

THK

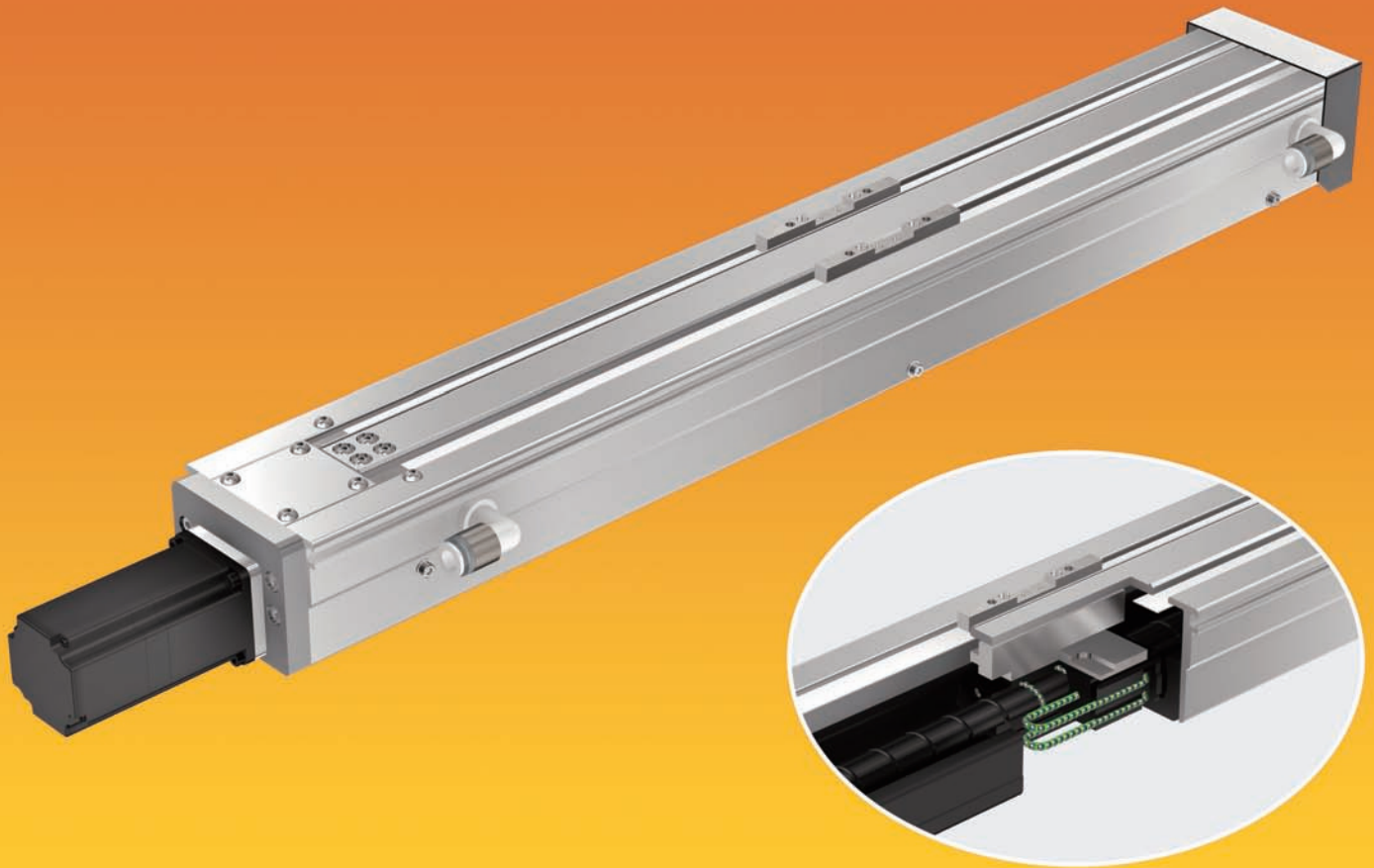


NEW

Clean-Room Actuator

Low dust generation structure
High speed (maximum speed 2000[mm/s])
Compact size and high rigidity

CSKR



For details, visit THK at www.thk.com

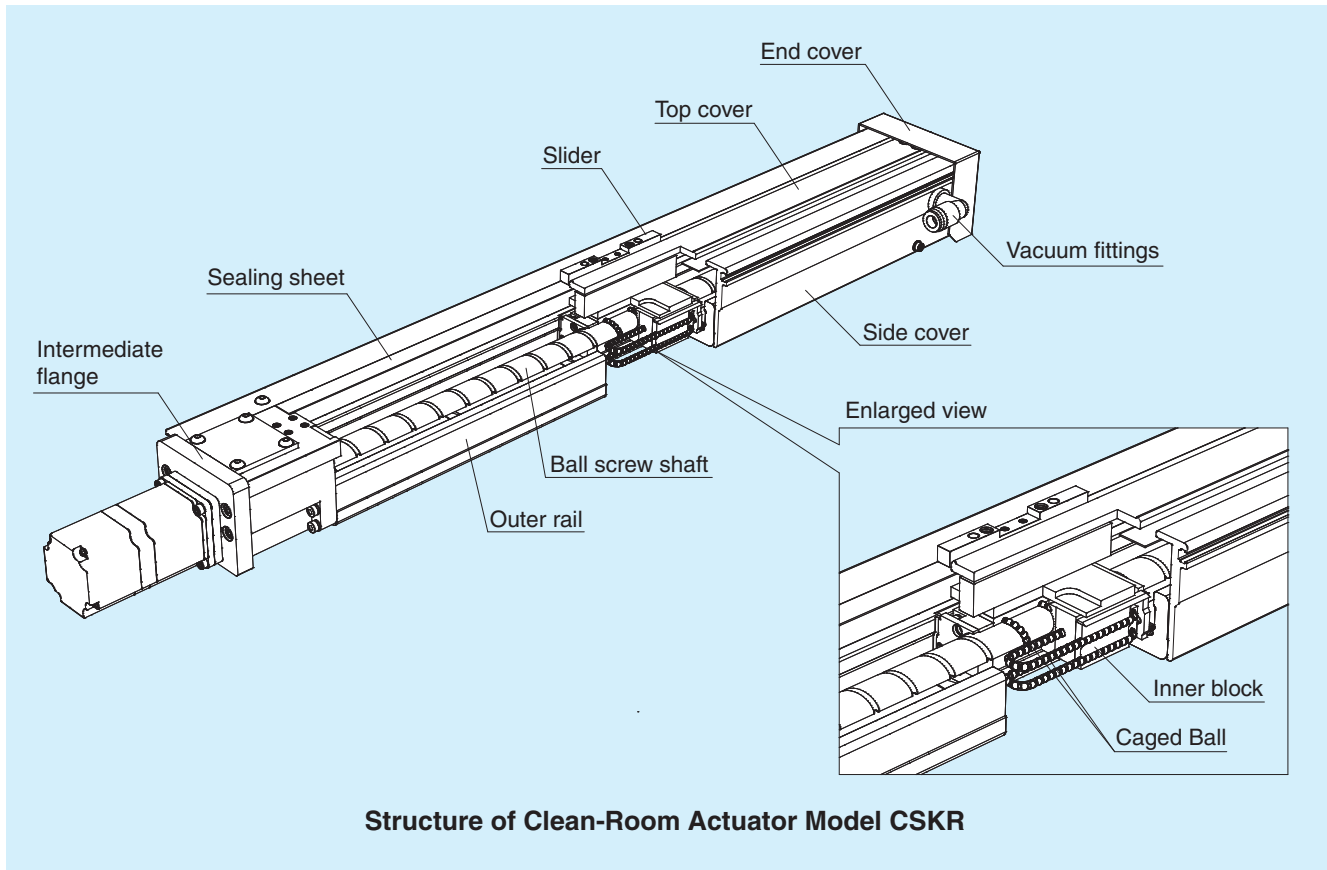
*Product information is updated regularly on the THK website.

THK CO., LTD.
TOKYO, JAPAN

CATALOG No.355-2E

Structure

Model CSKR is the clean-room actuator using the Caged Ball LM Guide Actuator Model SKR.



Structure of Clean-Room Actuator Model CSKR

Features

1. Low dust generation structure

With a unique covering mechanism using a sealing sheet, models CSKR20 and 26 have achieved the classification of clean-room level of ISO14644-1*1 class 3*2 (equivalent to FED209E class 1) and models CSKR33 and 46 have achieved the classification of clean-room level of ISO14644-1*1 class 4*2 (equivalent to FED209E class 10).

2. High speed

Models CSKR33 and 46 are capable of continuous operation*3 at the maximum speed of 2000[mm/s] under the environment of ISO14644-1*1 class 4*2 (equivalent to FED209E class 10).

3. Compact size and high rigidity

Model CSKR uses a highly rigid U-shaped outer rail. It is a compact clean-room actuator integrating the Caged Ball LM Guide and ball screws. (For models CSKR 20 and 26, only the LM Guide Unit uses Caged-Ball Technology. Lubrication unit QZ is installed in the ball screw unit.) With use of Caged-Ball Technology, excellent high speed, low noise, and long-term maintenance free characteristics are achieved.

4. High corrosion resistance

The outer rail, inner block and ball screw shaft are treated with AP-C which is highly resistant to corrosion. (AP-C treatment is an industrial black chrome coating with better corrosion resistance than martensitic stainless steel).

5. For clean-room application

Model CSKR uses THK Grease AFE-CA, which is excellent in low dust generative characteristics, and Clean One-Touch Fittings KPQL (by SMC) for clean-room application.

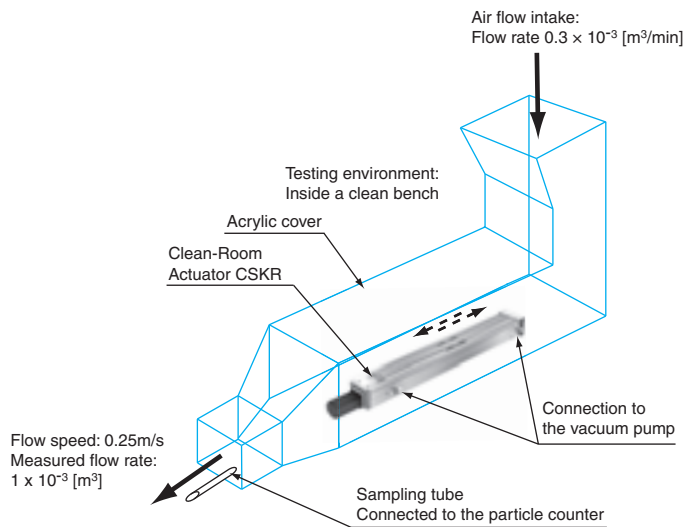
*1 ISO14644-1 is equivalent to JIS B9920.

*2 Negative pressure through the vacuum fittings must be induced to achieve a class 3 or class 4 rating.

*3 With use of THK AFE-CA grease.

Particle Generation Test

Measurement method



<Testing conditions>

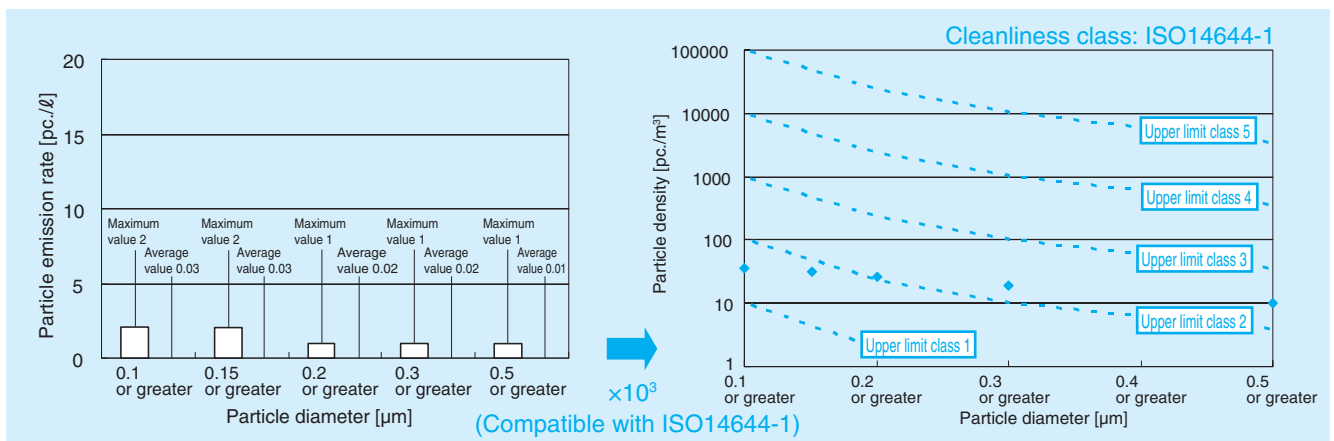
Item	Description
Model no.	CSKR3320B (precision grade)
Stroke	289[mm]
Speed	2000[mm/s]
Acceleration/ deceleration speed	14.7[m/s ²] (1.5[G])
Vacuum rate	70 × 10 ⁻³ [m ³ /min] (70[ℓ/min])
Operating load	None

<Measuring conditions>

Item	Description
Measurement devices	Particle counter (KC-18 by Rion)
Flow speed of the measurement section	250[mm/s]
Air intake rate	0.3 × 10 ⁻³ [m ³ /min] (0.3[ℓ/min])
Measured air rate	1 × 10 ⁻³ [m ³] (1[ℓ])
Measurement time	50[h]

Measurement results

■ Evaluation result of model CSKR 50-hour continuous operation (maximum speed 2000[mm/s])



■ Evaluation result of model CSKR cleanliness level

Model no.	Stroke [mm]	Speed [mm/s]	Acceleration/deceleration speed [m/s ²]	Vacuum rate*1 × 10 ⁻³ [m ³ /min]	Cleanliness level*2 (ISO14644-1)
CSKR2006A (precision grade)	129	600	4.9	12	3
CSKR2606A (precision grade)	206	600	4.9	24	3
CSKR3320A (precision grade)	365	2000	14.7	56	4
CSKR3320B (precision grade)	489	1200	4.9	60	4
CSKR4620A (precision grade)	369	2000	14.7	80	4
CSKR4620B (precision grade)	659	800	4.9	46	4

*1 The effects of pipe flow resistance are not taken into consideration when the vacuum rate is determined. Pipe flow resistance is the resistance value arising from pipe length or pipe diameter. Consider the flow rate reduction due to peripheral components.

*2 Cleanliness level varies depending on the operating conditions.

■ Upper limit cleanliness density level according to ISO14644-1

Unit: pc./m³

Particle diameter	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
0.1μm or greater	10	100	1000	10000	100000	1000000
0.2μm or greater	2	24	237	2370	23700	237000
0.3μm or greater	–	10	102	1020	10200	102000
0.5μm or greater	–	4	35	352	3520	35200

Product Specifications

Specifications

Model no.			CSKR20		CSKR26		CSKR33			CSKR46				
Ball screw lead			[mm]		1	6	2	6	6	10	20	10	20	
Effective stroke ^{Note 1)}			[mm]		40.9 to 140.9		68.4 to 218.4		55 to 605			98.5 to 808.5		
Positioning repeatability ^{Note 2)}			[mm]		Normal grade: ±0.01, high grade: ±0.005, precision grade: ±0.003									
Maximum carrying weight ^{Note 3)}	50W	Horizontal	[kg]	10	10	22	22	-	-	-	-	-	-	
		Vertical		3	6	14	7	-	-	-	-	-	-	
	100W	Horizontal		-	-	-	-	35	30	24	-	-	-	-
		Vertical		-	-	-	-	19	12	6	-	-	-	-
	200W	Horizontal		-	-	-	-	-	-	-	77	51	-	-
		Vertical		-	-	-	-	-	-	-	18	8	-	-
	400W	Horizontal		-	-	-	-	-	-	-	77	72	-	-
		Vertical		-	-	-	-	-	-	-	36	18	-	-
Vacuum rate Recommendation ^{Note 4)}			× 10 ⁻³ [m ³ /min]		3 to 12		4 to 14		10 to 70			16 to 86		

Note 1: Effective stroke is shortened according to the slider length. For details, confirm with the dimensional drawing.

Note 2: Positioning repeatability is determined according to an ambient temperature is 20°C.

Note 3: The guideline for the maximum carrying weight is the weight when the motor is at the rated revolution and the acceleration/deceleration speed is 0.3G (0.15G for 6mm or less lead).

The motor capacity is decided based on an AC servo motor.

Note 4: The effects of pipe flow resistance are not taken into consideration when the vacuum rates are determined.

Maximum speed

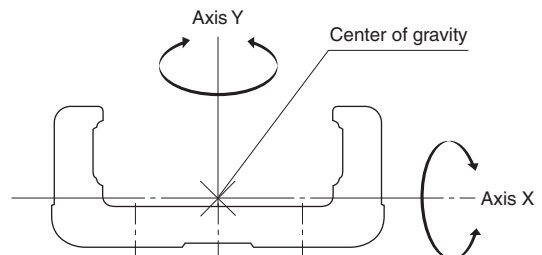
Unit: mm/s

Model no.		CSKR20		CSKR26		CSKR33			CSKR46							
Ball screw lead [mm]		1	6	2	6	6	10	20	10	20						
Outer rail length [mm]	100	100	600	-	-	-	-	-	-	-						
	150			200	600	600	1000	2000								
	200			-	-	-	-	-								
	250			600	1000	2000	-	-								
	300	-	-	-	-	-	-	-	1000	2000						
	340								600	1000	2000	-	-			
	400								-	-	-	1000	2000			
	440								-	-	-	1000	2000			
	500								-	-	-	600	1000	2000	-	-
	540								-	-	-	-	-	-	1000	2000
	600								-	-	-	550	920	1780	-	-
	640								-	-	-	-	-	-	1000	1980
	700	-	-	-	390	650	1270	-	-							
	840	-	-	-	-	-	-	550	1080							
940	-	-	-	-	-	-	430	840								

Note: The maximum speed is the speed limited by the motor revolution (6000[min^{-1}]) or the permissible rotational speed of the ball screw.

Geometrical moment of inertia and mass

Model no.	Geometrical moment of inertia		Mass
	I _x [mm ⁴]	I _y [mm ⁴]	[kg/m]
CSKR20	6.0×10^3	6.14×10^4	2.6
CSKR26	1.66×10^4	1.48×10^5	3.9
CSKR33	5.35×10^4	3.52×10^5	6.1
CSKR46	2.05×10^5	1.45×10^6	12.6



Load rating and radial clearance

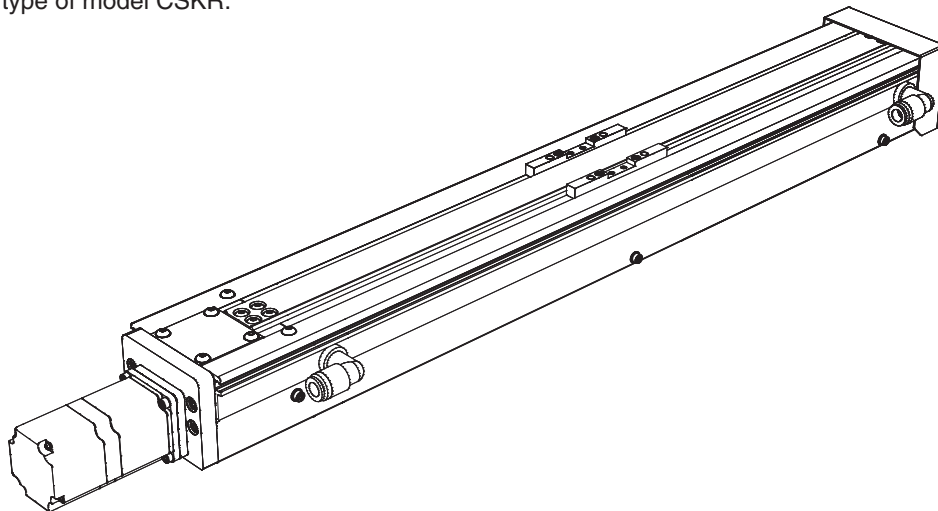
Model no.			CSKR20		CSKR26		CSKR33			CSKR46	
Ball screw lead [mm]			1	6	2	6	6	10	20	10	20
LM Guide unit	Basic dynamic load rating C [N] ^{Note)}		6010		13000		17000			39500	
	Basic static load rating C ₀ [N] ^{Note)}		8030		16500		20400			45900	
	Radial clearance [mm]	Normal grade, high grade	-0.004 to 0		-0.006 to 0		-0.004 to 0			-0.006 to 0	
Precision grade		-0.006 to -0.004		-0.007 to -0.006		-0.012 to -0.004			-0.016 to -0.006		
Ball screw unit	Basic dynamic load rating C _a [N]	Normal grade, high grade	660	860	2350	1950	4400	2700	2620	4350	4240
		Precision grade		1060		2390					
	Basic static load rating C _{0a} [N]	Normal grade, high grade	1170	1450	4020	3510	6290	3780	3770	6990	7040
		Precision grade		1600		3900					
Bearing unit (Fixed side)	Axial direction	Basic dynamic load rating C _a [N]	1150		2000		6250			6700	
		Basic static load rating P _{0a} [N]	735		1230		2700			3330	

Note: The load ratings in the LM Guide unit indicate the load rating per inner block.

Type

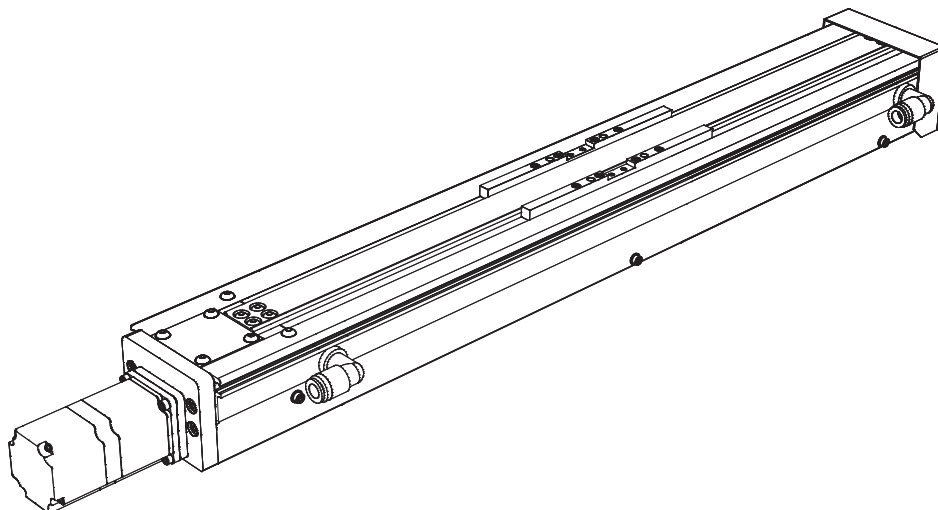
Model CSKR-A (slider type A)

Representative type of model CSKR.



Model CSKR-B (slider type B)

Type with two inner blocks for model CSKR-A and the slider overall length is extended.



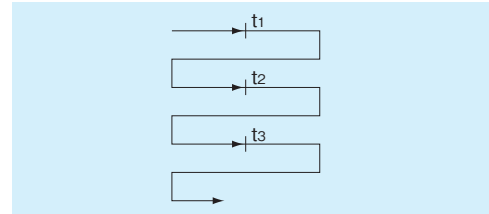
Accuracy Standard

The accuracy of model CSKR is defined in positioning repeatability, positioning accuracy, backlash and running parallelism (vertical).

Positioning repeatability

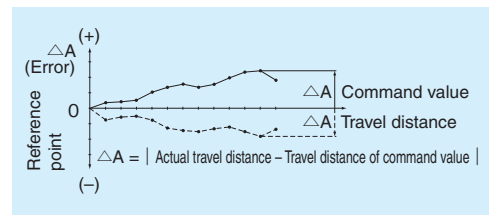
After repeated positioning to a given point in the same direction seven times, measure the resting point and calculate the value of half the maximum difference.

Perform this measurement at the center and at both ends of the travel distance; the largest value becomes the measurement value, and the positioning repeatability is expressed by placing the symbol "±" next to the value of half the maximum difference.



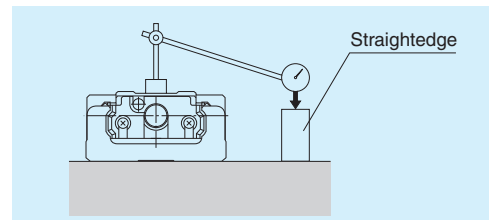
Positioning accuracy

Using the maximum stroke as the reference length, express as an absolute value the maximum error between the actual distance traveled from the reference point and the commanded value in as positioning accuracy.



Running parallelism (vertical)

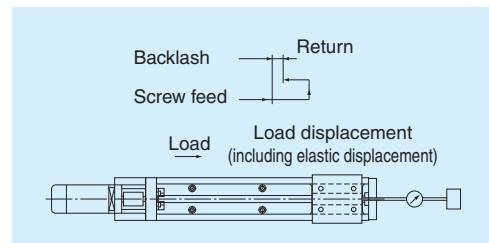
Placing a straightedge on the surface where model CSKR is mounted, measure throughout the travel distance of the inner block using a dial indicator. Use the maximum difference between the readings within this travel distance as the measurement of running parallelism.



Backlash

Advance the inner block forward and record the measurement on the test indicator as a reference value. Subsequently, apply load to the inner block from the same direction (table feed direction), and then release the nut block from this load. Use the difference between the reference value and the return value as the backlash measurement.

Perform this measurement in the center and near both ends, and use the maximum value as the measurement value.



The accuracies of model CSKR are classified into normal grade (no symbol), high grade (H) and precision grade (P). The tables below show standards for all the accuracies.

Normal grade (no symbol)

Unit: mm

Model no.	Outer rail length	Positioning repeatability	Positioning accuracy	Running parallelism (vertical)	Backlash	Start torque [N-cm]
CSKR20	100	±0.01	No standard defined	No standard defined	0.02	0.8
	150					
	200					
CSKR26	150	±0.01	No standard defined	No standard defined	0.02	2.3
	200					
	250					
	300					
CSKR33	150	±0.01	No standard defined	No standard defined	0.02	8.7
	200					
	300					
	400					
	500					
	600					
CSKR46	340	±0.01	No standard defined	No standard defined	0.02	12.3
	440					
	540					
	640					
	840					
	940					

High grade (H)

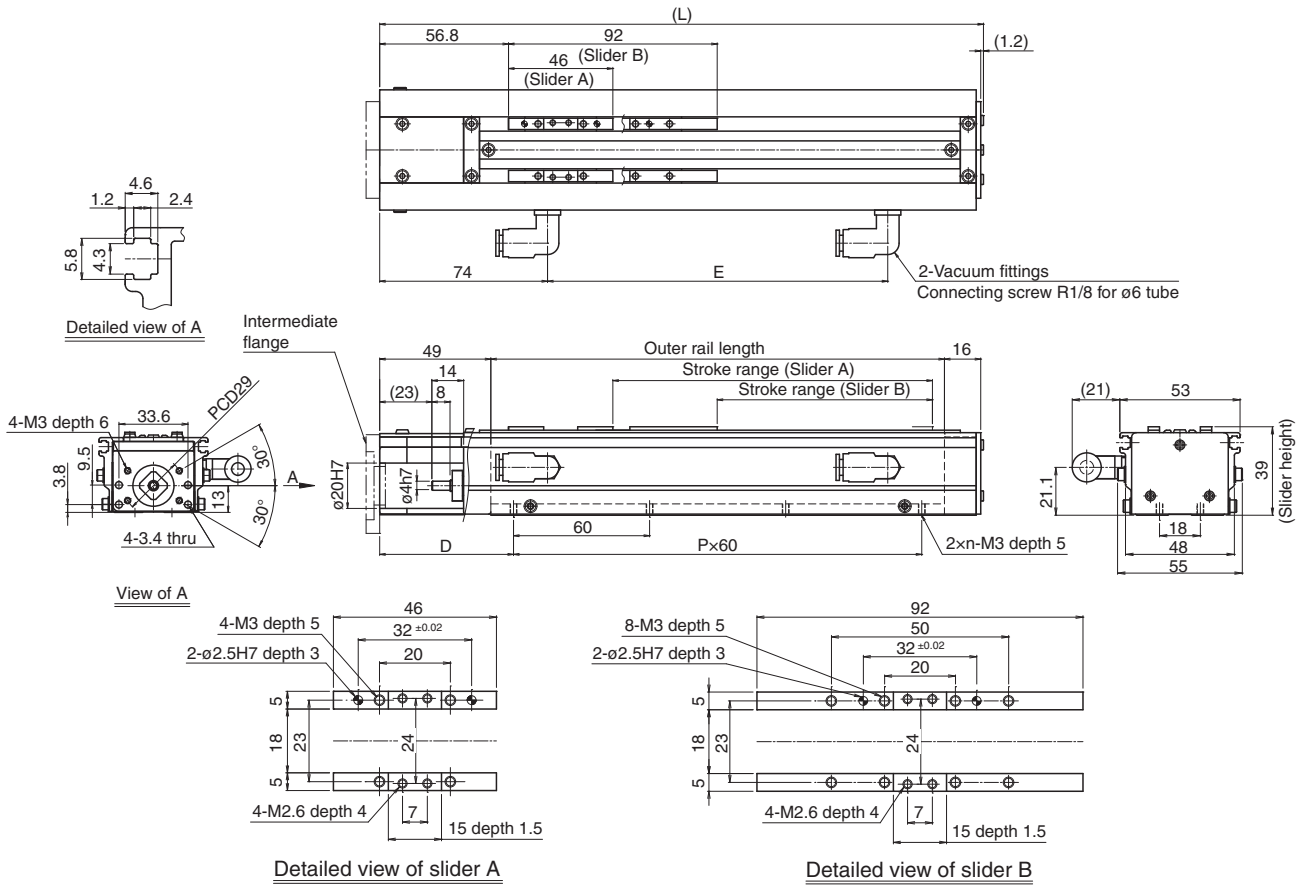
Unit: mm

Model no.	Outer rail length	Positioning repeatability	Positioning accuracy	Running parallelism (vertical)	Backlash	Start torque [N-cm]
CSKR20	100	±0.005	0.06	0.025	0.01	0.8
	150					
	200					
CSKR26	150	±0.005	0.06	0.025	0.01	2.3
	200					
	250					
	300					
CSKR33	150	±0.005	0.06	0.025	0.02	8.7
	200					
	300					
	400		0.10	0.035		
	500					
	600					
CSKR46	340	±0.005	0.10	0.035	0.02	12.3
	440					
	540					
	640		0.12	0.04		
	840					
	940					

Precision grade (P)

Unit: mm

Model no.	Outer rail length	Positioning repeatability	Positioning accuracy	Running parallelism (vertical)	Backlash	Start torque [N-cm]
CSKR20	100	±0.003	0.02	0.01	0.003	1.9
	150					
	200					
CSKR26	150	±0.003	0.02	0.01	0.003	6.1
	200					
	250					
	300					
CSKR33	150	±0.003	0.02	0.01	0.003	18.3
	200					
	300					
	400		0.025	0.015		
	500					
	600					
CSKR46	340	±0.003	0.025	0.015	0.003	18.3
	440					
	540					
	640		0.03	0.02		
	840					
	940					



Outer rail length [mm]	Stroke range [mm]		L [mm]	D [mm]	P	n [pcs]	E [mm]	Reference main unit mass [kg]	
	Slider type A	Slider type B						Slider type A	Slider type B
100	40.9	—	166.2	69	1	2	50	0.9	—
150	90.9	44.9	216.2	64	2	3	100	1.0	1.3
200	140.9	94.9	266.2	59	3	4	150	1.2	1.5

Note 1: The vacuum fittings can be mounted on either side.

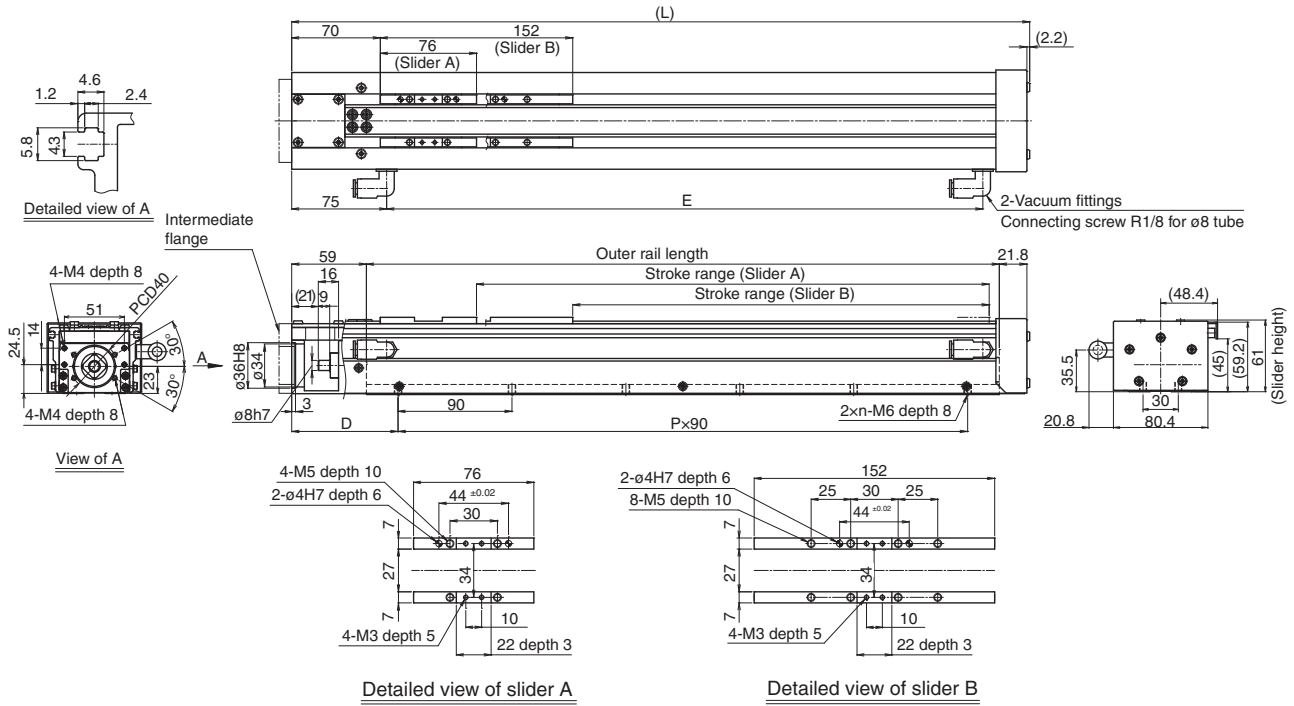
Note 2: The motor-wrap specification can also be provided. For more information, please contact THK.

Model Number Chart

CSKR20 01 A + 150L P 0 - 0 A N

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Ball screw lead	01, 06
② Slider type	A (With one inner block)/B (With two inner blocks)
③ Outer rail length	100 to 200
④ Accuracy standard	No symbol : Normal grade H : High grade P : Precision grade
⑤ With/without motor	0 : Without motor 1 : With motor
⑥ Sensor specification	0 : Without sensor Attached table (→ Page 17) : With sensor
⑦ Intermediate flange	Attached table (→ Pages 11 and 12)
⑧ Base plate (Optional)	N : Without base plate B : With base plate



Outer rail length [mm]	Stroke range [mm]		L [mm]	D [mm]	P	n [pcs]	E [mm]	Reference main unit mass [kg]	
	Slider type A	Slider type B						Slider type A	Slider type B
150	55	—	233	89	1	2	121	3.2	—
200	105	—	283	69	2	3	171	3.7	—
300	205	129	383	74	3	4	271	4.5	5.2
400	305	229	483	79	4	5	371	5.4	6.1
500	405	329	583	84	5	6	471	6.2	6.9
600	505	429	683	89	6	7	571	7.2	7.9
700	605	529	783	94	7	8	671	8	8.7

Note 1: The vacuum fittings can be mounted on either side.

Note 2: The motor-wrap specification can also be provided. For more information, please contact THK.

Model Number Chart

CSKR33 10 A + 500L P 0 - 0 A N

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Ball screw lead	06, 10, 20
② Slider type	A (With one inner block)/B (With two inner blocks)
③ Outer rail length	150 to 700
④ Accuracy standard	No symbol : Normal grade H : High grade P : Precision grade
⑤ With/without motor	0 : Without motor 1 : With motor
⑥ Sensor specification	0 : Without sensor Attached table (→ Page 17) : With sensor
⑦ Intermediate flange	Attached table (→ Pages 11 and 12)
⑧ Base plate (Optional)	N : Without base plate B : With base plate

Optional

Intermediate flange

Intermediate flanges are available so that various motors may be mounted. Specify the intermediate flange suitable for your motor.

Table of motors used and corresponding intermediate flanges (1)

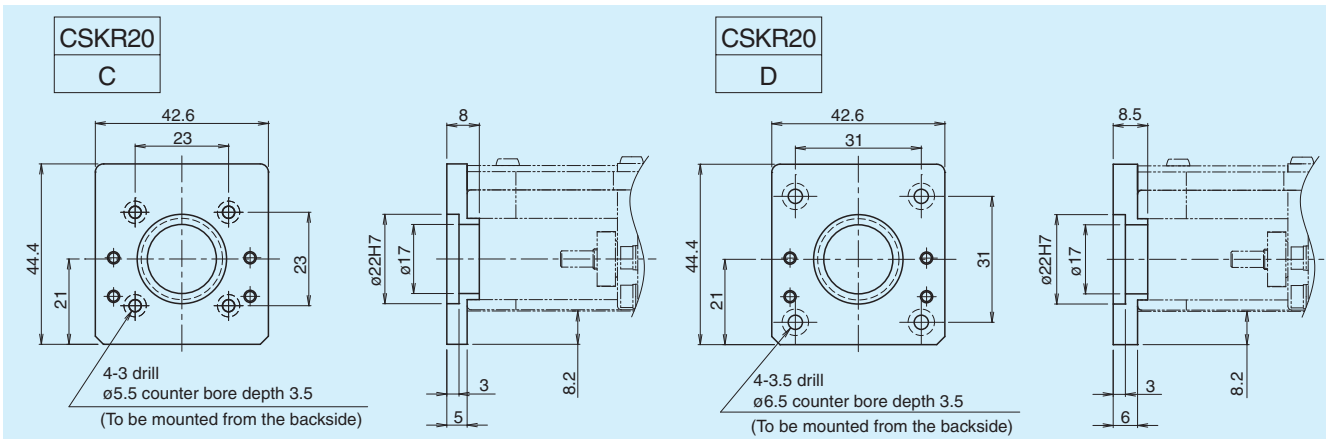
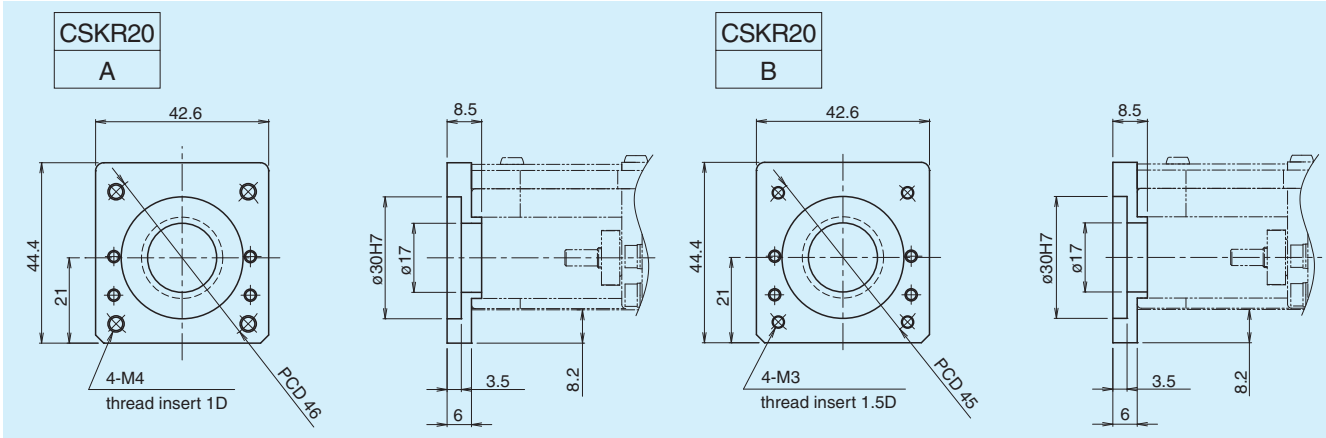
		Motor type	Rated output	Flange angle	CSKR20	CSKR26	CSKR33	CSKR46		
AC servo motor	Yaskawa Electric	Σ-V	SGMJV-A5	50W	□40	A	A	A	A	
			SGMAV-A5			-	-			
			SGMJV-01	100W		-	-	-		
			SGMAV-01			-	-			
			SGMAV-C2	150W		-	-	-		
			SGMJV-02	200W		-	-	-		
			SGMAV-02			-	-			
			SGMJV-04	400W		-	-	-		
		SGMAV-04	-		-					
		Σ-II	SGMAH-A3	30W	□40	A	A	A	A	
			SGMAH-A5	50W		-	-	A	A	
			SGMAH-01	100W	□60	-	-	B	B	
			SGMPH-01			-	-			
			SGMAH-02	200W	-	-	-			
			SGMAH-04	400W	□80	-	-	-		
			SGMPH-02	200W		-	-	C		
	SGMPH-04		400W	-	-	-				
	Mitsubishi Electric	MELSERVO	J3	HF-MP053	50W	□40	A	A	A	A
				HF-KP053			-	-		
				HF-MP13	100W		-	-	-	
				HF-KP13			-	-		
			HF-MP23	200W	□60		-	-	-	
			HF-KP23				-	-		
			HF-MP43	400W	-		-	-		
			HF-KP43		-		-			
		J2 Super	HC-MFS053	50W	□40	A	A	A	A	
			HC-KFS053			-	-			
			HC-MFS13	100W		-	-	-		
			HC-KFS13			-	-			
			HC-MFS23	200W		□60	-	-		-
			HC-KFS23				-	-		
			HC-MFS43	400W		-	-	-		
HC-KFS43			-			-				
Panasonic	MINAS	A4	MSMD 5A	50W	□38	B	B	C	D	
			MSMD 01	100W		-	-			
			MQMA 01		200W	□60	-	-		-
			MSMD 02	-			-			
		MAMA 02	400W	-	-	-				
		MSMD 04		-	-					
		MAMA 04	200W	□80	-	-	-			
		MQMA 02			-	-				
	MQMA 04	400W	-	-	-					
	A III	MSMA 3A	30W	□38	B	B	C	D		
		MSMA 5A	50W		-	-				
		MSMA 01	100W	-	-	-				
		MSMA 02	200W	□60	-		-			
		MAMA 02			-	-				
		MSMA 04	400W	-	-	-				
		MAMA 04		-	-					
E		MUMA 02	200W	-	-	-				
	MUMA 04	400W	-	-						

Table of motors used and corresponding intermediate flanges (2)

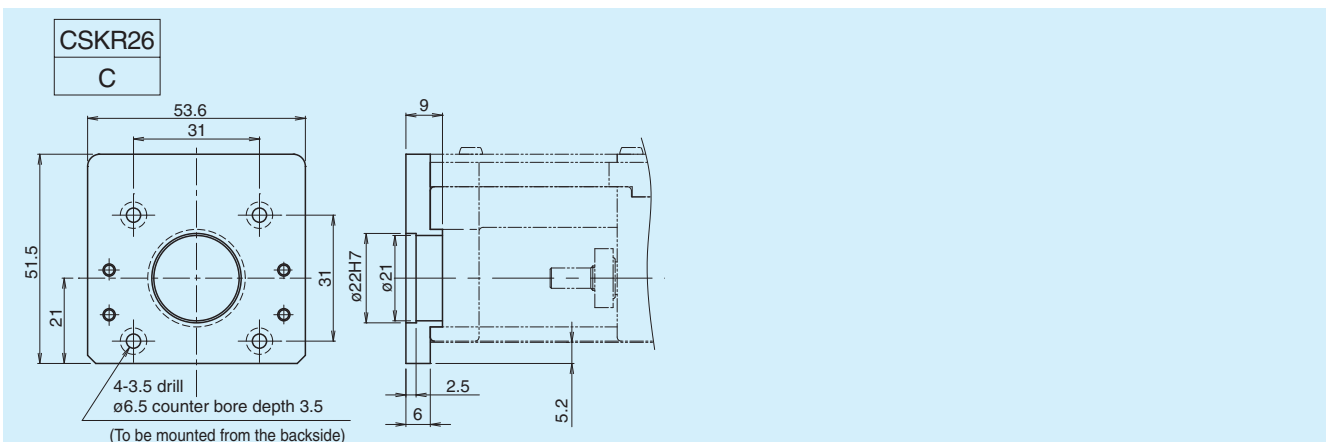
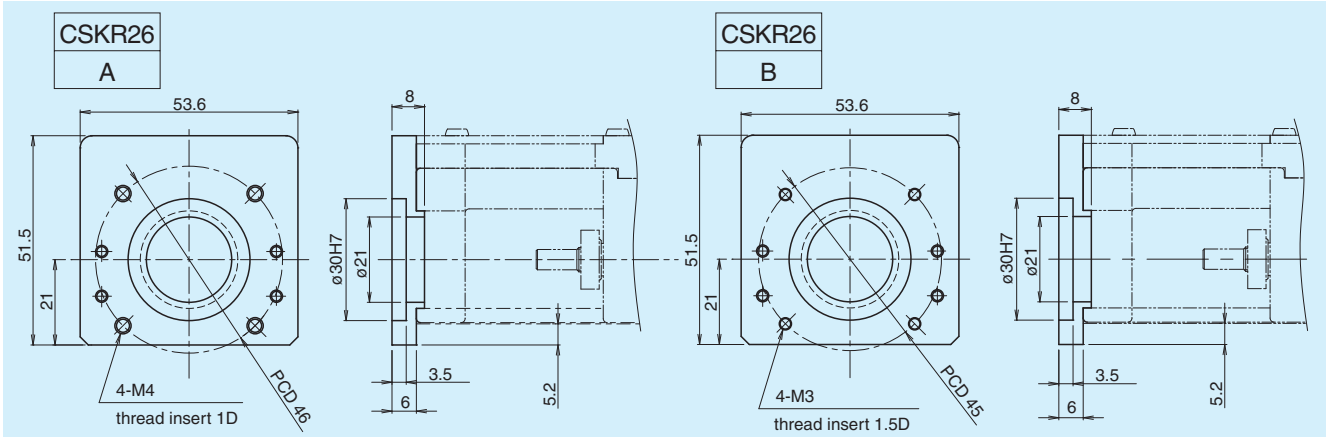
		Motor type	Rated output	Flange angle	CSKR20	CSKR26	CSKR33	CSKR46	
AC servo motor	Sanyo Denki	SANMOTION Q1	Q1AA04003D	30W	□40	A	A	A	A
			Q1AA04005D	50W		-	-	-	-
			Q1AA04010D	100W		-	-	-	-
			Q1AA06020D	200W	□60	-	-	-	B
			Q1AA06040D	400W		-	-	-	-
		SANMOTION Q2	Q2AA04006D	60W	□42	-	-	E	-
			Q2AA04010D	100W		-	-	-	-
			Q2AA05005D	50W	□54	-	-	F	G
			Q2AA05010D	100W		-	-	-	-
			Q2AA05020D	200W		-	-	-	-
	Q2AA07020D	□76	-		-	-	F		
	Q2AA07030D	300W	-	-	-	-	-		
	OMRON	OMNUC G5	R88M-K05030	50W	□40	A	A	A	A
			R88M-K10030	100W		-	-	-	-
			R88M-K20030	200W	□60	-	-	-	E
			R88M-K40030	400W		-	-	-	-
		OMNUC G	R88M-G05030	50W	□40	A	A	A	A
			R88M-G10030	100W		-	-	-	-
			R88M-GP10030			□60	-	-	D
R88M-G20030			200W	-	-		-	-	
R88M-G40030			400W	□80	-	-	-	F	
R88M-GP20030			200W		-	-	-	-	
R88M-GP40030	400W	-	-	-	-	-			
Stepping motor	Oriental Motor	αGRADE	AR46	□42	D	C	G	H	
			AR66		-	-	H	I	
			AR69	□60	-	-	-	-	
			AR98		□85	-	-	-	J
		αSTEP	ASC3*	□28	C	-	-	-	
			AS46, ASC46	□42	D	C	G	H	
			AS66, ASC66	□60	-	-	H	I	
			AS69		-	-	-	-	
			AS98	□85	-	-	-	-	J
			5-phase CSKII	CSK52*	□28	C	-	-	-
	CSK54*	□42		D	C	G	H		
	CSK564, CSK566	□60		-	-	H	I		
	CSK569			-	-	-	-		
	CSK596	□85		-	-	-	-	J	
	RK	RK54*		□42	D	C	G	H	
		RK564, RK566	□60	-	-	H	I		
	Sanyo Denki	5-phase	103F35	□28	C	-	-	-	
			103F55	□42	D	C	G	H	
			103F785	□60	-	-	H	I	

Dimensions

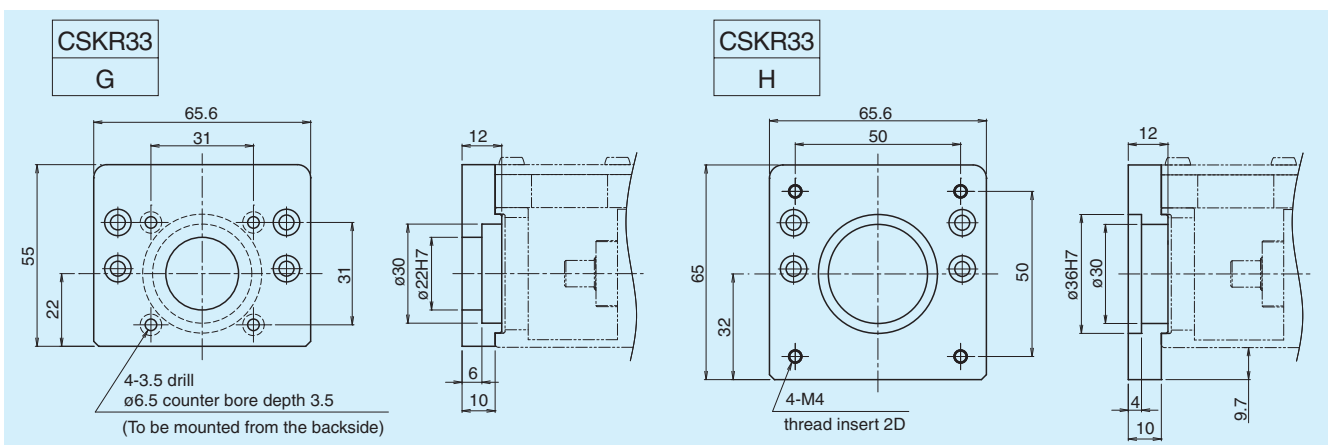
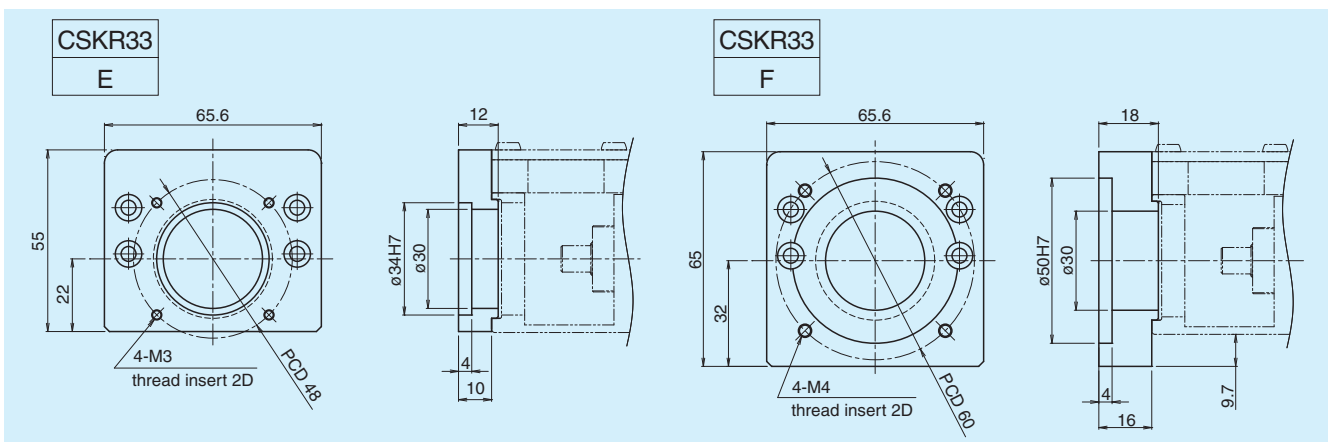
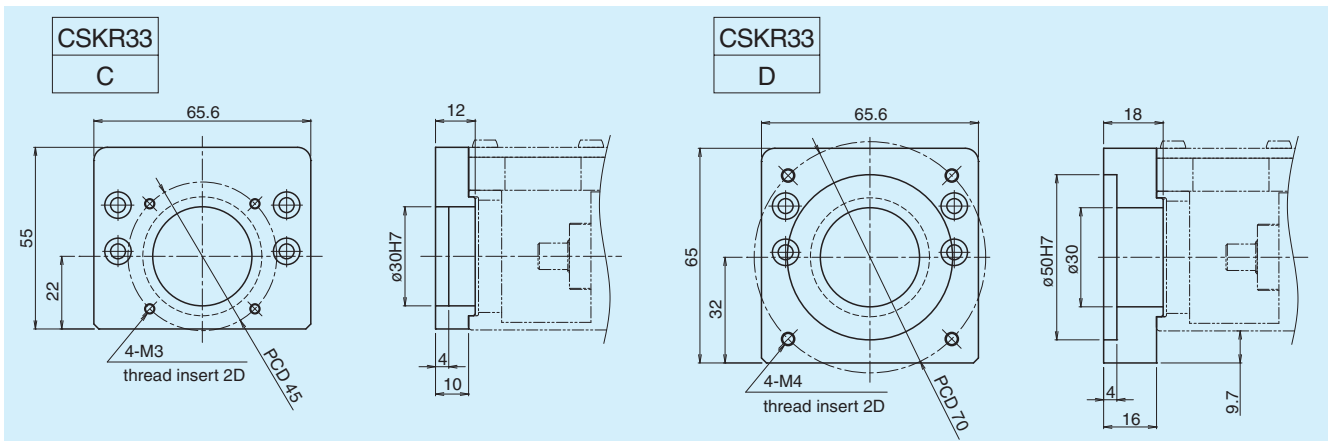
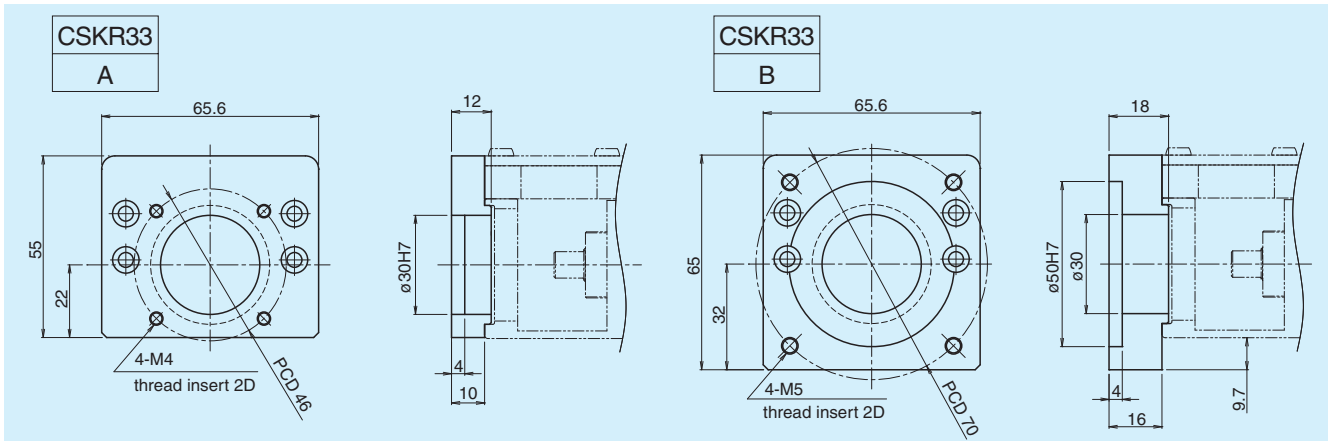
For CSKR20



For CSKR26

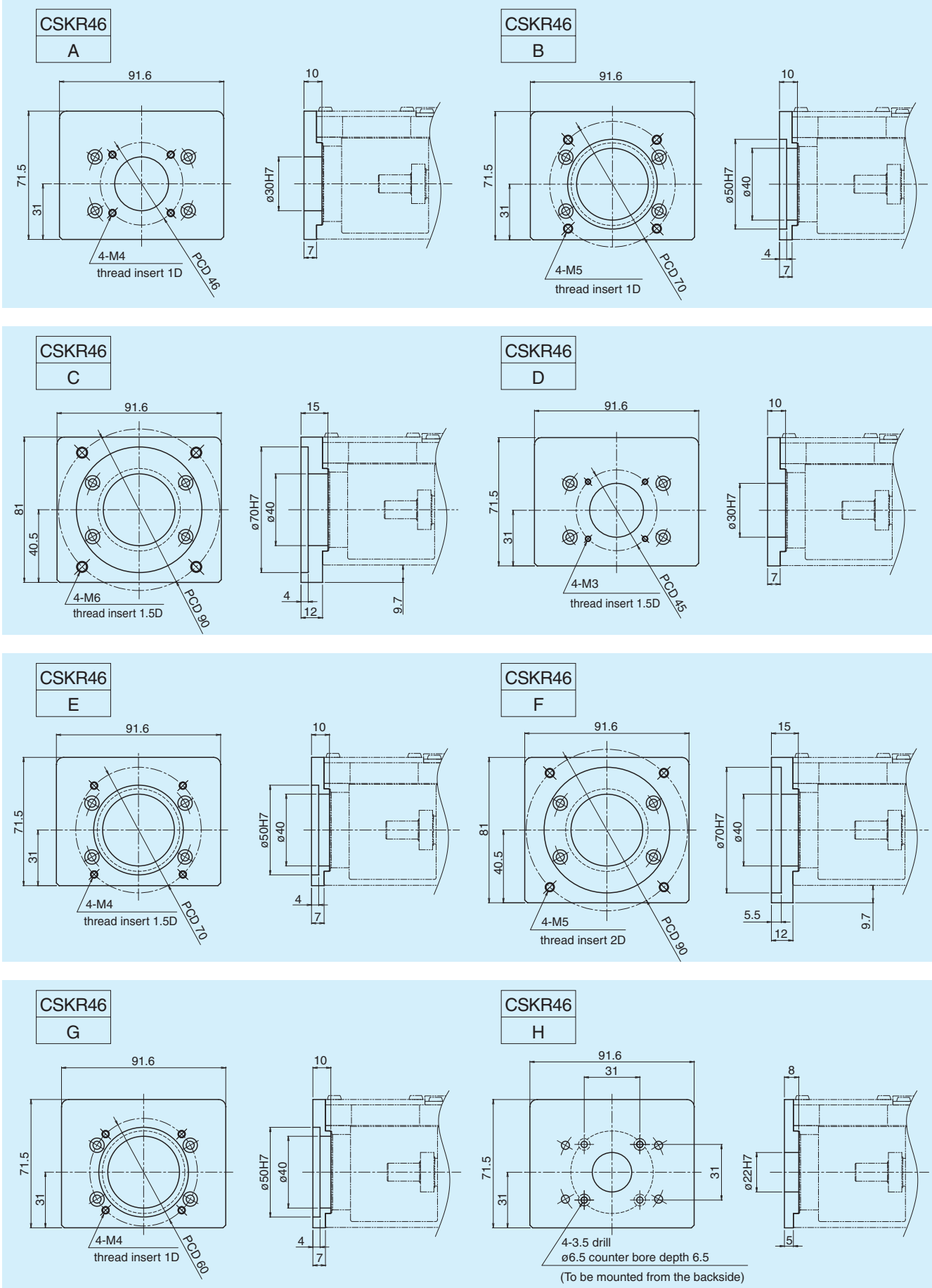


For CSKR33



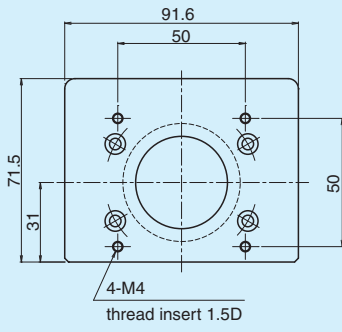
Dimensions

For CSKR46



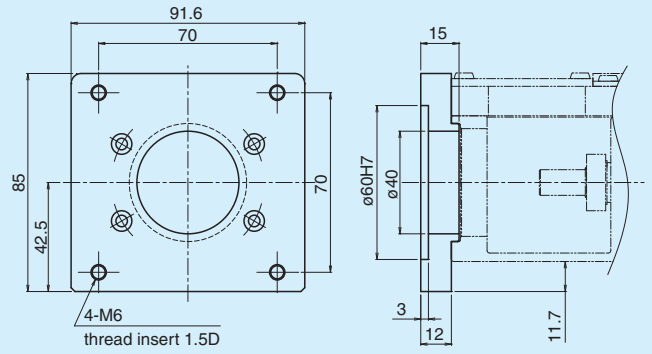
CSKR46

I



CSKR46

J



Optional

Sensor

Various sensors can be mounted on model CSKR using the T slot at the side cover.
To select a sensor, indicate the appropriate symbol from the corresponding table.

Symbol	Type	Operation mode	Sensor model no.	No. of units	Manufacturer	Accessories
0	No sensor	—	—	—	—	—
2	Photo sensor	Switching is allowed.	EE-SX671	3	OMRON	Mounting screw, nut, sensor dog, mounting plate, connector (EE-1001)
6		Switching is allowed.	EE-SX674	3		Mounting screw, nut, sensor dog, mounting plate, connector (EE-1001)
C	Proximity sensor	N.O. contact	GL-N12F	1	SUNX	Mounting screw, nut, sensor dog
		N.C. contact	GL-N12FB	2		
E	Proximity sensor	N.O. contact	APM-D3A1-001	1	Yamatake	Mounting screw, nut, sensor dog
		N.C. contact	APM-D3B1-003	2		

Note 1: All sensor outputs are NPN outputs.

Note 2: All sensors are accessories.

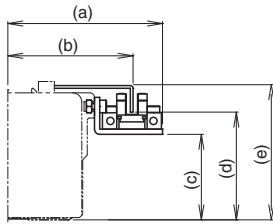
Note 3: N.O. contact: Normally open contact N.C. contact: Normally closed contact

Note 4: Sensors other than those shown in the table above may be mounted. For more information, please contact THK.

[Photo sensor]

EE-SX671

[Interchangeable for both N.O. and N.C. contact] (3 pcs.) (OMRON)

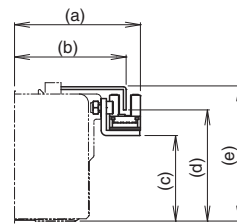


Unit: mm

Model no.	a	b	c	d	e
CSKR20	56.5	43.5	16.7	27.5	38.5
CSKR26	62	49.2	28.7	39.5	49
CSKR33	68.2	55.2	37.7	48.5	59.2
CSKR46	81	68.2	54.2	65	75.2

EE-SX674

[Interchangeable for both N.O. and N.C. contact] (3 pcs.) (OMRON)



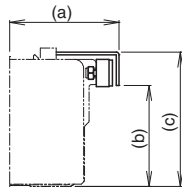
Unit: mm

Model no.	a	b	c	d	e
CSKR20	43.8	37.5	16.7	27.5	38.5
CSKR26	49.3	43	28.7	39.5	49
CSKR33	55.5	49.2	37.7	48.5	59.2
CSKR46	68.3	62.4	54.2	65	75.2

[Proximity sensor]

GL-N12F [N.O. contact] (1 pc.) (SUNX)

GL-N12FB [N.C. contact] (2 pcs.) (SUNX)

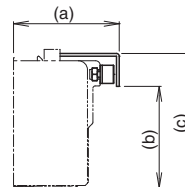


Unit: mm

Model no.	a	b	c
CSKR33	48.2	44.5	59.2
CSKR46	61.4	60.5	75.2

APM-D3A1-001 [N.O. contact] (1 pc.) (Yamatake)

APM-D3B1-003 [N.C. contact] (2 pcs.) (Yamatake)

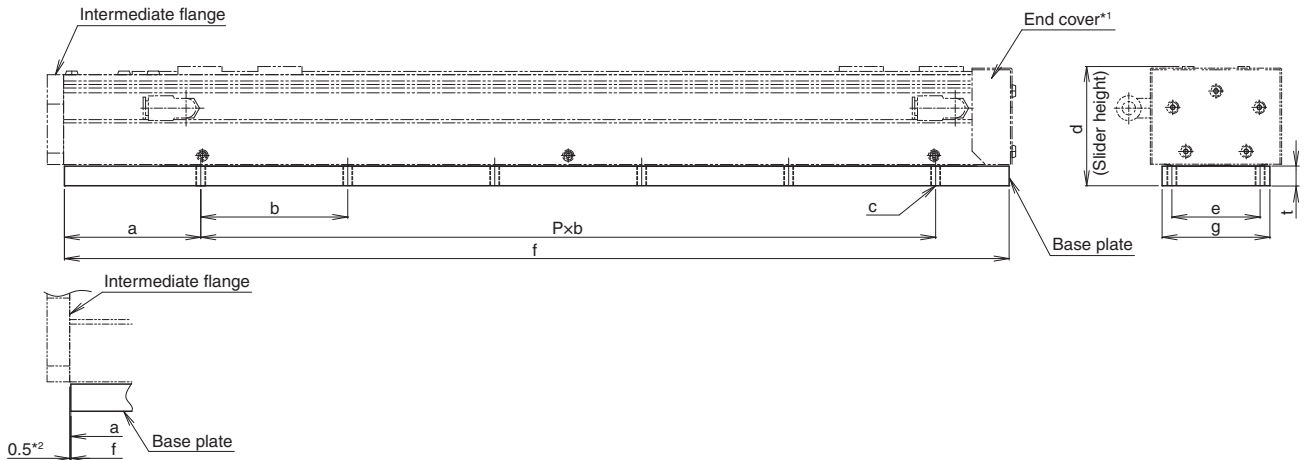


Unit: mm

Model no.	a	b	c
CSKR20	34.5	28	38.5
CSKR26	40	36.5	49
CSKR33	46.2	45.7	59.2
CSKR46	59	62.5	75.2

Base plate (optional)

Model CSKR can have the same slider height as that of conventional product (model CKR) by mounting the optional base plate.



*1 Models CSKR20 and 26 do not have end covers.

*2 The base plate is shortened by 0.5mm from the edge of the intermediate flange (→ See the figure above.).

Note: When the base plate is used, the positioning accuracy and running parallelism (vertical) of the accuracy standard are equivalent to normal grade.

Model CSKR20

Unit: mm

Outer rail length	a	b	P	c	d	e	f	g	t
100	68.5	60	1	4 × M3 thread insert 1.5D	45	32	162.5	42	6
150	63.5		2	6 × M3 thread insert 1.5D			212.5		
200	58.5		3	8 × M3 thread insert 1.5D			262.5		

Model CSKR26

Unit: mm

Outer rail length	a	b	P	c	d	e	f	g	t
150	69.5	65	2	6 × M4 thread insert 1.5D	58	42	223.5	52	8
200	94.5						273.5		
250	87		3	8 × M4 thread insert 1.5D			323.5		
300	79.5						4		

Model CSKR33

Unit: mm

Outer rail length	a	b	P	c	d	e	f	g	t
150	88.5	90	1	4 × M6 thread insert 1.5D	72	54	228.5	66	11
200	68.5		2	6 × M6 thread insert 1.5D			278.5		
300	73.5		3	8 × M6 thread insert 1.5D			378.5		
400	78.5		4	10 × M6 thread insert 1.5D			478.5		
500	83.5		5	12 × M6 thread insert 1.5D			578.5		
600	88.5		6	14 × M6 thread insert 1.5D			678.5		
700	93.5		7	16 × M6 thread insert 1.5D			778.5		

Model CSKR46

Unit: mm

Outer rail length	a	b	P	c	d	e	f	g	t
340	107	100	3	8 × M8 thread insert 1.5D	88	76	449	92	11
440			4	10 × M8 thread insert 1.5D			549		
540			5	12 × M8 thread insert 1.5D			649		
640			6	14 × M8 thread insert 1.5D			749		
840			8	18 × M8 thread insert 1.5D			949		
940			9	20 × M8 thread insert 1.5D			1049		

Precautions on Use

● Handling

- Do not disassemble this product unnecessarily. Otherwise, dirt may enter or performance may be lost.
- Do not drop or knock this product. Otherwise, injury or damage may occur. Giving an impact could also cause damage to its function even if the product looks intact.
- Do not operate the unit in excess of the permissible rotational speed. Otherwise, damage to the unit or an accident may occur.
 - * Contact THK for the permissible rotational speed.
- If the product is operating or in the ready state, never touch a moving part. In addition, do not enter the operating area of the actuator.
- If two or more people are involved in the operation, confirm the procedures such as sequences, signs, and abnormalities in advance, and appoint another person for monitoring the operation.
- Do not press the sealing sheet.
- Use the sealing sheet without deflection.
- Since the unit is designed to vacuum the volume inside the cover, particles may come in contact with the sealing sheet or its vicinity. Wipe it regularly with a rag for clean-room and ethanol.

● Operating environment

The wrong environment can cause failure for this product. The suitable environments for application are as follows:

- When the performance of cleanliness level class 3 or class 4 is required
 - Operating temperature: +16°C to +24°C (No condensation shall occur at the humidity of 20 to 60%RH.)
- When operation is performed under normal environment (atmosphere)
 - Operating temperature: +10°C to +40°C (No condensation shall occur at the humidity of 80%RH or less.)
 - * If considering use of the product outside its operating temperature range, contact THK.
- An environment free from corrosive gas or flammable gas
- An environment free from grit, dust, salt or metal powder
- An environment free from water, oil or chemicals
- An environment where vibration or impact are not transmitted to the unit
- When using the product in locations exposed to constant vibrations or in special environments such as vacuum and low/high temperature, contact THK in advance.

● Mounting the actuator


- The mounting surface shall be a machined surface or of equivalent properties. The flatness should be within 0.1mm/1000mm.

● Lubrication

- To maximize the performance of this product, lubrication is required. Using the product with insufficient lubrication may increase wear of the rolling elements or damage the system prematurely. In this product, THK AFE-CA grease is used as the standard grease.
- Do not mix lubricants of different physical properties.
- When planning to use a special lubricant, contact THK before using it.
- In normal use, the grease must be replenished every 100km as a guide. However, the greasing interval varies according to the conditions. We recommend determining the greasing interval based on the result of the initial inspection.
- In locations exposed to constant vibrations or in special environments such as vacuum and low/high temperature, normal lubricants may not be used. Contact THK for details.

● Storage

- When storing the product, enclose it in a package designated by THK and store it in a horizontal orientation while avoiding high temperature, low temperature and high humidity.

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