

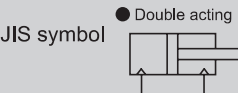
SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/
MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd
Contr
Ending



Medium bore size cylinder
double acting/air cushioned

CMK2-C Series

● Bore size: $\varnothing 20/\varnothing 25/\varnothing 32/\varnothing 40$



Specifications

Item	CMK2-C			
Bore size mm	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$
Actuation	Double acting/air cushioned			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.1 (≈ 15 psi, 1 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14 $^{\circ}\text{F}$) to 60 (140 $^{\circ}\text{F}$) (no freezing)			
Port size	Rc 1/8			
Stroke tolerance mm	$^{+2.0}_{0}$ (Up to 200), $^{+2.4}_{0}$ (More than 200)			
Working piston speed mm/s	50 to 700			
Cushion	Air cushion			
Effective cushion length mm	12			
Allowable absorbed energy J	0.34	0.46	0.88	1.27
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)		Min. stroke (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
$\varnothing 20$	25/50/75/100/ 150/200/250/ 300	750	650	5	25
$\varnothing 25$					
$\varnothing 32$					
$\varnothing 40$					

*1: The custom stroke is available in 1 mm increments.
*2: One side foot (LS) has the max. stroke of 50 mm.
*3: Contact CKD when stroke shorter than 25 mm is required for "J" bellows.

Min. stroke with switch

(Unit: mm)

Switch quantity Bore size (mm)	1					2					3				
	Proximity			Reed		Proximity			Reed		Proximity			Reed	
	T2, T3	T2W, T3W	T1, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T1, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T1, T*Y*	T0, T5	T8
$\varnothing 20$	10					25	30	35	25	35	50	55	55	50	55
$\varnothing 25$	10					25	30	35	25	35	50	55	55	50	55
$\varnothing 32$	10					25	30	35	25	35	50	55	55	50	55
$\varnothing 40$	10					25	30	35	25	35	50	55	55	50	55

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity	2-wire proximity			3-wire proximity				2-wire reed						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For programming controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay		For programmable controller, relay (no lamp), serial		For programmable controller, relay		
Output method	-				NPN output	PNP output	NPN output	NPN output	-						
Pwr. supp. V.	-				10 to 28 VDC				-						
Load voltage	85 to 265 VAC	10 to 30 VDC		24 VDC ±10%	30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Indicator	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		No indicator lamp		LED (Lit when ON)		
Leakage current	≤ 1 mA at 100 VAC, ≤ 2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80		1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		

*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Cylinder weight

(Unit: kg)

Item/mounting Bore size (mm)	Product weight when stroke (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)			
ø20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	Refer to the weight in the switch specifications.	0.005	0.01
ø25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
ø32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
ø40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02
Product weight when S = 0 mm..... 0.45 kg Additional weight when S = 50mm ... Additional weight when S = 10 mm 0.02x $\frac{\text{Product stroke (50)}}{10}$ = 0.10 kg (Example) Product weight of CMK2-C-FA-32-50-T0H-D Weight of 2 switches..... 0.036 kg Weight of switch rail + 2 bands..... 0.018 kg. Product weight..... 0.45 kg+0.1 kg+0.036 kg+0.018 Kg=0.604 kg											

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø20	Push	31.4	47.1	62.8	94.2	1.26x10 ²	1.57x10 ²	1.88x10 ²	2.20x10 ²	2.51x10 ²	2.83x10 ²	3.14x10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18x10 ²	1.41x10 ²	1.65x10 ²	1.88x10 ²	2.12x10 ²	2.36x10 ²
ø25	Push	49.1	73.6	98.2	1.47x10 ²	1.96x10 ²	2.45x10 ²	2.95x10 ²	3.44x10 ²	3.93x10 ²	4.42x10 ²	4.91x10 ²
	Pull	37.8	56.7	75.6	1.13x10 ²	1.51x10 ²	1.89x10 ²	2.27x10 ²	2.64x10 ²	3.02x10 ²	3.40x10 ²	3.78x10 ²
ø32	Push	80.4	1.21x10 ²	1.61x10 ²	2.41x10 ²	3.22x10 ²	4.02x10 ²	4.83x10 ²	5.63x10 ²	6.43x10 ²	7.24x10 ²	8.04x10 ²
	Pull	69.1	1.04x10 ²	1.38x10 ²	2.07x10 ²	2.76x10 ²	3.46x10 ²	4.15x10 ²	4.84x10 ²	5.53x10 ²	6.22x10 ²	6.91x10 ²
ø40	Push	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.10x10 ²	1.65x10 ²	2.21x10 ²	3.31x10 ²	4.41x10 ²	5.51x10 ²	6.62x10 ²	7.72x10 ²	8.82x10 ²	9.92x10 ²	1.10x10 ³

CMK2-C Series

How to order

No switch (built-in magnet for switch)

CMK2-C - 00 - 20 - 100 - V I

With switch (built-in magnet for switch)

CMK2-C - 00 - 20 - 100 - T0H - R - V I

A Mounting
*1

B Bore size

C Port thread

D Stroke

E Switch model No.

⚠ Precautions for model No. selection

*1 : One side foot (LS) has the max. stroke of 50 mm.

*2 : For the min. stroke with switch and the max. and min. strokes with bellows, refer to page 136.

*3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is ø6.

*4 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.

*5 : "I" and "Y" cannot be selected together.

*6 : Refer to Ending Page 85 for custom specifications of rod end form.

*7 : Refer to page 84 for combination of variations/options.

*8 : Up to three switches can be installed. If four or more switches are required, switch mounting brackets for the extra switches must be prepared separately.

*9 : For 20 or 25 bore size, the rod is stainless steel as standard and the rod nut is zinc chromate. If a stainless steel rod nut is necessary, select the "M" option code.

[Example of model No.]

CMK2-C-00-20-100-T0H-R-VI

Model: Medium bore size cylinder, double acting/air cushioned

- A Mounting : Basic
- B Bore size : ø20 mm
- C Port thread : Rc thread
- D Stroke : 100 mm
- E Switch model No.: Reed T0H switch, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Boss cutoff
- H Accessory : Rod eye

Code	Description
A Mounting	
00	Basic
LB	Axial foot (Both sides)
LS	Axial foot (One side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CC1	Eye bracket, bush pressfit
CB	Clevis bracket (pin and split washer pin included)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	ø20	*9
25	ø25	*9
32	ø32	
40	ø40	

C Port thread	
Blank	Rc thread
NN	NPT thread (made-to-order product)
GN	G thread (made-to-order product)

D Stroke (mm)		
Bore size	Stroke *2	Custom stroke
ø20	5 to 750	In 1 mm increments
ø25	5 to 750	
ø32	5 to 750	
ø40	5 to 750	

Axial lead wire		Radial lead wire		Contact	Voltage		Indicator	Lead wire
					AC	DC		
T0H*	T0V*	T5H*	T5V*	Reed	●	●	1-color LED	2-wire
T8H*	T8V*	T1H*	T1V*		●	●	No indicator lamp	
T2H*	T2V*	T3H*	T3V*		●	●	1-color LED	
T3PH*	T3PV*	T2WH*	T2WV*	Proximity	●	●	1-color LED	2-wire
T2YH*	T2YV*	T3WH*	T3WV*		●	●	1-color LED	3-wire
T3YH*	T3YV*	T2JH*	T2JV*		●	●	2-color LED	2-wire
					●	●	2-color LED	3-wire
					●	●	1-color LED off-delay	2-wire

* Lead wire length	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)

F Switch quantity	
R	1 on rod side
H	1 on head side
D	2
T	3

G Option			
		Max. ambient temp.	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
F	With push-in fitting (straight)		
FE	With push-in fitting (elbow)		
M	Piston rod material (stainless steel) *9		
V	Boss cutoff		

H Accessory	
I	Rod eye
Y	Rod clevis (pin and split washer pin included)
B2	Clevis bracket (pin and snap ring included)

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

How to order switch

● Switch body + mounting bracket set

CMK2 - T0H - 20

Switch model No. (Item E on page 138)

Bore size (Item B on page 138)

● Switch body only

SW - T0H

Switch model No. (Item E on page 138)

● Mounting bracket set

CMK2 - T - 20

Mounting bracket

Bore size (Item B on page 138)

How to order mounting bracket

Bore size (mm)		ø20	ø25	ø32	ø40
Mounting bracket					
Basic (00)	*3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB/LS)		M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA/FB)		M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA/TB)		M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40
Eye bracket (CA)		M1-CA-20	M1-CA-30	M1-CA-30	M1-CA-30
Clevis bracket (CB)		M1-CB-20	M1-CB-30	M1-CB-30	M1-CB-30

*1: Regarding mounting brackets, mounting nuts and toothed washers are supplied with the axial foot and flange. The trunnion includes mounting nuts.

2: For axial foot (two-sided), 2 sets of "M1-LB-" in the table above are required.

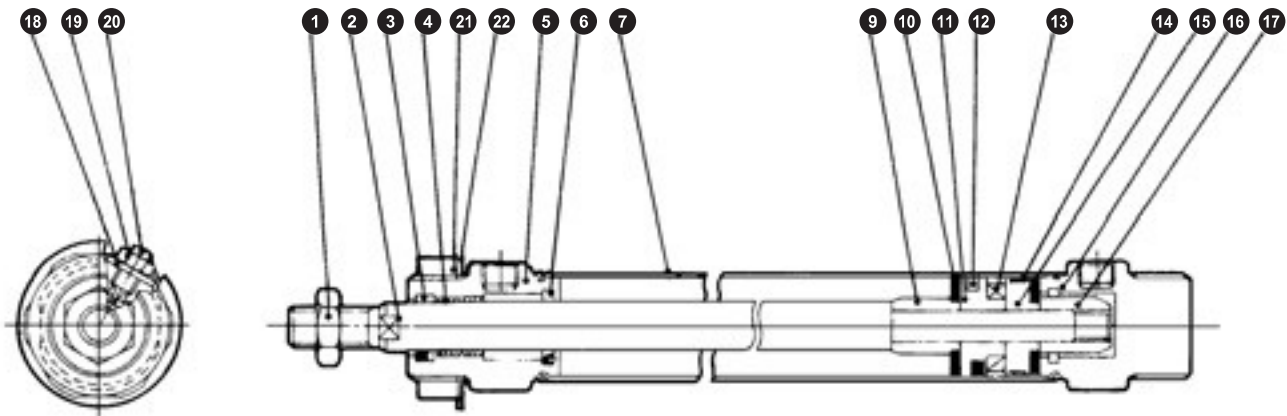
*3: Mounting nut, toothed washer only. Although 1 set is included with the basic of the product (00), use this when needed.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVPIN2
SSD2
SSG
SSD
CAT
MDC2
MVC
SMG
MSD/ MSDG
FC*
STK
SRL3
SRG3
SRM3
SRT3
MRL2
MRG2
SM-25
ShkAbs
FJ
FK
Spd Contr
Ending

CKD

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Internal structure and parts list



Cannot be disassembled

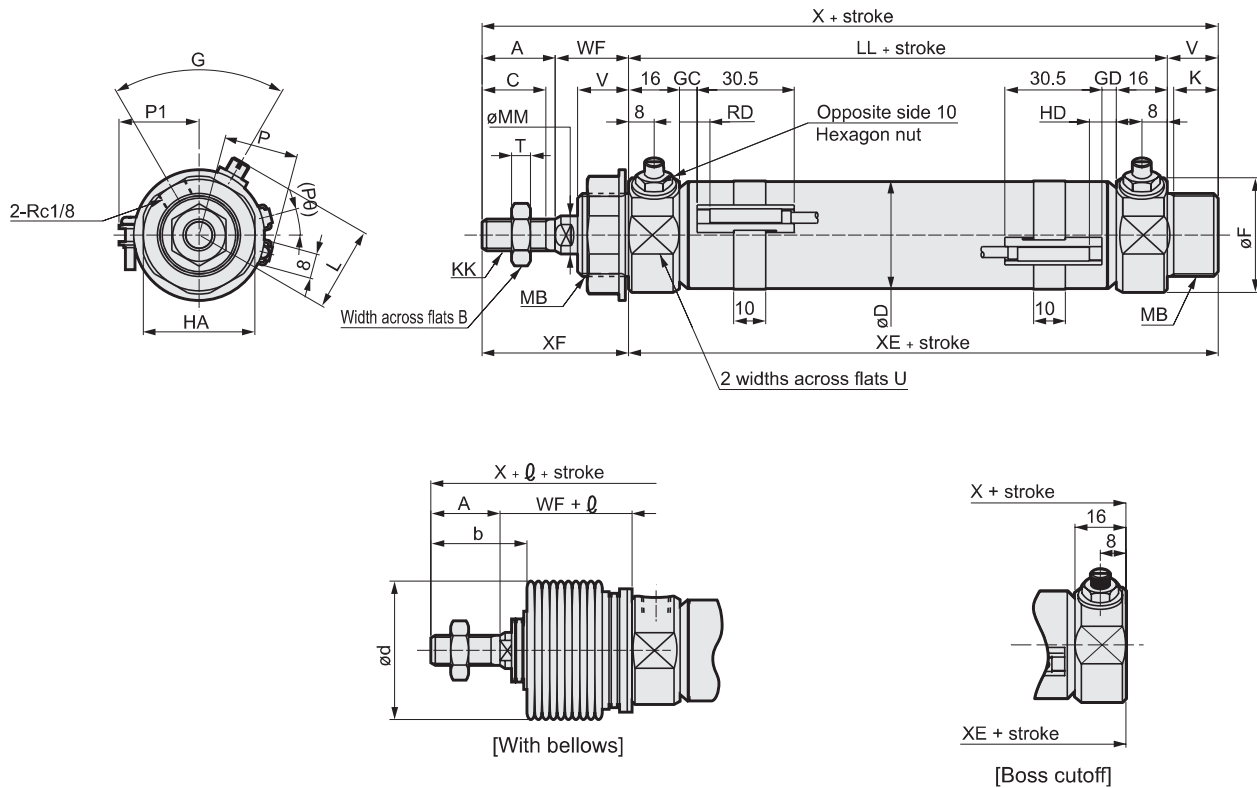
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	14	Wear ring	Polyacetal	
2	Piston rod	ø20, ø25: Stainless steel ø32, ø40: Carbon steel	Industrial chrome plating	15	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		16	Head cover	Aluminum alloy	
4	Bush	ø20, ø25, ø32 : Dry bearing ø40 : Copper-based		17	Cushion ring B	Aluminum alloy	
5	Rod cover	Aluminum alloy		18	Seal washer	Nitrile rubber, steel	
6	Cushion packing	Urethane rubber		19	Hexagon nut	Steel	Zinc chromate
7	Cylinder tube	Stainless steel		20	Cushion needle	Copper	Zinc chromate
9	Cushion ring A	Aluminum alloy		21	Nut	Steel	Zinc chromate
10	Cushion rubber	Urethane rubber		22	Toothed washer	Steel	Zinc chromate
11	Piston A	Aluminum alloy					
12	Piston packing	Nitrile rubber					
13	Magnet	Plastic					

Dimensions



● Basic (00)



RD: Rod side max. sensitivity position
HD: Head side max. sensitivity position

1: Refer to page 198 for HD, RD, and protruding dimensions of T1, T8* and 2-color LED switches.
*2: For the Q dimension, round up below the decimal point.

Code	A	B	C	D	F	G	HA	K	KK	L	LL	MB	MM	T	U	V	WF	X	XE	XF
Bore size (mm)																				
ø20	20	13	18	21.4	28	70	26	12	M 8x1.0	23 to 25	66	M18x1.5	10	5	24	14	24	124	80	44
ø25	23	17	20	26.4	32	60	35	14	M10x1.25	25 to 27	69	M26x1.5	12	6	30	16	23	131	85	46
ø32	23	17	20	33.6	36	60	35	14	M10x1.25	25 to 26.5	69	M26x1.5	12	6	34	16	23	131	85	46
ø40	25	19	22	41.6	45	60	35	14	M12x1.5	31.5 to 33	73	M26x1.5	14	7	43	16	23	137	89	48

Code	With switch											With bellows			Boss cutoff	
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	XE
	GC	GD	RD	HD	GC	GD	RD	HD								
ø20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke/3) + 6	110	66
ø25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke/3.25) + 7	115	69
ø32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke/3.25) + 7	115	69
ø40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke/3.25) + 7	121	73

* Dimensions of other mountings are the same as those of the standard. Refer to pages 92 to 97.

* For the dimensions of the accessories, refer to page 98.