WBK06R-11	19	30	6	18	17	11	5	6.8	2.5	24	12	M6×0.75	0.23

Reference No.	Applicable ball screw	Locknut tightening torque (reference) [N·cm]	Set screw tightening torque (reference) [N·cm]
WBK04R-11	RMA0601	100	38 (M2.5)
	RMA0801		
WBK06R-11	RMA0801.5	190	69 (M3)
	RMA0802		

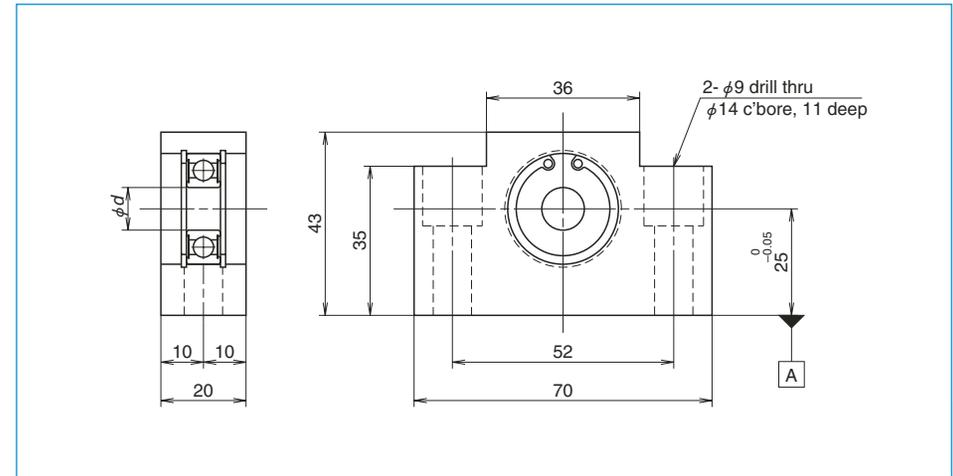
Notes:

- Oscillate bearings slowly so that they fall into place in which run-out of mounting surface is minimal, and then tighten locknut.
- Support kit is on provisional shaft (bolt) during shipping.
- When securing support unit on shaft, insert brass pad that is provided with support unit into lock nut hole, and then tighten set screw.

Support Unit (Support Units for Light Load and Small Equipment)

NSK

Simple support side support units for VFA type ball screws



Units: mm

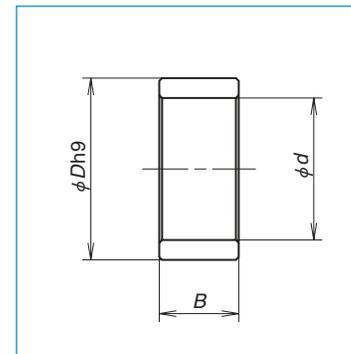
Reference no.	d	Mass (kg)	Applicable ball screw
WBK12SF-01*	12	0.3	VFA1210
WBK15SF-01*	15	0.3	VFA1510
			VFA1520

Notes:

- Use datum surface A for mounting to machine base.
- This type of simple side support unit is made exclusively for NSK VFA ball screws. This unit simply supports outer diameter of screw shaft.
- See page B400 for the reference numbers of bearings and radial direction basic dynamic load ratings.

Spacer

When using a fixed support unit, it may require an optional spacer to have an effective shoulder surface at where the ball thread is threaded to the end of the shoulder. This is common for the R series for transporting ball screws.



Units: mm

Reference No.	Internal diameter, d	Outside diameter, D	Width B	Mass (g)	Applicable support unit
WBK06K	6	9.5	5.0	2	WBK06- **
WBK08K	8	11.5	5.5	2	WBK08- **
WBK10K	10	14.5	5.5	4	WBK10- **
WBK12K	12	15.0	5.6	3	WBK12- **
WBK15K	15	19.5	10.0	10	WBK15- **
WBK17K	17	24.4	7.0	13	WBK17- **
WBK20K	20	25.5	11.0	17	WBK20- **
WBK25K	25	32.0	14.0	34	WBK25- **