

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.

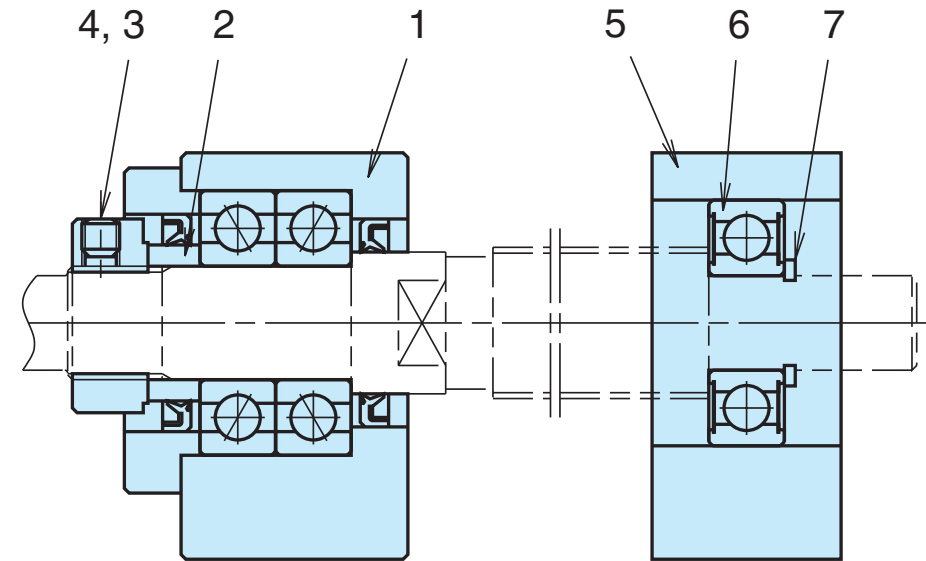
Please refer to the dimensions listed on the dimension table for the configuration of standard screw shaft ends for NSK standard ball screws with blank shaft ends. For ball screws for transfer equipment, you require optional spacers when mounting fixed support side support units.

- (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

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.

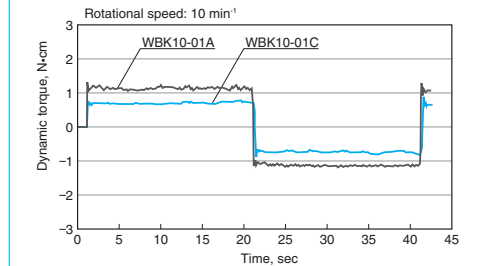
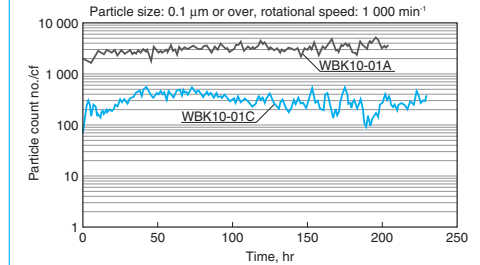
●Low torque

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

●High antirust specification

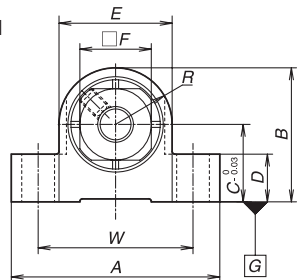
Low temperature chrome plating is applied to bearing housings, retaining plates, locknuts and spacers to improve antirust properties. Moreover, bolts and snap rings are made of stainless steel. The table below shows the surface treatment of the bearing housing and material of small parts.

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

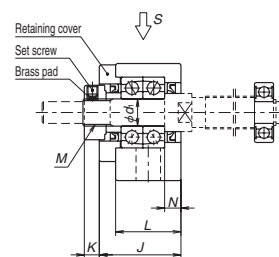
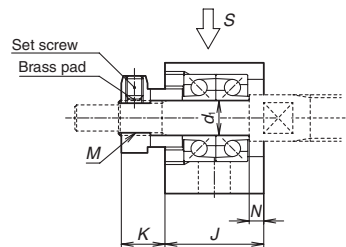
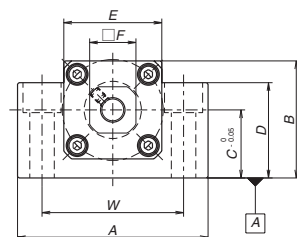


Support Units for Light Load and Small Equipment

WBK**-01M



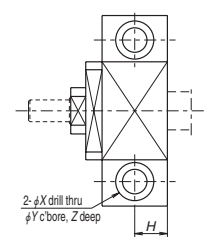
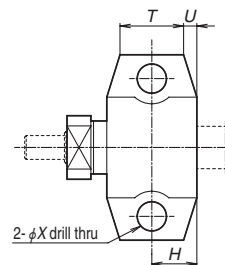
WBK**-01*



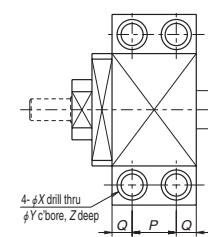
Fixed support side support unit (square type)

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	7	
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	—

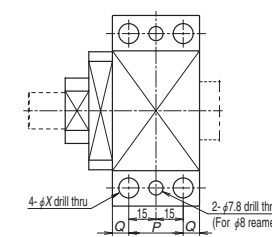
Notes: 1. Use datum surface A for mounting to machine base.
 2. Tighten set screw after locknut has been adjusted and tightened.
 3. Insert brass pad provided with unit into locknut set screw hole, then insert and tighten the set screw.
 4. Deep groove ball bearing and snap ring are also provided for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



View S (WBK06 – 15)



View S (WBK17 – 20)



View S (WBK25)

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

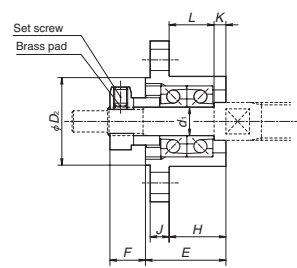
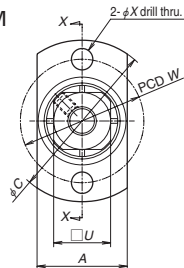
T	U	N	Counterbore dimensions							Mass (kg)	Locknut screw M	Attached bearing for support side
			H	P	Q	W	X	Y	Z			
9	2.5	2	7	—	—	21	3.5	—	—	0.03	M4×0.5	—
12	2.5	2.5	8.5	—	—	26	5.5	—	—	0.05	M6×0.75	—
—	—	3.5	10	—	—	30	5.5	9.5	11	0.15	M6×0.75	—
—	—	4	11.5	—	—	38	6.6	11	12	0.25	M8×1	606ZZ
		3.5	11			46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

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

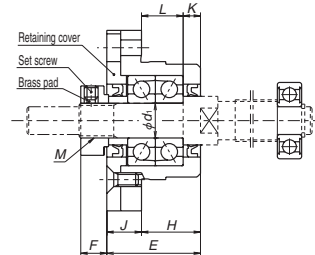
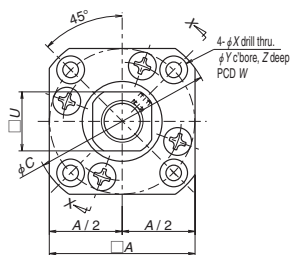
*1) For retaining cover side of WBK06-01A, WBK08-01A and WBK08-01C, there are no seals.

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

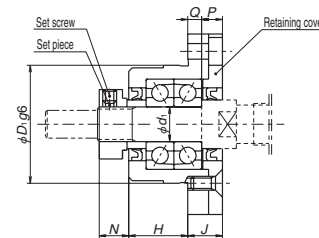
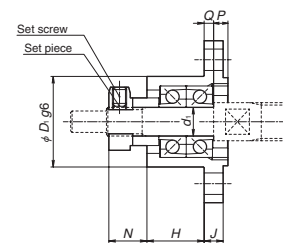
WBK**-11M



WBK**-11*



View X-X (example 1)



(example 2)

Reference No.	Tightening torque (reference) [N·cm]	
	Locknut	Set screw
WBK04-11M	100	69 (M3)
WBK06-11M	190	69 (M3)
WBK08-11M	230	69 (M3)
WBK10-11M	280	147 (M4)
WBK12-11M	630	147 (M4)
WBK15-11M	790	147 (M4)
WBK17-11M	910	147 (M4)
WBK20-11M	1670	147 (M4)
WBK25-11M	2060	490 (M6)

Fixed support side support unit (round type)

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

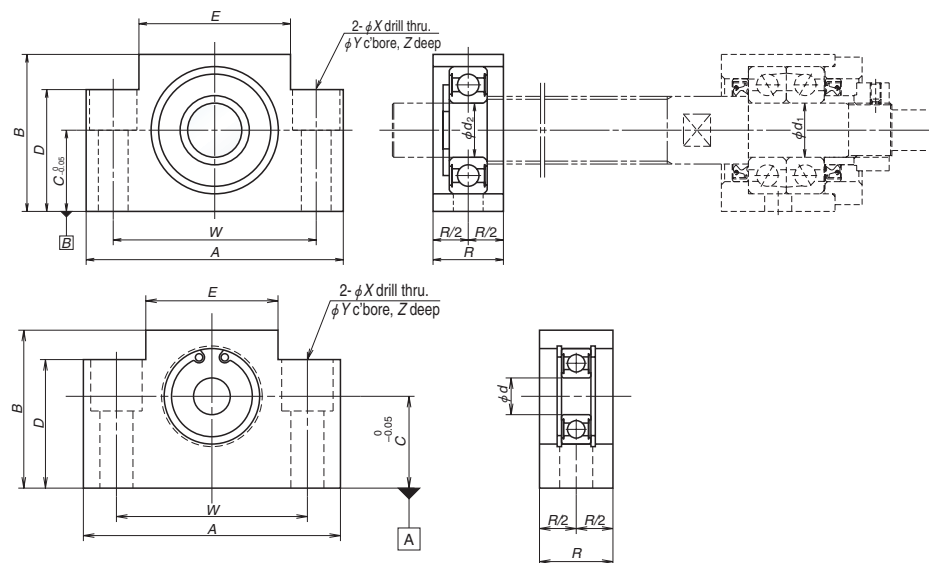
Notes: 1. Tighten set screw after locknut has been adjusted and tightened.
2. Insert brass pad provided with unit into locknut set screw hole, then insert and tighten the set screw.
3. Deep groove ball bearing and snap ring are also provided for simple support side.
(except WBK04-11M, WBK06-11M and WBK06-11)

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

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

*For retaining cover side of WBK06-11, WBK08-11 and WBK08-11C, 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		70	43	25	35	36	20	52	9	14	11	0.4
WBK12S-01	General	10	70	43	25	35	36	20	52	9	14	11	0.35
WBK12S-01B	Low type			38	20	38	—					19	0.4
WBK12S-01C	Clean environment			43	25	35	36					11	0.35
WBK12SF-01^{*2}	General	12	62	31	15.5	31	—	18	46	9	14	18	0.2
WBK12SF-01B^{*1}	Low type											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-01^{*2}	General		70	43	25	35	36	52	9	14	14	19	0.3
WBK15SF-01B^{*1}	Low type			38	20	38	—					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^{*1}			95	58	30	45	56	22	75	11	17	15	0.55

- Notes:**
1. Use datum surface B for mounting to machine base.
 2. For reference No. 12 or lower numbers, note that the reference numbers and inner dimensions of the bearing are different.
 3. WBK ** SF is a type supporting screw shaft OD.
 4. See page B400 for bearing reference number and the basic dynamic load rating in the radial direction.
 5. *1 is exclusive for FSS type.
 6. *2 is exclusive for VFA type.

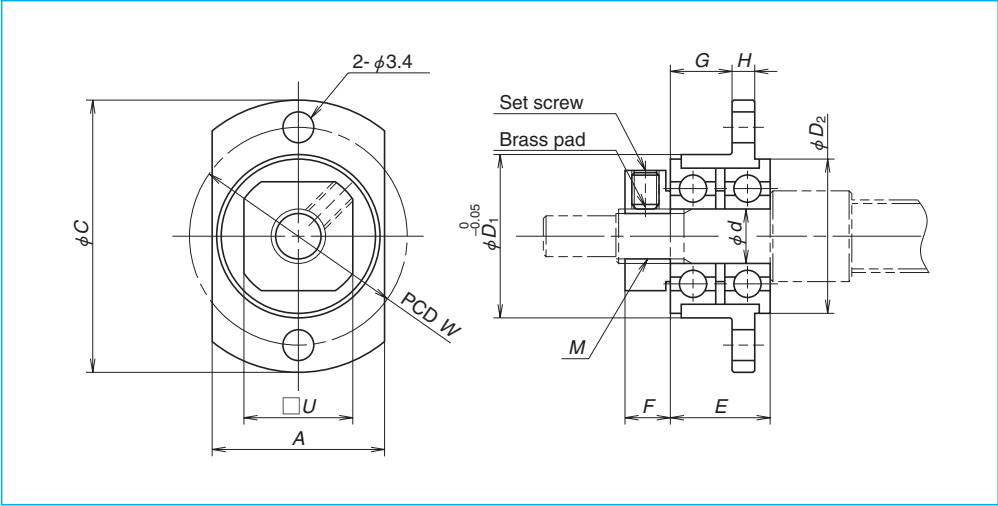
Specifications of support unit

Reference No.	Use	Fixed support side support unit				Simple support side support unit		
		Axial direction			Maximum starting torque [N·cm]	Reference No.	Bearing reference No.	Radial direction Basic dynamic load rating C [N]
		Basic dynamic load rating Ca [N]	Load limit [N]	Rigidity [N/μm]				
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	High load	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
WBK10-01B	Low type	6 600	2 730	94	1.9	WBK12SF-01^{*2}	6001ZZ	5 100
						—	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
WBK12-01B	Low type	7 100	3 040	104	2.1	WBK15SF-01^{*2}	6902ZZ	4 350
						WBK12S-01B	6000ZZ	4 550
WBK12-01C	Clean environment	4 700	2 443	57	1.2	WBK15SF-01B^{*1}	6902ZZ	4 350
						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
WBK15-01B	Low type	7 600	3 380	113	2.4	WBK15S-01B	6002ZZ	5 600
						WBK20SF-01B^{*1}	6804ZZ	4 000
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	—	—	—

- Notes:**
1. *1 is exclusive for FSS type.
 2. *2 is exclusive for VFA type.
 3. Permissible axial load is 0.7 times of limiting axial load.

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

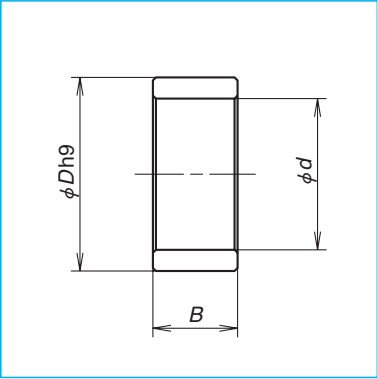
Reference No.	A	C	d	D ₁	D ₂	E	F	G	H	W	U	M	Mass (kg)
WBK04R-11	14	25	4	13	12.5	9	5	5	2.5	19	10	M4×0.5	0.13
WBK06R-11	19	30	6	18	17	11	5	6.8	2.5	24	12	M6×0.75	0.23

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)
WBK06R-11	RMA0801 RMA0801.5 RMA0802	190	69 (M3)

- 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.

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.

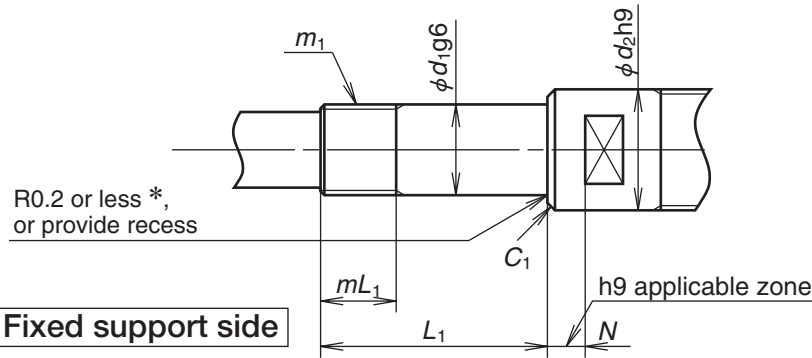


Units: mm

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- **

Screw shaft end configuration

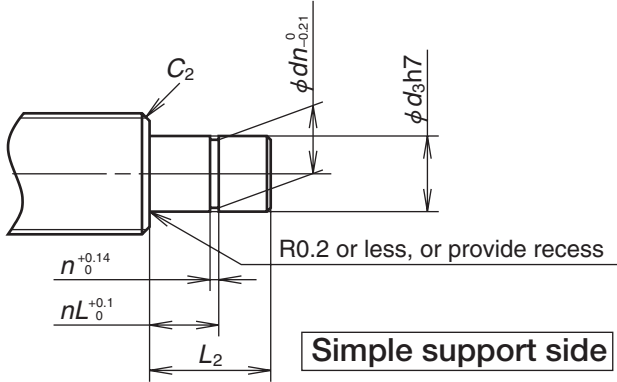
Dimensions of the shaft end configurations for light load and small equipment support units are shown in the table below. When using a spacer with a ball screw for transporting equipment, add the width of the spacer (B from the table of spacer dimensions on page B402) to L_1 dimension below.



Radius marked with * above is 0.15 or less for WBK04R-11 and WBK06R-11.

Units: mm

Reference No.	Fixed support side						
	Bearing journal		Locknut thread		Sealing part		Chamfer
	d_1	L_1	m_1	mL_1	d_2	N	C_1
WBK06- **	6	22.5	M6x0.75	7	9.5	3.5	0.2
WBK08- **	8	27	M8x1	9	11.5	4	0.2
WBK10- **	10	30	M10x1	10	14	6	0.2
WBK12- **	12	30	M12x1	10	15	6	0.2
WBK15- **	15	40	M15x1	15	19.5	5	0.3
WBK17- **	17	46	M17x1	17	24	7	0.3
WBK20- **	20	53	M20x1	16	25	10	0.3
WBK25- **	25	62	M25x1.5	20	32	14	0.5
WBK04R-11	4	15	M4x0.5	7.5	—	—	0.3
WBK06R-11	6	17	M6x0.75	7.5	—	—	0.3



Units: mm

Reference No.	Simple support side					
	Bearing journal		Snap ring groove			Chamfer
	d_3	L_2	n	dn	nL	C_2
WBK08S- **	6	9	0.8	5.7	6.8	0.2
WBK10S- **	8	10	0.9	7.6	7.9	0.2
WBK12S- **	10	22	1.15	9.6	9.15	0.5
WBK15S- **	15	25	1.15	14.3	10.15	0.5
WBK17S- **	17	16	1.15	16.2	13.15	0.5
WBK20S- **	20	19	1.35	19	15.35	0.5
WBK25S- **	25	20	1.35	23.9	16.35	0.5