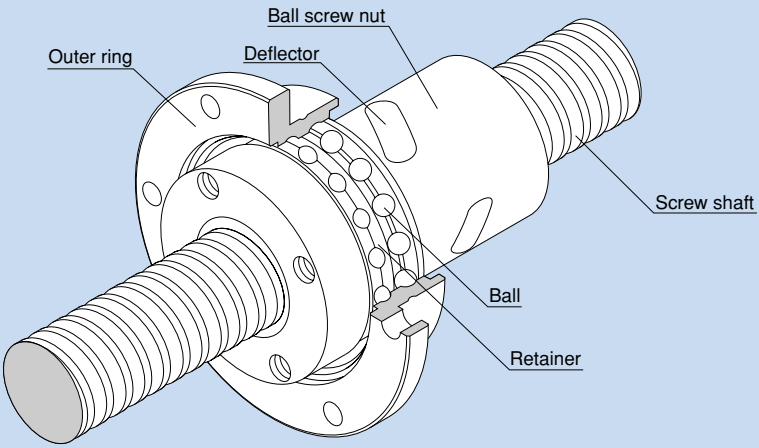


Fig. 1 Structure of Standard-Lead Rotary-Nut Ball Screw Model DIR

Structure and Features

Standard-Lead Rotary-Nut Ball Screw model DIR is rotary nut Ball Screw that has a structure where a simple-nut Ball Screw is integrated with a support bearing.

Its ball screw nut serves as a ball circulation mechanism using deflectors. Balls travel along the groove of the deflector mounted in the ball screw nut to the adjacent raceway, and then circulate back to the loaded area to complete infinite rolling motion.

Being an offset preload nut, the single ball screw nut provides different phases to the right and left thread in the middle of the nut, thus to set the axial clearance below zero (a preload is provided). This allows more compact, smoother motion to be achieved than the conventional double-nut type (a spacer is inserted between two nuts).

The support bearing comprises two rows of DB type angular bearings with a contact angle of 45° to provide a preload. The collar, previously used to mount a pulley, is integrated with the ball screw nut.

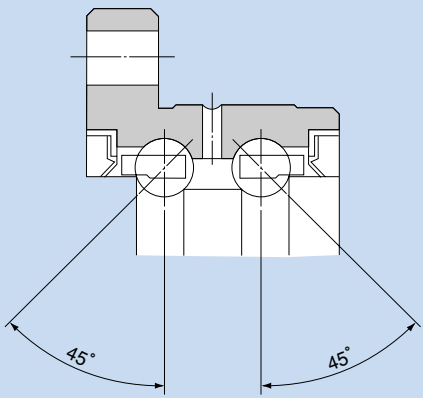


Fig. 2 Structure of the Support Bearing

●Compact

Because of the internal circulation mechanism using a deflector, the outer diameter is only 70 to 80%, and the overall length is 60 to 80%, of that of the Return-pipe Nut, thus to reduce the weight and decrease the inertia during acceleration.
Since the ball screw nut is integrated with the support bearing, highly accurate, compact design is allowed. In addition, small inertia because of the lightweight ball screw nut ensures high responsiveness.

●Capable of High-speed Rotation

Since the screw shaft is fixed and the ball screw nut is free, the Ball Screw is capable of rotating at high speed even if the shaft diameter is small. It allows a small driving motor to be used.

●Capable of Fine Positioning

Being a Standard-Lead Ball Screw, it is capable of fine positioning despite that the ball screw nut rotates.

●Accuracy can Easily be Established

As the support bearing is integrated with the outer ring, the bearing can be assembled with the nut housing on the end face of the outer ring flange. This makes it easy to center the ball screw nut and establish accuracy.

●Well Balanced

Since the deflector is evenly placed along the circumference, superb balance is ensured while the ball screw nut is rotating.

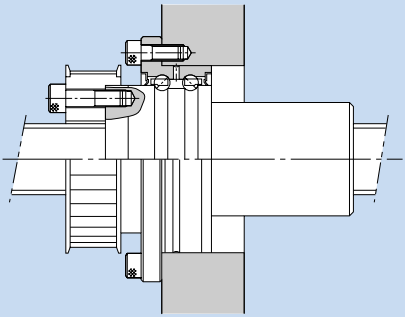
●Stability in the Low-speed Range

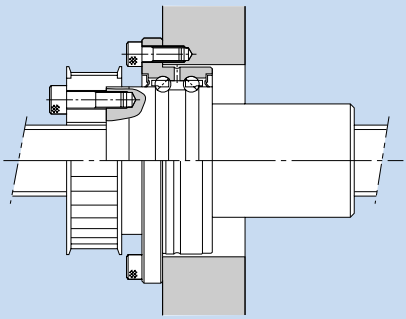
Traditionally, motors tend to have uneven torque and speed in the low-speed range due to external causes. With model DIR, the motor can be connected independently with the screw shaft and the ball screw nut, thus to allow fine feed within the motor's stable rotation range.

Types

Rotary Ball Screw Model DIR

Example of Mounting Ball Screw Nut Model DIR

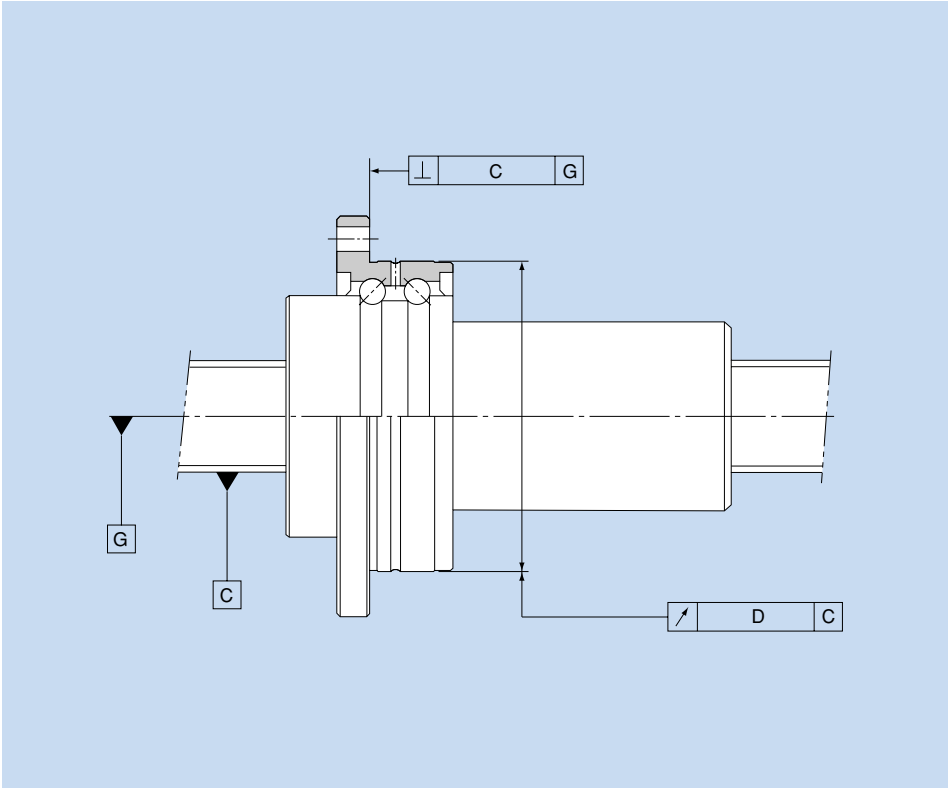




Installation to the housing can be performed on the end face of the outer ring flange.

Accuracy Standards for Model DIR

The accuracy of model DIR is compliant with a JIS standard (JIS B 1192) except for the radial run-out of the circumference of the ball screw nut from the screw axis (D) and the perpendicularity of the flange-mounting surface against the screw axis (C).

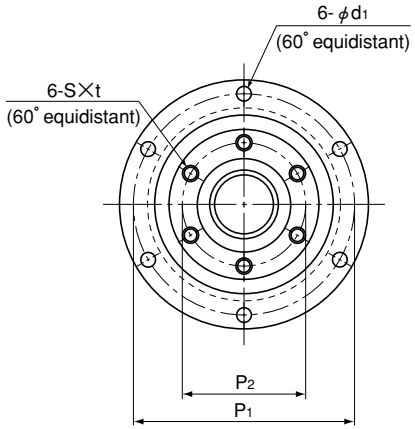


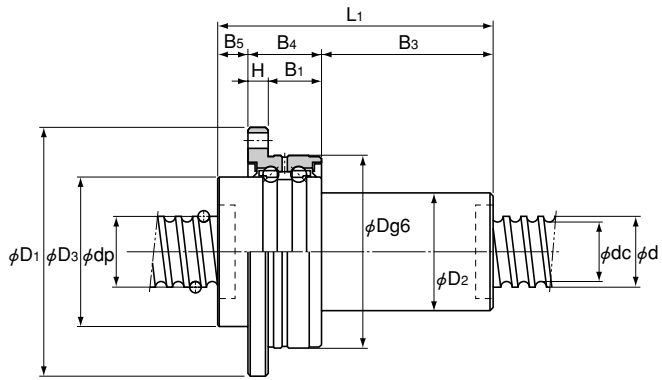
Unit: mm

Accuracy grade	C3		C5		C7	
Model No.	C	D	C	D	C	D
DIR 16□□	0.013	0.017	0.016	0.020	0.023	0.035
DIR 20□□	0.013	0.017	0.016	0.020	0.023	0.035
DIR 25□□	0.015	0.020	0.018	0.024	0.023	0.035
DIR 32□□	0.015	0.020	0.018	0.024	0.023	0.035
DIR 36□□	0.016	0.021	0.019	0.025	0.024	0.036
DIR 40□□	0.018	0.026	0.021	0.033	0.026	0.036

Model DIR

Standard-Lead Rotary Nut Ball Screw





Unit: mm

Model No.	Screw shaft outer diameter d	Thread minor diameter dc	Lead R	Ball center diameter dp	Basic load rating Ca kN	Basic load rating C0a kN	Rigidity K N/μm	Ball screw dimensions: Outer diameter D	Flange diameter D1	Overall length L1	D3 h7	D2	B5	B4	B3	P1	P2	H	B1	S	t	d1	Support bearing basic load rating Ca kN	Support bearing basic load rating C0a kN	Nut inertial moment kg·cm²
DIR 1605-6	16	13.2	5	16.75	7.4	13	310	48	64	79	36	30	8	21	50	56	30	6	15	M4	6	4.5	8.7	10.5	0.61
DIR 2005-6	20	17.2	5	20.75	8.5	17.3	310	56	72	80	43.5	34	9	21	50	64	36	6	15	M5	8	4.5	9.7	13.4	1.18
DIR 2505-6	25	22.2	5	25.75	9.7	22.6	490	66	86	88	52	40	13	25	50	75	43	7	18	M6	10	5.5	12.7	18.2	2.65
DIR 2510-4		21.6	10	26	9	18	330	66	86	106	52	40	11	25	70	75	43	7	18	M6	10	5.5	12.7	18.2	2.84
DIR 3205-6	32	29.2	5	32.75	11.1	30.2	620	78	103	86	63	46	11	25	50	89	53	8	17	M6	10	6.6	13.6	22.3	5.1
DIR 3206-6		28.4	6	33	14.9	37.1	630	78	103	97	63	48	11	25	61	89	53	8	17	M6	10	6.6	13.6	22.3	5.68
DIR 3210-6		26.4	10	33.75	25.7	52.2	600	78	103	131	63	54	11	25	95	89	53	8	17	M6	10	6.6	13.6	22.3	8.13
DIR 3610-6	36	30.5	10	37.75	28.8	63.8	710	92	122	151	72	58	14	33	104	105	61	10	23	M8	12	9	20.4	32.3	14.7
DIR 4010-6	40	34.7	10	41.75	29.8	69.3	750	100	130	142	79.5	62	14	33	95	113	67	10	23	M8	12	9	21.5	36.8	20.6
DIR 4012-6		34.4	12	41.75	30.6	72.3	790	100	130	167	79.5	62	14	33	120	113	67	10	23	M8	12	9	21.5	36.8	22.5

Model number coding

DIR2005-6 RR G0 +520L C1
1 2 3 4 5

1 Model number
2 Seal symbol - RR: Labyrinth seal attached to both ends of the ball screw nut (see page k-25)
3 Symbol for axial clearance (see page k-15) 4 Overall screw shaft (in mm)
5 Accuracy symbol (see page k-8)

Note The rigidity values in the table represent spring constants each obtained from the load and the elastic displacement when providing a preload 10% of the basic dynamic load rating (Ca) and applying an axial load three times greater than the preload.
These values do not include the rigidity of the components related to mounting the ball screw nut. Therefore, it is normally appropriate to regard roughly 80% of the value in the table as the actual value.
If the applied preload (Fa_0) is not 0.1 Ca, the rigidity value (K_N) is obtained from the following equation.

where

$$K_N = K\left(\frac{Fa_0}{0.1Ca}\right)^{\frac{1}{3}}$$

K: Rigidity value in the dimensional table.

Dust Prevention and Lubrication

Dust Prevention

Every THK Precision Ball Screw has labyrinth seals attached on both ends of the ball screw nut to prevent foreign matter such as cutting chips from entering the nut.
A slight clearance is secured between the labyrinth seal and the screw shaft to maintain the efficiency of the seal.
For a bellows and a screw cover, contact THK .

Lubrication

When lubricating the Rotary Ball Screw, attach the greasing plate to the housing in advance.
THK Precision Ball Screws require appropriate lubrication in order to maintain their efficiencies, service lives and accuracies and to protect them from temperature rise. In particular, when the heat generation of the ball screw unit would affect the accuracy due to high-speed rotation and a heavy load, it is also important to consider selecting a lubricant and cooling the system by forced lubrication.

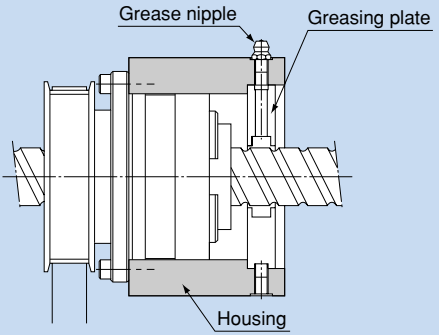


Fig. 3 Lubrication Method

Precautions on Use

Do not separate the ball screw nut of THK Precision Ball Screw from the screw shaft. In the event you have separated the nut from the shaft, check the serial number and the model number indicated on the ball screw nut, and then contact THK .
Note that the screw shaft cannot be assembled unless either end is cut off or its diameter is smaller than the thread minor diameter.

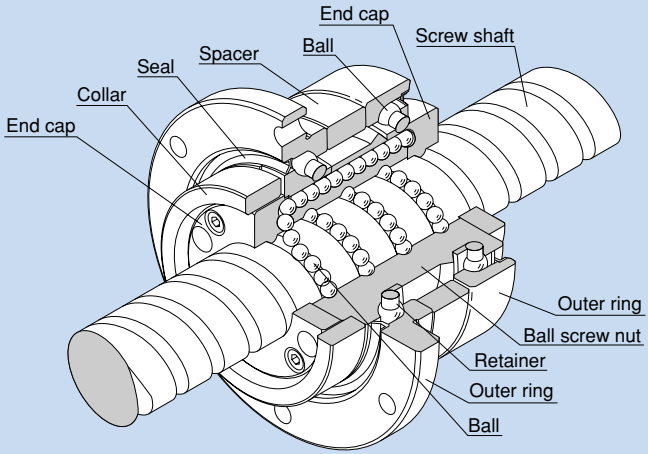


Fig. 1 Structure of Large-Lead Rotary Nut Ball Screw Model BLR

Structure and Features

The Rotary Ball Screw is a nut-rotating ball screw unit that has an integrated structure consisting of a ball screw nut and a support bearing. The support bearing is an angular bearing that has a contact angle of 60°, contains an increased number of balls and achieves large axial rigidity.
Model BLR is divided into two types: Precision Ball Screw and Roller Screw Ball.

●Capable of Fast Feed

Since the ball screw nut rotates with the screw shaft being secured, it can be fed at high speed with a thin screw shaft. It allows a small driving motor to be used.

●Smooth Motion

It achieves smoother motion than rack-and-pinion based linear motion. Also, since the screw shaft does not rotate because of the ball screw nut drive, this model does not show skipping, produces low noise and generates little heat.

●Low Noise even in High-speed Rotation

Model BLR produces very low noise when the balls are picked up along the end cap. In addition, the balls circulate by passing through the ball screw nut, allowing this model to be used at high speed.

●High Rigidity

The support bearing of this model is larger than that of the screw shaft rotation type. Thus, it axial rigidity is significantly increased.

●Compact

Since the nut and the support bearing are integrated, highly accurate, compact design is achieved.

●Easy Installation

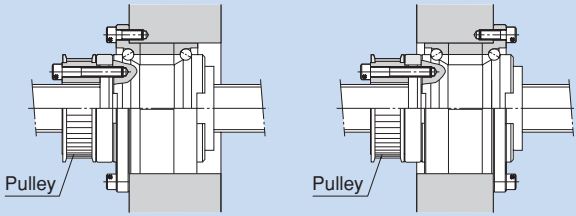
By simply mounting this model to the housing using bolts, a ball screw nut rotating mechanism can be obtained (for the housing's inner-diameter tolerance, H7 is recommended).

Types

Rotary Ball Screw Model BLR (Precision Type)

Rotary Ball Screw Model BLR (Rolled Type)

Example of Mounting Ball Screw Nut Model BLR



Standard installation method　　Flange inverted

Note: If the flange is to be inverted, indicate "K" in the model number (applicable only to model BLR).
Example: BLR 2020-3.6 K UU
Symbol for inverted flange
(No symbol for standard flange orientation)

Example of Mounting Model BLR on the Table

(1) Screw shaft free, ball screw nut fixed
(Suitable for a long table)

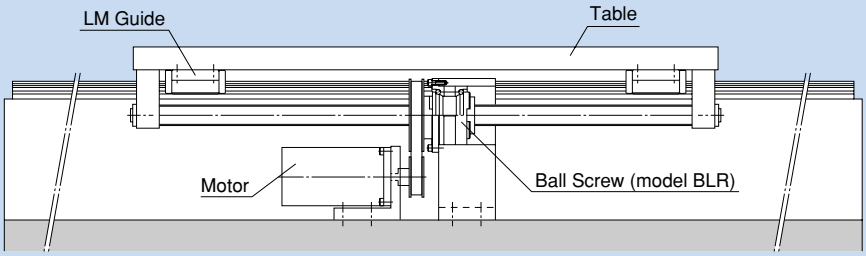


Fig. 2 Example of Installation on the Table (Ball Screw Nut Fixed)

(2) Ball screw nut free, screw shaft fixed
(Suitable for a short table and a long stroke)

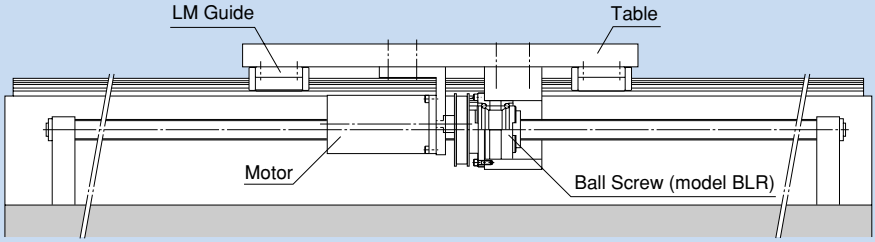
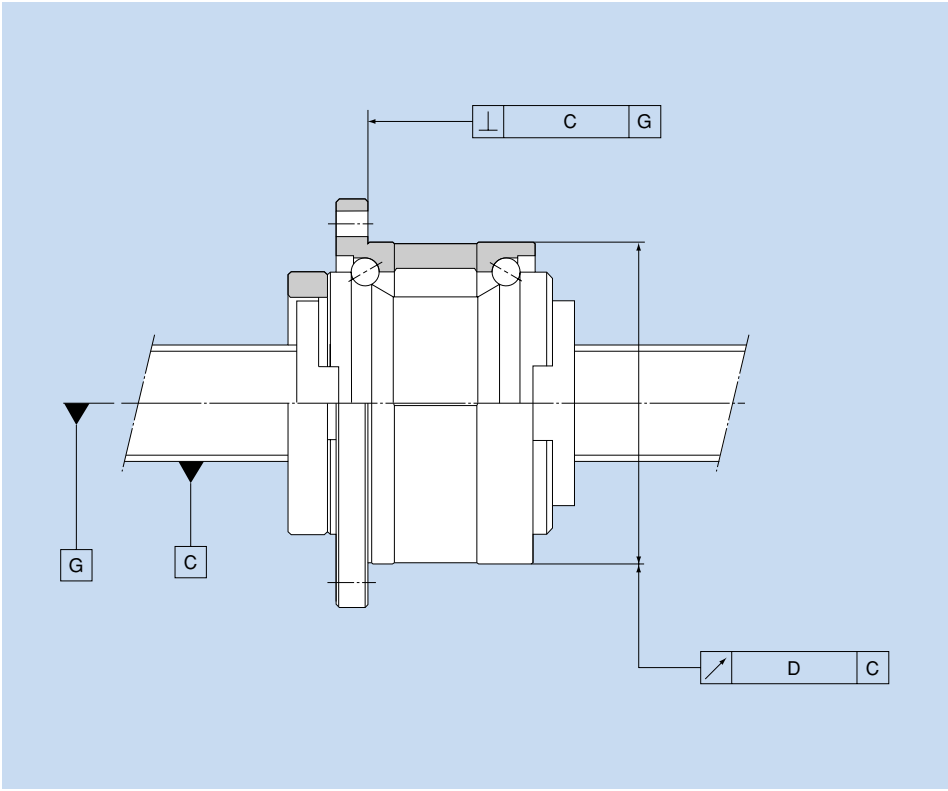


Fig. 3 Example of Installation on the Table (Screw Shaft Fixed)

Accuracy Standard for Model BLR

The accuracy of model BLR is compliant with a JIS standard (JIS B 1192) except for the radial run-out of the circumference of the ball screw nut from the screw axis (D) and the perpendicularity of the flange-mounting surface against the screw axis (C).

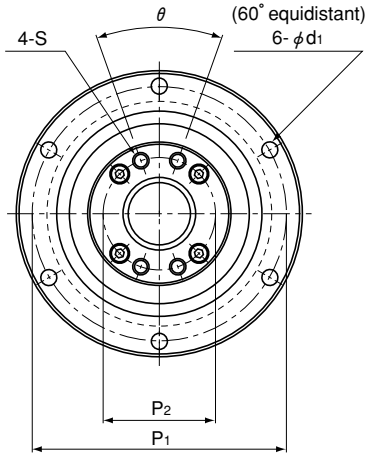


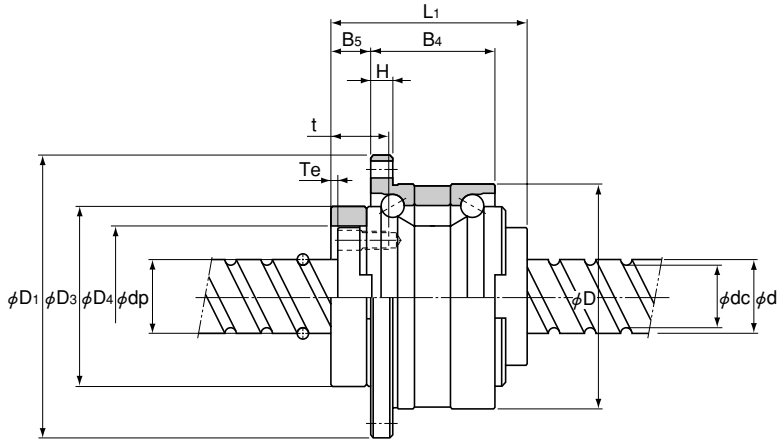
Unit: mm

Accuracy grade	C3		C5		C7		C10	
Model No.	C	D	C	D	C	D	C	D
BLR 1616	0.013	0.017	0.016	0.020	0.023	0.035	0.035	0.065
BLR 2020	0.013	0.017	0.016	0.020	0.023	0.035	0.035	0.065
BLR 2525	0.015	0.020	0.018	0.024	0.023	0.035	0.035	0.065
BLR 3232	0.015	0.020	0.018	0.024	0.023	0.035	0.035	0.065
BLR 3636	0.016	0.021	0.019	0.025	0.024	0.036	0.036	0.066
BLR 4040	0.018	0.026	0.021	0.033	0.026	0.046	0.046	0.086
BLR 5050	0.018	0.026	0.021	0.033	0.026	0.046	0.046	0.086

Model BLR

Large-Lead Rotary Nut Precision Ball Screw





Unit: mm

Model No.	Screw shaft outer diameter d	Thread minor diameter dc	Lead R	Ball center diameter dp	Basic load rating Ca kN	Basic load rating C0a kN	Ball screw dimensions: Outer diameter D	Flange diameter D1	Overall length L1	D3	D4	H	B4	B5	Te	P1	P2	S	t	d1	θ°	Support bearing basic load rating Ca kN	Support bearing basic load rating C0a kN	Nut inertial moment kg·cm²
BLR 1616-3.6	16	13.7	16	16.65	7.1	14.3	52 $^{0}_{-0.007}$	68	43.5	40 $^{0}_{-0.025}$	32 $^{+0.025}_{0}$	5	27.5	9	2	60	25	M4	12	4.5	40	19.4	19.2	0.48
BLR 2020-3.6	20	17.5	20	20.75	11.1	24.7	62 $^{0}_{-0.007}$	78	54	50 $^{0}_{-0.025}$	39 $^{+0.025}_{0}$	6	34	11	2	70	31	M5	16	4.5	40	26.8	29.3	1.44
BLR 2525-3.6	25	22	25	26	16.6	38.7	72 $^{0}_{-0.007}$	92	65	58 $^{0}_{-0.03}$	47 $^{+0.025}_{0}$	8	43	12.5	3	81	38	M6	19	5.5	40	28.2	33.3	3.23
BLR 3232-3.6	32	28.3	32	33.25	23.7	59.5	80 $^{0}_{-0.007}$	105	80	66 $^{0}_{-0.03}$	58 $^{+0.03}_{0}$	9	55	14	3	91	48	M6	19	6.6	40	30	39	6.74
BLR 3636-3.6	36	31.7	36	37.4	30.8	78	100 $^{0}_{-0.008}$	130	93	80 $^{0}_{-0.03}$	66 $^{+0.03}_{0}$	11	62	17	3	113	54	M8	22	9	40	56.4	65.2	16.8
BLR 4040-3.6	40	35.2	40	41.75	38.7	99.2	110 $^{0}_{-0.008}$	140	98	90 $^{0}_{-0.035}$	73 $^{+0.03}$	11	68	16.5	3	123	61	M8	22	9	50	59.3	74.1	27.9
BLR 5050-3.6	50	44.1	50	52.2	57.8	155	120 $^{0}_{-0.008}$	156	126	100 $^{0}_{-0.035}$	90 $^{+0.035}_{0}$	12	80	25	4	136	75	M10	28	11	50	62.2	83	58.2

Model number coding

BLR2020-3.6 K UU G1 +1000L C5

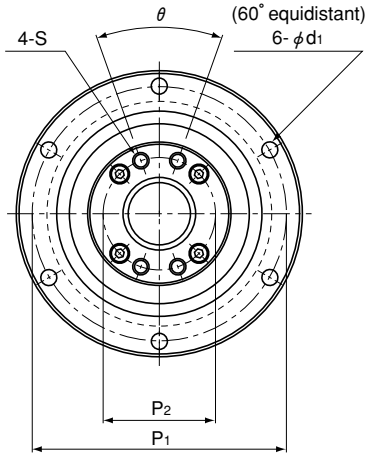
1 2 3 4 5 6

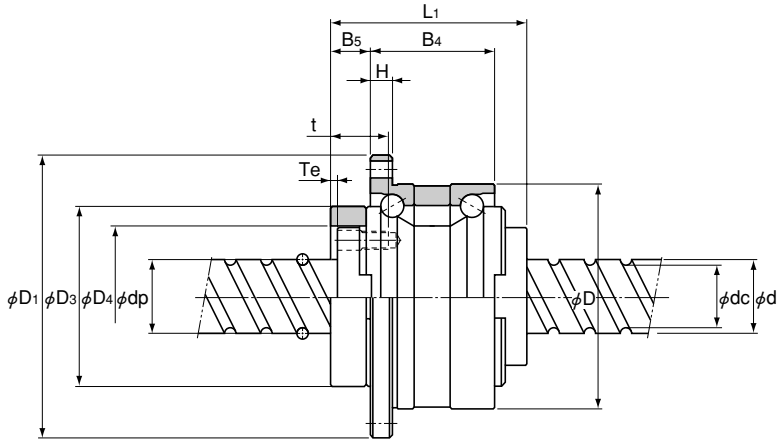
1 Model number 2 Flange orientation symbol (see page k-210) - K: Flange inversed
No symbol: Standard
3 Symbol for support bearing seal - UU: Seal attached on both ends
No symbol: Without seal
4 Symbol for axial clearance (see page k-15) 5 Overall screw shaft (in mm)
6 Accuracy symbol (see page k-8)

Selecting a Model Number Refer to the "THK General Catalog - Technical Descriptions of the Products," provided separately

Model BLR

Large-Lead Rotary Nut Rolled Ball Screw





Unit: mm

Model No.	Screw shaft outer diameter d	Thread minor diameter dc	Lead R	Ball center diameter dp	Basic load rating Ca kN	Basic load rating C0a kN	Ball screw dimensions: Outer diameter D	Flange diameter D1	Overall length L1	D3	D4	H	B4	B5	Te	P1	P2	S	t	d1	θ°	Support bearing basic load rating Ca kN	Support bearing basic load rating C0a kN	Nut inertial moment kg·cm²
BLR 1616-3.6	16	13.7	16	16.65	5.8	12.9	52 $^{0}_{-0.007}$	68	43.5	40 $^{0}_{-0.025}$	32 $^{+0.025}_{0}$	5	27.5	9	2	60	25	M4	12	4.5	40	19.4	19.2	0.48
BLR 2020-3.6	20	17.5	20	20.75	7.7	22.3	62 $^{0}_{-0.007}$	78	54	50 $^{0}_{-0.025}$	39 $^{+0.025}_{0}$	6	34	11	2	70	31	M5	16	4.5	40	26.8	29.3	1.44
BLR 2525-3.6	25	22	25	26	12.1	35	72 $^{0}_{-0.007}$	92	65	58 $^{0}_{-0.03}$	47 $^{+0.025}_{0}$	8	43	12.5	3	81	38	M6	19	5.5	40	28.2	33.3	3.23
BLR 3232-3.6	32	28.3	32	33.25	17.3	53.9	80 $^{0}_{-0.007}$	105	80	66 $^{0}_{-0.03}$	58 $^{+0.03}_{0}$	9	55	14	3	91	48	M6	19	6.6	40	30	39	6.74
BLR 3636-3.6	36	31.7	36	37.4	22.4	70.5	100 $^{0}_{-0.008}$	130	93	80 $^{0}_{-0.03}$	66 $^{+0.03}_{0}$	11	62	17	3	113	54	M8	22	9	40	56.4	65.2	16.8
BLR 4040-3.6	40	35.2	40	41.75	28.1	89.8	110 $^{0}_{-0.008}$	140	98	90 $^{0}_{-0.035}$	73 $^{+0.03}$	11	68	16.5	3	123	61	M8	22	9	50	59.3	74.1	27.9
BLR 5050-3.6	50	44.1	50	52.2	42.1	140.4	120 $^{0}_{-0.008}$	156	126	100 $^{0}_{-0.035}$	90 $^{+0.035}_{0}$	12	80	25	4	136	75	M10	28	11	50	62.2	83	58.2

Model number coding

BLR2020-3.6 K UU +1000L C7 T

1 2 3 4 5 6

1 Model number 2 Flange orientation symbol (see page k-210) - K: Flange inversed
No symbol: Standard
3 Symbol for support bearing seal - UU: Seal attached on both ends
No symbol: Without seal
4 Overall screw shaft (in mm) 5 Accuracy symbol (see page k-8) (no symbol for class C10)
6 Symbol for rolled Ball Screw

Note For axial clearance, see page k-15.

Dust Prevention and Lubrication

Dust Prevention

For the outer ring of the support bearing, a highly wear-resistant special synthetic rubber seal is available in order to prevent foreign matter from entering the bearing system and the lubricant from leaking (type BLR···UU).
Every THK Precision Ball Screw has labyrinth seals attached on both ends of the ball screw nut to prevent foreign matter such as cutting chips from entering the nut.
A slight clearance is secured between the labyrinth seal and the screw shaft to maintain the efficiency of the seal. For a bellows and a screw cover, contact THK .

Lubrication

When lubricating the Rotary Ball Screw, attach the greasing plate to the housing in advance.
THK Precision Ball Screws require appropriate lubrication in order to maintain their efficiencies, service lives and accuracies and to protect them from temperature rise. In particular, when the heat generation of the ball screw unit would affect the accuracy due to high-speed rotation and a heavy load, it is also important to consider selecting a lubricant and cooling the system by forced lubrication.

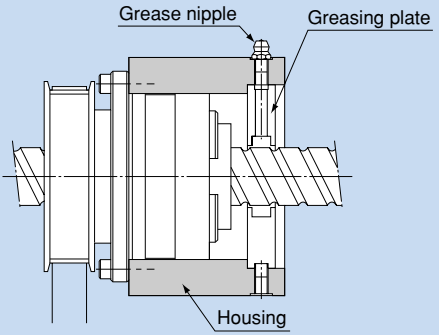


Fig. 4 Lubrication Method

Precautions on Use

Do not separate the ball screw nut of THK Precision Ball Screw from the screw shaft. In the event you have separated the nut from the shaft, check the serial number and the model number indicated on the ball screw nut, and then contact THK .
Note that the screw shaft cannot be assembled unless either end is cut off or its diameter is smaller than the thread minor diameter.

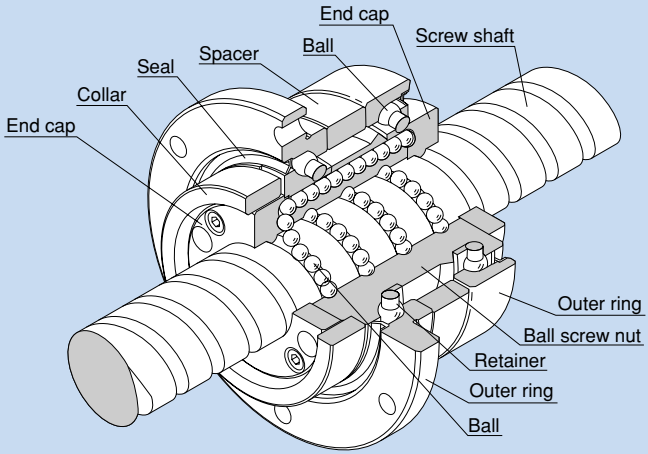


Fig. 1 Structure of Large-Lead Rotary Nut Ball Screw Model BLR

Structure and Features

The Rotary Ball Screw is a nut-rotating ball screw unit that has an integrated structure consisting of a ball screw nut and a support bearing. The support bearing is an angular bearing that has a contact angle of 60°, contains an increased number of balls and achieves large axial rigidity.
Model BLR is divided into two types: Precision Ball Screw and Roller Screw Ball.

●Capable of Fast Feed

Since the ball screw nut rotates with the screw shaft being secured, it can be fed at high speed with a thin screw shaft. It allows a small driving motor to be used.

●Smooth Motion

It achieves smoother motion than rack-and-pinion based linear motion. Also, since the screw shaft does not rotate because of the ball screw nut drive, this model does not show skipping, produces low noise and generates little heat.

●Low Noise even in High-speed Rotation

Model BLR produces very low noise when the balls are picked up along the end cap. In addition, the balls circulate by passing through the ball screw nut, allowing this model to be used at high speed.

●High Rigidity

The support bearing of this model is larger than that of the screw shaft rotation type. Thus, it axial rigidity is significantly increased.

●Compact

Since the nut and the support bearing are integrated, highly accurate, compact design is achieved.

●Easy Installation

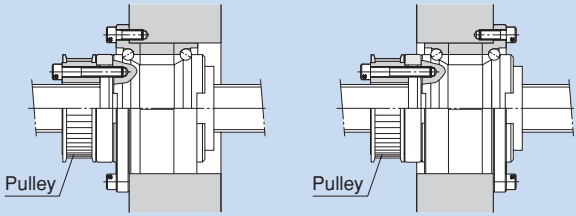
By simply mounting this model to the housing using bolts, a ball screw nut rotating mechanism can be obtained (for the housing's inner-diameter tolerance, H7 is recommended).

Types

Rotary Ball Screw Model BLR (Precision Type)

Rotary Ball Screw Model BLR (Rolled Type)

Example of Mounting Ball Screw Nut Model BLR



Standard installation method　　Flange inverted

Note: If the flange is to be inverted, indicate "K" in the model number (applicable only to model BLR).
Example: BLR 2020-3.6 K UU
Symbol for inverted flange
(No symbol for standard flange orientation)

Example of Mounting Model BLR on the Table

(1) Screw shaft free, ball screw nut fixed
(Suitable for a long table)

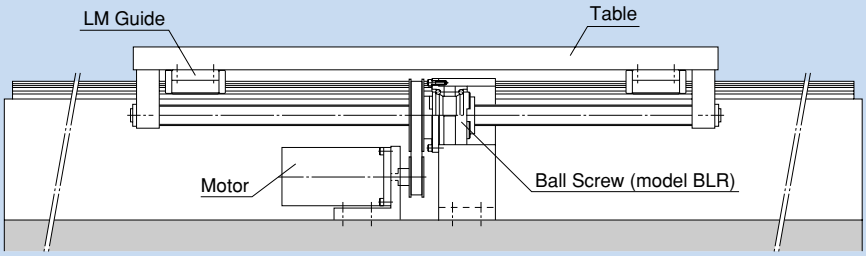


Fig. 2 Example of Installation on the Table (Ball Screw Nut Fixed)

(2) Ball screw nut free, screw shaft fixed
(Suitable for a short table and a long stroke)

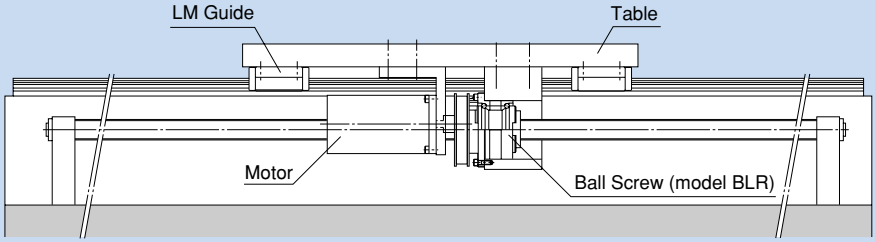
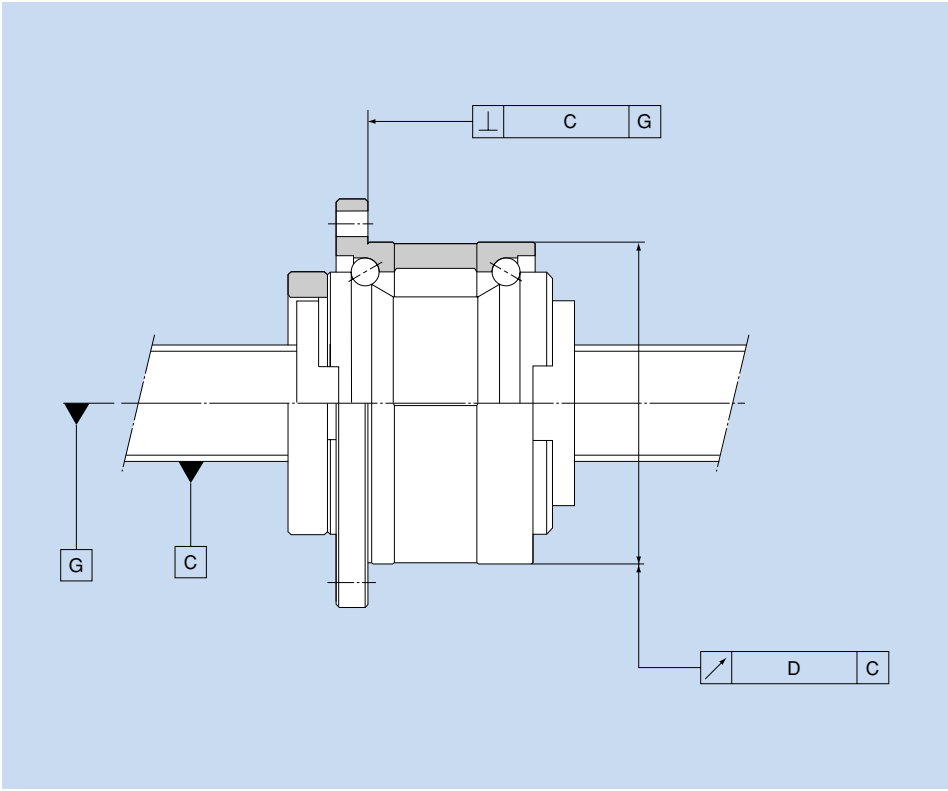


Fig. 3 Example of Installation on the Table (Screw Shaft Fixed)

Accuracy Standard for Model BLR

The accuracy of model BLR is compliant with a JIS standard (JIS B 1192) except for the radial run-out of the circumference of the ball screw nut from the screw axis (D) and the perpendicularity of the flange-mounting surface against the screw axis (C).

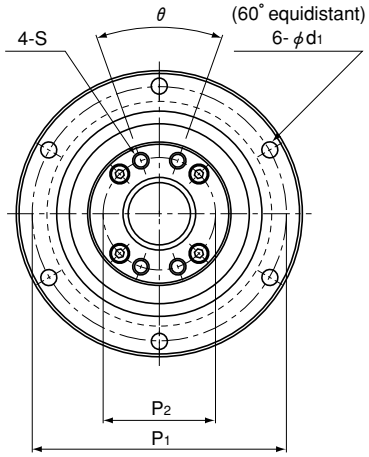


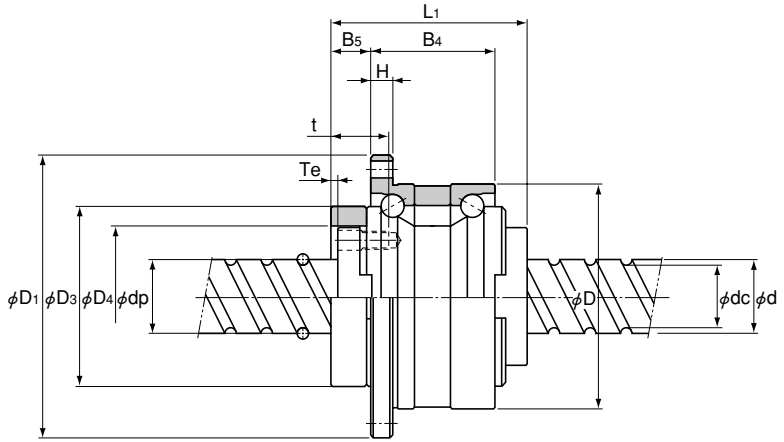
Unit: mm

Accuracy grade	C3		C5		C7		C10	
Model No.	C	D	C	D	C	D	C	D
BLR 1616	0.013	0.017	0.016	0.020	0.023	0.035	0.035	0.065
BLR 2020	0.013	0.017	0.016	0.020	0.023	0.035	0.035	0.065
BLR 2525	0.015	0.020	0.018	0.024	0.023	0.035	0.035	0.065
BLR 3232	0.015	0.020	0.018	0.024	0.023	0.035	0.035	0.065
BLR 3636	0.016	0.021	0.019	0.025	0.024	0.036	0.036	0.066
BLR 4040	0.018	0.026	0.021	0.033	0.026	0.046	0.046	0.086
BLR 5050	0.018	0.026	0.021	0.033	0.026	0.046	0.046	0.086

Model BLR

Large-Lead Rotary Nut Precision Ball Screw





Unit: mm

Model No.	Screw shaft outer diameter d	Thread minor diameter dc	Lead R	Ball center diameter dp	Basic load rating Ca kN	Basic load rating C0a kN	Ball screw dimensions: Outer diameter D	Flange diameter D1	Overall length L1	D3	D4	H	B4	B5	Te	P1	P2	S	t	d1	θ°	Support bearing basic load rating Ca kN	Support bearing basic load rating C0a kN	Nut inertial moment kg·cm²
BLR 1616-3.6	16	13.7	16	16.65	7.1	14.3	52 $^{0}_{-0.007}$	68	43.5	40 $^{0}_{-0.025}$	32 $^{+0.025}_{0}$	5	27.5	9	2	60	25	M4	12	4.5	40	19.4	19.2	0.48
BLR 2020-3.6	20	17.5	20	20.75	11.1	24.7	62 $^{0}_{-0.007}$	78	54	50 $^{0}_{-0.025}$	39 $^{+0.025}_{0}$	6	34	11	2	70	31	M5	16	4.5	40	26.8	29.3	1.44
BLR 2525-3.6	25	22	25	26	16.6	38.7	72 $^{0}_{-0.007}$	92	65	58 $^{0}_{-0.03}$	47 $^{+0.025}_{0}$	8	43	12.5	3	81	38	M6	19	5.5	40	28.2	33.3	3.23
BLR 3232-3.6	32	28.3	32	33.25	23.7	59.5	80 $^{0}_{-0.007}$	105	80	66 $^{0}_{-0.03}$	58 $^{+0.03}_{0}$	9	55	14	3	91	48	M6	19	6.6	40	30	39	6.74
BLR 3636-3.6	36	31.7	36	37.4	30.8	78	100 $^{0}_{-0.008}$	130	93	80 $^{0}_{-0.03}$	66 $^{+0.03}_{0}$	11	62	17	3	113	54	M8	22	9	40	56.4	65.2	16.8
BLR 4040-3.6	40	35.2	40	41.75	38.7	99.2	110 $^{0}_{-0.008}$	140	98	90 $^{0}_{-0.035}$	73 $^{+0.03}$	11	68	16.5	3	123	61	M8	22	9	50	59.3	74.1	27.9
BLR 5050-3.6	50	44.1	50	52.2	57.8	155	120 $^{0}_{-0.008}$	156	126	100 $^{0}_{-0.035}$	90 $^{+0.035}_{0}$	12	80	25	4	136	75	M10	28	11	50	62.2	83	58.2

Model number coding

BLR2020-3.6 K UU G1 +1000L C5

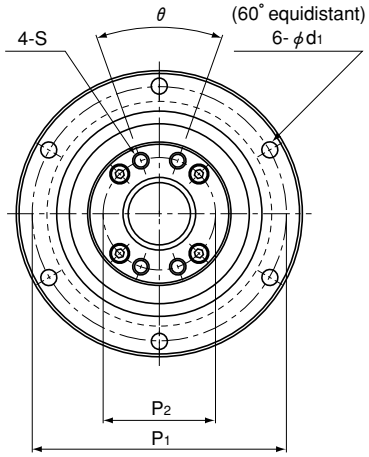
1 2 3 4 5 6

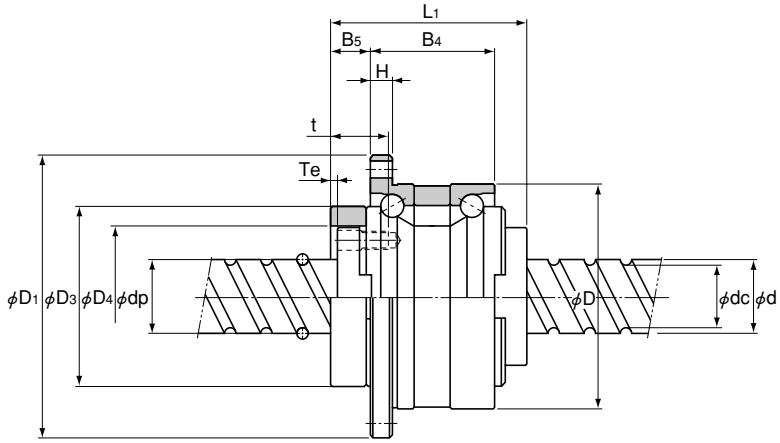
1 Model number 2 Flange orientation symbol (see page k-210) - K: Flange inversed
No symbol: Standard
3 Symbol for support bearing seal - UU: Seal attached on both ends
No symbol: Without seal
4 Symbol for axial clearance (see page k-15) 5 Overall screw shaft (in mm)
6 Accuracy symbol (see page k-8)

Selecting a Model Number Refer to the "THK General Catalog - Technical Descriptions of the Products," provided separately

Model BLR

Large-Lead Rotary Nut Rolled Ball Screw





Unit: mm

Model No.	Screw shaft outer diameter d	Thread minor diameter dc	Lead R	Ball center diameter dp	Basic load rating Ca kN	Basic load rating C0a kN	Ball screw dimensions: Outer diameter D	Flange diameter D1	Overall length L1	D3	D4	H	B4	B5	Te	P1	P2	S	t	d1	θ°	Support bearing basic load rating Ca kN	Support bearing basic load rating C0a kN	Nut inertial moment kg·cm²
BLR 1616-3.6	16	13.7	16	16.65	5.8	12.9	52 $^{0}_{-0.007}$	68	43.5	40 $^{0}_{-0.025}$	32 $^{+0.025}_{0}$	5	27.5	9	2	60	25	M4	12	4.5	40	19.4	19.2	0.48
BLR 2020-3.6	20	17.5	20	20.75	7.7	22.3	62 $^{0}_{-0.007}$	78	54	50 $^{0}_{-0.025}$	39 $^{+0.025}_{0}$	6	34	11	2	70	31	M5	16	4.5	40	26.8	29.3	1.44
BLR 2525-3.6	25	22	25	26	12.1	35	72 $^{0}_{-0.007}$	92	65	58 $^{0}_{-0.03}$	47 $^{+0.025}_{0}$	8	43	12.5	3	81	38	M6	19	5.5	40	28.2	33.3	3.23
BLR 3232-3.6	32	28.3	32	33.25	17.3	53.9	80 $^{0}_{-0.007}$	105	80	66 $^{0}_{-0.03}$	58 $^{+0.03}_{0}$	9	55	14	3	91	48	M6	19	6.6	40	30	39	6.74
BLR 3636-3.6	36	31.7	36	37.4	22.4	70.5	100 $^{0}_{-0.008}$	130	93	80 $^{0}_{-0.03}$	66 $^{+0.03}_{0}$	11	62	17	3	113	54	M8	22	9	40	56.4	65.2	16.8
BLR 4040-3.6	40	35.2	40	41.75	28.1	89.8	110 $^{0}_{-0.008}$	140	98	90 $^{0}_{-0.035}$	73 $^{+0.03}$	11	68	16.5	3	123	61	M8	22	9	50	59.3	74.1	27.9
BLR 5050-3.6	50	44.1	50	52.2	42.1	140.4	120 $^{0}_{-0.008}$	156	126	100 $^{0}_{-0.035}$	90 $^{+0.035}_{0}$	12	80	25	4	136	75	M10	28	11	50	62.2	83	58.2

Model number coding

BLR2020-3.6 K UU +1000L C7 T

1 2 3 4 5 6

1 Model number 2 Flange orientation symbol (see page k-210) - K: Flange inversed
No symbol: Standard
3 Symbol for support bearing seal - UU: Seal attached on both ends
No symbol: Without seal
4 Overall screw shaft (in mm) 5 Accuracy symbol (see page k-8) (no symbol for class C10)
6 Symbol for rolled Ball Screw

Note For axial clearance, see page k-15.

Dust Prevention and Lubrication

Dust Prevention

For the outer ring of the support bearing, a highly wear-resistant special synthetic rubber seal is available in order to prevent foreign matter from entering the bearing system and the lubricant from leaking (type BLR···UU).
Every THK Precision Ball Screw has labyrinth seals attached on both ends of the ball screw nut to prevent foreign matter such as cutting chips from entering the nut.
A slight clearance is secured between the labyrinth seal and the screw shaft to maintain the efficiency of the seal. For a bellows and a screw cover, contact THK .

Lubrication

When lubricating the Rotary Ball Screw, attach the greasing plate to the housing in advance.
THK Precision Ball Screws require appropriate lubrication in order to maintain their efficiencies, service lives and accuracies and to protect them from temperature rise. In particular, when the heat generation of the ball screw unit would affect the accuracy due to high-speed rotation and a heavy load, it is also important to consider selecting a lubricant and cooling the system by forced lubrication.

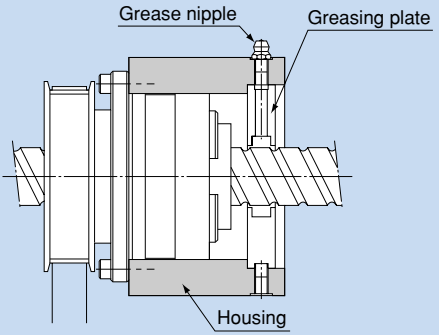


Fig. 4 Lubrication Method

Precautions on Use

Do not separate the ball screw nut of THK Precision Ball Screw from the screw shaft. In the event you have separated the nut from the shaft, check the serial number and the model number indicated on the ball screw nut, and then contact THK .
Note that the screw shaft cannot be assembled unless either end is cut off or its diameter is smaller than the thread minor diameter.