

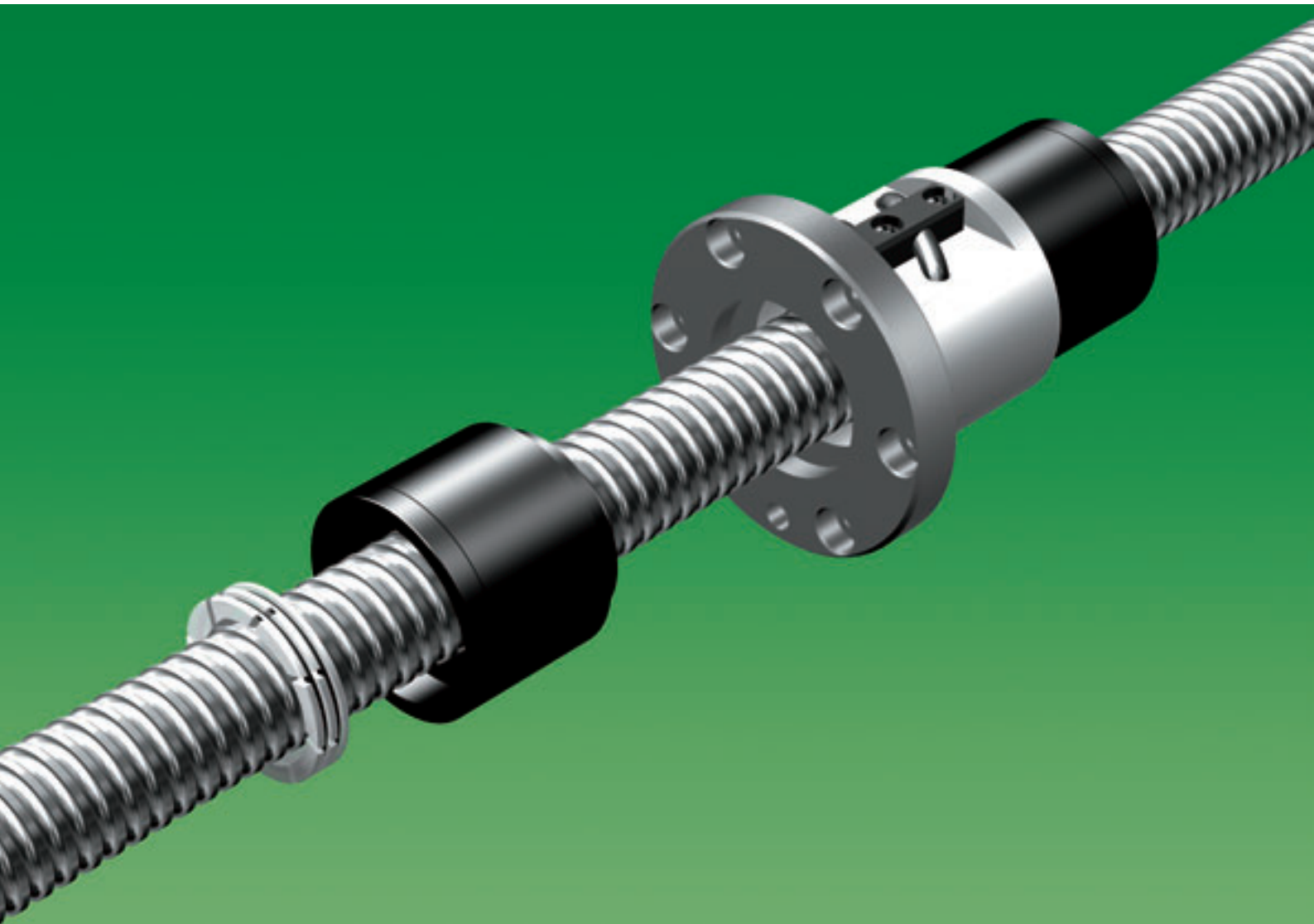


# Options for the Ball Screw

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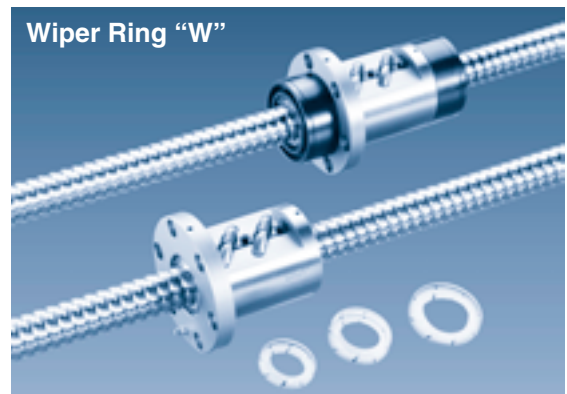
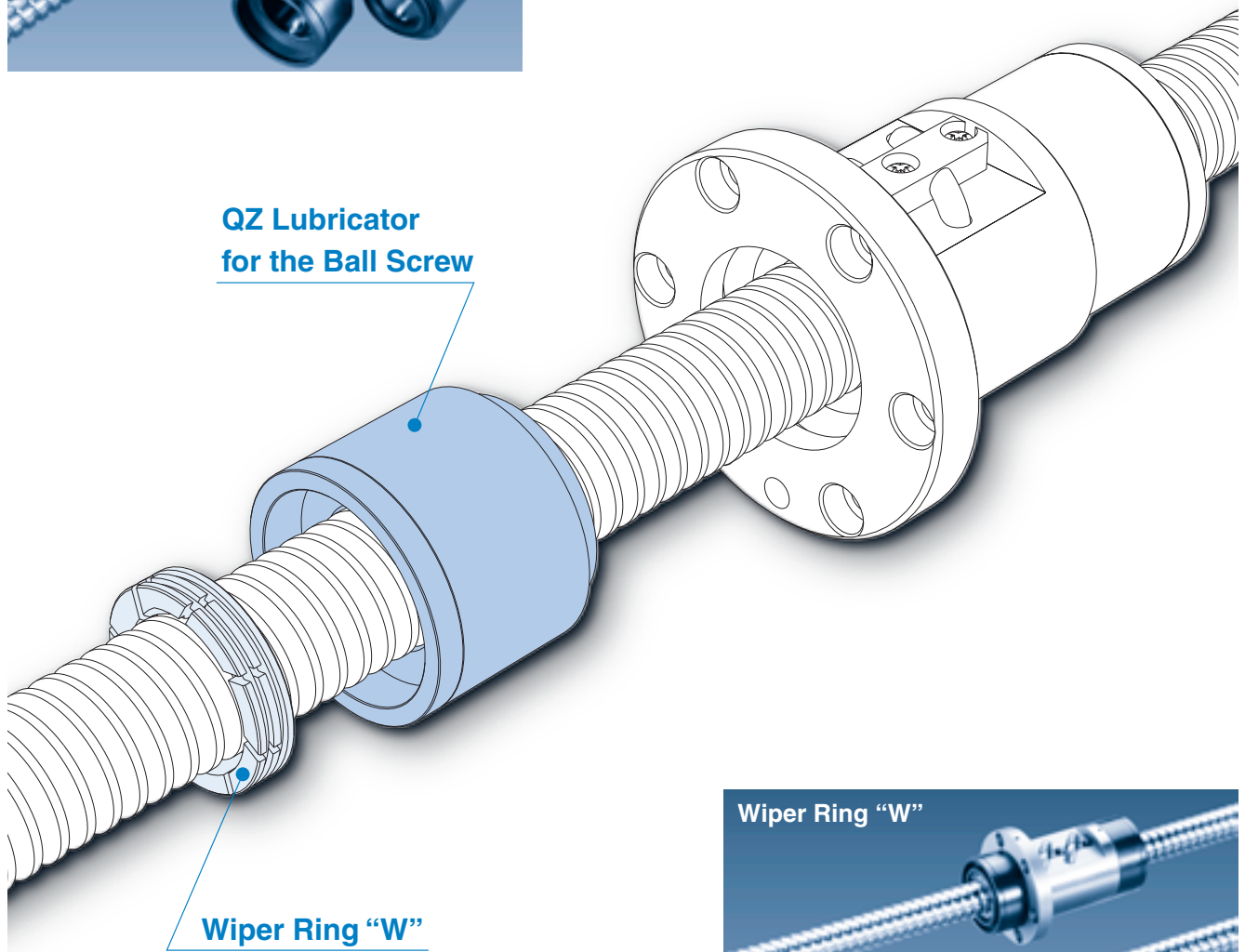
QZ Lubricator

Wiper Ring “W”

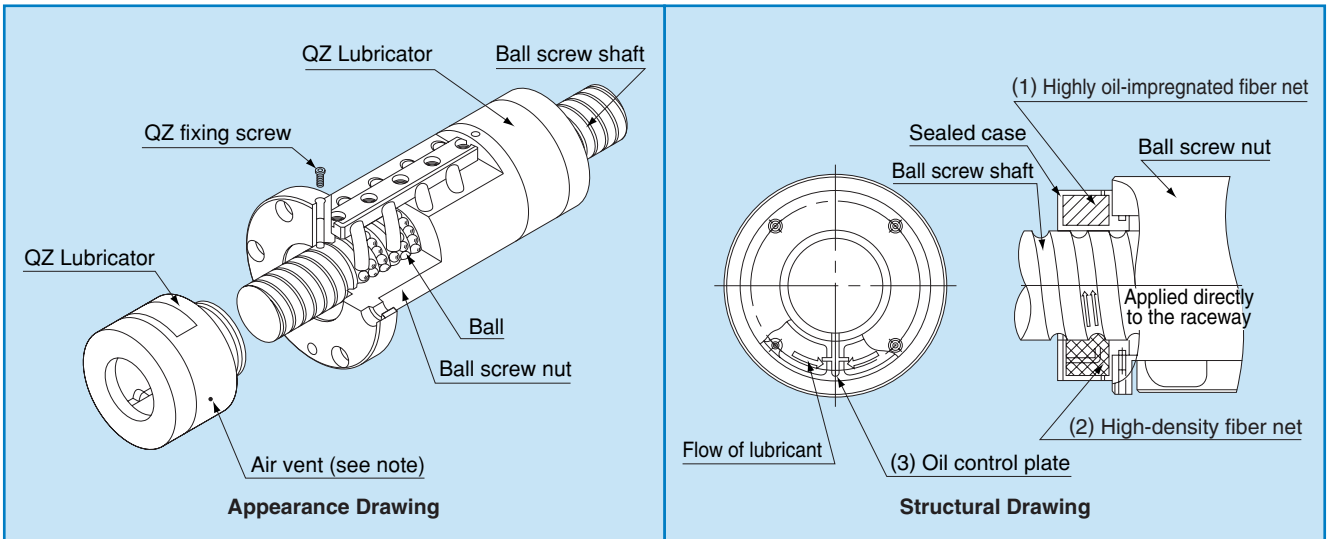


# OPTIONS

For Ball Screws, dust-prevention and lubrication accessories are available.  
You can make a selection according to the application or mounting location.



# QZ Lubricator for the Ball Screw



The QZ Lubricator feeds a right amount of lubricant to the ball raceway of the ball screw shaft. This allows an oil film to be formed between the balls and the ball raceway, thus improving lubricity and significantly extending the lubrication maintenance interval.

Its structure consists of three major components: (1) a highly oil-impregnated fiber net (functions to store a lubricant), (2) a high-density fiber net (to apply the lubricant to the raceway) and (3) an oil control plate (to control the flow of the lubricant). The lubricant contained in QZ Lubricator is fed to the ball screw shaft, based on the principle of capillary action, which is used in felt-tip pens and other products.

## ● Features

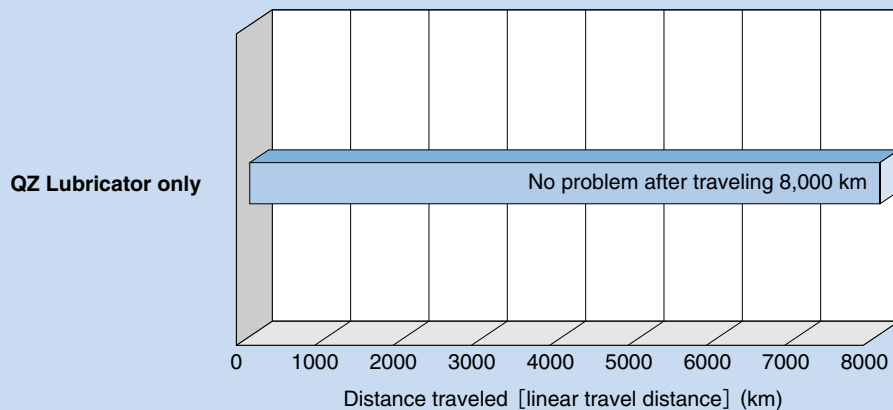
- Since it supplements an oil loss, the lubrication maintenance interval can significantly be extended.
- Since the right amount of lubricant is applied to the ball raceway, an environmentally friendly lubrication system that does not contaminate the surroundings is achieved

**Note** QZ Lubricator has an air vent. Do not block the vent with grease or the like.

# Performance

## ■ Significantly extended maintenance interval

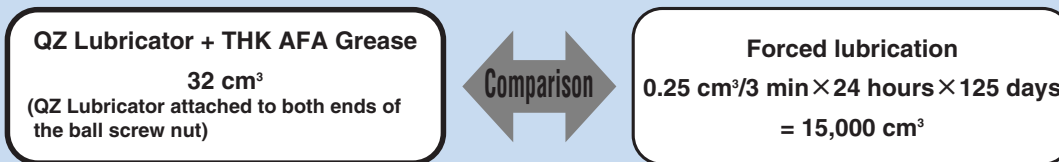
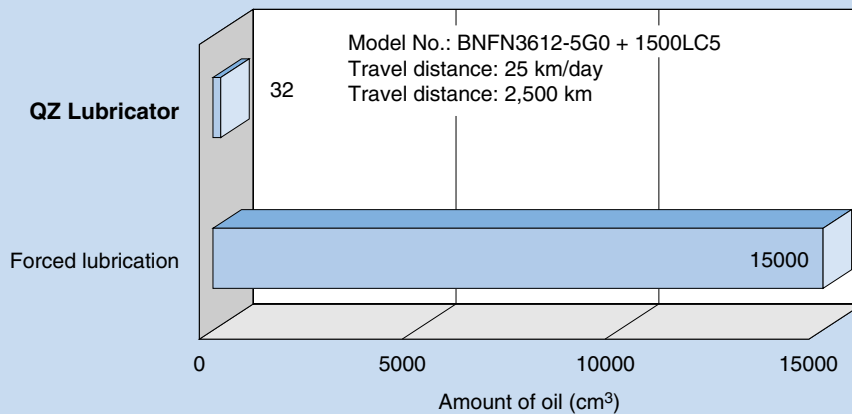
Since the QZ Lubricator continuously feeds lubricant over a long period, the maintenance interval can significantly be extended.



Ball Screw	BIF2510
Maximum rotation speed	2500 min <sup>-1</sup>
Maximum speed	25 m/min
Stroke	500 mm
Load	Internal preload only

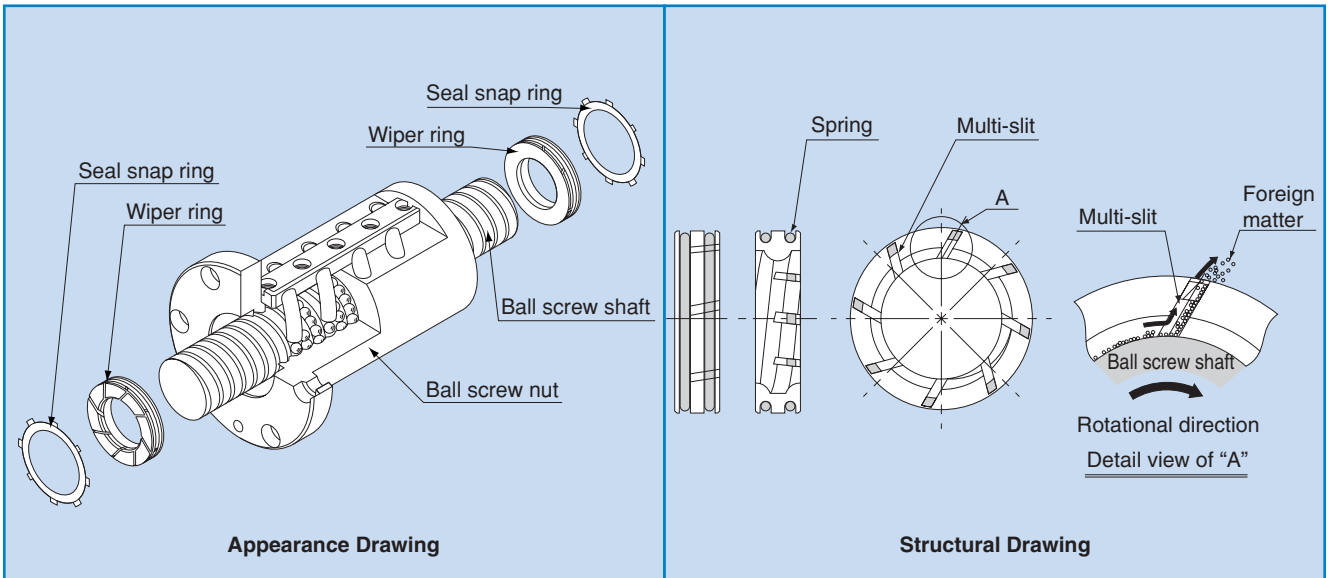
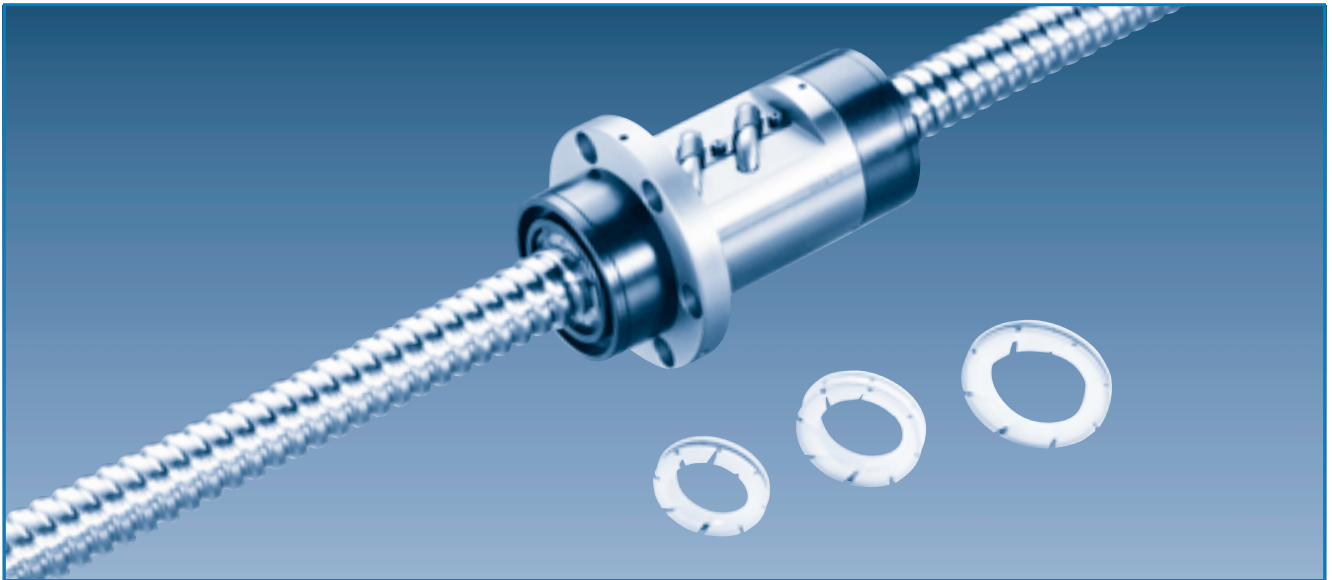
## ■ Environmentally friendly lubrication system

Since QZ Lubricator feeds the right amount of lubricant directly to the raceway, the lubricant can effectively be used without waste.



Reduced to approx.  $\frac{1}{470}$

# Wiper Ring “W” for the Ball Screw



With Wiper Ring “W,” a special resin with high wear resistance elastically contacts the circumference of the ball screw shaft and the screw thread, and eight slits remove foreign matter, thus preventing foreign matter from entering the ball screw nut.

## ● Features

- A total of eight slits on the circumference remove foreign matter in succession, and prevent entrance of foreign matter.
- Contacts the ball screw shaft to reduce the flowing out of grease.
- Contacts the ball screw shaft at a constant pressure level using a spring, thus to minimize heat generation.
- Since the material is highly resistant to wear and chemicals, its performance will not easily be deteriorated even if it is used over a long period.

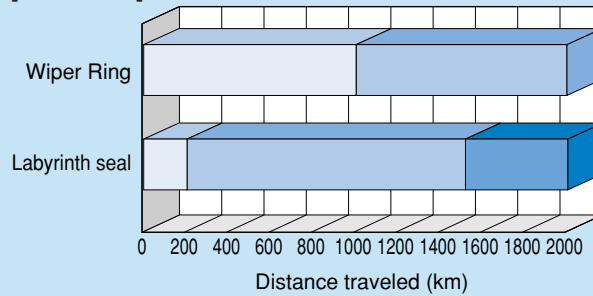
# Performance

## Test in an environment exposed to foreign matter

### [Test conditions]

Item	Description
Model No.	BIF3210-5G0 + 1500LC5
Maximum rotation speed	1000 min <sup>-1</sup>
Maximum speed	10 m/min
Maximum circumferential speed	1.8 m/s
Time constant	60 ms
Dowel	1s
Stroke	900 mm
Load (through internal preload)	1.31 kN
Grease	THK AFG Grease 8 cm <sup>3</sup> (Initial lubrication to the ball screw nut only)
Foundry dust	FCD400 average particle diameter: 250 μm
Volume of foreign matter per shaft	5 g/h

### [Test result]



No problem 
  Flaking occurs on the ball screw shaft 
  Flaking occurs on the ball

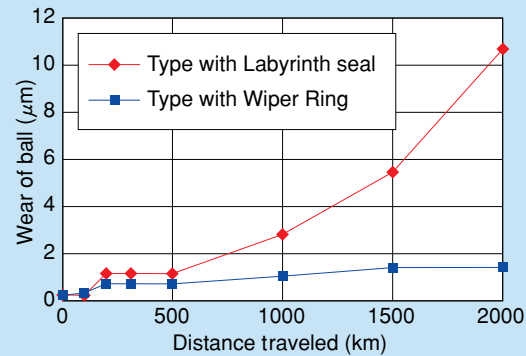
#### 1) Type with Wiper Ring

Slight flaking occurred in the ball screw shaft at travel distance of 1,000 km.

#### 2) Type with a labyrinth seal

Flaking occurred throughout the circumference of the screw shaft raceway at travel distance of 200 km.

Flaking occurred on the balls after traveling 1,500 km.





#### (1) Type with Wiper Ring

Wear of balls at a travel distance of 2,000 km: 1.4 μm.

#### (2) Type with a labyrinth seal

Starts to be worn rapidly after 500 km, and the ball wear amount at the travel distance of 2,000 km: 11 μm.

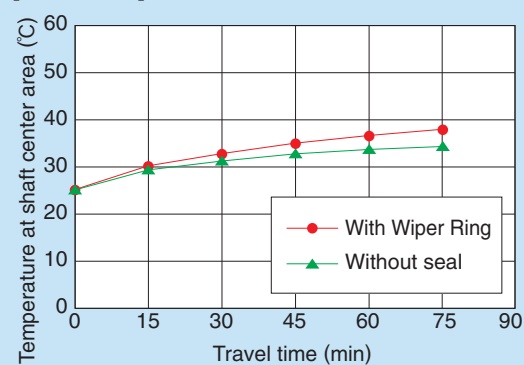
After traveling 2,000 km	
Ball	 <input type="checkbox"/> Unused ball <input type="checkbox"/> Ball after traveling
	 <input type="checkbox"/> Unused ball <input type="checkbox"/> Ball after traveling
	<input checked="" type="checkbox"/> Discolored, but no breakage <input checked="" type="checkbox"/> Flaking occurs
	(1) Type with Wiper Ring    (2) Type with a labyrinth seal

## Heat generation test

### [Test conditions]

Item	Description
Model No.	BLK3232-3.6G0 + 1426LC5
Maximum rotation speed	1000 min <sup>-1</sup>
Maximum speed	32 m/min
Maximum circumferential speed	1.7 m/s
Time constant	100 ms
Stroke	1000 mm
Load (through internal load)	0.98 kN
Grease	THK AFG Grease 5 cm <sup>3</sup> (contained in the ball screw nut)

### [Test result]

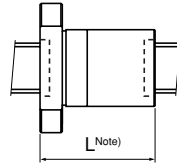


Unit : °C

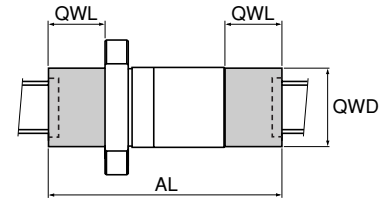
	With wiper ring	Without seal
Heat generation temperature	37.1	34.5
Temperature rise	12.2	8.9

# Nut Dimensions of Ball Screw Models Attached with Wiper Ring (without QZ, Symbol: WW) and Models Attached with QZ Lubricator (Symbol: QZWW)

## WW/QZWW



With WW (without QZ)



With QZ + WW

○: supported    △: supported with order    ×: not supported  
 -: not applicable

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached	
			L	QWL	QWD	AL	
Caged Ball Screw SBN	1604-5	○	○	53	29	31	111
	1605-5	○	○	56	29	31	114
	2004-5	○	○	53	27.5	39	108
	2005-5	○	○	56	27.5	43	111
	2504-5	○	○	48	32.5	45	113
	2505-5	○	○	55	32.5	45	120
	2506-5	○	○	62	33	45	128
	2805-5	○	○	59	22	54	103
	2806-5	○	○	63	22	54	97
	3205-5	○	○	56	32	57	120
	3206-5	○	○	63	32	57	127
	3210-7	○	○	120	31	73	182
	3212-5	○	○	117	33	73	183
	3610-7	○	○	123	33	64	189
	3612-7	○	○	140	35	64	210
	3616-5	○	○	140	32	64	204
	4012-5	○	○	119	38	66	195
	4016-5	○	○	144	42	66	228
	4512-5	○	△	119	-	-	-
	4516-5	○	△	140	-	-	-
5012-5	○	○	119	38.5	79	196	
5016-5	○	○	143	38.5	79	220	
5020-5	○	○	169	40.5	79	250	
Caged Ball Screw SBK	3620-7.6	○	○	110	28	69	166
	3636-5.6	○	○	134	38	69	210
	4020-7.6	○	○	110	30.5	79	171
	4030-7.6	○	○	148	30.4	79	208.8
	4040-5.6	○	○	146	40.4	79	226.8
	5020-7.6	○	○	110	35	89	180
	5030-7.6	○	○	149	35	89	219
	5036-7.6	○	○	172	35	89	242
	5050-5.6	○	○	175	45	89	265
	5520-7.6	○	○	110	32	95	174
	5530-7.6	○	○	149	32	95	213
	5536-7.6	○	○	172	32	95	236
	Caged Ball Screw HBN	3210-5	×	△	-	-	-
3610-5		×	△	-	-	-	-
3612-5		×	△	-	-	-	-
4010-7.5		×	△	-	-	-	-
4012-7.5		×	△	-	-	-	-
5010-7.5		×	△	-	-	-	-
5012-7.5		×	△	-	-	-	-
5016-7.5		×	△	-	-	-	-
6316-7.5		×	△	-	-	-	-
6316-10.5		×	△	-	-	-	-
6320-7.5	×	△	-	-	-	-	
BNF	1604-3	○	○	45	29	31	103
	1605-2.5	○	○	41	29	31	99
	1605-3	○	○	51	29	31	109
	1605-5	○	○	56	29	31	114
	1606-2.5	○	○	44	29	31	102
	1606-5	○	○	62	29	31	120
	1610-1.5	○	○	42	29	31	100
	1810-2.5	○	△	69	-	-	-
	1810-3	○	△	75	-	-	-

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached	
			L	QWL	QWD	AL	
BNF	2004-2.5	○	○	37	27.5	39	92
	2004-5	○	○	49	27.5	39	104
	2005-2.5	○	○	41	27.5	43	96
	2005-3	○	○	52	27.5	43	107
	2005-3.5	○	○	45	27.5	43	100
	2005-5	○	○	56	27.5	43	111
	2006-2.5	○	△	44	-	-	-
	2006-3	○	△	56	-	-	-
	2006-3.5	○	△	50	-	-	-
	2006-5	○	△	62	-	-	-
	2008-2.5	△	△	-	-	-	-
	2010A-1.5	○	△	58	-	-	-
	2012-1.5	△	△	-	-	-	-
	2504-2.5	○	○	36	32.5	45	101
	2504-5	○	○	48	32.5	45	113
	2505-2.5	○	○	40	32.5	45	105
	2505-3	○	○	52	32.5	45	117
	2505-3.5	○	○	45	32.5	45	110
	2505-5	○	○	55	32.5	45	120
	2506-2.5	○	○	44	33	45	110
2506-3	○	○	56	33	45	122	
2506-3.5	○	○	50	33	45	116	
2506-5	○	○	62	33	45	128	
2508-2.5	○	○	58	34	45	126	
2508-3	○	○	71	34	45	139	
2508-3.5	○	○	66	34	45	134	
2508-5	○	○	82	34	45	150	
2510A-2.5	○	○	70	37	45	144	
2512-2.5	○	○	60	33	45	126	
2516-1.5	○	○	60	35	45	130	
2805-2.5	○	△	44	-	-	-	
2805-3	○	△	54	-	-	-	
2805-3.5	○	△	49	-	-	-	
2805-5	○	△	59	-	-	-	
2805-7.5	○	△	74	-	-	-	
2806-2.5	○	△	50	-	-	-	
2806-3.5	○	△	56	-	-	-	
2806-5	○	△	68	-	-	-	
2806-7.5	○	△	86	-	-	-	
2808-2.5	○	△	68	-	-	-	
2808-3	○	△	80	-	-	-	
2808-5	○	△	92	-	-	-	
2810-2.5	○	△	86	-	-	-	
3204-7.5	△	△	-	-	-	-	
3205-2.5	○	○	41	32	57	105	
3205-3	○	○	53	32	57	117	
3205-4.5	○	○	63	32	57	127	
3205-5	○	○	56	32	57	120	
3205-7.5	○	○	71	32	57	135	
3206-2.5	○	○	45	32	57	109	
3206-3	○	○	57	32	57	121	
3206-5	○	○	63	32	57	127	
3208A-2.5	○	○	58	34	57	126	
3208A-3	○	○	71	34	57	139	
3208A-4.5	○	○	87	34	57	155	
3208A-5	○	○	82	34	57	150	
3210A-2.5	○	○	70	31	73	132	

Note: "L" indicates the nut dimension of models attached with WW.

Models BLW, BLK (precision and rolled), WGF, BNK 1510 or higher (excluding BNK 2010), WTF and CNF are attached with the wiper ring outside the nut.

○: supported    △: supported with order    ×: not supported  
 —: not applicable

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
3210A-3	○	○	87	31	73	149
3210A-3.5	○	○	80	31	73	142
3210A-5	○	○	100	31	73	162
3212-3.5	○	○	98	33	73	164
3606-2.5	○	○	53	30	64	113
3606-3	○	○	62	30	64	122
3606-5	○	○	71	30	64	131
3606-7.5	○	○	89	30	64	149
3608-2.5	○	○	68	31	64	130
3608-5	○	○	92	31	64	154
3608-7.5	○	○	116	31	64	178
3610-2.5	○	○	81	33	64	147
3610-5	○	○	111	33	64	177
3610-7.5	○	○	141	33	64	207
3612-2.5	○	○	87	35	64	157
3612-5	○	○	123	35	64	193
3616-2.5	○	○	92	32	64	156
3620-1.5	○	○	75	32	64	139
4005-3	○	○	56	33	66	122
4005-4.5	○	○	66	33	66	132
4005-6	○	○	81	33	66	147
4006-2.5	○	○	48	35	66	118
4006-5	○	○	66	35	66	136
4006-7.5	○	○	84	35	66	154
4008-2.5	○	○	58	35	66	128
4008-3	○	○	71	35	66	141
4008-5	○	○	82	35	66	152
4010-2.5	○	○	73	37	66	147
4010-3	○	○	90	37	66	164
4010-3.5	○	○	83	37	66	157
4010-5	○	○	103	37	66	177
4012-2.5	○	○	83	38	66	159
4012-3.5	○	○	95	38	66	171
4012-5	○	○	119	38	66	195
4016-5	○	○	152	42	66	236
4506A-2.5	○	△	53	—	—	—
4506A-5	○	△	71	—	—	—
4506A-7.5	○	△	89	—	—	—
4508-2.5	○	△	68	—	—	—
4508-5	○	△	92	—	—	—
4508-7.5	○	△	116	—	—	—
4510-2.5	○	△	81	—	—	—
4510-3	○	△	94	—	—	—
4510-5	○	△	111	—	—	—
4510-7.5	○	△	141	—	—	—
4512-5	○	△	119	—	—	—
4520-1.5	○	△	95	—	—	—
5005-4.5	○	○	68	35.5	79	139
5008-2.5	○	○	61	36.5	79	134
5008-5	○	○	85	36.5	79	158
5008-7.5	○	○	109	36.5	79	182
5010-2.5	○	○	73	37.5	79	148
5010-3	○	○	90	37.5	79	165
5010-3.5	○	○	83	37.5	79	158
5010-5	○	○	103	37.5	79	178
5010-7.5	○	○	133	37.5	79	208
5012-2.5	○	○	87	38.5	79	164
5012-3.5	○	○	99	38.5	79	176
5012-5	○	○	123	38.5	79	200
5016-2.5	○	○	116	38.5	79	193
5016-5	○	○	164	38.5	79	241
5020-2.5	○	○	141	40.5	79	222
5510-2.5	○	△	81	—	—	—
5510-5	○	△	111	—	—	—
5510-7.5	○	△	141	—	—	—
5512-2.5	○	△	93	—	—	—
5512-3	○	△	107	—	—	—
5512-3.5	○	△	105	—	—	—
5512-5	○	△	129	—	—	—
5512-7.5	○	△	165	—	—	—
5516-2.5	○	△	116	—	—	—
5516-5	○	△	164	—	—	—
5520-2.5	○	△	127	—	—	—
5520-5	○	△	187	—	—	—
6310-2.5	○	△	77	—	—	—
6310-5	○	△	107	—	—	—

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
6310-7.5	○	△	137	—	—	—
6312A-2.5	△	△	—	—	—	—
6312A-5	△	△	—	—	—	—
6316-5	△	△	—	—	—	—
6320-2.5	○	△	127	—	—	—
6320-5	○	△	187	—	—	—
7010-2.5	△	△	—	—	—	—
7010-5	△	△	—	—	—	—
7010-7.5	△	△	—	—	—	—
7012-2.5	△	△	—	—	—	—
7012-5	△	△	—	—	—	—
7012-7.5	△	△	—	—	—	—
7020-5	△	△	—	—	—	—
8010-2.5	△	△	—	—	—	—
8010-5	△	△	—	—	—	—
8010-7.5	△	△	—	—	—	—
8020A-2.5	△	△	—	—	—	—
8020A-5	△	△	—	—	—	—
8020A-7.5	△	△	—	—	—	—
10020A-2.5	○	△	131	—	—	—
10020A-5	○	△	191	—	—	—
10020A-7.5	○	△	251	—	—	—
1604-3	○	○	85	29	31	143
1605-2.5	○	○	76	29	31	134
1605-3	○	○	96	29	31	154
1605-5	○	○	106	29	31	164
1610-1.5	○	○	72	29	31	130
1810-2.5	○	△	119	—	—	—
1810-3	○	△	135	—	—	—
2004-2.5	○	△	69	—	—	—
2004-5	○	△	93	—	—	—
2005-2.5	○	△	76	—	—	—
2005-3	○	△	97	—	—	—
2005-3.5	○	△	85	—	—	—
2005-5	○	△	106	—	—	—
2006-2.5	○	△	86	—	—	—
2006-3	○	△	110	—	—	—
2006-3.5	○	△	98	—	—	—
2006-5	○	△	122	—	—	—
2008-2.5	△	△	—	—	—	—
2010A-1.5	○	△	98	—	—	—
2012-1.5	△	△	—	—	—	—
2504-2.5	○	○	68	32.5	45	133
2504-5	○	○	92	32.5	45	157
2505-2.5	○	○	75	32.5	45	140
2505-3	○	○	102	32.5	45	167
2505-3.5	○	○	85	32.5	45	150
2505-5	○	○	105	32.5	45	170
2506-2.5	○	○	86	33	45	152
2506-3	○	○	110	33	45	176
2506-3.5	○	○	98	33	45	164
2506-5	○	○	122	33	45	188
2508-2.5	○	○	106	34	45	174
2508-3	○	○	135	34	45	203
2508-3.5	○	○	122	34	45	190
2508-5	○	○	154	34	45	222
2510A-2.5	○	○	120	37	45	194
2512-2.5	○	○	108	33	45	174
2516-1.5	○	○	108	35	45	178
2805-2.5	○	△	74	—	—	—
2805-3	○	△	94	—	—	—
2805-3.5	○	△	84	—	—	—
2805-5	○	△	104	—	—	—
2805-7.5	○	△	134	—	—	—
2806-2.5	○	△	86	—	—	—
2806-3.5	○	△	98	—	—	—
2806-5	○	△	122	—	—	—
2806-7.5	○	△	158	—	—	—
2808-2.5	○	△	116	—	—	—
2808-3	○	△	144	—	—	—
2808-5	○	△	164	—	—	—
2810-2.5	○	△	146	—	—	—
3205-2.5	○	○	76	32	57	140
3205-3	○	○	103	32	57	167
3205-4.5	○	○	123	32	57	187



○: supported    △: supported with order    ×: not supported  
 -: not applicable

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
3205-5	○	○	106	32	57	170
3205-7.5	○	○	136	32	57	200
3206-2.5	○	○	87	32	57	151
3206-3	○	○	111	32	57	175
3206-5	○	○	123	32	57	187
3208A-2.5	○	○	106	34	57	174
3208A-3	○	○	135	34	57	203
3208A-4.5	○	○	167	34	57	235
3208A-5	○	○	154	34	57	222
3210A-2.5	○	○	130	31	73	192
3210A-3	○	○	167	31	73	229
3210A-3.5	○	○	150	31	73	212
3210A-5	○	○	190	31	73	252
3212-3.5	○	○	170	33	73	236
3606-2.5	○	○	89	30	64	149
3606-3	○	○	110	30	64	170
3606-5	○	○	125	30	64	185
3606-7.5	○	○	161	30	64	221
3608-2.5	○	○	116	31	64	178
3608-5	○	○	164	31	64	226
3608-7.5	○	○	212	31	64	274
3610-2.5	○	○	141	33	64	207
3610-5	○	○	201	33	64	267
3610-7.5	○	○	261	33	64	327
3612-2.5	○	○	147	35	64	217
3612-5	○	○	219	35	64	289
3616-2.5	○	○	172	32	64	236
3616-5	○	○	268	32	64	332
3620-1.5	○	○	135	32	64	199
4005-3	○	○	106	33	66	172
4005-4.5	○	○	126	33	66	192
4005-5	○	○	109	33	66	175
4005-6	○	○	156	33	66	222
4006-2.5	○	○	90	35	66	160
4006-5	○	○	126	35	66	196
4006-7.5	○	○	162	35	66	232
4008-2.5	○	○	106	35	66	176
4008-3	○	○	135	35	66	205
4008-5	○	○	154	35	66	224
4010-2.5	○	○	133	37	66	207
4010-3	○	○	170	37	66	244
4010-3.5	○	○	153	37	66	227
4010-5	○	○	193	37	66	267
4012-2.5	○	○	155	38	66	231
4012-3.5	○	○	179	38	66	255
4012-5	○	○	227	38	66	303
4016-5	○	○	280	42	66	364
4506A-2.5	○	△	89	-	-	-
4506A-5	○	△	125	-	-	-
4506A-7.5	○	△	161	-	-	-
4508-2.5	○	△	116	-	-	-
4508-5	○	△	164	-	-	-
4508-7.5	○	△	212	-	-	-
4510-2.5	○	△	141	-	-	-
4510-3	○	△	164	-	-	-
4510-5	○	△	201	-	-	-
4510-7.5	○	△	261	-	-	-
4512-5	○	△	227	-	-	-
4520-1.5	○	△	175	-	-	-
5005-3	○	○	108	35.5	79	179
5005-4.5	○	○	128	35.5	79	199
5008-2.5	○	○	109	36.5	79	182
5008-5	○	○	157	36.5	79	230
5008-7.5	○	○	205	36.5	79	278
5010-2.5	○	○	133	37.5	79	208
5010-3	○	○	170	37.5	79	245
5010-3.5	○	○	153	37.5	79	228
5010-5	○	○	193	37.5	79	268
5010-7.5	○	○	253	37.5	79	328
5012-2.5	○	○	159	38.5	79	236
5012-3.5	○	○	183	38.5	79	260
5012-5	○	○	231	38.5	79	308
5016-2.5	○	○	196	38.5	79	273
5016-5	○	○	292	38.5	79	369
5020-2.5	○	○	241	40.5	79	322
5510-2.5	○	△	141	-	-	-

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
5510-5	○	△	201	-	-	-
5510-7.5	○	△	261	-	-	-
5512-2.5	○	△	165	-	-	-
5512-3	○	△	191	-	-	-
5512-3.5	○	△	189	-	-	-
5512-5	○	△	237	-	-	-
5512-7.5	○	△	309	-	-	-
5516-2.5	○	△	196	-	-	-
5516-5	○	△	292	-	-	-
5520-2.5	○	△	227	-	-	-
5520-5	○	△	347	-	-	-
6310-2.5	○	△	137	-	-	-
6310-5	○	△	197	-	-	-
6310-7.5	○	△	257	-	-	-
6312A-2.5	△	△	-	-	-	-
6312A-5	△	△	-	-	-	-
6316-2.5	△	△	-	-	-	-
6316-5	△	△	-	-	-	-
6320-2.5	○	△	227	-	-	-
6320-5	○	△	347	-	-	-
7010-2.5	△	△	-	-	-	-
7010-5	△	△	-	-	-	-
7010-7.5	△	△	-	-	-	-
7012-2.5	△	△	-	-	-	-
7012-5	△	△	-	-	-	-
7012-7.5	△	△	-	-	-	-
7020-5	△	△	-	-	-	-
8010-2.5	△	△	-	-	-	-
8010-5	△	△	-	-	-	-
8010-7.5	△	△	-	-	-	-
8012-5	△	△	-	-	-	-
8020A-2.5	△	△	-	-	-	-
8020A-5	△	△	-	-	-	-
10020A-2.5	○	△	231	-	-	-
10020A-5	○	△	351	-	-	-
10020A-7.5	○	△	471	-	-	-
1605-5	○	○	56	29	31	114
1606-5	○	○	62	29	31	120
1810-3	○	△	75	-	-	-
2004-5	○	△	53	-	-	-
2005-5	○	△	56	-	-	-
2006-3	○	△	56	-	-	-
2006-5	○	△	62	-	-	-
2505-3	○	○	52	32.5	45	117
2505-5	○	○	55	32.5	45	120
2508-5	○	○	82	34	45	150
2510A-5	○	○	100	37	45	174
2805-5	○	△	59	-	-	-
2805-10	○	△	89	-	-	-
2806-5	○	△	68	-	-	-
2806-10	○	△	104	-	-	-
2810-3	○	△	88	-	-	-
3204-10	△	△	-	-	-	-
3205-5	○	○	56	32	57	120
3205-10	○	○	86	32	57	150
3206-5	○	○	63	32	57	127
3206-7	○	○	75	32	57	139
3206-10	○	○	99	32	57	163
3208A-5	○	○	82	34	57	150
3208A-7	○	○	98	34	57	166
3210A-5	○	○	100	31	73	162
3610-5	○	○	111	33	64	177
3610-10	○	○	171	33	64	237
4010-5	○	○	103	37	66	177
4010-10	○	○	163	37	66	237
4012-5	○	○	119	38	66	195
4012-10	○	○	191	38	66	267
5010-5	○	○	103	37.5	79	178
5010-10	○	○	163	37.5	79	238
1404-4	△	△	-	-	-	-
1404-6	△	△	-	-	-	-
1605-6	○	△	60	-	-	-
2004-6	○	△	62	-	-	-
2004-8	○	△	70	-	-	-

○: supported △: supported with order ×: not supported  
 —: not applicable

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
2005-6	○	△	61	—	—	—
2006-6	△	△	—	—	—	—
2008-4	△	△	—	—	—	—
2504-6	○	△	63	—	—	—
2504-8	○	△	71	—	—	—
2505-6	○	△	61	—	—	—
2506-4	○	△	60	—	—	—
2506-6	○	△	72	—	—	—
2508-4	○	△	71	—	—	—
2508-6	○	△	94	—	—	—
2510-4	○	△	85	—	—	—
2805-6	○	△	69	—	—	—
2805-8	○	△	79	—	—	—
2806-6	○	△	73	—	—	—
2810-4	○	△	84	—	—	—
3204-6	○	△	64	—	—	—
3204-8	○	△	72	—	—	—
3204-10	○	△	80	—	—	—
3205-6	○	△	62	—	—	—
3205-8	○	△	73	—	—	—
3206-6	○	△	73	—	—	—
3206-8	○	△	87	—	—	—
3210-6	○	△	110	—	—	—
3212-4	○	△	98	—	—	—
3610-6	○	△	122	—	—	—
3610-8	○	△	143	—	—	—
3610-10	○	△	164	—	—	—
4010-6	○	○	113	44	61	201
4010-8	○	○	137	44	61	225
4012-6	○	○	138	44	61	226
4012-8	○	○	163	44	61	251
4016-4	○	○	120	44	61	208
5010-6	○	△	114	—	—	—
5010-8	○	△	137	—	—	—
5010-10	○	△	160	—	—	—
5012-6	○	△	145	—	—	—
5012-8	○	△	170	—	—	—
5016-4	○	△	129	—	—	—
5016-6	○	△	175	—	—	—
6310-8	△	△	—	—	—	—
6312-6	△	△	—	—	—	—
6312-8	△	△	—	—	—	—

1404-4	△	△	—	—	—	—
1404-6	△	△	—	—	—	—
1605-3	○	△	45	—	—	—
1605-4	○	△	50	—	—	—
2004-3	○	△	42	—	—	—
2004-4	○	△	46	—	—	—
2005-3	○	△	46	—	—	—
2005-4	○	△	51	—	—	—
2006-3	△	△	—	—	—	—
2006-4	△	△	—	—	—	—
2008-4	△	△	—	—	—	—
2504-3	○	△	43	—	—	—
2504-4	○	△	47	—	—	—
2505-3	○	△	46	—	—	—
2505-4	○	△	51	—	—	—
2506-3	○	△	52	—	—	—
2506-4	○	△	60	—	—	—
2508-3	○	△	62	—	—	—
2508-4	○	△	71	—	—	—
2510-3	○	△	80	—	—	—
2510-4	○	△	85	—	—	—
2805-3	○	△	49	—	—	—
2805-4	○	△	54	—	—	—
2806-3	○	△	53	—	—	—
2806-4	○	△	61	—	—	—
2810-4	○	△	84	—	—	—
3204-3	○	△	44	—	—	—
3204-4	○	△	48	—	—	—
3205-3	○	△	47	—	—	—
3205-4	○	△	52	—	—	—
3205-6	○	△	62	—	—	—
3206-3	○	△	53	—	—	—
3206-4	○	△	61	—	—	—

DK

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached
			L	QWL	QWD	AL
3210-3	○	△	80	—	—	—
3210-4	○	△	90	—	—	—
3212-4	○	△	98	—	—	—
3610-3	○	△	82	—	—	—
3610-4	○	△	93	—	—	—
4010-3	○	○	83	44	61	171
4010-4	○	○	93	44	61	181
4012-3	○	○	90	44	61	178
4012-4	○	○	103	44	61	191
4016-4	○	○	120	44	61	208
4020-3	○	○	123	44	61	211
5010-3	○	△	83	—	—	—
5010-4	○	△	93	—	—	—
5010-6	○	△	114	—	—	—
5012-3	○	△	97	—	—	—
5012-4	○	△	110	—	—	—
5016-3	○	△	111	—	—	—
5016-4	○	△	129	—	—	—
5020-3	○	△	136	—	—	—
6310-4	△	△	—	—	—	—
6310-6	△	△	—	—	—	—
6312-3	△	△	—	—	—	—
6312-4	△	△	—	—	—	—
6320-3	△	△	—	—	—	—

DKN	4020-3	○	○	233	47	61	327
	5020-3	○	△	243	—	—	—
	6320-3	△	△	—	—	—	—

BLW	1510-5.6	○	○	96	25.5	31	140
	1616-3.6	△	○	—	29	31	(142.5)
	2020-3.6	○	△	112	—	—	—
	2525-3.6	○	△	131.5	—	—	—
	3232-3.6	○	○	162.6	37.5	53	230
	3636-3.6	○	△	191	—	—	—
	4040-3.6	○	△	201.8	—	—	—
	5050-3.6	○	△	255.8	—	—	—

BLK (precision)	1510-5.6	○	○	51	25.5	31	95
	1616-2.8	△	○	—	29	31	(112)
	1616-3.6	△	○	—	29	31	(96)
	2020-2.8	○	△	72	—	—	—
	2020-3.6	○	△	52	—	—	—
	2525-2.8	○	△	87	—	—	—
	2525-3.6	○	△	62	—	—	—
	3232-2.8	○	○	109.6	37.5	53	177
	3232-3.6	○	○	77.6	37.5	53	145
	3620-5.6	○	△	88	—	—	—
	3624-5.6	△	△	—	—	—	—
	3636-2.8	○	△	123	—	—	—
	3636-3.6	○	△	87	—	—	—
	4040-2.8	○	△	135.8	—	—	—
	4040-3.6	○	△	95.8	—	—	—
	5050-2.8	○	△	166.8	—	—	—
	5050-3.6	○	△	116.8	—	—	—

WGF	0812-3	×	×	—	—	—	—
	1015-3	×	×	—	—	—	—
	1320-3	×	×	—	—	—	—
	1520-1.5	○	○	52	25.5	31	96
	1520-3	○	○	52	25.5	31	96
	1530-1	×	○	—	25.5	31	(84)
	1530-3	×	○	—	25.5	31	(114)
	1540-1.5	×	○	—	25.5	31	(93)
	2040-1	×	△	—	—	—	—
	2040-3	×	△	—	—	—	—
	2060-1.5	×	△	—	—	—	—
	2550-1	×	△	—	—	—	—
	2550-3	×	△	—	—	—	—
	3060-1	×	○	—	37.5	53	(137)
	3060-3	×	○	—	37.5	53	(197)
	3090-1.5	×	○	—	37.5	53	(167)
	4080-1	×	△	—	—	—	—
	4080-3	×	△	—	—	—	—
	50100-1	×	△	—	—	—	—
	50100-3	×	△	—	—	—	—

\*: The numbers in the parentheses indicate the dimensions of models attached with QZ Lubricator without WW.

○: supported    △: supported with order    ×: not supported  
 -: not applicable

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached	
			L	QWL	QWD	AL	
BNK	0401-3	×	×	—	—	—	
	0501-3	×	×	—	—	—	
	0601-3	×	×	—	—	—	
	0801-3	×	×	—	—	—	
	0802-3	×	×	—	—	—	
	0810-3	×	×	—	—	—	
	1002-3	×	×	—	—	—	
	1004-2.5	×	×	—	—	—	
	1010-1.5	×	×	—	—	—	
	1205-2.5	×	×	—	—	—	
	1402-3	×	△	—	—	—	
	1404-3	△	△	—	—	—	
	1408-2.5	△	△	—	—	—	
	1510-5.6	○	○	51	25.5	31	95
	1520-3	△	○	—	25.5	31	(96)
	1616-3.6	△	○	—	25.5	31	(93)
	2010-2.5	○	△	54	—	—	—
2020-3.6	○	△	59	—	—	—	
2520-3.6	△	△	—	—	—	—	

BNT (precision/rolled)	1404-3.6	△	△	—	—	—	—
	1405-2.6	△	△	35	—	—	—
	1605-2.6	△	△	36	29	31	94
	1808-3.6	△	△	—	—	—	—
	2005-2.6	△	△	35	—	—	—
	2010-2.6	△	△	58	—	—	—
	2505-2.6	△	△	35	—	—	—
	2510-5.3	△	△	94	—	—	—
	2806-2.6	△	△	42	—	—	—
	2806-5.3	△	△	67	—	—	—
	3210-2.6	△	△	64	—	—	—
	3210-5.3	△	△	94	—	—	—
	3610-2.6	△	△	64	—	—	—
	3610-5.3	△	△	96	—	—	—
4512-5.3	△	△	115	—	—	—	

BLK (rolled)	1510-5.6	○	○	51	25.5	31	95
	1616-3.6	△	○	—	29	31	(96)
	1616-7.2	△	○	—	29	31	(96)
	2020-3.6	○	△	52	—	—	—
	2020-7.2	○	△	52	—	—	—
	2525-3.6	○	△	62	—	—	—
	2525-7.2	○	△	62	—	—	—
	3232-3.6	○	○	77.6	37.5	53	145
	3232-7.2	○	○	77.6	37.5	53	145
	3620-5.6	○	△	88	—	—	—
	3624-5.6	○	△	104	—	—	—
	3636-3.6	△	△	—	—	—	—
	3636-7.2	△	△	—	—	—	—
	4040-3.6	△	△	—	—	—	—
	4040-7.2	△	△	—	—	—	—
5050-3.6	△	△	—	—	—	—	
5050-7.2	△	△	—	—	—	—	

Unit : mm

Model No.	WW	QZ	Dimension with WW attached	Length of protrusion with QZ attached	Diameter of protrusion with QZ attached	Dimension with QZWW attached	
			L	QWL	QWD	AL	
WTF	1520-3	○	○	52	25.5	31	96
	1520-6	○	○	52	25.5	31	96
	1530-2	×	○	—	25.5	31	(84)
	1530-3	×	○	—	25.5	31	(114)
	2040-2	×	△	—	—	—	—
	2040-3	×	△	—	—	—	—
	2550-2	×	△	—	—	—	—
	2550-3	×	△	—	—	—	—
	3060-2	×	○	—	37.5	53	(137.5)
	3060-3	×	○	—	37.5	53	(197.5)
	4080-2	×	△	—	—	—	—
	4080-3	×	△	—	—	—	—
	50100-2	×	△	—	—	—	—
	50100-3	×	△	—	—	—	—

CNF	1530-6	×	○	—	25.5	31	(114)
	2040-6	×	△	—	—	—	—
	2550-6	×	△	—	—	—	—
	3060-6	×	○	—	37.5	53	(197)

MBF	0401-3.7	×	×	—	—	—	—
	0601-3.7	×	×	—	—	—	—
	0802-3.7	×	×	—	—	—	—
	1002-3.7	×	×	—	—	—	—
	1202-3.7	×	×	—	—	—	—
	1402-3.7	△	△	—	—	—	—
1404-3.7	△	△	—	—	—	—	

BTK	1006-2.6	×	△	—	—	—	—
	1208-2.6	×	△	—	—	—	—
	1404-3.6	△	△	—	—	—	—
	1405-2.6	○	△	40	—	—	—
	1605-2.6	○	△	40	—	—	—
	1808-3.6	△	△	—	—	—	—
	2005-2.6	○	△	40	—	—	—
	2010-2.6	○	△	61	—	—	—
	2505-2.6	○	△	40	—	—	—
	2510-5.3	○	○	98	32.5	45	163
	2806-2.6	○	△	47	—	—	—
	2806-5.3	○	△	65	—	—	—
	3210-2.6	○	○	68	32	57	132
	3210-5.3	○	○	98	32	57	162
	3610-2.6	○	○	70	31	64	132
	3610-5.3	○	○	100	31	64	162
4010-5.3	○	○	100	34	66	168	
4512-5.3	△	△	—	—	—	—	
5016-5.3	○	○	145	35	79	215	

JPF	1404-4	△	×	—	—	—	—
	1405-4	△	×	—	—	—	—
	1605-4	○	×	60	—	—	—
	2005-6	○	×	80	—	—	—
	2505-6	○	×	80	—	—	—
	2510-4	○	×	112	—	—	—
	2805-6	○	×	80	—	—	—
	2806-6	○	×	90	—	—	—
	3210-6	○	×	135	—	—	—
	3610-6	○	×	138	—	—	—
4010-6	○	×	138	—	—	—	

\*: The numbers in the parentheses indicate the dimensions of models attached with QZ Lubricator without WW.

Example of model coding

**BNFN2505-2.5 QZ WW G0 +1000L C5**

Model number

With QZ Lubricator attached

Axial clearance symbol

Accuracy symbol

Overall screw shaft (in mm)

With Wiper Ring attached

Note QZ Lubricator and Wiper Ring "W" are not sold alone

## Precautions on Use

### QZ Lubricator for the Ball Screw

#### ● Handling

- Dropping or hitting this product may damage it. Take much care when handling it.
- Needlessly disassembling this product may cause foreign matter to enter the system or accuracy to deteriorate. Do not disassemble the product unless it is inevitable to do so.
- Do not clean the product with an organic solvent or white kerosene.
- Do not leave the product unpacked over a long period.
- The model number indication section has a hole for air release. Do not block it with grease or the like.

#### ● Service temperature range

- The service temperature range for this product is between -10°C and +50°C. When desiring to use the product out of the service temperature range, contact THK in advance.

#### ● Use in a special environment

- When desiring to use the product in a special environment, contact THK in advance.

#### ● Rust prevention

- QZ Lubricator is a device designed to feed the required minimum amount of lubricant to the ball raceway, and therefore it does not have a dust-prevention effect on the whole Ball Screw.

### Wiper Ring “W” for the Ball Screw

#### ● Handling

- Dropping or hitting this product may damage it. Take much care when handling it.
- Needlessly disassembling this product may cause foreign matter to enter the system or accuracy to deteriorate. Do not disassemble the product unless it is inevitable to do so.
- When desiring to use the product in an adverse environment, we recommend using both the wiper ring and QZ Lubricator.

#### ● Service temperature range

- The service temperature range for this product is between -20°C and +80°C. When desiring to use the product out of the service temperature range, contact THK in advance.

#### ● Use in a special environment

- When desiring to use the product in a special environment, contact THK in advance.

#### ● Chemical resistance

- Do not use this product in an atmosphere where the product may come in contact with a solvent such as acid or alkali.

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