Ball Screw Related Products

Support Units

BUKE (square type), BUK (square type), BUM (round type), BUT (round type)

Features

BUKE (Square type)
BUK (Square type)
BUM (Round type)

• Type which is fit to the mounting pattern can be selected!

· Two kinds: Square type (BUKE series, BUK series) and Round type (BUM series, BUT series) The type can be selected according to the mounting configuration.

• Bearing which meets the specifications of ball screw has been adopted!

· In BUKE (Square type support unit) are installed on P0 grade radial bearing. It is good for a lead accuracy of C7, C10 ball screw, light weight and transfer application.

· In BUK (square type) and BUM (round type), DF type angular contact ball bearings with accuracy grade P5 and contact angle of 30° are used.

· In BUT (round type), DF type high-thrust angular contact ball bearings with accuracy grade P4 and contact angle of 60° are used.

BUT (Round type)

• Looseness preventive function

· The lock nut especially for bearing assures a high-accuracy mounting and has a looseness preventive function.

☐ Notation of Model Number of Support Unit

Example:

Model		-	Diameter of bearing mount (mm)	Combination
BUK			15	F
Square type:	BUKE		Diameter of fixed side bearing mount 6, 8, 10, 12, 15, 20, 25 Diameter of supported side bearing mount 6, 8, 10, 15, 20, 25	F : Fixed end unit
Square type:	BUK			S : Supported end unit
Round type:	BUM			A (set): F + S (*Set only for BUK)
				No mark: F + Support bearing
Round type:	BUT		Diameter of fixed side bearing mount 20, 25, 30, 35, 40	* For combination on BUT, only fixed end unit is available. There is no mark for combination.

☐ Combination with ball screw

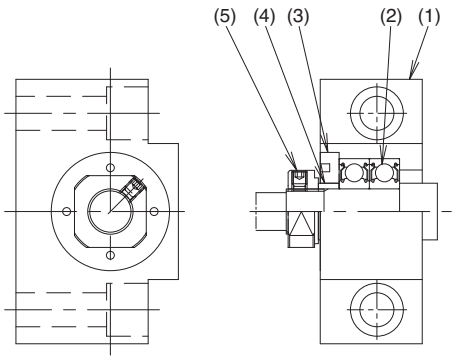
Model	Bore diameter of fixed side bearing (mm)	Bore diameter of supported side bearing (mm)	Applicable series						
			FE/FG	DP	HG	GP	GE/GG	GW	GY
BUK BUM	6	6	-	0601	0606	-	-	0802	08 ☐
BUK BUM	8	6	-	08 ☐ 1002	0812	08 ☐ 10 ☐	08 ☐ 10 ☐ 12 ☐	10 ☐	10 ☐
BUK BUM	10	8	1010 12 ☐	12 ☐	1230	12 ☐	1010 12 ☐	12 ☐	12 ☐
BUK BUM	12	10	15 ☐	1404	15 ☐ 1632	15 ☐	15 ☐ 16 ☐	15 ☐ 1632	15 ☐ 1632
BUK BUM	15	15	20 ☐	-	20 ☐	20 ☐	20 ☐	20 ☐ 2040	20 ☐ 2040
BUK BUM	20	20	25 ☐	-	2550	--	25 ☐	25 ☐	25 ☐ 2806
BUK BUM	25	25	-	-	3264	-	32 ☐	-	32 ☐
BUT	30	-	-	-	-	-	-	-	36 ☐
BUT	35	-	-	-	-	-	-	-	40 ☐

• ☐ in the above table indicates the kind of lead. For details, see the specifications of each size.

□ Major parts and materials

• Square type: BUKE series

Fixed end unit



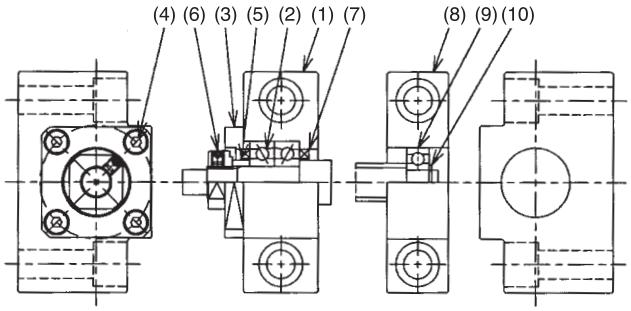
BUKE series Fixed end unit Major parts and materials

No.	Description	Material	Q'ty	Remark
1	Bearing housing	Structural steel	1	Blackening
2	Radial bearing		1 set	
3	Cover flange	Structural steel	1	Blackening
4	Spacer	Structural steel	1	Blackening
5	Lock nut (with set piece)	Structural steel (brass set piece)	1	Blackening

- When the above parts are used with the rolled ball screw, an optional collar (Material: structural steel, blackening) is required.
- In order to maintain the suitable preload for the #2 radial bearing, please do not disassemble #1, #2 and #3.

• Square type: BUK series

Fixed end unit Supported end unit



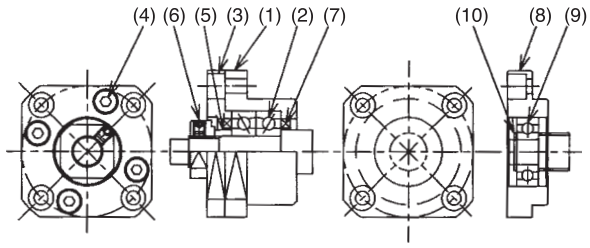
BUK/BUM series Fixed end unit Major parts and materials

No.	Description	Material	Q'ty	Remark
1	Bearing housing	Structural steel	1	Blackening
2	Bearing		1 set	
3	Cover flange	Structural steel	1	Blackening
4	Hexagon socket head cap screw		4	
5	Spacer	Structural steel	1	Blackening
6	Lock nut (with set piece)	Structural steel (brass set piece)	1	Blackening
7	Oil seal	Synthetic rubber	2	

- When the above parts are used with the rolled ball screw, an optional collar (Material: structural steel, blackening) is required.
- Round type: For BUM (Fixed end unit), no blackening treatment is applied on the housing body and the mounting end face.
- Part Nos. 1, 2 and 3 are united. Do not disassemble the unit.

• Round type: BUM series

Fixed end unit Supported end unit

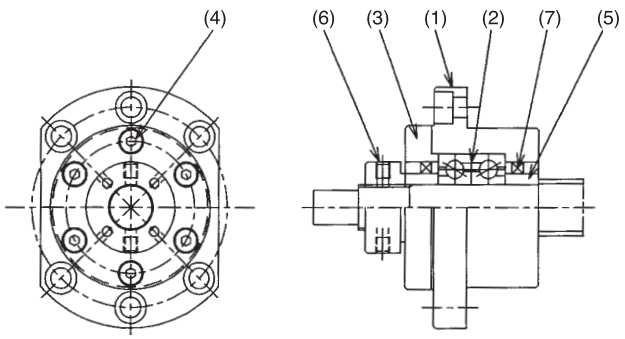


BUK/BUM series Supported end unit Major parts and materials

No.	Description	Material	Q'ty	Remark
8	Bearing housing	Structural steel	1	Blackening
9	Bearing		1	
10	Clip washer		1	

• Round type: BUT series

Fixed end unit



BUT series Fixed end unit Major parts and materials

No.	Description	Material	Q'ty	Remark
1	Bearing housing	Structural steel	1	Rustproof black coating
2	Bearing		1 set	
3	Cover flange	Structural steel	1	Rustproof black coating
4	Hexagon socket head cap screw		6 or 8	
5	Spacer	Structural steel	2	Rustproof black coating
6	Lock nut (with set piece)	Structural steel (brass set piece)	1	Rustproof black coating
7	Oil seal	Synthetic rubber	2	

- Round type: For BUT (Fixed end unit), no rustproof black coating is applied on the housing body and the mounting end face.
- Part Nos. 1, 2 and 3 are united. Do not disassemble the unit.

Bearing data

• BUK/BUM series Fixed side bearing
(Combined angular contact ball bearing)

Model No. of support unit	Model No. of bearing	Axial force			Maximum starting torque (N·cm)
		Basic dynamic load rating (N)	Preloaded (N)	Rigidity (N/μm)	
BUK-6, BUM-6	706ADFP5	2670	30	38	0.5
BUK-8, BUM-8	708ADFP5	4400	49	52	0.8
BUK-10, BUM-10	7000ADFP5	6170	120	95	2
BUK-12, BUM-12	7001ADFP5	6770	140	100	2.2
BUK-15, BUM-15	7002ADFP5	7740	170	120	2.3
BUK-20, BUM-20	7204ADFP5	18200	350	193	5.5
BUK-25,BUM-25	7205ADFP5	20600	500	230	7.5

• BUT series Fixed side bearing
(High-thrust angular contact ball bearing)

Model No. of support unit	Model No. of bearing Inner diameter X Outer diameter X Width/Combination/Accuracy mark (Width when combined in one row)	Axial force			Maximum starting torque (N·cm)
		Basic dynamic load rating (N)	Critical load (N)	Rigidity (N/μm)	
BUT-20	20 X 47 X 30-DFP4	25900	32000	735	10
BUT-25	25 X 62 X 30-DFP4	29900	46400	981	15
BUT-30	30 X 62 X 30-DFP4	29900	46400	981	15
BUT-35	35 X 72 X 30-DFP4	32500	54300	1230	20
BUT-40	40 X 72 X 30-DFP4	32500	54300	1230	20

• BUK/BUM series
Supported End Bearing
(Deep groove radial bearing)

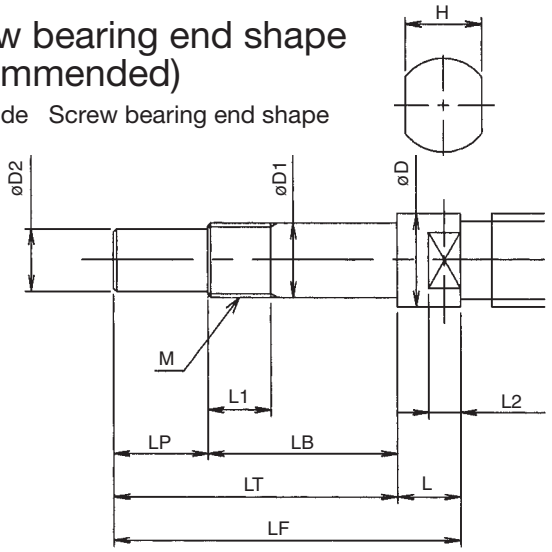
Model No. of support unit	Model No. of bearing	Basic dynamic loadrating (N)
BUK-6S	606ZZ	1720
BUK-8S, BUM-8S	608ZZ	2620
BUK-10S, BUM-10S	6000ZZ	3600
BUK-15S, BUM-15S	6002ZZ	4400
BUK-20S, BUM-20S	6204ZZ	10100
BUK-25S	6205ZZ	11000

• BUKE series Fixed side bearing

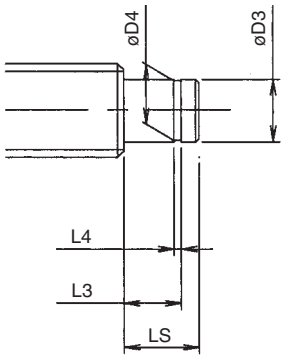
Model No. of support unit	Model No. of bearing	Maximum starting torque (N·cm)
BUKE-6F	606	2.5
BUKE-8F	608	2.5
BUKE-10F	6000	2.5
BUKE-12F	6001	2.5

Screw bearing end shape (recommended)

Fixed side Screw bearing end shape



Supported side End shape



• Square type: BUK, Round type: Screw bearing end shape dimension for BUM (recommended) **(Unit: mm)**

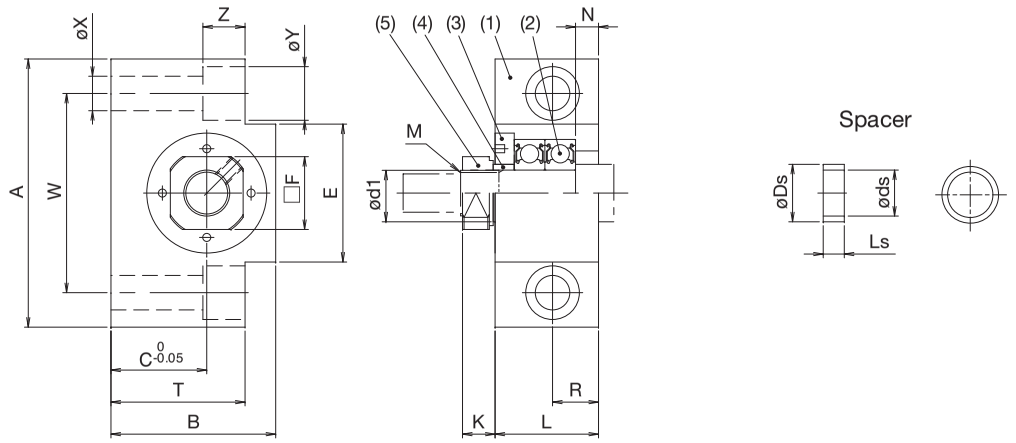
Model No. (Fixed side)	LP	øD2 (Tolerance)		LB	øD1 (Tolerance)		LT	L	øD	LF	L2	H (Tolerance)		L1	M
BUK-6 BUKE-6 BUM-6	7.5	4.5	0 -0.008	22.5	6	-0.002 -0.007	30	7	9.5	37	3	8	0 -0.2	7	M6 X0.75
BUK-8 BUKE-8 BUM-8	10	6		27	8	-0.002 -0.008	37	8	11.5	45	4	10		9	M8 X1
BUK-10 BUKE-10 BUM-10	15	8		30	10		45	10	14	55	5	12		10	M10 X1
BUK-12 BUKE-12 BUM-12	15	10	0 -0.009	30	12	-0.003 -0.011	45	10	15	55	5	12	0 -0.25	10	M12 X1
BUK-15 BUM-15	20	12		40	15		60	15	20	75	5	17		15	M15 X1
BUK-20 BUM-20	27	15	0 -0.011	53	20	-0.003 -0.012	80	20	25	100	10	22	0 -0.35	16	M20 X1
BUK-25 BUM-25	33	20	0 -0.013	62	25	-0.005 -0.014	95	27	32	122	12	27		20	M25 X1.5

Model No. (Fixed side)	LS	L3 (Tolerance)		øD3 (Tolerance)		L4 (Tolerance)		øD4 (Tolerance)	
-	-	-	-	-	-	-	-	-	-
BUK-6S BUM-6S	9	6.8	+0.1 0	6	-0.002 -0.010	0.8	+0.1 0	5.7	0 -0.06
BUK-8S BUM-8S	10	7.9		8	-0.004 -0.012	0.9		7.6	
BUK-10S BUM-10S	12	9.15		10	-0.004 -0.012	1.15	+0.14 0	9.6	0 -0.09
BUK-15S BUM-15S	12	10.15		15	-0.004 -0.012			14.3	0 -0.11
BUK-20S BUM-20S	18	15.35		20	-0.004 -0.013	1.35		19	0 -0.21
BUK-25S -	20	16.35		25	-0.004 -0.013			23.9	

(Note) When applied to the series in stock, the end shape may be different from the recommended shape depending on the shape of unprocessed shaft of the product in stock. For the details of the shape of the series in stock, see the instruction drawings for end processing in Page E_1 and the subsequent pages.

SQUARE TYPE FIXED END UNIT

(Unit: mm)



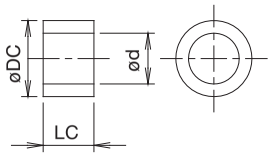
Model No.	ød1	A	B	C	T	E	□F	K	L	R	N	W	øX	øY	Z	M	øds	øDs	Ls	Mass (kg)
BUKE-6F	6	42	25	13	20	18	12	6	20	10	3.5	30	5.5	9.5	11	M6X0.75	6	9.5	5	0.10
BUKE-8F	8	52	32	17	26	25	14	7	23	11.5	4	38	6.6	11	11	M8X1	8	11.5	5.5	0.23
BUKE-10F	10	70	43	25	35	36	17	8.5	27	12	6	52	9	14	11	M10X1	10	14	5.5	0.49
BUKE-12F	12	70	43	25	35	36	19	8.5	27	12	6	52	9	14	11	M12X1	12	15	5.5	0.50

(Note 1) The above mass does not include that of the packing material.

Collar for rolled ball screw

Model No.	ød	øDC (Tolerance)		LC
GY/W-C06	6	9.5	±0.1	7
GY/W-C08	8	11.5		8
GY/W-C10	10	14		10
GY/W-C12	12	15		10

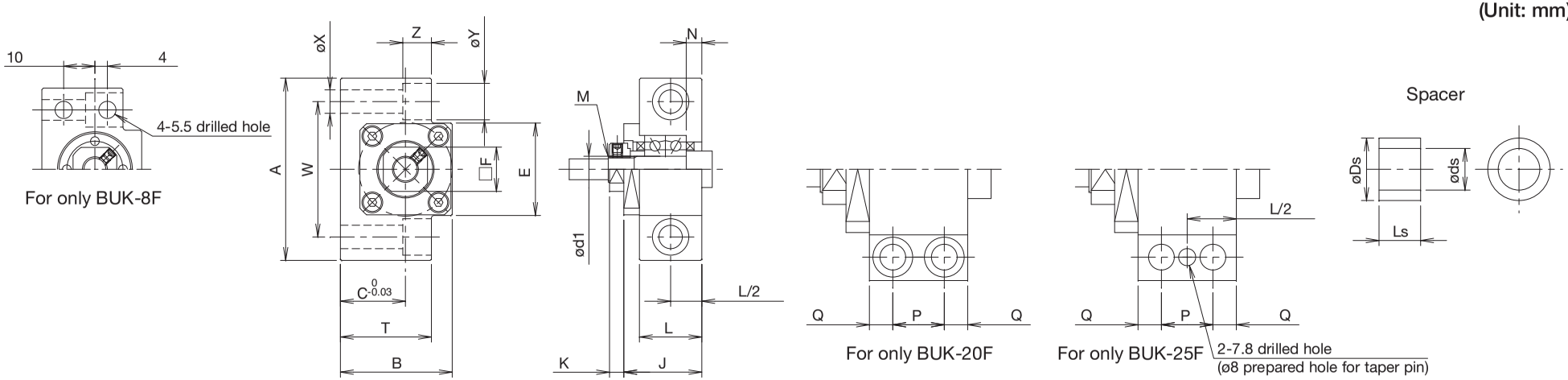
Collar for rolled ball screw



(Note 1) When the above parts are used with the rolled ball screw, collar is required.
(Note 2) Collar is not included in the standard parts of support unit. When used with rolled ball screw, the optional collar is available on request.

SQUARE TYPE FIXED END UNIT

(Unit: mm)



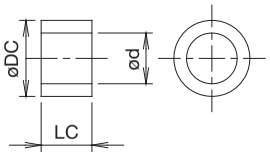
Model No.	ød1	A	B	C	T	E	□F	J	K	L	N	P	Q	W	X	Y	Z	M	øds	øDs	Ls	Mass (kg)
BUK-6	6	42	25	13	20	18	12	20	5.5	20	3.5	-	-	30	5.5	9.5	11	M6X0.75	6	9.5	5	0.10
BUK-8F	6	52	32	17	26	25	14	23	7	23	4	-	-	38	6.6	11	12	M8X1	8	11.5	5.5	0.23
BUK-10F	10	70	43	25	35	35.5	17	30	5.5	24	6	-	-	52	9	14	11	M10X1	10	14	5.5	0.49
BUK-12F	12	70	43	25	35	35.5	19	30	5.5	24	6	-	-	52	9	14	11	M12X1	12	15	5.5	0.50
BUK-15F	15	80	50	30	40	41	22	31	12	25	5	-	-	60	11	17	15	M15X1	15	20	10	0.65
BUK-20F	20	95	58	30	45	56	30	52	10	42	10	22	10	75	11	17	15	M20X1	20	25	11	1.48
BUK-25F	25	105	68	35	25	66	36	61	13	48	14	30	9	85	11	-	-	M25X1.5	25	31	14	1.90

(Note 1) The above mass does not include that of the packing material.

Collar for rolled ball screw

Model No.	ød	øDC (Tolerance)	LC
GY/W-C06	6	9.5 ±0.1	7
GY/W-C08	8	11.5	8
GY/W-C10	10	14	10
GY/W-C12	12	15	10
GY/W-C15	15	20	15
GY/W-C20	20	25	20
GY/W-C25	25	32	25

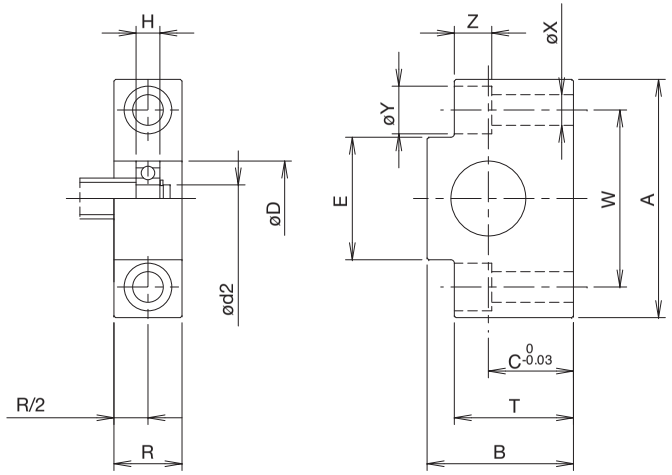
Collar for rolled ball screw



(Note 1) When the above parts are used with the rolled ball screw, collar is required.
(Note 2) Collar is not included in the standard parts of support unit. When used with rolled ball screw, the optional collar is available on request.

SQUARE TYPE SUPPORTED END UNIT

(Unit: mm)



Model No.	ød2	øD	H	R	A	B	C	T	E	W	X	Y	Z	Clip washer	Mass (kg)
BUK-6S	6	17	6	15	52	32	17	26	25	38	6.6	11	12	Nominal 6	0.17
BUK-8S	8	22	7	20	70	43	25	35	35.5	52	9	14	11	Nominal 8	0.37
BUK-10S	10	26	8	20	70	43	25	35	35.5	52	9	14	11	Nominal 10	0.36
BUK-15S	15	32	9	20	80	50	30	40	41	60	11	17	15	Nominal 15	0.46
BUK-20S	20	47	14	26	95	58	30	45	56	75	11	17	15	Nominal 20	0.76
BUK-25S	25	52	15	30	105	68	35	25	66	85	11	-	-	Nominal 25	0.98

(Note 1) The above mass does not include that of the packing material.

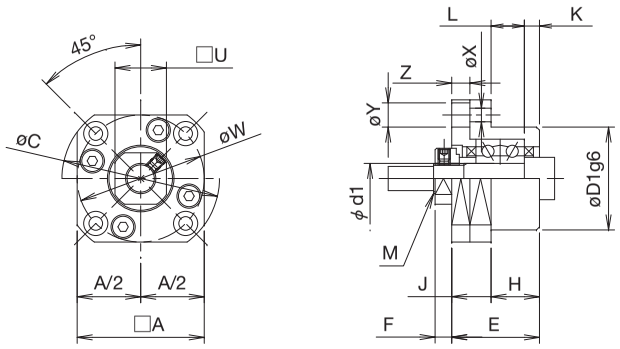
Part number for Fixed side support unit

Model No.	Model No.
BUK-6	---
BUK-8F	BUK-6S
BUK-10F	BUK-8S
BUK-12F	BUK-10S
BUK-15F	BUK-15S
BUK-20F	BUK-20S
BUK-25F	BUK-25S

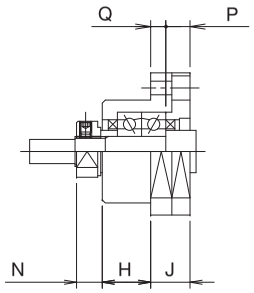
ROUND TYPE FIXED END UNIT

(Unit: mm)

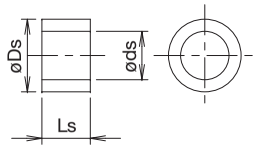
Mounting example_1



Mounting example_2



Spacer



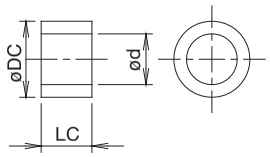
Model No.	ød1	□A	øC	øD1	E	F	H	J	K	L	N	P	Q	□U	øW	X	Y	Z	M	øds	øDs	Ls	Mass (kg)
BUM-6F	6	28	35	22	20	5.5	13	7	3.5	9.5	6.5	4.5	2.5	12	28	2.9	5.5	3.5	M6X0.75	6	9.5	5	0.08
BUM-8F	8	35	43	28	23	7	14	9	4	10	8	5	4	14	35	3.4	6.5	4	M8X1	8	11.5	5.5	0.18
BUM-10F	10	42	52	34	29	5.5	16	13	5	11	8.5	8	5	17	42	4.5	8	6	M10X1	10	14	5.5	0.24
BUM-12F	12	44	54	36	29	5.5	16	13	5	11	8.5	8	5	19	44	4.5	8	6	M12X1	12	15	5.5	0.26
BUM-15F	15	52	63	40	32	12	17	15	6	11	14	8	7	22	50	5.5	9.5	6	M15X1	15	20	10	0.40
BUM-20F	20	68	85	57	52	10	30	22	10	20	14	14	8	30	70	6.6	11	10	M20X1	20	25	11	1.09
BUM-25	25	79	98	63	57	13	30	27	10	20	20	17	10	36	80	9	15	13	M25X1.5	25	31	14	1.51

(Note 1) The above mass does not include that of the packing material.

Collar for rolled ball screw

Model No.	ød	øDC (Tolerance)	LC
GY/W-C06	6	9.5 ±0.1	7
GY/W-C08	8	11.5	8
GY/W-C10	10	14	10
GY/W-C12	12	15	10
GY/W-C15	15	20	15
GY/W-C20	20	25	20
GY/W-C25	25	32	25

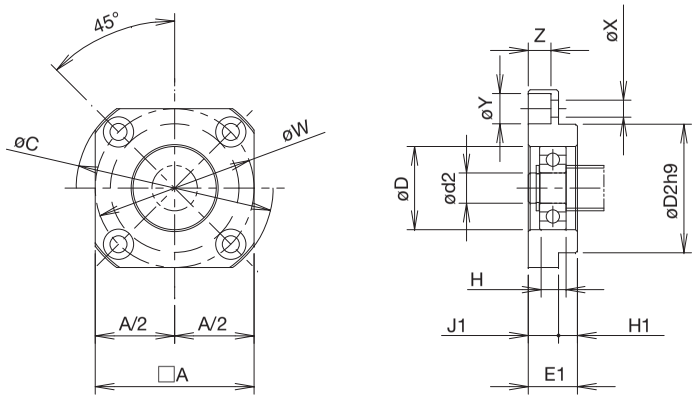
Collar for rolled ball screw



(Note 1) When the above parts are used with the rolled ball screw, collar is required.
(Note 2) Collar is not included in the standard parts of support unit. When used with rolled ball screw, the optional collar is available on request.

ROUND TYPE SUPPORTED END UNIT

(Unit: mm)



Model No.	ød2	øD	H	□A	øC	ød2	E1	J1	H1	øW	X	Y	Z	Clip washer	Mass (kg)
BUM-6S	6	17	6	35	43	28	10	6	4	35	3.4	6.5	4	Nominal 6	0.06
BUM-8S	8	22	7	42	52	34	13	8	5	42	4.5	8	6	Nominal 8	0.11
BUM-10S	10	26	8	44	54	36	15	7	8	44	4.5	8	6	Nominal 10	0.12
BUM-15S	15	32	9	52	63	40	17	9	8	50	5.5	9.5	6	Nominal 15	0.17
BUM-20S	20	47	14	68	85	57	20	11	9	70	6.6	11	10	Nominal 20	0.38

(Note 1) The above mass does not include that of the packing material.

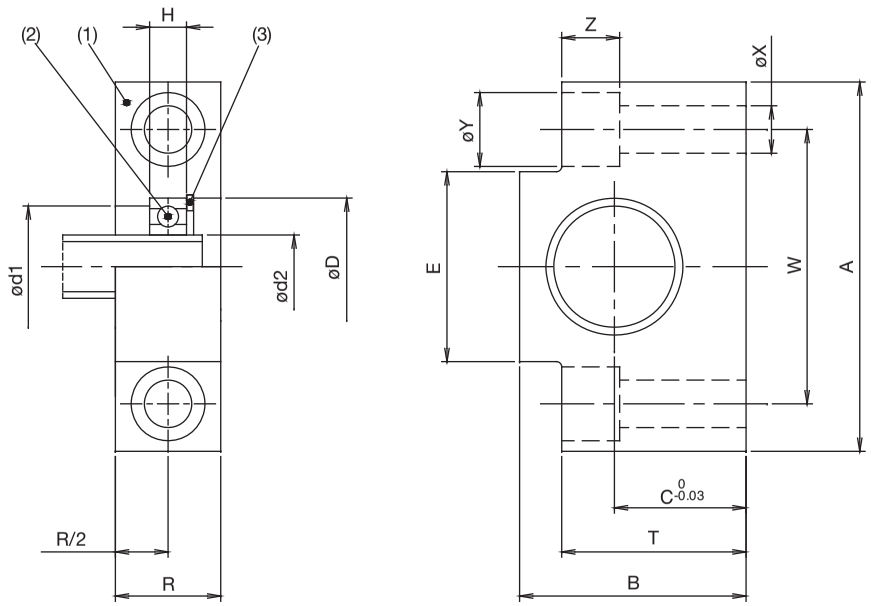
Part number for Fixed side support unit

Model No.	Model No.
BUM-6F	---
BUM-8F	BUM-6S
BUM-10F	BUM-8S
BUM-12F	BUM-10S
BUM-15F	BUM-15S
BUM-20F	BUM-20S
BUM-25F	---

KURODA Support Unit for Small-sized Factory Automation Equipment: BUK Series

SQUARE TYPE SUPPORTED END UNIT (Ass'y on O.D. of shaft)

(Unit: mm)



Major parts and materials

No.	Description	Material	Q'ty	Remark
1	Bearing housing	Structural steel	1	Blackening
2	Bearing		1	
3	Clip washer		1	

Bearing spec. (deep groove ball bearing)

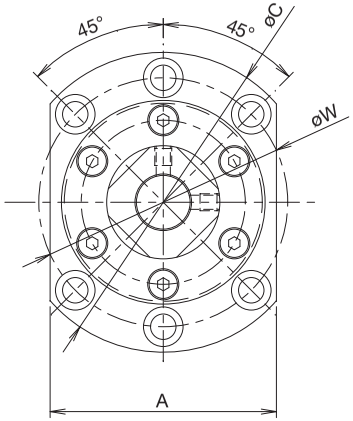
Model No. of support unit	Model No. of bearing	Basic dynamic load rating (N)
BUK-12T	6001ZZ	5100
BUK-15T	6902ZZ	4350
BUK-20T	6804ZZ	4000

Model No.	ød2	øD	øD1	H	R	A	B	C	T	E	W	X	Y	Z	Clip washer	Mass (kg)
BUK-12T	12	28	24	8	20	70	43	25	35	35.5	52	9	14	11	Nominal 28	0.32
BUK-15T	15	28	24	7	20	70	43	25	35	35.5	52	9	14	11	Nominal 28	0.31
BUK-20T	20	32	26	7	20	80	50	30	40	41	60	11	17	15	Nominal 32	0.39

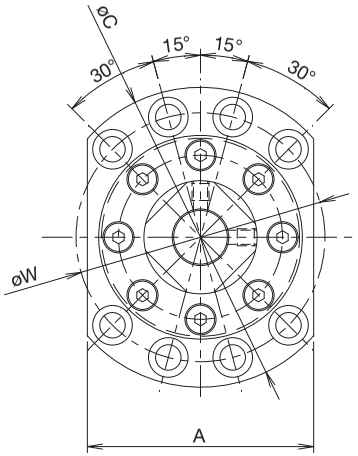
(Note 1) The above mass does not include that of the packing material.

ROUND TYPE FIXED END UNIT

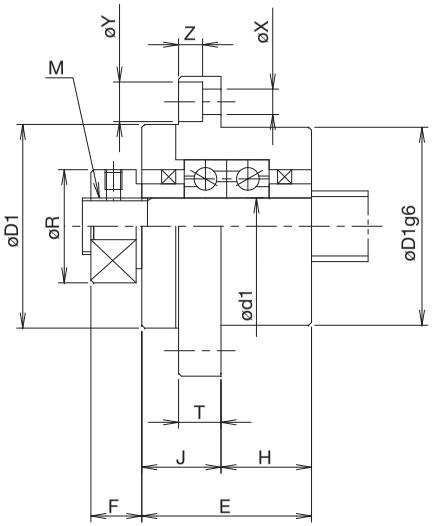
(Unit: mm)

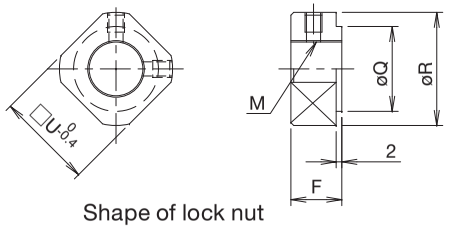


BUT-20, 25, 30

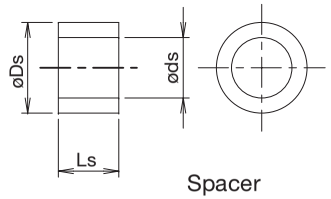


BUT-35, 40





Shape of lock nut

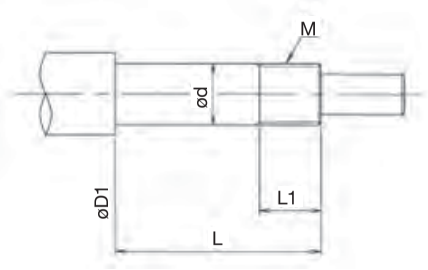


Spacer

Model No.	ød1	A	øC	øD1	E	F	H	J	T	øR	U	øQ	øW	øX	øY	Z	M	øds	øDs	Ls	Mass (kg)
BUT-20	20	80	106	70	60	18	32	28	15	40	32	30	88	9	14	8.5	M20X1	20	30	15	2.0
BUT-25	25	100	130	85	66	20	33	33	18	45	36	40	110	11	17.5	11	M25X1.5	25	40	18	3.4
BUT-30	30	100	130	85	66	20	33	33	18	50	41	40	110	11	17.5	11	M30X1.5	30	40	18	3.3
BUT-35	35	106	142	95	66	25	33	33	18	55	46	50	121	11	17.5	11	M35X1.5	35	50	18	3.9
BUT-40	40	106	142	95	66	25	33	33	18	60	50	50	121	11	17.5	11	M40X1.5	40	50	18	3.8

(Note 1) The above mass does not include that of the packing material.

BUT (round type) Shape of bearing mount (reference)



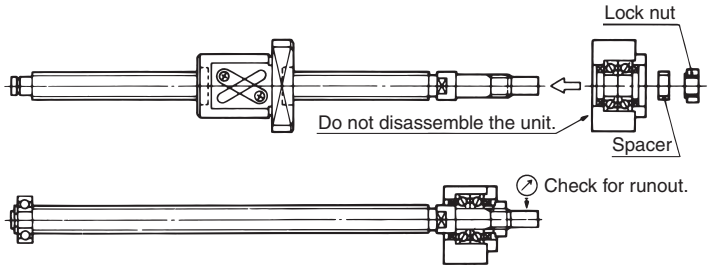
Model No.	Dimension of bearing mount				
	øD1	ød1	L	L1	M
BUT-20	30	20 $^{-0.003}_{-0.012}$	81	23	M20X1
BUT-25	40	25 $^{-0.003}_{-0.012}$	89	25	M25X1.5
BUT-30	40	30 $^{-0.003}_{-0.012}$	89	25	M30X1.5
BUT-35	50	35 $^{-0.004}_{-0.015}$	94	30	M35X1.5
BUT-40	50	40 $^{-0.004}_{-0.015}$	94	30	M40X1.5

Support Units

Mounting procedure for the square type support unit

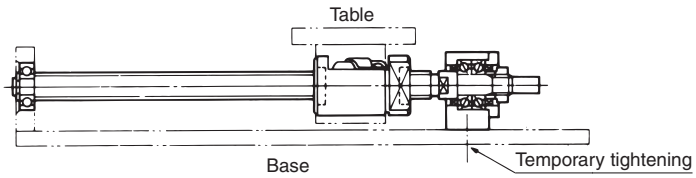
Assembling the support unit

1) Fit the support unit to the ball screw.
   · Do not disassemble the unit.
   · Exercise care to prevent the oil seal from peeling off.
   · When tightening the lock nut, check the mounting portion for a coupling, etc. for runout.
2) Fit the supported bearing and fix it with a snap ring.



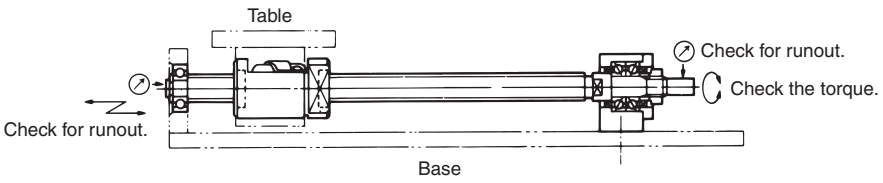
Mounting the support unit

1) Temporarily tighten the ball screw nut to the nut bracket.
2) Temporarily tighten the support unit to the base.
   Move the table toward the support unit side to center the ball screw nut and adjust by the following method so that the table can be moved smoothly:
   (1) Adjust the position of the square type support unit with the proper shim to meet the nut bracket alignment.
   (2) Adjust the nut position having some gap between the round type support unit and the base to meet the nut bracket alignment.
   (3) Adjust the position of the nut bracket with proper shim to meet the square type or round type support unit.
   (4) Adjust the nut position having some gap between the square type or round type support unit and the nut bracket.



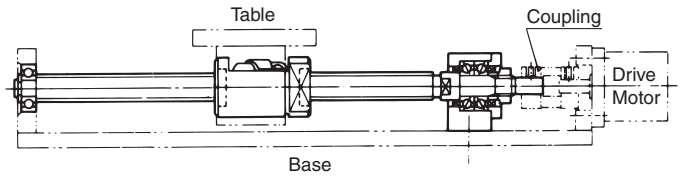
Mounting the supported side bearing and checking the alignment

1) Move the table toward the supported side and center the ball screw. Temporarily tighten the supported side bearing housing to the base.
2) While reciprocating the table, make adjustment so that the whole unit can move smoothly.
3) Tighten and fix the bearing housing while checking the alignment or runout of each part.



Coupling the ball screw to the motor

1) Mount the motor bracket to the ball screw with a high accuracy.
2) Connect the motor and the ball screw with a coupling.
3) After completion of assembling, give the unit a thorough shakedown.

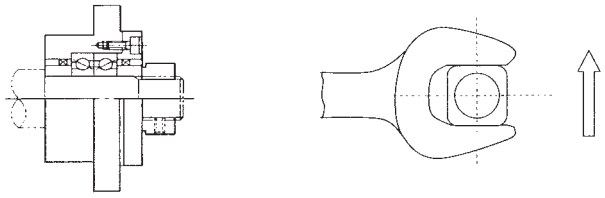


Mounting procedure for the round type support unit

Fitting the support unit to the ball screw

When the bearing lock nut is fixed with a spanner or the like, the lock nut may shift in the arrow direction due to the gap between the external thread and internal thread. This causes mis-alignment and bending of the screw shaft.

Similarly to poor alignment, bending of the screw shaft results in reduction of feed accuracy and shortening of service life. In addition, it may cause abnormal sounds, vibration and other accidents such as break of the screw shaft.

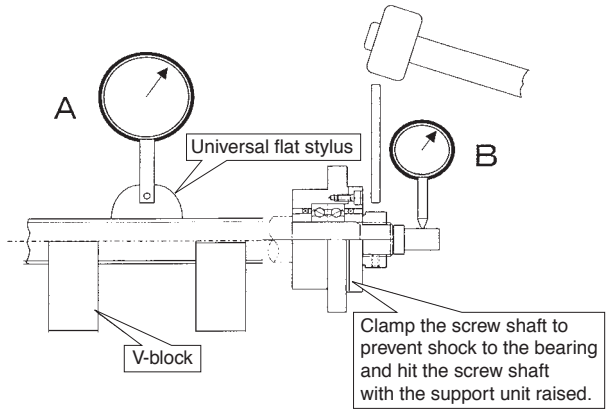


Cautions for fitting the bearing lock nut

(1) Lightly tighten the bearing lock nut.

(2) Support the screw shaft with V-block, apply a dial gauge to A or B shown in the illustration and find a position at which the deflection of the pointer is maximized while turning the screw shaft.

(3) Using a hammer as shown in the illustration, lightly hit the bearing lock nut at the above-mentioned backlash alignment position to reduce the deflection of the pointer.



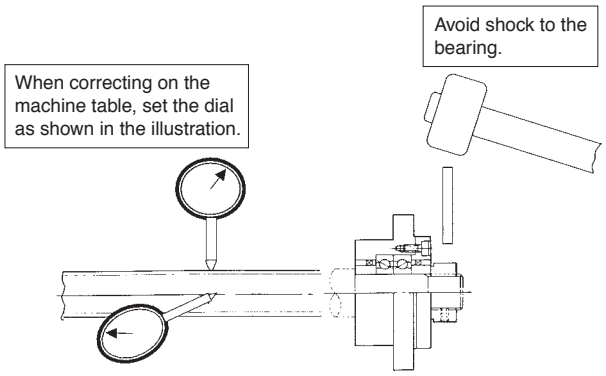
Fitting the bearing lock nut after fixing the support unit to the machine table

(1) Set a dial gauge vertically and horizontally to the outside diameter of the screw shaft.

(2) Lightly tighten the bearing lock nut.

(3) As shown in the illustration, lightly hit the bearing lock nut with a hammer to reduce the deflection of the pointer.

If the pointer of the dial gauge does not deflect when the bearing lock nut is lightly hit, loosen the lock nut and repeat the procedure to prevent shock to the bearing.



* For the recommenced tightening torque, consult Kuroda.

Dust preventive grease KURODA C-GREASE

C-GREASE meets the needs for dust prevention on actuators required in semiconductor manufacturing machines and electronic component devices.

■ Features

- Superior dust prevention
- Stable torque characteristics
- High lubricating performance
- Rust prevention performance equivalent to that of lithium grease

■ Notation

C1-080G-J (Contents: 80g in bellows type container)

C1-400G-J (Contents: 400g in bellows type container)

* For the can (1kg, 1.5kg) and the syringe (50cc), contact us.

* The color of the bellows type container for KURODA C-GREASE is white.

■ Major properties

Appearance	Yellow white
Thickener	Urea
Base oil	Synthetic oil
Consistency	280 (No.2)
Operating temperature range	-30 ~ +150°C

⚠ Precautions on handling

Before using C-GREASE, carefully read the precautions on the “Material Safety Data Sheet” (MSDS) of the oil type. For the “Material Safety Data Sheet”, request to the distributor you purchased the product.

Major applications	KURODA C-GREASE
⚠ Caution Precautions on handling	• C-GREASE is flammable (flash point: 220°C). Keep from flame. • Use protective glasses in handling. If it enters your eye, eye irritation may be caused. • Use protective gloves in handling. If it touches your skin, an irritation may be caused. • Do not eat. (If you eat it, you suffer from diarrhea and vomiting.) • Keep away from children. • After use, seal hermetically to prevent intrusion of dirt or water from.
Emergency measures	• If it enters your eye, wash the eye with clean water for over 15 minutes and consult a doctor. • If it touches your skin, fully wash with soap and water. • If swallowed, do not induce vomiting. Immediately consult a doctor.
Disposal of waste oil and waste container	• For disposal, take a proper measure according to the “Waste Disposal and Public Cleaning Law”.
Storage	• Avoid direct sunlight, keep away from fire or heat and store in a dark place.

Performance data

■ Dust prevention property

Number of dust particles from ball screw (particle size 0.13μm or more)

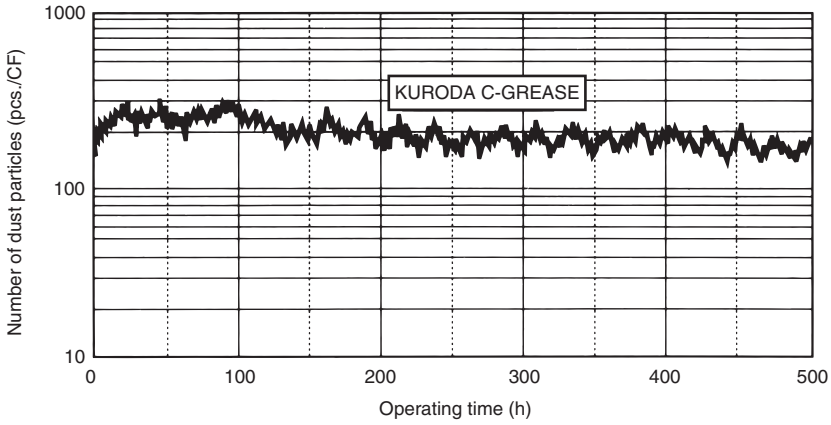


Fig. 1 Test conditions

Ball screw Shaft diameter: 20 mm
Lead: 20 mm
Preloaded : 800N
Revolution speed: 1200 min^{-1}
Stroke: 250 mm
Amount of grease: 1 cc
Measurement interval: 1h

Number of dust particles from ball screw (particle size 0.13μm or more)

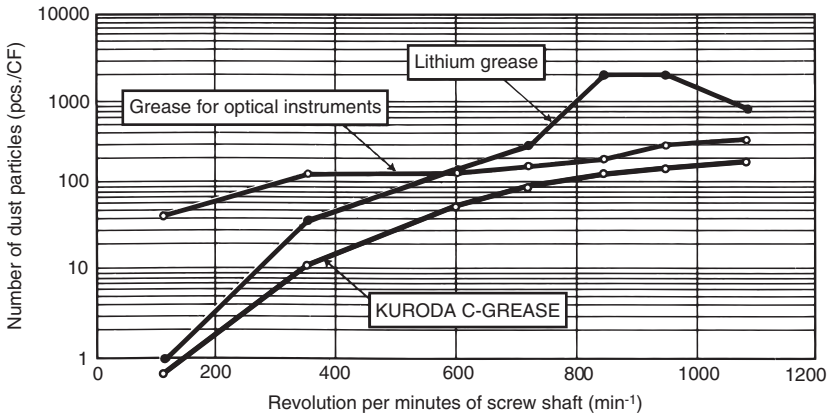


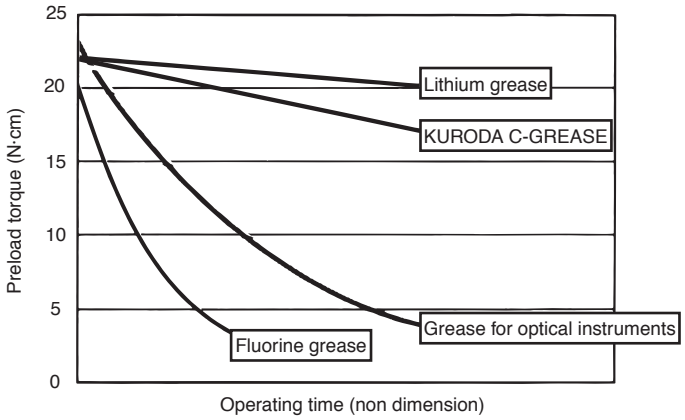
Fig. 2 Test conditions

Ball screw Shaft diameter: 20 mm
Lead: 20 mm
Preloaded : 800N
Stroke: 250 mm
Amount of grease: 1 cc

These values are mean values taken after 100 times of measurements for each revolution speed. The operating time of ball screw during those measurements is about 240 hours.

■ Torque characteristic

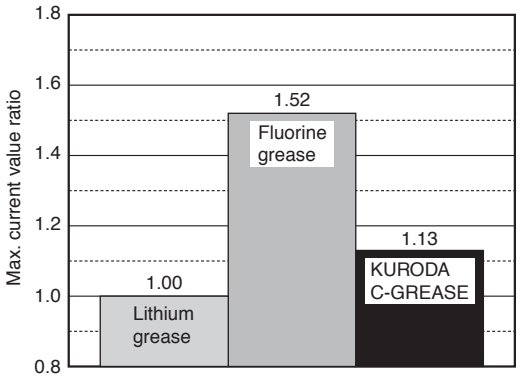
Change of Operating time- Preload torque



Test conditions are the same as those in Fig. 2.
The less the preload torque decreases, the higher the lubricating performance is.

■ Lubricating performance

Comparison of grease resistance



The above bars indicate the maximum current value ratio at 500mm/s (1500min^{-1}) for a single-axis robot.
The current value of drive motor is proportional to the load torque. Therefore, the larger the current value is, the larger the grease resistance becomes (the revolution becomes stiff).

Dust preventive grease KURODA S-GREASE

S-GREASE meets the needs for dust prevention on actuators required in semiconductor manufacturing machines, liquid crystal devices and medial equipment.

■ Features

- Most suitable for clean environment!
- High lubricating performance!
- Superior torque characteristics!
- High rust prevention performance!

■ Notation

S1-080G-J (Contents: 80g in bellows type container)

S1-400G-J (Contents: 400g in bellows type container)

* For the can (1kg, 1.5kg) other than the above containers, contact us.

* The color of the bellows type container for KURODA S-GREASE is chocolate color.

■ Major properties

Appearance	Yellow white
Thickener	Urea
Base oil	Mineral oil
Consistency	280 (No.2)
Operating temperature range	-20 ~ +150°C

⚠ Precautions on handling

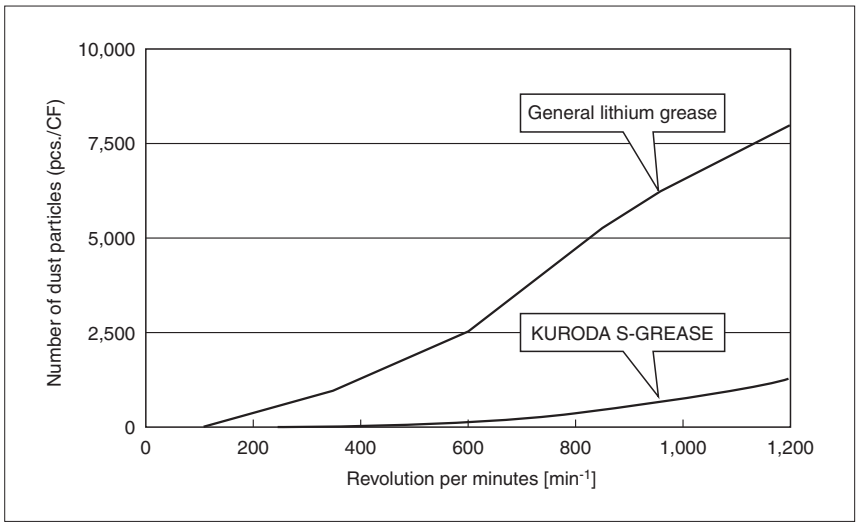
Before use, carefully read the precautions on the “Material Safety Data Sheet” (MSDS) of the oil type. For the “Material Safety Data Sheet”, request to the distributor you purchased the product.

Major applications	KURODA S-GREASE
⚠ Caution Precautions on handling	• S-GREASE is flammable (flash point: 195°C). Keep from flame. • Use protective glasses in handling. If it enters your eye, eye irritation may be caused. • Use protective gloves in handling. If it touches your skin, an irritation may be caused. • Do not eat. (If you eat it, you suffer from diarrhea and vomiting.) • Keep away from children. • After use, seal hermetically to prevent intrusion of dirt or water from.
Emergency measures	• If it enters your eye, wash the eye with clean water for over 15 minutes and consult a doctor. • If it touches your skin, fully wash with soap and water. • If swallowed, do not induce vomiting. Immediately consult a doctor.
Disposal of waste oil and waste container	• For disposal, take a proper measure according to the “Waste Disposal and Public Cleaning Law”.
Storage	• Avoid direct sunlight, keep away from fire or heat and store in a dark place.

Performance data

■ Dust prevention property

• Compared to general lithium grease, S-GREASE exhibits a superior dust prevention property.

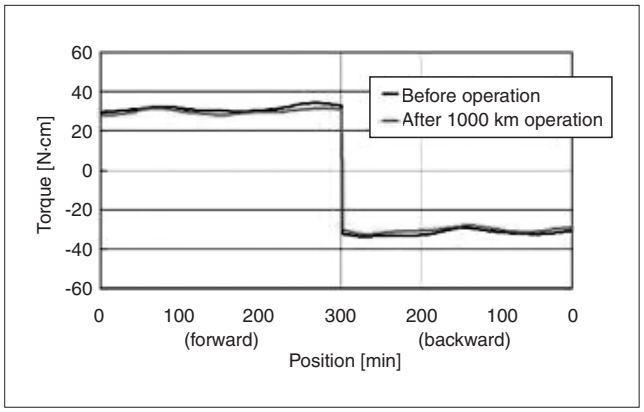


Test conditions	
Screw shaft diameter	ø20mm
Lead	20mm
Axial load	800N

■ Lubricating performance: Comparison of torque changes between before and after operation

Test conditions	
Screw shaft diameter	ø20mm
Lead	20mm
Preload torque	30N·cm

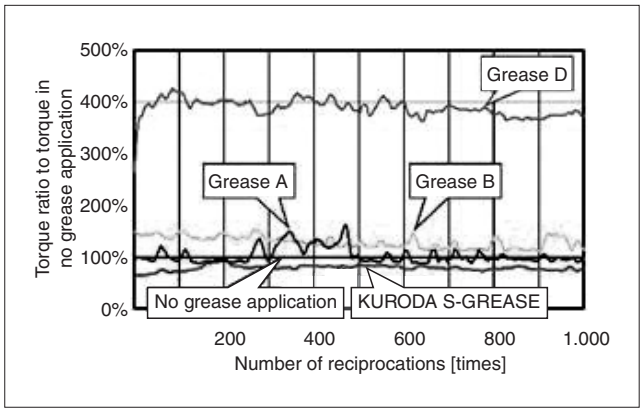
• After 1000 km operation, no change of torque is recognized.



■ Torque characteristics: Comparison with other greases having a dust prevention performance

Test conditions	
Screw shaft diameter	ø16mm
Lead	2mm
Operating stroke	0.5mm

• A stable torque characteristic is exhibited in oscillation operation.



■ Rust prevention performance

• #1 rust prevention performance at the bearing rust prevention test (52°C, 48 hours)

*#1 means that no rust was formed under the above test conditions.

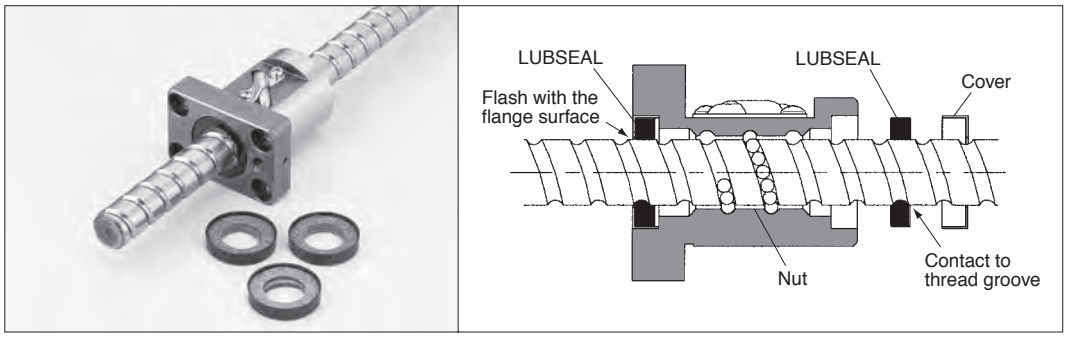
Lubrication unit for ball screw LUBSEAL

LUBSEAL is a lubrication unit which contacts the ball rolling portion of the screw shaft groove and supplies an appropriate amount of lubricant (grease).
It can fit into the both ends of ball screw nut and becomes compact in size.
Most suitable for semiconductor/liquid crystal manufacturing machines, detection devices, food machines, medical equipment, machine tools and automobile production facilities.

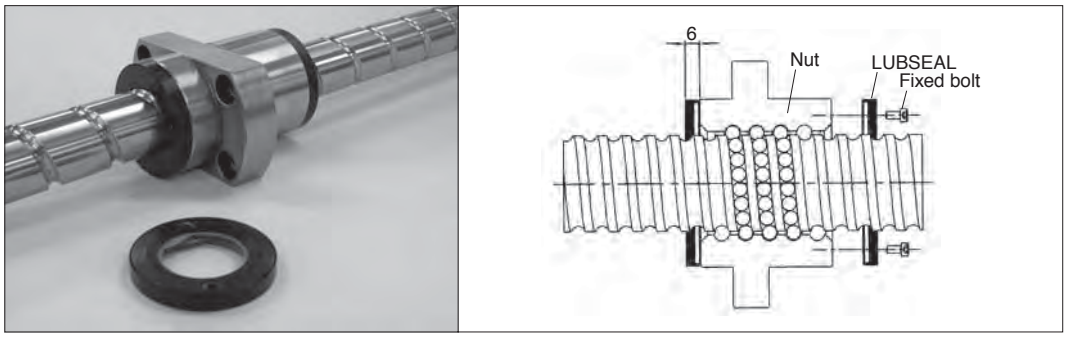
■ Features

- Assembled into the standard ball screw unit simply, neatly and in compact.
- Clean and environmentally friendly
- Maintenance period can be substantially extended.

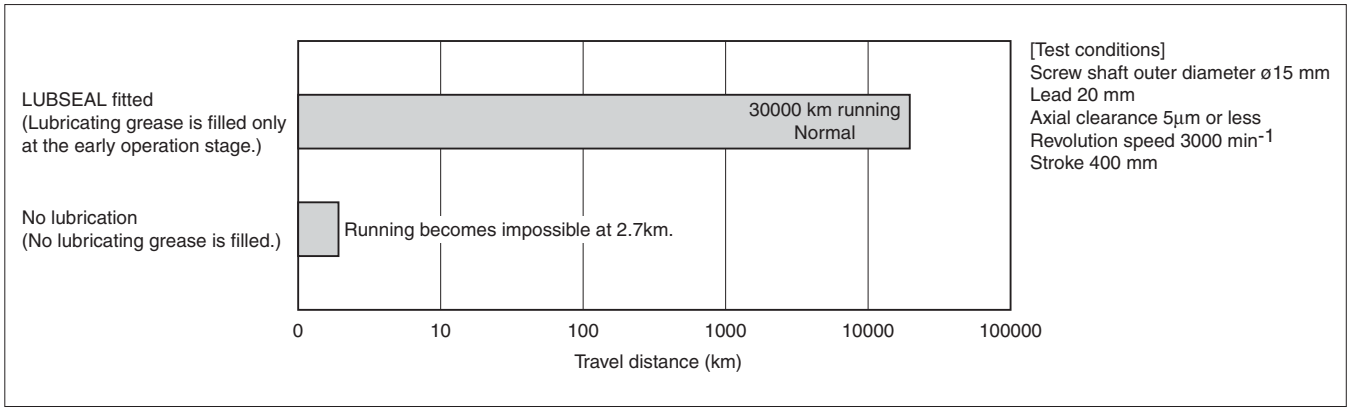
■ G series (including rolled series), fitted to a ball screw



■ F series, fitted to a ball screw



■ Performance



■ Notation by model No.

GG	15	20	AS	-	B	A	S	R	-	Total length	X	Thread length	-	C5	F
FG	15	10	PS	-	H	P	S	R	-	Total length	X	Thread length	-	C5	F

↑ Series

↑ LUBSEAL fitted product

■ Series and size

Shaft diameter	Lead	Series to which LUBSEAL can be fitted			
		FE/FG	GE/GG	GP	GY/GW (Note 1)
10	10	o			
12	10	o			
	20	o			
15	5	o	o	o	o
	10	o	o		o
	15		o		
	20	o	o		o
20	5		o	o	o
	10	o	o		o
	20	o	o		o
25	5	o	o		o
	10	o	o		o
	20		o		
	25	o	o		o

(Note 1) LUBSEAL cannot be fitted to the GY/GW series square nut.

⚠ Precautions on handling

(Note 1) For lubrication, grease having the same ingredients as those of Alvania Grease S2 filled in the nut is impregnated. For use of other greases, consult us.

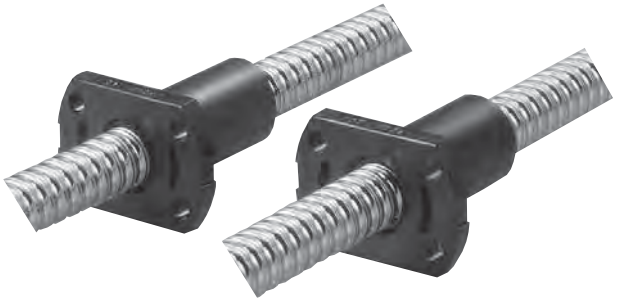
(Note 2) For LUBSEAL fitting on ball screws other than the above series, stainless ball screws and surface treated bass screws, consult us.

(Note 3) The maximum operating temperature is 50°C. For the case where it is 50°C or higher, consult us.

(Note 4) Do not use organic solvent and illuminating kerosene.

Slide screws with resin nuts

Shaft diameter ø10, ø12 Accuracy grade, C7, C10



Low price and compact design compared to ball screws

■ Accuracy

(Unit: mm)

Model No.	Mean travel deviation	Shaft center runout	Initial axial play
PY1004GP(SP)*-0400A	C10 ± 0.21/300	0.15	0.1 or less
PY1004GP(SP)*-0600A		0.25	
PY1010GP(SP)*-0400A		0.15	
PY1010GP(SP)*-0600A		0.25	
PY1204GP(SP)*-0400A		0.15	
PY1204GP(SP)*-0800A		0.32	
PY1210GP(SP)*-0400A		0.15	
PY1210GP(SP)*-0800A		0.32	
PW1004GP(SP)*-0400A	C7 ± 0.05/300	0.10	0.05 or less
PW1004GP(SP)*-0600A		0.15	
PW1010GP(SP)*-0400A		0.10	
PW1010GP(SP)*-0600A		0.15	
PW1204GP(SP)*-0400A		0.10	
PW1204GP(SP)*-0800A		0.20	
PW1210GP(SP)*-0400A		0.10	
PW1210GP(SP)*-0800A		0.20	

■ Ordering Instruction

• **Standard product (without screw shaft machining)**

PY 10 04 S P R - 0600 A
(1) (2) (3) (4) (5) (6) (7)

• **(With t screw shaft machining)**

PY 10 04 S P R - 0600 X 0546 - CA Y
(1) (2) (3) (4) (5) (6) (7) (8) (9)

(1) Series: PY (C10) or PW (C7)
(2) Shaft diameter (mm): 10 or 12
(3) Lead (mm): 04 or 10
(4) Shaft material: G (S45C) or S (SUS304)
(5) Nut material: P (PPS)
(6) Torsion direction: R (right) or L (left) (R or L indicated at the mark * in the left table.)
(7) Overall shaft length (mm)
(8) Thread length (mm)
(9) Accuracy grade: CA (PY) or C7 (PW)

■ Shaft (Rolled)

• Two materials can be selected by material.
GP: S45C (No quench hardening)
SP: SUS304 (No quench hardening)
• Surface roughness in the sliding direction of thread groove: Ra0.05μm

■ Nut (Injection mold)

• Stable dimension
High rigidity engineering plastic (PPS) for sliding is used.

■ Lubrication

· Recommended grease:
"Alvania Grease S2" by Showa Shell Sekiyu
· Anti-rust oil applied to the shaft and the resin nut has a lubricating property and it can be also used as lubricant.
· The initial inspection shall be conducted in 2 to 3 months after operation start.
If grease is very dirty, remove the old grease and apply new grease.
· After the initial inspection, re-grease once a year.

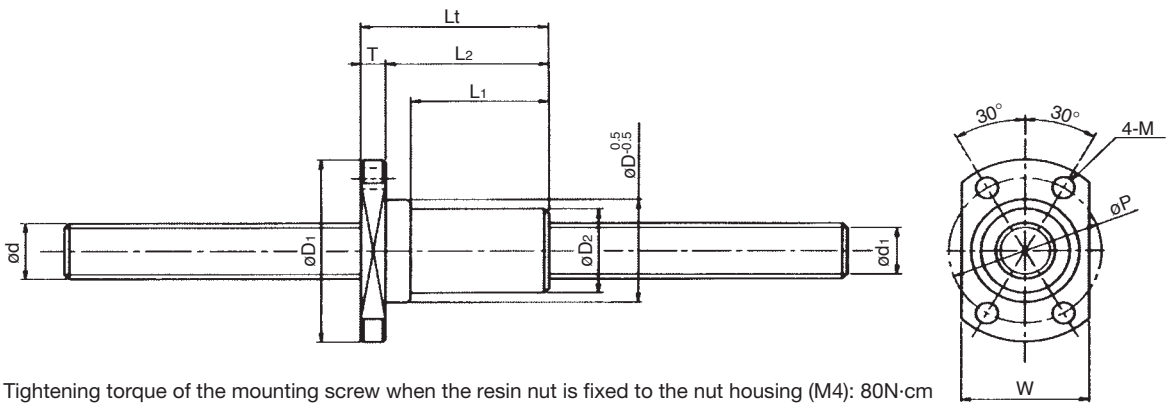
■ Major physical properties of nut material PPS

Item	Unit	PPS	PET GF 30 %	Aluminum die casting	Test method
Specific gravity	-	2.55	1.60	2.70	ASTM-D792
Tensile strength	MPa	165	118	343	ASTM-D638
Bending strength	MPa	225	181	-	ASTM-D790
Coefficient of linear expansion	X 10^{-5}/K	1.7~1.8	2.5	2.1	ASTM-D696

■ Permissible axial load and revolution speed

Shaft diameter (mm)	Lead (mm)	Permissible axial load (practical index) (N)	Permissible revolution speed (min^{-1})
ø10	4	70	3000
	10		
ø12	4	100	3000
	10		

■ Shape and dimension



(Note) Tightening torque of the mounting screw when the resin nut is fixed to the nut housing (M4): 80N·cm

(Unit: mm)

Model No.	Nominal			Screw shaft		Nut										Accuracy grade	Axial clearance
						Nut barrel					Flange						
	Shaft diameter d	Lead L	Torsion	Overall length	Root diameter d_1	Outside diameter D	Outside diameter D_2	Overall length Lt	Nut barrel length L_2	Nut barrel length L_1	Diameter D_1	Thickness T	Mounting hole PCD.P	Mounting hole M	Width W		
PY1004GP(SP)R-0400A	10	4	Right	400	(7.8)	19	16	32	27	22	36	5	28	4.5 drilled	22	C10	0.10 or less
PY1004GP(SP)R-0600A				600													
PY1004GP(SP)L-0400A			Left	400													
PY1004GP(SP)L-0600A				600													
PY1010GP(SP)R-0400A		10	Right	400													
PY1010GP(SP)R-0600A				600													
PY1204GP(SP)R-0400A	12	4	Right	400	(10.0)	22	18	38	33	28	39	5	31	4.5 drilled	26	C10	0.10 or less
PY1204GP(SP)R-0800A				800													
PY1210GP(SP)R-0400A		10	Right	400	(9.6)												
PY1210GP(SP)R-0800A				800													
PW1004GP(SP)R-0400A	10	4	Right	400	(7.8)	19	16	32	27	22	36	5	28	4.5 drilled	22	C7	0.05 or less
PW1004GP(SP)R-0600A				600													
PW1004GP(SP)L-0400A			Left	400													
PW1004GP(SP)L-0600A				600													
PW1010GP(SP)R-0400A		10	Right	400													
PW1010GP(SP)R-0600A				600													
PW1204GP(SP)R-0400A	12	4	Right	400	(10.0)	22	18	38	33	28	39	5	31	4.5 drilled	26	C7	0.05 or less
PW1204GP(SP)R-0800A				800													
PW1210GP(SP)R-0400A		10	Right	400	(9.6)												
PW1210GP(SP)R-0800A				800													

■ Axial load and drive torque

Index of torque required for motor