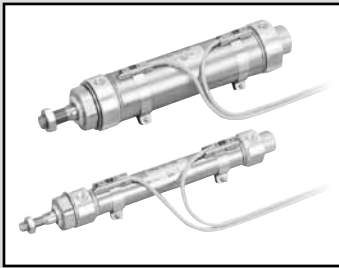


SCP*3
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS2
 CKV2
 CAV2/
 COVPIN2
 SSD2
 SSG
 SSD
 CAT
 MDC2
 MVC
 SMG
 MSD/
 MSDG
 FC*
 STK
 SRL3
 SRG3
 SRM3
 SRT3
 MRL2
 MRG2
 SM-25
 ShkAbs
 FJ
 FK
 Spd
 Contr
 Ending



Medium bore size cylinder/
 double acting/single rod

CMK2 Series

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

JIS symbol ● Double acting cylinder single rod



Specifications

Descriptions		CMK2			
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation		Double acting			
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		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed	mm/s	50 to 500			
Cushion		Rubber cushion			
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

*2: Single foot (LS) has the max. stroke length of 50 mm.

*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length with switch

(Unit: mm)

Switch quantity	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	
Bore size (mm)																		
$\phi 20$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 25$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 32$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 40$	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 display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay	For programmable controller, relay, IC circuit (without indicator lamp), serial connection		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	24VDC±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 (*2)			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 lamp	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)		Without indicator lamp		LED (Lit when ON)		
Leakage current	1 mA or less with 100 VAC, 2 mA or less with 200 VAC	1 mA or less			10 µA or less				0 mA						
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49	3 m:49 5 m:80				3 m:87		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80	5 m:80				5 m:142		

*1: Refer to Ending Page 1 for other switch specifications.

*2: The above 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)

*3: The T0/T5 switch can be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Bellows max. operating ambient temperature

Code	Bellows material	Max. ambient temperature	Instantaneous max. temp.
J	Polyolefin elastomer	100°C	200°C
L	Silicone rubber glass cloth	250°C	400°C

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

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	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 mm0.45 kg
 Additional weight when S = 50 mmAdditional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10kg
 (Example) Product weight of CMK2-FA-32-50-T0H-D Weight of 2 switches.....0.036 kg
 Weight of switch rail + 2 bands0.018 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2 Series

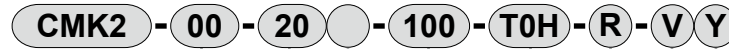
SCP*3
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS2
 CKV2
 CAV2/
 COVPIN2
 SSD2
 SSG
 SSD
 CAT
 MDC2
 MVC
 SMG
 MSD/
 MSDG
 FC*
 STK
 SRL3
 SRG3
 SRM3
 SRT3
 MRL2
 MRG2
 SM-25
 ShkAbs
 FJ
 FK
 Spd
 Contr
 Ending

How to order

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*8

G Option
*4, *5

H Accessory
*5

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 84.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 82 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.
- *10: The "CCI" mounting is not available for copper and PTFE free (P6).

[Example of model No.]

CMK2-00-20-100-T0H-R-VY

Model: Medium bore size cylinder Double acting/standard

- A** Mounting : Basic
- B** Bore size : $\phi 20$ mm
- C** Port thread : Rc thread
- D** Stroke length : 100 mm
- E** Switch model No. : Reed T0H switch, lead wire 1m
- F** Switch quantity : 1 on rod side
- G** Option : Boss cutoff
- H** Accessory : Rod clevis

Code	Content
A Mounting	
00	Basic
LB	Axial foot (two 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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	$\phi 20$	*9
25	$\phi 25$	*9
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	5 to 750	In 1 mm increments
$\phi 25$	5 to 750	
$\phi 32$	5 to 750	
$\phi 40$	5 to 750	

E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage AC DC	Display	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	Without indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*	Prox.	●	1-color display	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●	3-wire	
T3PH*	T3PV*		●		1-color display (custom)
T2WH*	T2WV*		●	2-color display	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●		
T3YH*	T3YV*		●	3-wire	
T2JH*	T2JV*		●		1-color display off-delay

* 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		
P6	Copper and PTFE free *10		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Switch model No. (Item **E** on the previous page)
 Bore size (Item **B** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Mounting bracket
 Bore size (Item **B** on the previous page)

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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 the "M1-LB-*1" 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.

Specifications for rechargeable battery

(Catalog No. CC-1226A)

- Design compatible with rechargeable battery manufacturing process

CMK2 - ... - **P4***

* Contact CKD for details.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

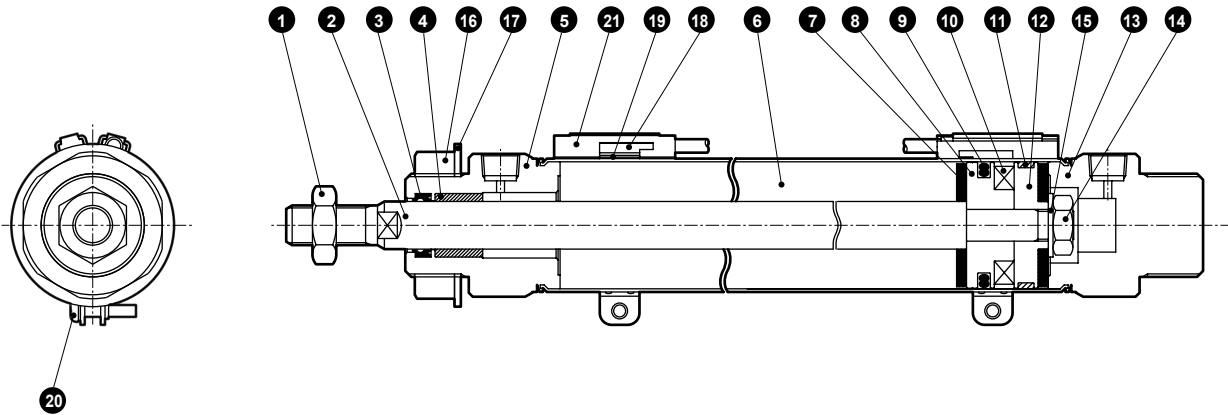
FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list

- 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



Cannot be disassembled

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

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	11	Wear ring	Polyacetal resin	
2	Piston rod	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating	12	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		13	Head cover	Aluminum alloy	
4	Bush	φ20: Dry bearing φ25, φ32, φ40: Copper-based	*1	14	Hexagon nut	Steel	Zinc chromate
5	Rod cover	Aluminum alloy		15	Spacer	Steel	Zinc chromate
6	Cylinder tube	Stainless steel		16	Nut	Steel	Zinc chromate
7	Cushion rubber	Urethane rubber		17	Toothed washer	Steel	Zinc chromate
8	Piston A	Aluminum alloy		With switch			
9	Piston packing	Nitrile rubber		18	Switch body		
10	Magnet	Plastic		19	Band	Stainless steel	
				20	Pan head machine screw	Stainless steel	
				21	Switch rail	Stainless steel	

*1: Oleoresin bearing for copper and PTFE free.

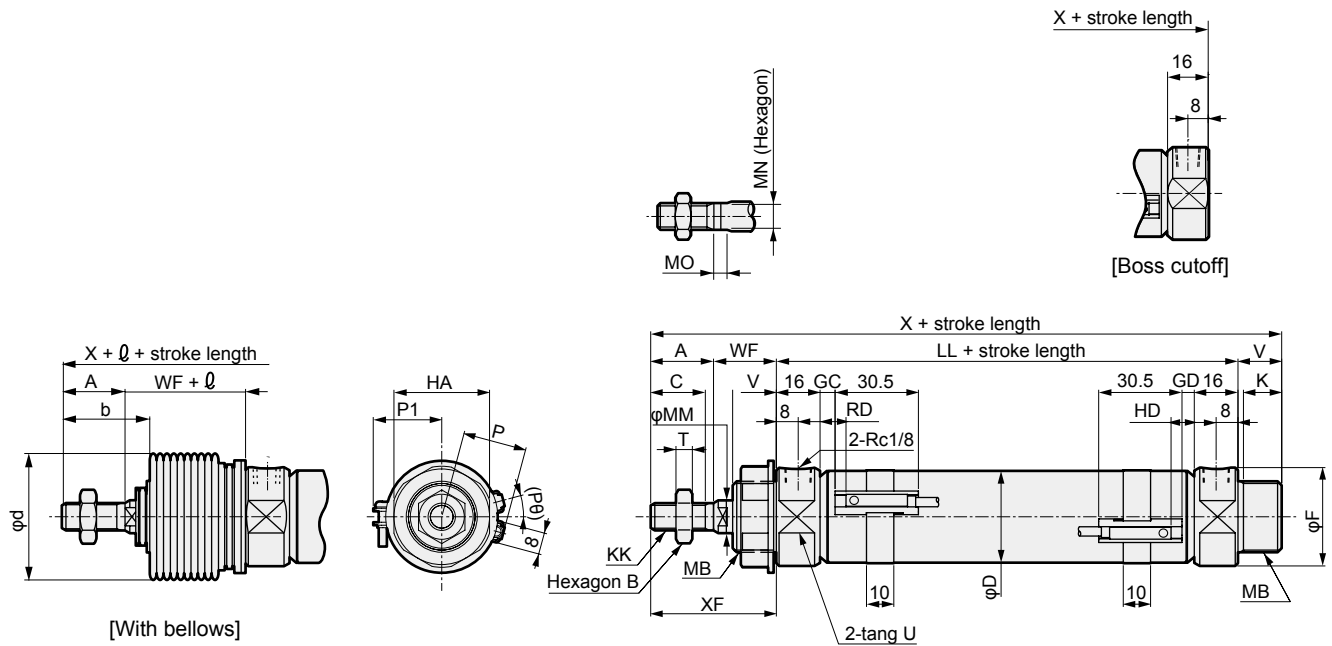
Material of mounting bracket

Mounting	Material
LB/LS	Steel
FA/FB	Steel
TA/TB	Steel
CA	Steel
CB	Steel

● Note: Mounting bracket will be shipped with the product.
However, if the product is supplied with bellows and the mounting bracket is LB, FA, or TA, it will be shipped assembled.

Dimensions

● Basic (00)



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

Code	Basic (00) basic dimensions																		
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	MN	MO	T	U	V	WF	X	XF
φ20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	8	5	5	24	14	24	124	44
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	10	5	6	30	16	23	131	46
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	10	5	6	34	16	23	131	46
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	12	6	7	43	16	23	137	48

Code	With switch								With bellows				Boss cutoff		
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	l	X
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD							
φ20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110
φ25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115
φ32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115
φ40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121

*1 : For the l dimension, round up below the decimal point.

2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3: For the dimensions of the accessories, refer to page 96.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

Spd
Contr

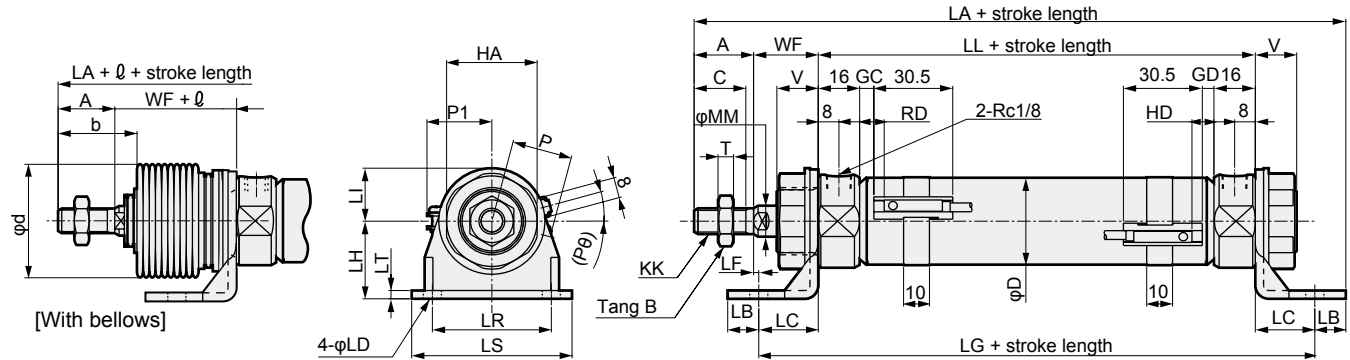
Ending

CMK2 Series



Dimensions

● Axial foot (LB)



*1 : For the ℓ dimension, round up below the decimal point.

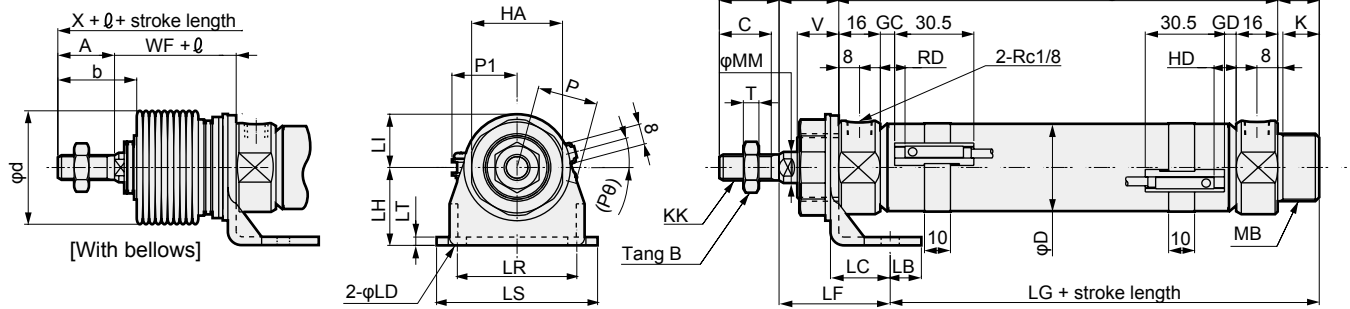
2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3: For the dimensions of the accessories, refer to page 96.

Code	Axial foot (LB) basic dimensions											Mounting dimensions							
	Bore size (mm)	A	B	C	D	HA	KK	LL	MM	T	V	WF	LA	LB	LC	LD	LF	LG	LH
φ20	20	13	18	21.4	26	M 8×1.0	66	10	5	14	24	138	10	18	6	6	102	25	15
φ25	23	17	20	26.4	35	M10×1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
φ32	23	17	20	33.6	35	M10×1.25	69	12	6	16	23	150	12	23	7	0	115	30	20
φ40	25	19	22	41.6	35	M12×1.5	73	14	7	16	23	156	12	23	7	0	119	30	20

Code	With switch											With bellows						
	Bore size (mm)	LR	LS	LT	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
φ20	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	
φ25	46	62	3.2	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	
φ32	46	62	3.2	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	
φ40	46	62	3.2	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	

● Axial foot (single) (LS)



*1 : For the dimension, round up below the decimal point.

2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3 : Max. stroke length: 50.

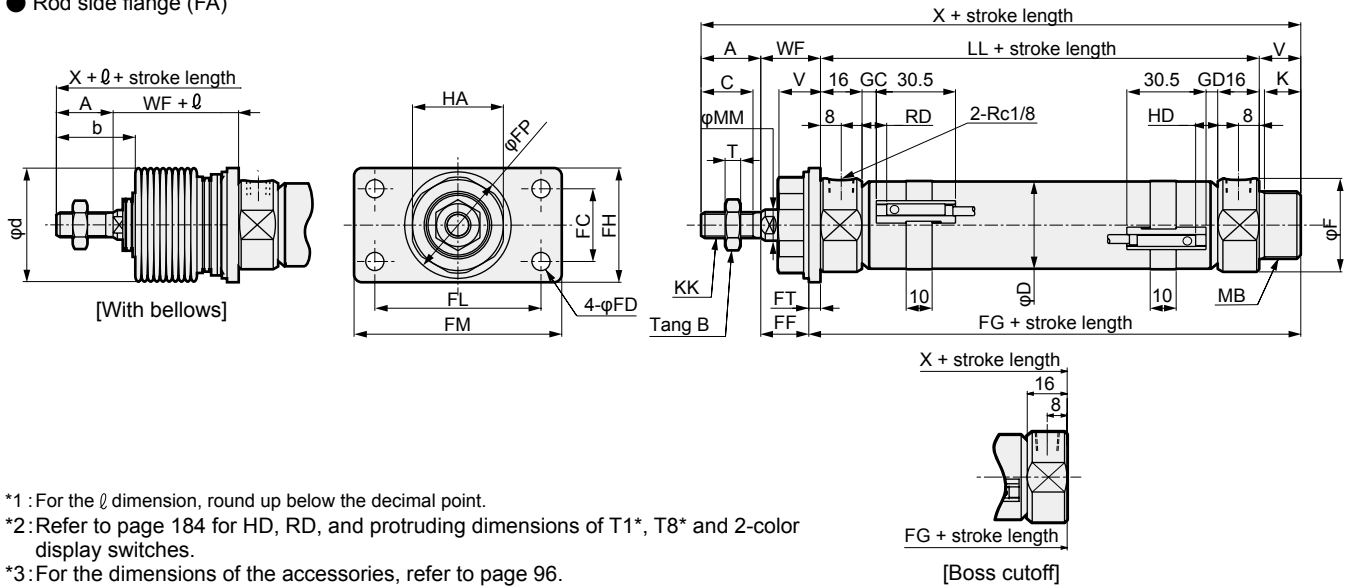
*4: For the dimensions of the accessories, refer to page 96.

Code	Axial foot (single) (LS) basic dimensions													Mounting dimensions						
	Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	LB	LC	LD	LF	LG
φ20	20	13	18	21.4	26	12	M 8×1.0	66	M18×1.5	10	5	14	24	124	10	18	6	38.8	65.2	25
φ25	23	17	20	26.4	35	14	M10×1.25	69	M26×1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
φ32	23	17	20	33.6	35	14	M10×1.25	69	M26×1.5	12	6	16	23	131	12	23	7	42.8	65.2	30
φ40	25	19	22	41.6	35	14	M12×1.5	73	M26×1.5	14	7	16	23	137	12	23	7	42.8	69.2	30

Code	With switch											With bellows					Boss cutoff				
	Bore size (mm)	LI	LR	LS	LT	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	LG
						GC	GD	RD	HD	GC	GD	RD	HD								
φ20	15	30	44	3.2	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	51.2	
φ25	20	46	62	3.2	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	49.2	
φ32	20	46	62	3.2	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	49.2	
φ40	20	46	62	3.2	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	53.2	

Dimensions

● Rod side flange (FA)

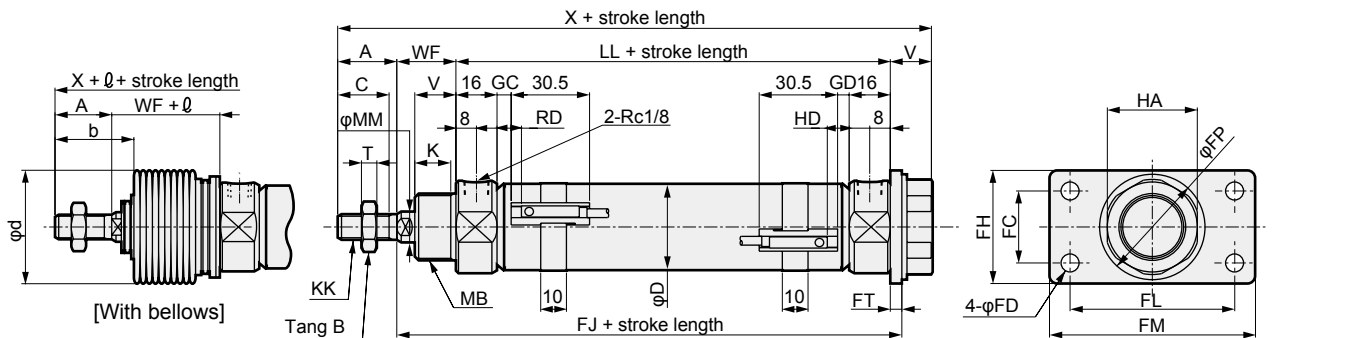


- *1 : For the ℓ dimension, round up below the decimal point.
- *2: Refer to page 184 for HD, RD, and protruding dimensions of T1*, T8* and 2-color display switches.
- *3: For the dimensions of the accessories, refer to page 96.

Code	Rod side flange (FA) basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	FC	FD	FF	FG
φ20	20	13	18	21.4	28	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	20	6	20.8	83.2
φ25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	18.5	89.5
φ32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	18.5	89.5
φ40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	28	7	18.5	93.5

Code	With switch										With bellows			Boss cutoff				
	FH	FL	FM	FP	FT	T0, T5, T2, T3				T2W, T3W				b	d	ℓ	X	FG
						GC	GD	RD	HD	GC	GD	RD	HD					
φ20	34	40	54	29	3.2	4	3	8	7	6	5	10	9	30	30	(Stroke length/3) + 6	110	69.2
φ25	44	64	80	41	4.5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	32	46	(Stroke length/3.25) + 7	115	73.5
φ32	44	64	80	41	4.5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	32	46	(Stroke length/3.25) + 7	115	73.5
φ40	44	64	80	41	4.5	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	34	46	(Stroke length/3.25) + 7	121	77.5

● Head side flange (FB)



- *1 : For the ℓ dimension, round up below the decimal point.
- *2: Refer to page 184 for HD, RD, and protruding dimensions of T1*, T8* and 2-color display switches.
- *3: For the dimensions of the accessories, refer to page 96.

Code	Head side flange (FB) basic dimensions														Mounting dimensions			
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	FC	FD	FH	FG
φ20	20	13	18	21.4	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	20	6	34	83.2
φ25	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	44	89.5
φ32	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	28	7	44	89.5
φ40	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	28	7	44	93.5

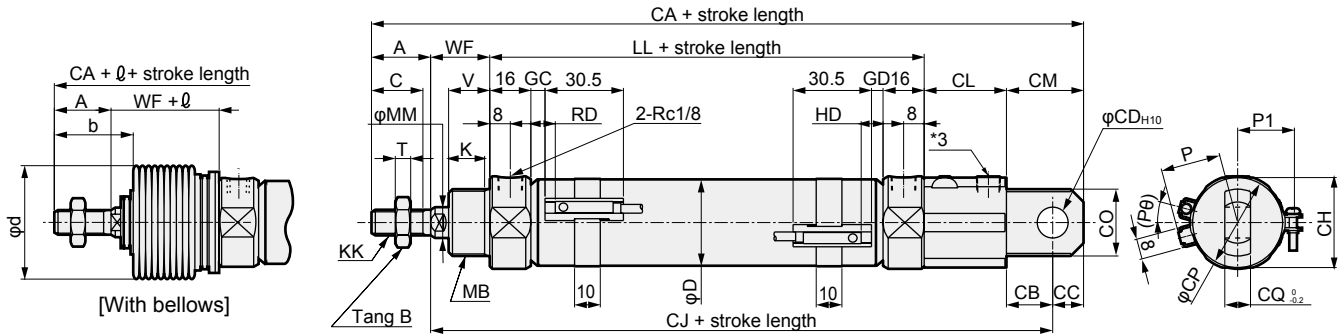
Code	With switch										With bellows			Boss cutoff				
	FJ	FL	FM	FP	FT	T0, T5, T2, T3				T2W, T3W				b	d	ℓ	X	FG
						GC	GD	RD	HD	GC	GD	RD	HD					
φ20	93.2	40	54	29	3.2	4	3	8	7	6	5	10	9	30	30	(Stroke length/3) + 6	110	69.2
φ25	96.5	64	80	41	4.5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	32	46	(Stroke length/3.25) + 7	115	73.5
φ32	96.5	64	80	41	4.5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	32	46	(Stroke length/3.25) + 7	115	73.5
φ40	100.5	64	80	41	4.5	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	34	46	(Stroke length/3.25) + 7	121	77.5

CMK2 Series

Dimensions



● Eye bracket (CA)

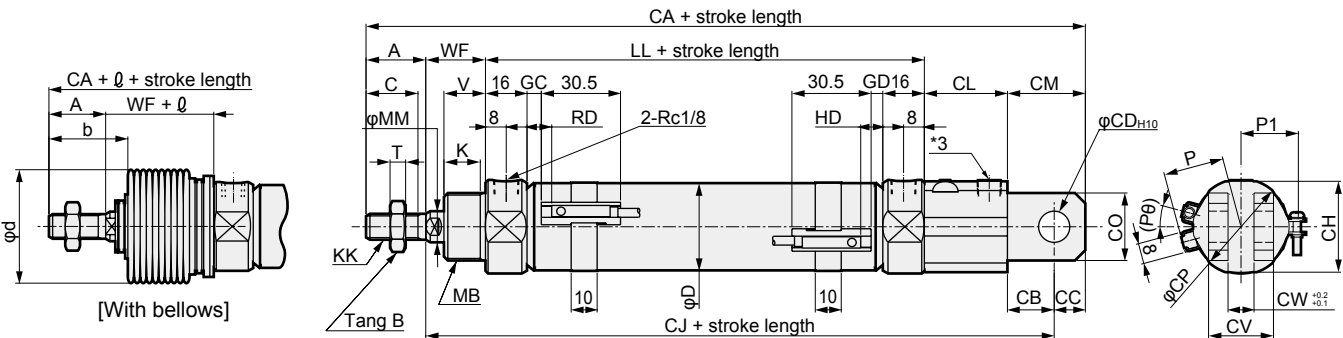


- *1 : For the \varnothing dimension, round up below the decimal point.
- *2 : Refer to page 184 for HD, RD, and protruding dimensions of T1*, T8* and 2-color display switches.
- *3 : Not piping port.
- *4 : For the dimensions of the accessories, refer to page 96.

Code	Eye bracket (CA) basic dimensions												Mounting dimensions						
	A	B	C	D	K	KK	LL	MB	MM	T	V	WF	CA	CB	CC	CD	CH	CJ	CL
$\varnothing 20$	20	13	18	21.4	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	165	14	10	10	26	135	31
$\varnothing 25$	23	17	20	26.4	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	177	18	12	12	35	142	32
$\varnothing 32$	23	17	20	33.6	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	177	18	12	12	35	142	32
$\varnothing 40$	25	19	22	41.6	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	183	18	12	12	35	146	32

Code	With switch												With bellows					
	CM	CO	CP	CQ	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
$\varnothing 20$	24	22	28	8	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
$\varnothing 25$	30	26	37	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
$\varnothing 32$	30	26	37	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
$\varnothing 40$	30	26	37	10	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

● Clevis bracket (CB)



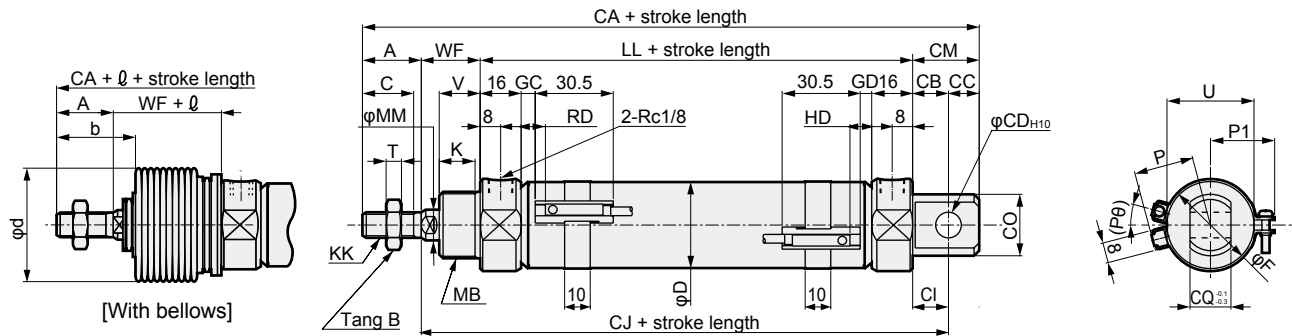
- *1 : For the \varnothing dimension, round up below the decimal point.
- *2 : Refer to page 184 for HD, RD, and protruding dimensions of T1*, T8* and 2-color display switches.
- *3 : Not piping port.
- *4 : For the dimensions of the accessories, refer to page 96.

Code	Clevis bracket (CB) basic dimensions												Mounting dimensions						
	A	B	C	D	K	KK	LL	MB	MM	T	V	WF	CA	CB	CC	CD	CH	CJ	CL
$\varnothing 20$	20	13	18	21.4	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	165	14	10	10	26	135	31
$\varnothing 25$	23	17	20	26.4	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	177	18	12	12	35	142	32
$\varnothing 32$	23	17	20	33.6	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	177	18	12	12	35	142	32
$\varnothing 40$	25	19	22	41.6	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	183	18	12	12	35	146	32

Code	With switch												With bellows						
	CM	CO	CP	CV	CW	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°	b	d	ℓ
						GC	GD	RD	HD	GC	GD	RD	HD						
$\varnothing 20$	24	22	28	19	8	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
$\varnothing 25$	30	26	37	25	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
$\varnothing 32$	30	26	37	25	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
$\varnothing 40$	30	26	37	25	10	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

Dimensions

- Eye bracket integrated (CC)
- Eye bracket bush pressfit (CC1)

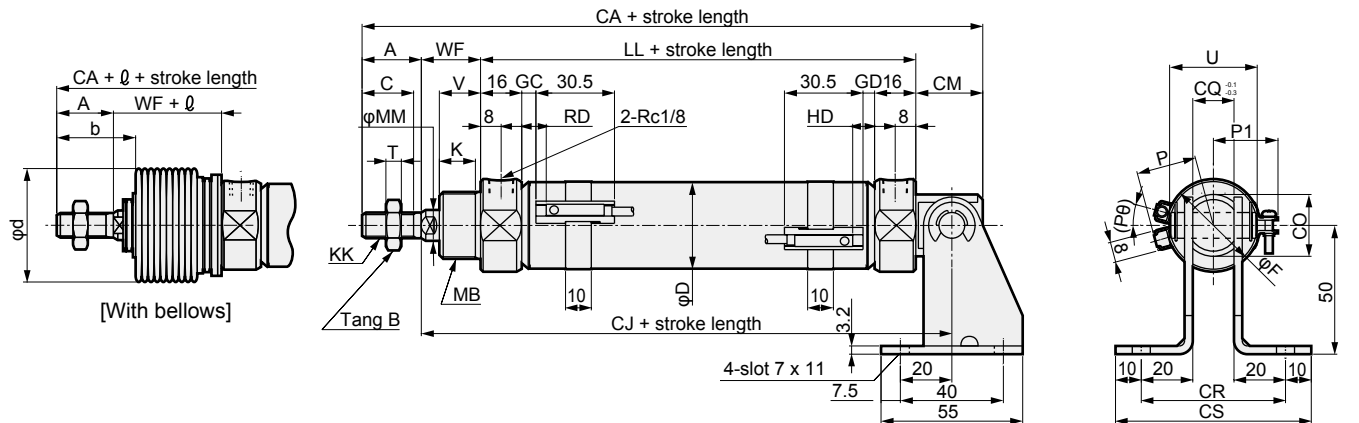


- *1 : For the ℓ dimension, round up below the decimal point.
 2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
 *3: For the dimensions of the accessories, refer to page 96.

Code	Eye bracket integrated (CC) basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CB	CC	CD	CI
φ20	20	13	18	21.4	28	12	M 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	131	12	9	8	11
φ25	23	17	20	26.4	32	14	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	136	12	9	8	11
φ32	23	17	20	33.6	36	14	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	141	14	12	10	13
φ40	25	19	22	41.6	45	14	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	151	16	14	12	15

Code	With switch											With bellows						
Bore size (mm)	CJ	CM	CO	CQ	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
φ20	102	21	22	16	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
φ25	104	21	24	16	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
φ32	106	26	24	16	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
φ40	112	30	30	20	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

- Eye bracket integrated (CC) with bracket (option code B2)
- Eye bracket bush pressfit (CC1) with bracket (option code B2)



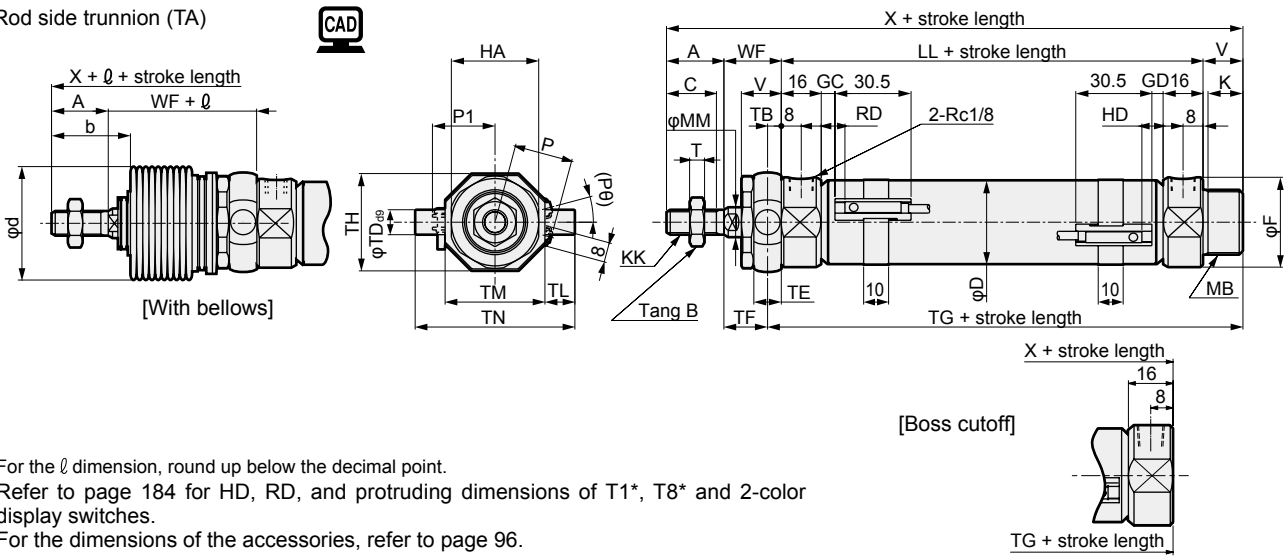
- *1 : For the ℓ dimension, round up below the decimal point.
 2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
 *3: For the dimensions of the accessories, refer to page 96.

Code	Eye bracket integrated (CC) with bracket (option code B2) basic dimensions														Mounting dimensions			
Bore size (mm)	A	B	C	D	F	K	KK	LL	MB	MM	T	U	V	WF	CA	CJ	CM	CO
φ20	20	13	18	21.4	28	12	M 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	131	102	21	22
φ25	23	17	20	26.4	32	14	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	136	104	21	24
φ32	23	17	20	33.6	36	14	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	141	106	26	24
φ40	25	19	22	41.6	45	14	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	151	112	30	30

Code	With switch											With bellows					
Bore size (mm)	CQ	CR	CS	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ
				GC	GD	RD	HD	GC	GD	RD	HD						
φ20	16	56	76	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
φ25	16	56	76	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
φ32	16	56	76	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
φ40	20	60	80	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

Dimensions

● Rod side trunnion (TA)



*1: For the ℓ dimension, round up below the decimal point.

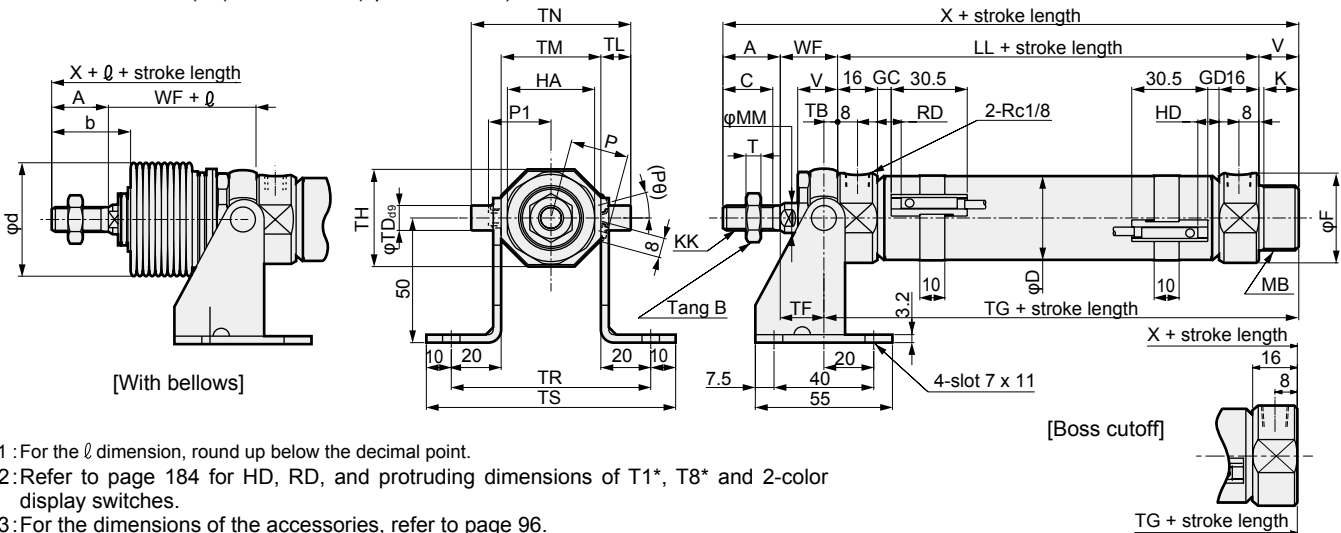
2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3: For the dimensions of the accessories, refer to page 96.

Code	Rod side trunnion (TA) basic dimensions														Mounting dimensions						
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TF	TG	TH
φ20	20	13	18	21.4	28	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	9	19.5	84.5	29.5
φ25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
φ32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
φ40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	11	17.5	94.5	44

Code	With switch										With bellows				Boss cutoff				
	TL	TM	TN	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	TG
				GC	GD	RD	HD	GC	GD	RD	HD								
φ20	8	30	46	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	70.5
φ25	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	74.5
φ32	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	74.5
φ40	9.5	53	72	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	78.5

● Rod side trunnion (TA) with bracket (option code B2)



*1: For the ℓ dimension, round up below the decimal point.

2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

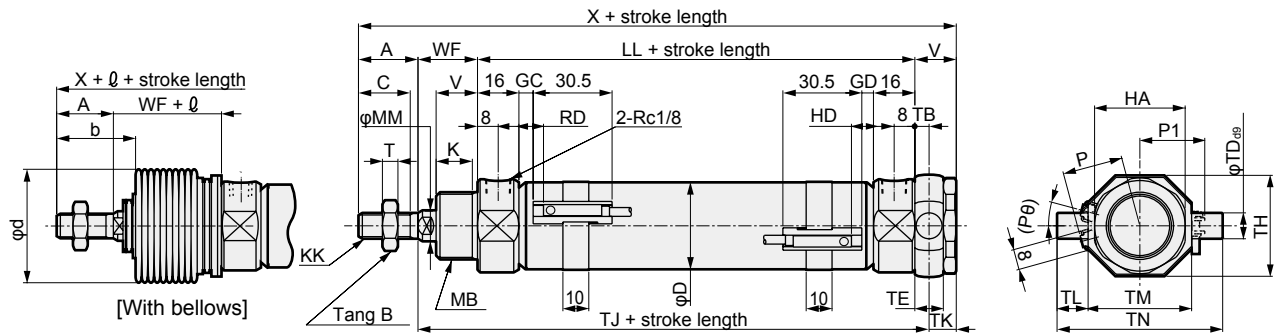
*3: For the dimensions of the accessories, refer to page 96.

Code	Rod side trunnion (TA) with bracket (option code B2) basic dimensions														Mounting dimensions						
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TF	TG	TH
φ20	20	13	18	21.4	28	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	9	19.5	84.5	29.5
φ25	23	17	20	26.4	32	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
φ32	23	17	20	33.6	36	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	17.5	90.5	39
φ40	25	19	22	41.6	45	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	11	17.5	94.5	44

Code	With switch										With bellows				Boss cutoff						
	TL	TM	TN	TR	TS	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	G
						GC	GD	RD	HD	GC	GD	RD	HD								
φ20	8	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	70.5
φ25	12	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	74.5
φ32	12	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	74.5
φ40	9.5	53	72	93	113	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	78.5

Dimensions

● Head side trunnion (TB)



*1 : For the ℓ dimension, round up below the decimal point.

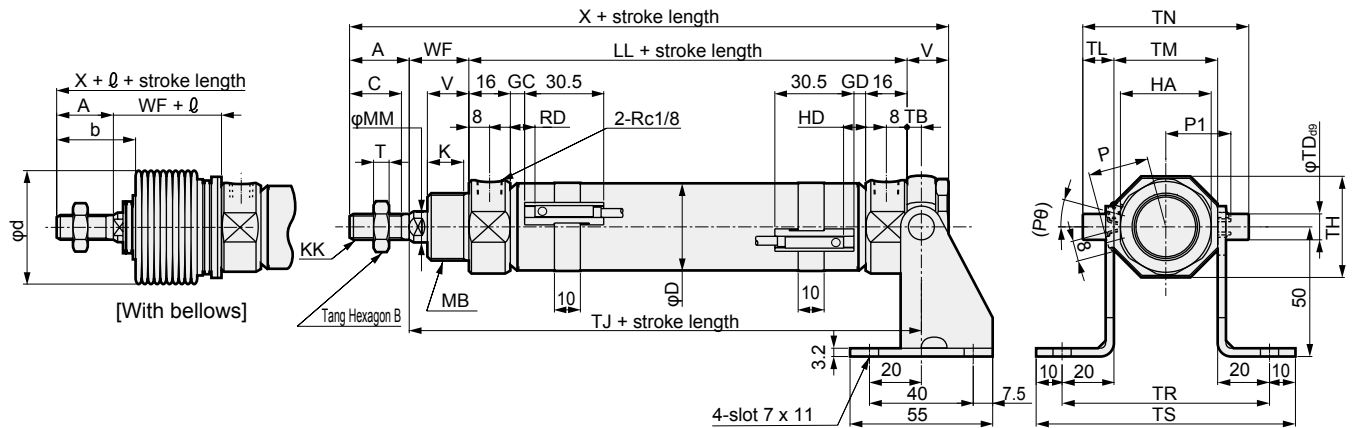
2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3: For the dimensions of the accessories, refer to page 96.

Code	Head side trunnion (TB) basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TE	TH	TJ
$\varnothing 20$	20	13	18	21.4	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	9	29.5	94.5
$\varnothing 25$	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	39	97.5
$\varnothing 32$	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	11	39	97.5
$\varnothing 40$	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	11	44	101.5

Code	With switch												With bellows					
	TK	TL	TM	TN	T0, T5, T2, T3				T2W, T3W				P	P1	(P θ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
$\varnothing 20$	9.5	8	30	46	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
$\varnothing 25$	10.5	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
$\varnothing 32$	10.5	12	40	64	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
$\varnothing 40$	10.5	9.5	53	72	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

● Head side trunnion (TB) with bracket (option code B2)



*1 : For the ℓ dimension, round up below the decimal point.

2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*3: For the dimensions of the accessories, refer to page 96.

Code	Head side trunnion (TB) with bracket (option code B2) basic dimensions														Mounting dimensions				
Bore size (mm)	A	B	C	D	HA	K	KK	LL	MB	MM	T	V	WF	X	TB	TD	TH	TJ	TL
$\varnothing 20$	20	13	18	21.4	26	12	M 8 × 1.0	66	M18 × 1.5	10	5	14	24	124	4.5	8	29.5	94.5	8
$\varnothing 25$	23	17	20	26.4	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	39	97.5	12
$\varnothing 32$	23	17	20	33.6	35	14	M10 × 1.25	69	M26 × 1.5	12	6	16	23	131	5.5	10	39	97.5	12
$\varnothing 40$	25	19	22	41.6	35	14	M12 × 1.5	73	M26 × 1.5	14	7	16	23	137	5.5	10	44	101.5	9.5

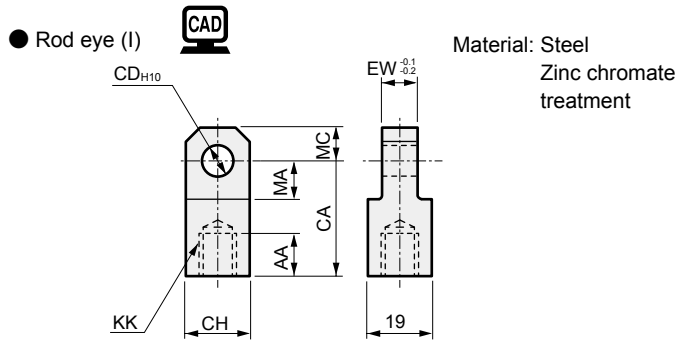
Code	With switch												With bellows					
	TM	TN	TR	TS	T0, T5, T2, T3				T2W, T3W				P	P1	(P θ)°	b	d	ℓ
					GC	GD	RD	HD	GC	GD	RD	HD						
$\varnothing 20$	30	46	70	90	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
$\varnothing 25$	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
$\varnothing 32$	40	64	80	100	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
$\varnothing 40$	53	72	93	113	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

CMK2 Series

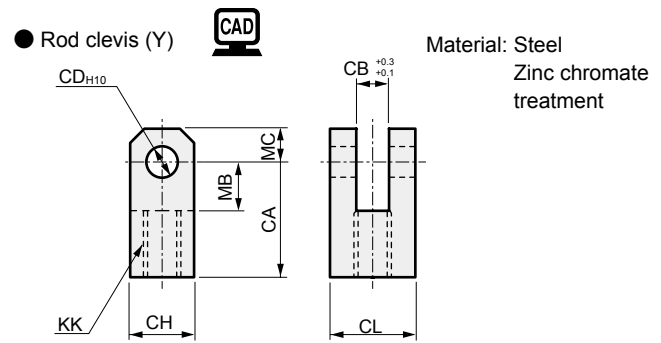
Accessories (rod eye/bracket/pin)

CMK2 Series common accessory dimensions

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

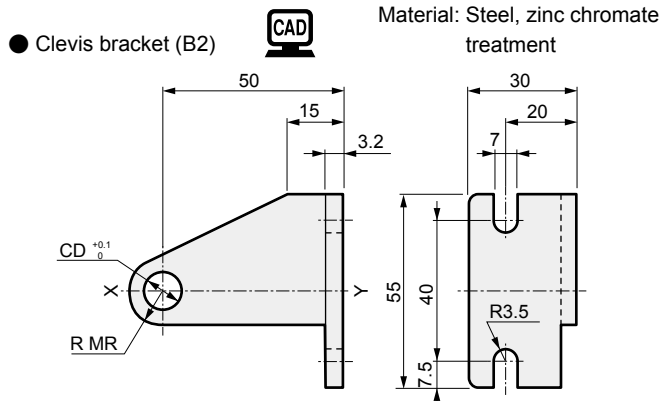


Model No.	Bore size (mm)	AA	CA	CD	CH	EW	KK	MA	MC	Weight (g)
M1-I-20	20	14	30	10	19	8	M8×1.0	13	10	60
M1-I-30	25/32	14	36	12	25	10	M10×1.25	16	12	106
M1-I-40	40	14	36	12	25	10	M12×1.5	16	12	100



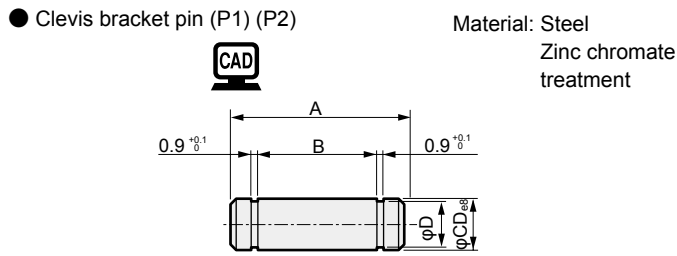
Model No.	Bore size (mm)	CA	CB	CD	CH	CL	KK	MB	MC	Weight (g)
M1-Y-20	20	30	8	10	19	19	M8×1.0	13	10	99
M1-Y-30	25/32	36	10	12	25	25	M10×1.25	16	12	197
M1-Y-40	40	36	10	12	25	25	M12×1.5	16	12	193

Note: A pin and split washer are attached.



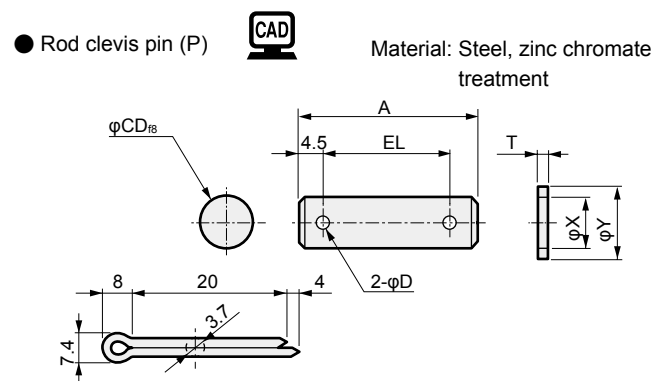
Model No.	Compatible model	Applicable bore size (mm)	CD	MR	Weight (g)
M1-B2-20-CC	CMK2-CC	20/25	8	8	145
M1-B2-30-CC	(Eye bracket integrated)	32	10	11	163
M1-B2-40-CC		40	12	11	170
M1-B2-30-CA	CMK2-CA	20	10	11	158
M1-B2-40-CA	(Eye bracket)	25/32/40	12	11	162
M1-B2-20-TA	CMK2-TA/TB	20	8	8	132
M1-B2-30-TA	(Trunnion)	25/32/40	10	11	142

*1: One pair is composed of two pieces with XY symmetry.
 *2: The model No. above includes snap ring and pin. 2 pieces are included in a set. (However, the pin and snap rings are not included with the trunnion.)



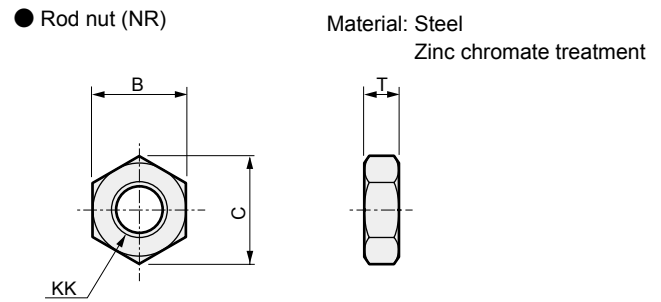
Model No.	Compatible model	Applicable bore size (mm)	A	B	CD	D	Applicable snap ring	Weight (g)
M1-P1-20	CMK2-CC	20/25	33	28	8	7	E 7	13
M1-P1-30		32	33	28	10	9	E 9	21
M1-P1-40		40	37	32	12	9	E 9	32
M1-P2-20	CMK2-CA	20	25	20	10	9	E 9	16
M1-P2-30		25/32/40	27	22	12	9	E 9	24

Note: A pin and snap ring for bracket use are attached with the eye bracket integrated. (However, the pin and snap rings are not included with the trunnion.)



Model No.	Applicable bore size (mm)	A	D	CD	EL	T	X	Y	Weight (g)
M1-P-20	20	37	4	10	28	2	10.5	18	29
M1-P-30	25/32/40	46	4	12	37	2.5	13	21	50

Note: A pin and split washer pin for rod clevis use are attached with the product.



Model No.	Applicable bore size (mm)	B	C	KK	T	Weight (g)
M1-NR-20	20	13	15	M8×1.0	5	3.6
M1-NR-30	25/32	17	19.6	M10×1.25	6	7.8
M1-NR-40	40	19	21.9	M12×1.5	7	10

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

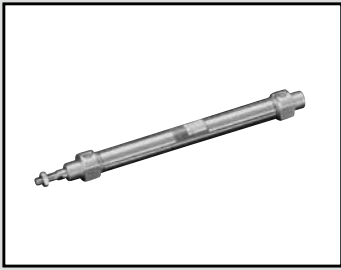
FJ

FK

Spd
Contr

Ending

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
 Single acting/push

CMK2-S Series

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

JIS symbol ● Single acting cylinder/push



Specifications

Descriptions	CMK2-S			
	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Single acting/push			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.2 (≈ 29 psi, 2 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	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Note: Do not leave the single acting cylinder pressurized for long periods. If it is left pressurized, the piston rod may not be returned by the spring force when the pressure is released.

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

*2: Single foot (LS) has the max. stroke length of 50 mm.

*3: Contact CKD when stroke length shorter than 25 mm is necessary for "J" bellows.

Min. stroke length 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	
$\phi 20$	10						25	30	35	25	35		50	55	55	50	55	
$\phi 25$	10						25	30	35	25	35		50	55	55	50	55	
$\phi 32$	10						25	30	35	25	35		50	55	55	50	55	
$\phi 40$	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 display

Descriptions	Proximity 2-wire		Proximity 3-wire				Reed 2-wire																	
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V	T8H/T8V													
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection		For programmable controller, relay									
Output method	-		NPN output				PNP 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 (*2)				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 lamp	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)		Without 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 other switch specifications.

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

*3: The T0/T5 switch can be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/mounting	Stroke length (S) additional weight							
	Bore size (mm)	25 or less	Over 25 to 50	Over 50 to 75	Over 75 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250
φ20	0.04	0.05	0.09	0.09	0.14	0.18	0.23	0.27
φ25	0.05	0.06	0.12	0.12	0.18	0.24	0.29	0.35
φ32	0.09	0.11	0.23	0.22	0.32	0.43	0.53	0.64
φ40	0.13	0.16	0.31	0.31	0.47	0.62	0.78	0.93

(Example) Product weight of CMK2-S-FA-32-50-T0H-D

Product weight when S = 0 mm ... 0.45 kg

Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg

Additional weight per S 0.11 kg

Weight of 2 switches 0.036 kg

Weight of switch rail + 2 bands ... 0.018 kg

Product weight 0.45 kg + 0.10 kg + 0.10 kg + 0.036 kg + 0.018 kg = 0.704 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Working pressure MPa									
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
φ20	25	56	88	1.19×10^2	1.50×10^2	1.82×10^2	2.13×10^2	2.45×10^2	2.76×10^2	
φ25	58	1.07×10^2	1.56×10^2	2.05×10^2	2.55×10^2	3.04×10^2	3.53×10^2	4.02×10^2	4.51×10^2	
φ32	1.06×10^2	1.86×10^2	2.67×10^2	3.47×10^2	4.28×10^2	5.08×10^2	5.88×10^2	6.69×10^2	7.49×10^2	
φ40	1.51×10^2	2.77×10^2	4.03×10^2	5.28×10^2	6.54×10^2	7.80×10^2	9.10×10^2	1.03×10^3	1.16×10^3	

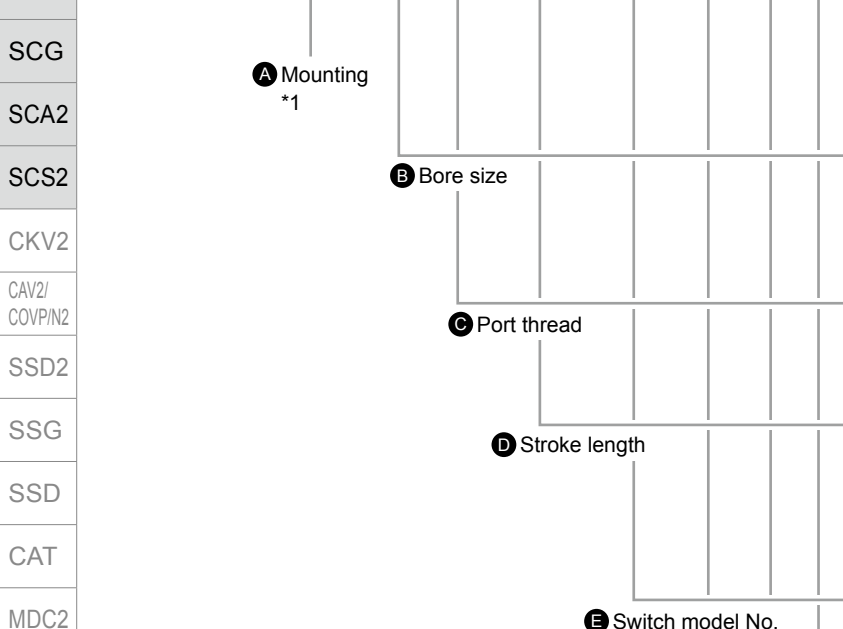
Note: The load above indicates thrust excluding the spring force at the push end.

CMK2-S Series

SCP*3 How to order

CMK2 Without switch (built-in magnet for switch)
CMK2-S-00-20-100-M-I

CMA2 With switch (built-in magnet for switch)
CMK2-S-00-20-100-T0H-R-M-I



Code	Content
A Mounting	
00	Basic
LB	Axial foot (Two 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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*9
25	φ25	*9
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	5 to 300	In 1 mm increments
φ25	5 to 300	
φ32	5 to 300	
φ40	5 to 300	

E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage AC/DC	Display	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	Without indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*	Proximity	●	1-color display	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●	3-wire	
T3PH*	T3PV*		●	1-color display (custom)	3-wire
T2WH*	T2WV*		●	2-color display	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●		
T3YH*	T3YV*		●	1-color display off-delay	2-wire
T2JH*	T2JV*		●		

* 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		
P6	Copper and PTFE free		

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

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 98.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *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 82 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-S-00-20-100-T0H-R-MI

- Model: Medium bore size cylinder, single acting/push
- A** Mounting : Basic
 - B** Bore size : φ20 mm
 - C** Port thread : Rc thread
 - D** Stroke length : 100 mm
 - E** Switch model No. : Reed T0H switch, lead wire 1m
 - F** Switch quantity : 1 on rod side
 - G** Option : Piston rod material (stainless steel)
 - H** Accessory : Rod eye

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 the previous page)
Bore size (Item **B** on the previous page)

- Switch body only

SW - T0H

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - T - 20

Bore size (Item **B** on the previous page)
Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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/
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

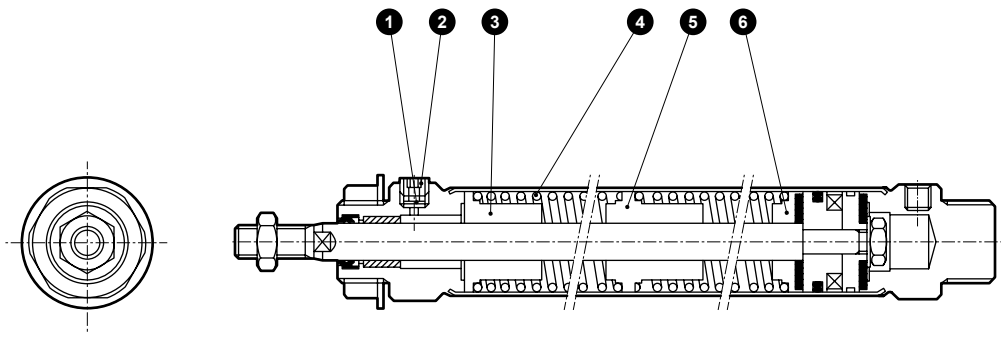
Spd
Contr

Ending

CMK2-S Series

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

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	Stainless steel wire mesh	Stainless steel		4	Spring	Piano wire	Paint
2	Plug	Steel	Zinc chromate	5	Spring holder	Special aluminum	
3	Spring holder	Special aluminum		6	Spring holder	Special aluminum	

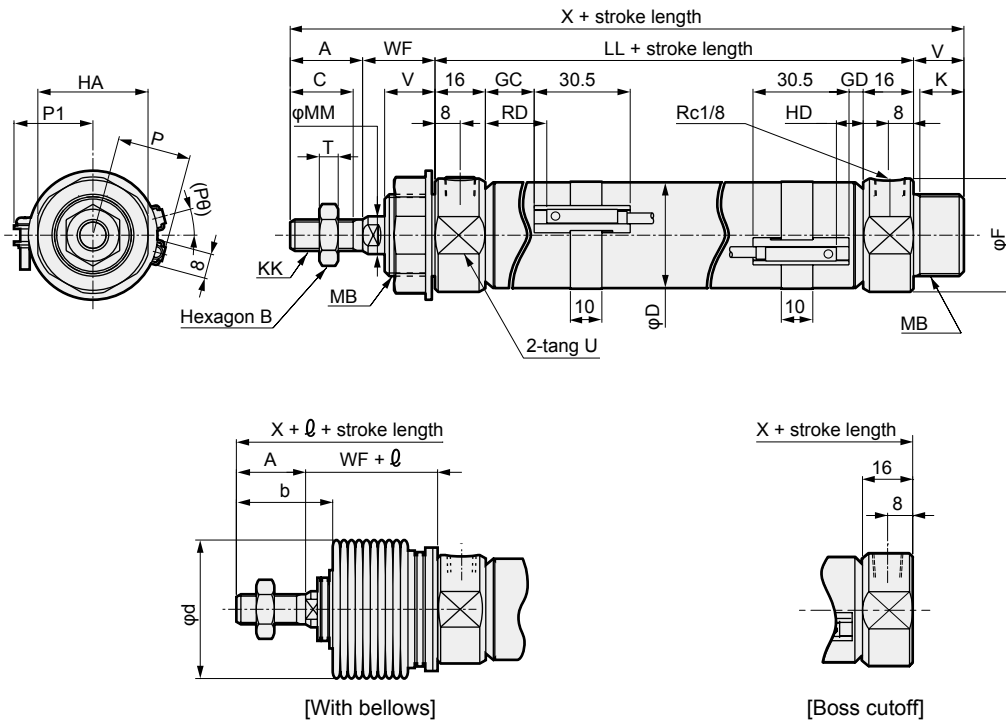
Spring load

(Unit: N)

Bore size (mm)	Stroke length (mm)	25	50	75	100	150	200	250	300
φ20	At stroke length of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8	11.8
	At full stroke length operation	31	38	31.5	38	38	38	38	38
φ25	At stroke length of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	At full stroke length operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
φ32	At stroke length of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
	At full stroke length operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
φ40	At stroke length of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
	At full stroke length operation	78.4	100	82.3	100	100	100	100	100

Dimensions

● Basic (00)



RD: Rod side max. sensitivity position
 HD: Head side max. sensitivity position
 *1: Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.
 2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
 *3: For the ϕ dimension, round up below the decimal point.

Code	Basic (00) basic dimensions													MB	MM	T		
	A	B	C	D	F	HA	K	KK	LL									
Bore size (mm)									25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300			
φ20	20	13	18	21.4	28	26	12	M 8 × 1.0	91	93	120	147	174	201	228	M18 × 1.5	10	5
φ25	23	17	20	26.4	32	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6
φ32	23	17	20	33.6	36	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6
φ40	25	19	22	41.6	45	35	14	M12 × 1.5	98	103	133	163	193	223	M26 × 1.5	14	7	

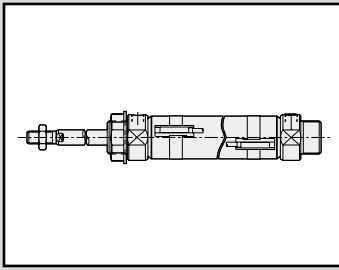
Code	With switch													RD					
	U	V	WF	X						T0, T5, T2, T3			T2W, T3W						
Bore size (mm)				25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	GC	GD	HD	GC	GD	HD	25 or less	Over 25 to 50	Over 50 to 75
φ20	24	14	24	149	151	178	205	232	259	256	4	3	7	6	5	9	35	37	64
φ25	30	16	23	156	161	191	221	251	281	311	5.5	4.5	8.5	7.5	6.5	10.5	36.5	41.5	71.5
φ32	34	16	23	156	161	191	221	251	281	311	5.5	4.5	8.5	7.5	6.5	10.5	36.5	41.5	71.5
φ40	43	16	23	162	167	197	227	257	287	317	7.5	6.5	10.5	9.5	8.5	12.5	38.5	43.5	73.5

Code	With bellows										Boss cutoff				
	RD					P	P1	(P0)°	b	d	X				
Bore size (mm)	Over 75 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300						25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	
φ20	64	91	118	145	172	17.3	19.5	22	30	30	(Stroke length/3) + 6	135	137	164	191
φ25	71.5	101.5	131.5	161.5	191.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	140	145	175	205
φ32	71.5	101.5	131.5	161.5	191.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	140	145	175	205
φ40	73.5	103.5	133.5	163.5	193.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	146	151	181	211

Code	X		
	Over 150 to 200	Over 200 to 250	Over 250 to 300
φ20	218	245	242
φ25	235	265	295
φ32	235	265	295
φ40	241	271	301

* For the dimensions of the accessories, refer to page 96.

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
 Single acting/pull

CMK2-SR Series

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

JIS symbol

● Single acting cylinder/
 pull type



Specifications

Descriptions	CMK2-SR				
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation		Single acting/pull			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure	MPa	0.2 (≈ 29 psi, 2 bar)			
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature	$^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)			
Port size		Rc1/8			
Stroke tolerance	mm	$^{+20}_0$ (Up to 200), $^{+24}_0$ (More than 200)			
Working piston speed	mm/s	50 to 500			
Cushion		Rubber cushion			
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Note: Do not leave the single acting cylinder pressurized for long periods. If it is left pressurized, the piston rod may not be returned by the spring force when the pressure is released.

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length shorter than 25 mm is necessary for "J" bellows.

Min. stroke length 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			
$\phi 20$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 25$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 32$	10						25	30	35	25	35	50	55	55	50	55		
$\phi 40$	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 display

Descriptions	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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, IC circuit (without indicator lamp), serial connection		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	24VDC±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 (*2)			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 lamp	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)		Without 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:18 3 m:49 5 m:80				1 m:33 3 m:87 5 m:142		

*1: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

Item/mounting	Stroke length (S) additional weight							
	Bore size (mm)	25 or less	Over 25 to 50	Over 50 to 75	Over 75 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250
φ20	0.03	0.03	0.06	0.06	0.09	0.12	0.15	0.18
φ25	0.03	0.04	0.07	0.07	0.11	0.14	0.18	0.21
φ32	0.08	0.09	0.18	0.17	0.25	0.34	0.42	0.51
φ40	0.10	0.13	0.25	0.25	0.37	0.49	0.62	0.74

(Example) Product weight of CMK2-SR-FA-32-50-T0H-D

Product weight when S = 0 mm .. 0.45 kg

Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg

Additional weight per S 0.09 kg

Weight of 2 switches 0.036 kg

Weight of switch rail + 2 bands ... 0.018 kg

Product weight 0.45 kg+0.09 kg+0.10 kg+0.036 kg+0.018 kg=0.694 kg

Theoretical thrust table

(Unit: N)

Bore size (mm)	Working pressure MPa								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	9	33	56	80	1.03×10^2	1.27×10^2	1.50×10^2	1.74×10^2	1.98×10^2
φ25	35	73	1.11×10^2	1.49×10^2	1.87×10^2	2.24×10^2	2.62×10^2	3.00×10^2	3.38×10^2
φ32	83	1.52×10^2	2.21×10^2	2.91×10^2	3.60×10^2	4.29×10^2	4.98×10^2	5.67×10^2	6.36×10^2
φ40	1.21×10^2	2.31×10^2	3.41×10^2	4.51×10^2	5.62×10^2	6.72×10^2	7.82×10^2	8.92×10^2	1.00×10^3

Note: The load above indicates thrust excluding the spring force at the pull end.

CMK2-SR Series

- 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

How to order

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*8

G Option
*3
*4

H Accessory
*5

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 104.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 82 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-SR-00-20-100-T0H-R-MI

Model: Medium bore size cylinder, single acting/pull

- A** Mounting : Basic
- B** Bore size : $\phi 20$ mm
- C** Port thread : Rc thread
- D** Stroke length : 100 mm
- E** Switch model No. : Reed T0H switch, lead wire 1m
- F** Switch quantity : 1 on rod side
- G** Option : Piston rod material (stainless steel)
- H** Accessory : Rod eye

Code	Content
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 type
CB	Clevis bracket (pin and split washer pin attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	$\phi 20$	*9
25	$\phi 25$	*9
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	5 to 300	In 1 mm increments
$\phi 25$	5 to 300	
$\phi 32$	5 to 300	
$\phi 40$	5 to 300	

E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage AC DC	Display	Lead wire
T0H*	T0V*	Reed	● ●	1-color display	2-wire
T5H*	T5V*		● ●	Without indicator lamp	
T8H*	T8V*		● ●	1-color display	
T1H*	T1V*	Prox.	●	1-color display	2-wire
T2H*	T2V*		●		
T3H*	T3V*		●	1-color display (custom)	3-wire
T3PH*	T3PV*		●		
T2WH*	T2WV*		●	2-color display	2-wire
T2YH*	T2YV*		●		
T3WH*	T3WV*		●	3-wire	
T3YH*	T3YV*		●		
T2JH*	T2JV*		●	1-color display 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		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Switch model No.
(Item **E** on the previous page)

Bore size
(Item **B** on the previous page)

- Switch body only

SW - T0H

Switch model No.
(Item **E** on the previous page)

- Mounting bracket set

CMK2 - T - 20

Mounting bracket

Bore size
(Item **B** on the previous page)

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

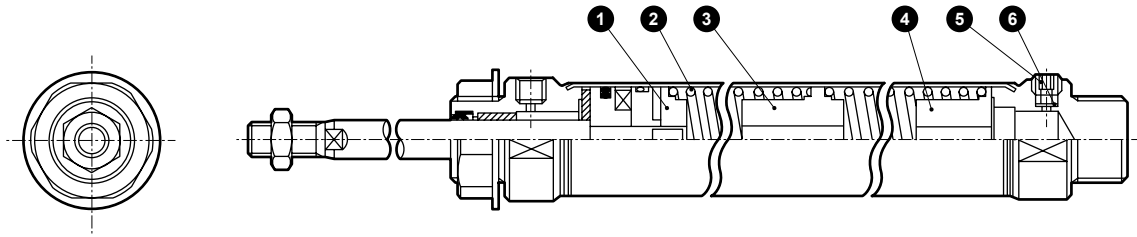
Spd
Contr

Ending

CMK2-SR Series

Internal structure and parts list

● CMK2-SR



Cannot be disassembled

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

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Spring holder	Special aluminum		5	Plug	Steel	Zinc chromate
2	Spring	Piano wire	Paint	6	Stainless steel wire mesh	Stainless steel	
3	Spring holder	Special aluminum					
4	Spring holder	Special aluminum					

Spring load

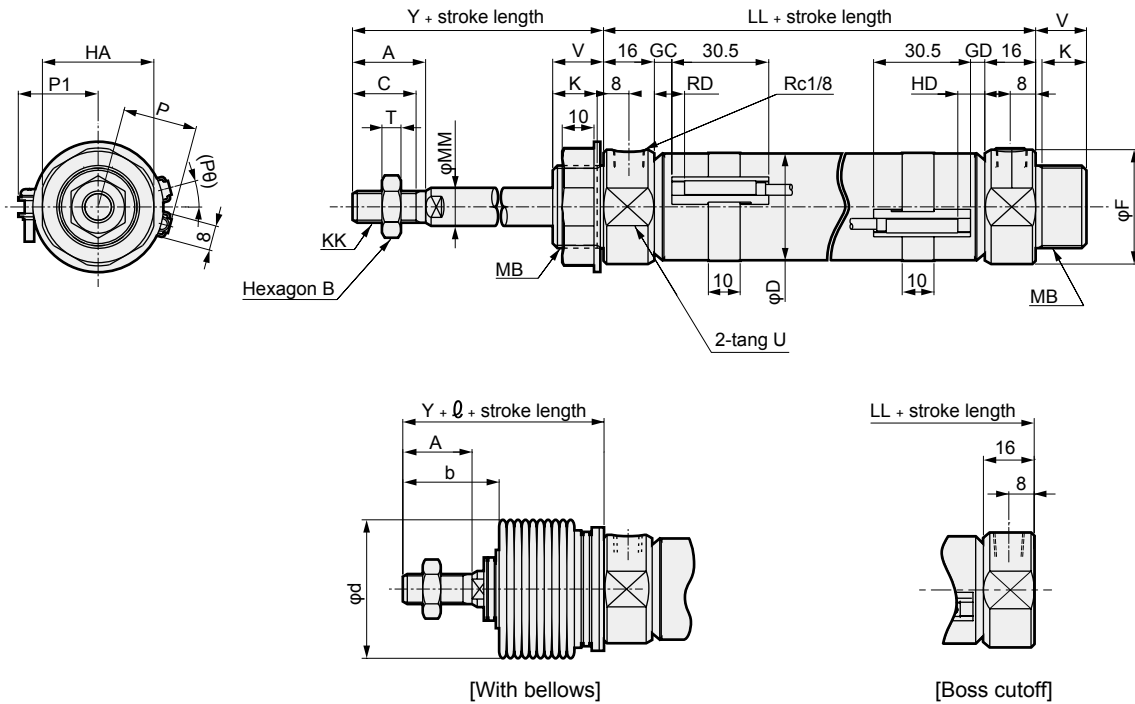
(Unit: N)

Bore size (mm)	Stroke length (mm)	25	50	75	100	150	200	250	300
		At stroke length of 0 mm	11.9	11.8	11.8	11.8	11.8	11.8	11.8
φ20	At full stroke length operation	31	38	31.5	38	38	38	38	38
	At stroke length of 0 mm	12.1	12.5	12.5	12.5	12.5	12.5	12.5	12.5
φ25	At full stroke length operation	30.4	40.2	33.1	40.2	40.2	40.2	40.2	40.2
	At stroke length of 0 mm	24.5	24.3	24.5	24.3	24.3	24.3	24.3	24.3
φ32	At full stroke length operation	52.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9
	At stroke length of 0 mm	28.4	28.4	28.4	28.4	28.4	28.4	28.4	28.4
φ40	At full stroke length operation	78.4	100	82.3	100	100	100	100	100

Dimensions



● Basic (00)



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

1: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

*2: For the ℓ dimension, round up below the decimal point.

Code	Basic (00) basic dimensions													MB	MM	T		
	A	B	C	D	F	HA	K	KK	LL									
Bore size (mm)									25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300			
φ20	20	13	18	21.4	28	26	12	M 8 × 1.0	91	93	120	147	174	201	228	M18 × 1.5	10	5
φ25	23	17	20	26.4	32	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6
φ32	23	17	20	33.6	36	35	14	M10 × 1.25	94	99	129	159	189	219	249	M26 × 1.5	12	6
φ40	25	19	22	41.6	45	35	14	M12 × 1.5	98	103	133	163	193	223	253	M26 × 1.5	14	7

Code	With switch																
	U	V	Y	T0, T5, T2, T3			T2W, T3W			HD							
				GC	GD	RD	GC	GD	RD	25 or less	Over 25 to 50	Over 50 to 75	Over 75 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300
φ20	24	14	44	4	3	8	6	5	10	34	36	63	63	90	117	144	171
φ25	30	16	46	5.5	4.5	9.5	7.5	6.5	11.5	35.5	40.5	70.5	70.5	100.5	130.5	160.5	190.5
φ32	34	16	46	5.5	4.5	9.5	7.5	6.5	11.5	35.5	40.5	70.5	70.5	100.5	130.5	160.5	190.5
φ40	43	16	48	7.5	6.5	11.5	9.5	8.5	13.5	37.5	42.5	72.5	72.5	102.5	132.5	162.5	192.5

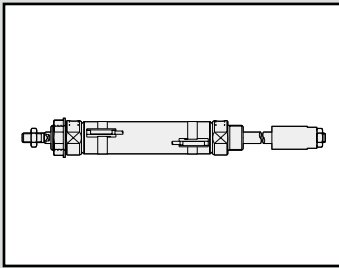
Code	With bellows					
	P	P1	(Pθ)°	b	d	ℓ
φ20	17.3	19.5	22	30	30	(Stroke length/3) + 6
φ25	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
φ32	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
φ40	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
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

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

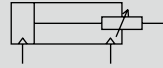


Medium bore size cylinder
 double acting/stroke adjustable (push)

CMK2-P Series

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

JIS symbol ● Double acting/stroke adjustable



Specifications

Descriptions		CMK2-P			
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation		Double acting/stroke adjustable (push)			
Working fluid		Compressed air			
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure	MPa	0.15 (≈ 22 psi, 1.5 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		Rc1/8			
Stroke tolerance	mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed	mm/s	50 to 500			
Cushion		Rubber cushion			
Lubrication		Not required (use turbine oil ISO VG32 if necessary for lubrication)			
Adjustable stroke range	mm	Max. 50			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows	With bellows
$\phi 20$	25/50/75/100/150/ 200/250/300	430	350	25	25
$\phi 25$					
$\phi 32$					
$\phi 40$		400			

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length is shorter than 25 mm.

Min. stroke length 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			
$\phi 20$	25						25	30	35	25	35	50	55	55	50	55		
$\phi 25$	25						25	30	35	25	35	50	55	55	50	55		
$\phi 32$	25						25	30	35	25	35	50	55	55	50	55		
$\phi 40$	25						25	30	35	25	35	50	55	55	50	55		

*1: Up to 3 switches can be mounted.

Switch specifications

- 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 3-wire				Reed 2-wire																	
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V	T5H/T5V		T8H/T8V												
Applications	For programmable controller, relay, compact solenoid valve		Dedicated for programmable controller				For programmable controller, relay				For programmable controller, relay		For programmable controller, relay											
Output method	-		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 (*2)				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 lamp	LED (Lit when ON)		LED (Lit when ON)		Red/green LED (Lit when ON)		Red/green LED (Lit when ON)		LED (Lit when ON)		Without 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:87 5 m:142		1 m:18 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: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Adjustable stroke length	Product weight when stroke length (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
		Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)			
φ20	25	0.23	0.38	0.31	0.29	0.28	Refer to the weight in the switch specifications.	0.005	0.01
	50	0.26	0.41	0.34	0.32	0.31			
φ25	25	0.41	0.67	0.54	0.56	0.51		0.005	0.01
	50	0.49	0.75	0.62	0.64	0.59			
φ32	25	0.45	0.71	0.58	0.60	0.55		0.009	0.02
	50	0.52	0.78	0.65	0.67	0.62			
φ40	25	0.63	0.89	0.76	0.78	0.79		0.009	0.02
	50	0.71	0.97	0.84	0.86	0.87			

(Example) Product weight of CMK2-P-FA-32-50-25T0H-D

Product weight when S = 0 mm ... 0.60 kg

Additional weight when S = 50mm Additional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg

Weight of 2 switches 0.036 kg

Weight of switch rail + 2 bands 0.018 kg

Product weight 0.60 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.754 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
φ20	Push/Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push/Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push/Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push/Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-P Series

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

How to order

Without switch (built-in magnet for switch)

CMK2-P - 00 - 20 - 100 - 25 - F I

With switch (built-in magnet for switch)

CMK2-P - 00 - 20 - 100 - 25 - T0H - D - F I

A Mounting B Bore size
 *1

C Port thread

D Stroke length

E Adjustable stroke range

F Switch model No.

G Switch quantity
 *8

H Option
 *3, *4

I Accessory
 *5

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 110.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 82 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-P-LB-20-100-25-T0H-D-FI

Model: Medium bore size cylinder, double acting/stroke adjustable (push)

- A Mounting : Axial foot (Both sides)
- B Bore size : $\phi 20$ mm
- C Port thread : Rc thread
- D Stroke length : 100 mm
- E Adjustable stroke length : 25 mm
- F Switch model No. : Reed T0H switch, lead wire 1m
- G Switch quantity : 2
- H Option : With push-in fitting (straight)
- I Accessory : Rod eye

Code	Content
A Mounting	
00	Basic
LB	Axial foot (Both sides)
LS	Axial foot (One side)
FA	Rod side flange
FB	Head side flange
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	$\phi 20$	*9
25	$\phi 25$	*9
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	25 to 450	In 1 mm increments
$\phi 25$	25 to 450	
$\phi 32$	25 to 430	
$\phi 40$	25 to 400	

E Adjustable stroke range (mm)	
25	25
50	50

F Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*		●			
T2H*	T2V*	Piston		●	1-color display	2-wire
T3H*	T3V*			●		3-wire
T3PH*	T3PV*			●	1-color display (custom)	3-wire
T2WH*	T2WV*			●		2-wire
T2YH*	T2YV*			●	2-color display	
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T2JH*	T2JV*			●	1-color display off-delay	2-wire

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

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

H 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		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Switch model No.
(Item **F** on the previous page)

Bore size (Item **B** on
the previous page)

- Switch body only

SW - **T0H**

Switch model No.
(Item **F** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Mounting bracket

Bore size (Item **B** on
the previous page)

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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

*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/
COVP/IN2

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

CMK2-P Series

SCP*3 Internal structure and parts list

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

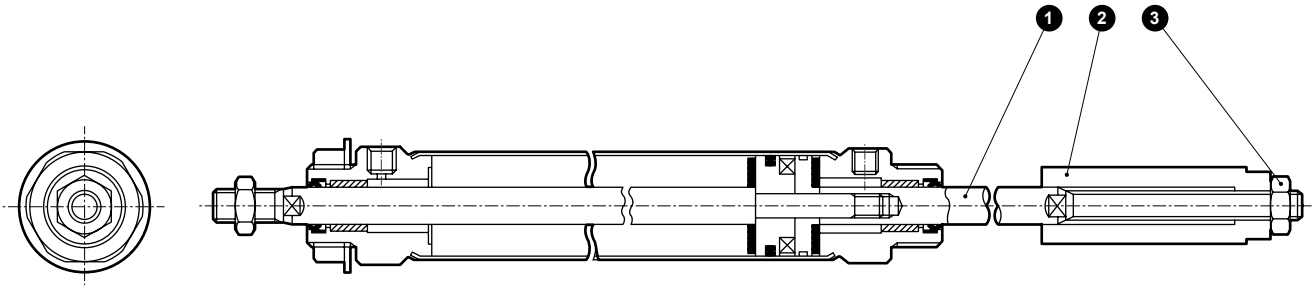
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

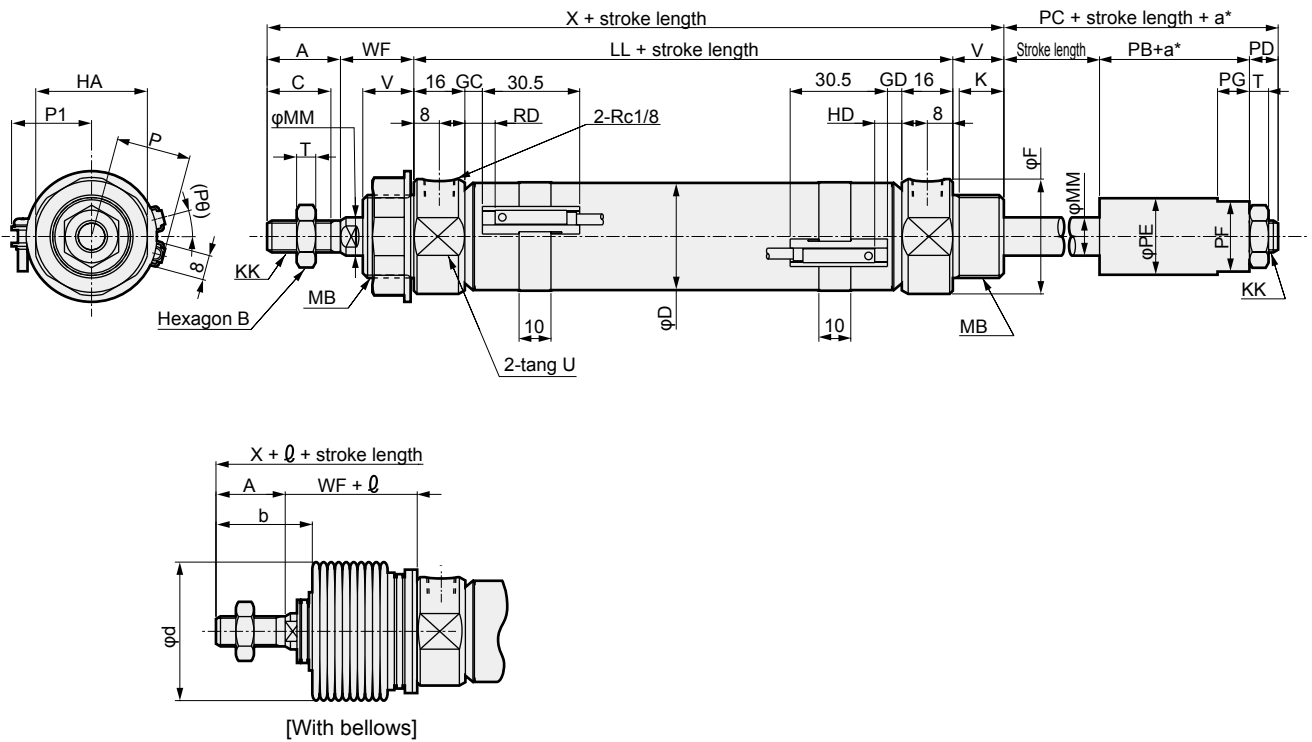
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks
1	Piston rod B	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating
2	Adjustable stopper	Steel	Zinc chromate
3	Lock nut	Steel	Zinc chromate

Dimensions



● Basic (00)



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

1: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
 *2: For the ℓ dimension, round up below the decimal point.

* a: Adjustable stroke length.

Code	Basic (00) basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X
φ20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	5	24	14	24	124
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137

Code	With switch																
Bore size (mm)	PB	PC	PD	PE	PF	PG	T0, T5, T2, T3				T2W, T3W				P	P1	(P0)°
							GC	GD	RD	HD	GC	GD	RD	HD			
φ20	21	29	8	16	14	7	4	3	8	7	6	5	10	9	17.3	19.5	22
φ25	22	31	9	24	22	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18
φ32	22	31	9	24	22	10	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15
φ40	22	32	10	24	22	10	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12

Code	With bellows		
Bore size (mm)	b	d	ℓ
φ20	30	30	(Stroke length/3) + 6
φ25	32	46	(Stroke length/3.25) + 7
φ32	32	46	(Stroke length/3.25) + 7
φ40	34	46	(Stroke length/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

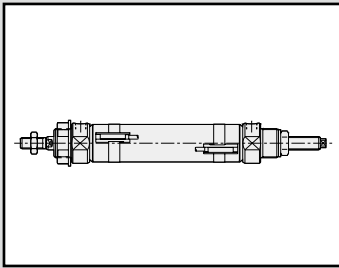
FJ

FK

Spd
Contr

Ending

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



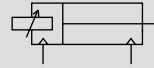
Medium bore size cylinder
 Double acting/stroke adjustable (pull)

CMK2-R Series

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

JIS symbol

● Double acting/stroke adjustable



Specifications

Descriptions	CMK2-R			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/stroke adjustable (pull)			
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	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Adjustable stroke range mm	Max. 50			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows	With bellows
$\phi 20$	25/50/75/100/150/ 200/250/300	750	650	25	25
$\phi 25$					
$\phi 32$					
$\phi 40$					

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length is shorter than 25 mm.

Min. stroke length 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
$\phi 20$	25					25	30	35	25	35	50	55	55	50	55
$\phi 25$	25					25	30	35	25	35	50	55	55	50	55
$\phi 32$	25					25	30	35	25	35	50	55	55	50	55
$\phi 40$	25					25	30	35	25	35	50	55	55	50	55

*1: Up to 3 switches can be mounted.

Switch specifications

● 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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 (IC circuit (no indicator), serial connection)		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 (*2)		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 lamp	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)		Without 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	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33				
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49	3 m:49 5 m:80				3 m:87				
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80	5 m:80				5 m:142				

*1: Refer to Ending Page 1 for other switch specifications.

*2: The above 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)

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Adjustable stroke length	Product weight when stroke length (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)	Trunnion (TA/TB)			
φ20	25	0.20	0.35	0.28	0.26	0.25	Refer to the weight in the switch specifications.	0.005	0.01
	50	0.20	0.35	0.28	0.26	0.25			
φ25	25	0.35	0.61	0.48	0.50	0.45		0.005	0.01
	50	0.37	0.63	0.50	0.52	0.47			
φ32	25	0.39	0.65	0.52	0.54	0.49		0.009	0.02
	50	0.41	0.67	0.54	0.56	0.51			
φ40	25	0.58	0.84	0.71	0.73	0.74		0.009	0.02
	50	0.60	0.86	0.73	0.75	0.76			

(Example) Product weight of CMK2-R-FA-32-50-25T0H-D

Product weight when S = 0 mm0.54 kg

Additional weight when S = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg

Weight of 2 switches0.036 kg

Weight of switch rail + 2 bands0.018 kg

Product weight0.54 kg+0.1 kg+0.036 kg+0.018 kg=0.694 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-R Series

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

How to order

Without switch (built-in magnet for switch)

CMK2-R - 00 - 20 - 100 - 25 - L I

With switch (built-in magnet for switch)

CMK2-R - 00 - 20 - 100 - 25 - T0H - D - L I

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Adjustable stroke range

F Switch model No.

G Switch quantity *9

H Option *3, *4, *5

I Accessory *6

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 116.
- *3 : The max. ambient temperature of bellows of φ25 to φ40 is 100°C (code: J).
- *4 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *5 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *6 : "I" and "Y" cannot be selected together.
- *7 : Refer to Ending Page 85 for custom specifications of rod end form.
- *8 : Refer to page 82 for combination of variations/options.
- *9 : 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.
- *10 : 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-R-00-20-100-25-T0H-D-MI

Model: Medium bore size cylinder, double acting/stroke adjustable (pull)

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 100 mm
- E** Adjustable stroke length : 25 mm
- F** Switch model No. : Reed T0H switch, lead wire 1 m
- G** Switch quantity : 2
- H** Option : Piston rod material (stainless steel)
- I** Accessory : Rod eye

Code	Content
A Mounting	
00	Basic
LB	Axial foot (Both sides)
LS	Axial foot (One side)
FA	Rod side flange
FB	Head side flange
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*10
25	φ25	*10
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	25 to 750	In 1 mm increments
φ25	25 to 750	
φ32	25 to 750	
φ40	25 to 750	

E Adjustable stroke range (mm)	
25	25
50	50

F Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*		●	●	1-color display	
T2H*	T2V*	Proximity		●	1-color display	3-wire
T3H*	T3V*			●		2-wire
T3PH*	T3PV*			●	1-color display (custom)	3-wire
T2WH*	T2WV*			●		2-wire
T2YH*	T2YV*			●	2-color display	
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T2JH*	T2JV*			●	1-color display off-delay	2-wire

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

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

H 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) *10		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Switch model No. (Item **F** on the previous page)

Bore size (Item **B** on the previous page)

- Switch body only

SW - T0H

Switch model No.
(Item **F** on the previous page)

- Mounting bracket set

CMK2 - T - 20

Mounting bracket

Bore size (Item **B** on the previous page)

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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

*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/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

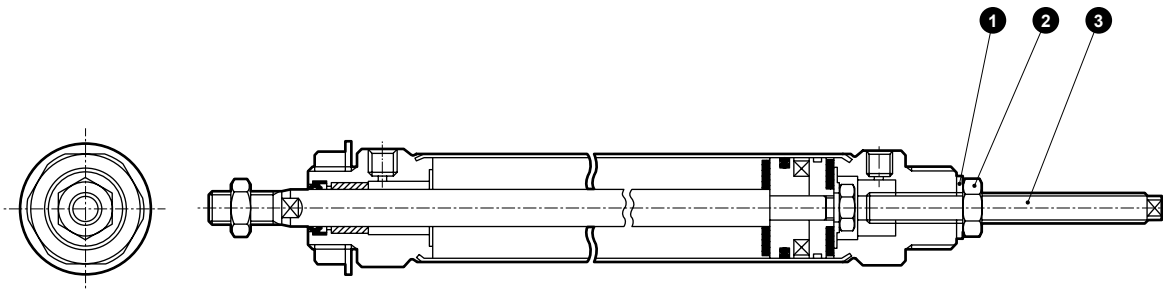
FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list

- 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



Cannot be disassembled

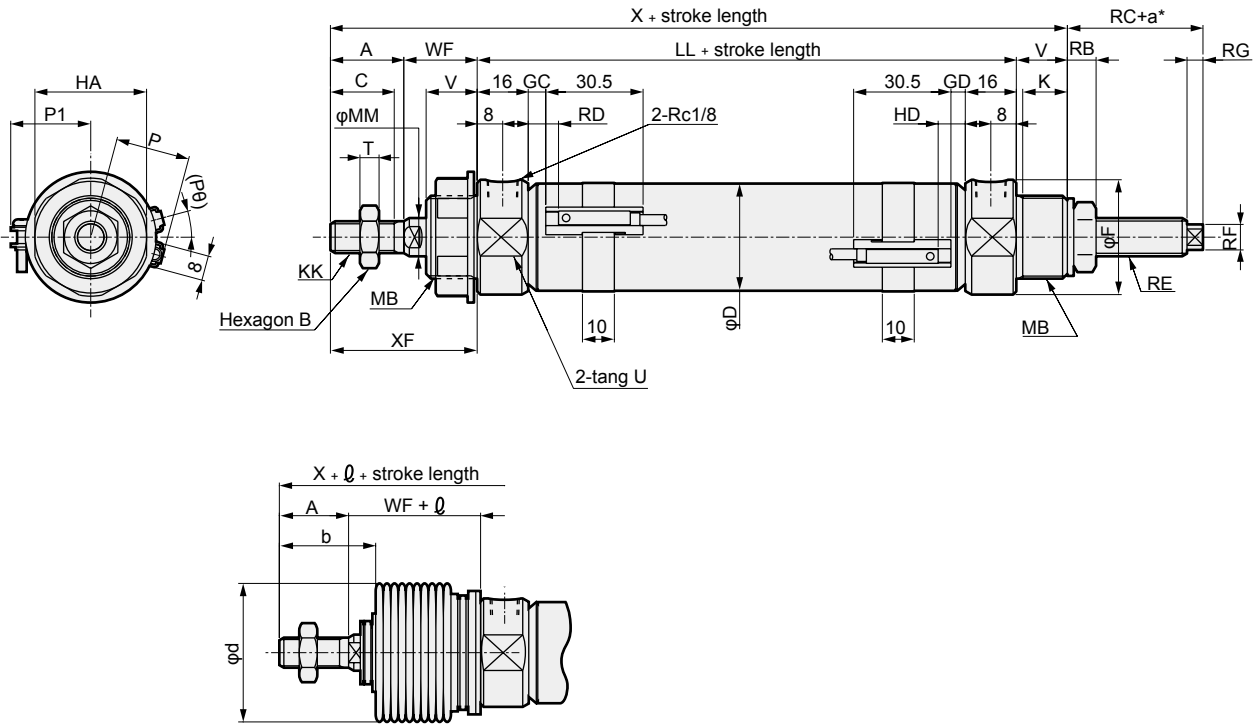
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks
1	Seal washer	Nitrile rubber, steel	
2	Lock nut	Steel	Zinc chromate
3	Adjusting bolt	Steel	Zinc chromate

Dimensions



● Basic (00)



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

*1: For the \varnothing dimension, round up below the decimal point. * a: Adjustable stroke length

Code	Basic (00) basic dimensions																
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X	XF
$\varnothing 20$	20	13	18	21.4	28	26	12	M8×1.0	66	M18×1.5	10	5	24	14	24	124	44
$\varnothing 25$	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131	46
$\varnothing 32$	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131	46
$\varnothing 40$	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137	48

Code	With switch																With bellows	
	RB	RC	RE	RF	RG	T0, T5, T2, T3				T2W, T3W				P	P1	(P θ)°	b	d
						GC	GD	RD	HD	GC	GD	RD	HD					
$\varnothing 20$	6.3	11	M 8×1.0	□5.5	3	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30
$\varnothing 25$	9	17.5	M12×1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46
$\varnothing 32$	9	17.5	M12×1.5	□8	5	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46
$\varnothing 40$	9	16	M12×1.5	□8	5	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46

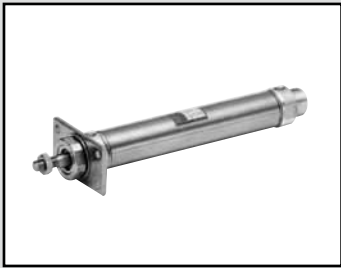
Code	\varnothing
$\varnothing 20$	(Stroke length/3) + 6
$\varnothing 25$	(Stroke length/3.25) + 7
$\varnothing 32$	(Stroke length/3.25) + 7
$\varnothing 40$	(Stroke length/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- 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

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/heat resistant
CMK2-T Series

● Bore size: φ20/φ25/φ32/φ40

JIS symbol ● Double acting cylinder single rod



Specifications

Descriptions	CMK2-T			
Bore size mm	φ20	φ25	φ32	φ40
Actuation	Double acting/heat resistant			
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 °C	5 (41°F) to 120 (248°F)			
Port size	Rc1/8			
Stroke tolerance mm	^{+2.0} ₀ (Up to 200), ^{+2.4} ₀ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not available			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
φ20	25/50/75/100/ 150/200/250/ 300	750	650	5	Not supported
φ25					
φ32					
φ40					

*1: The custom stroke length is available in 1 mm increments.
 *2: One side foot side (LS) has the max. stroke length of 50 mm.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Additional weight per S = 10mm
	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)	Trunnion (TA/TB)	
φ20	0.17	0.32	0.25	0.23	0.32	0.18	0.32	0.22	0.01
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36	0.01
φ32	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39	0.02
φ40	0.47	0.73	0.60	0.62	0.71	0.49	0.71	0.63	0.02

(Example) Product weight of CMK2-T-FA-32-50 Product weight when S = 0 mm0.44 kg
 Additional weight when S = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg
 Product weight0.44 kg+0.1 kg=0.54 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

How to order

CMK2-T - 00 - 20 - 100 - V I

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Option
*2, *3

F Accessory
*4

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2: Refer to page 122 for the max. and min. stroke lengths with bellows.
- *3 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *4 : "I" and "Y" cannot be selected together.
- *5: Refer to Ending Page 85 for custom specifications of rod end form.
- *6: Refer to page 82 for combination of variations/options.
- *7 : 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-T-00-20-100-VI

Model: Medium bore size cylinder, double acting/heat resistance

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 100 mm
- E** Option : Boss cutoff
- F** Accessory : Rod eye

Code	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*7
25	φ25	*7
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length	Custom stroke length
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Option			
		Max. ambient temp.	Instantaneous max. temp.
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)	*7	
V	Boss cutoff		

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

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

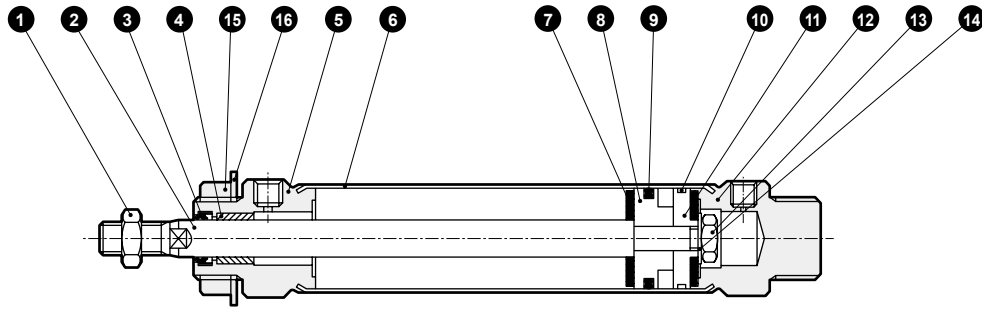
FJ

FK

Spd
Contr

Ending

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	8	Piston A	Aluminum alloy	
2	Piston rod	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating	9	Piston packing	Fluoro rubber	
3	Rod packing	Fluoro rubber		10	Wear ring	Special resin	
4	Bush	φ20: Dry bearing φ25, φ32, φ40: Copper-based		11	Piston B	Aluminum alloy	
5	Rod cover	Aluminum alloy		12	Head cover	Aluminum alloy	
6	Cylinder tube	Stainless steel		13	Hexagon nut	Steel	Zinc chromate
7	Cushion rubber	Fluoro rubber		14	Spacer	Steel	Zinc chromate
				15	Nut	Steel	Zinc chromate
				16	Toothed washer	Steel	Zinc chromate

Dimensions

Same as standard. Refer to pages 89 to 95.

MEMO

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

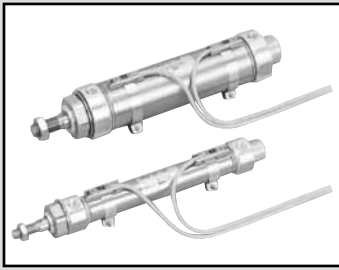
FJ

FK

Spd
Contr

Ending

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/rubber-air cushioned
CMK2-*C Series

● Bore size: $\phi 20/\phi 25/\phi 32/\phi 40$
 Port size: Rc 1/8

JIS symbol ● Double acting cylinder single rod



Specifications

Descriptions	CMK2			
	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Bore size	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.2 (≈ 29 psi, 2 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500 (Operate within the absorbed energy.)			
Cushion	Rubber-air cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.089	0.137	0.179	0.278

Stroke length

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

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

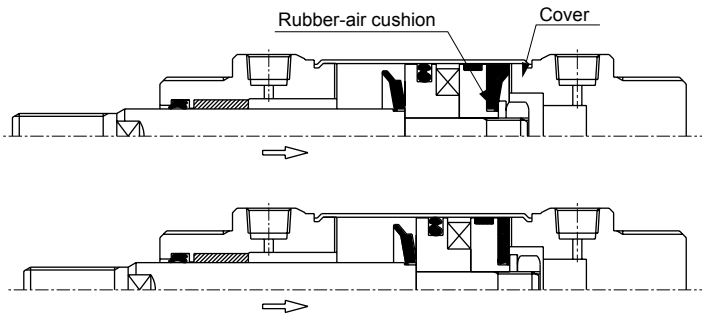
Min. stroke length with switch

(Unit: mm)

Switch quantity	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			
Bore size (mm)																		
$\phi 20$	10					25	30	35	25	35	50	55	55	50	55			
$\phi 25$	10					25	30	35	25	35	50	55	55	50	55			
$\phi 32$	10					25	30	35	25	35	50	55	55	50	55			
$\phi 40$	10					25	30	35	25	35	50	55	55	50	55			

*1: Up to 3 switches can be mounted.

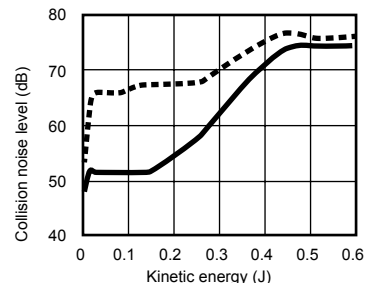
Rubber-air cushion mechanism



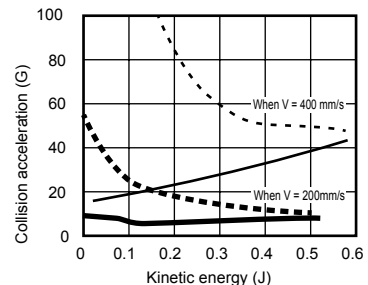
When pulled

An airtight space is created in the ■■■■ area when the piston operates and the rubber-air cushion and cover make contact. Air in the airtight area is further compressed, absorbing energy as the piston operates. At the end of the stroke, energy generated by compression distortion of the air cushion is also added.

Data of the reduction of collision noise level (an example case)



Data of the reduction of collision acceleration level (an example case)



Switch specifications

● 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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		24VDC±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 (*2)		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 lamp	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)		Without 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 other switch specifications.

*2: The above 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)

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product weight of CMK2-FA-32C-50-T0H-D Product weight when S = 0 mm 0.45 kg
 Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg
 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
φ20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
φ25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
φ40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-*C Series

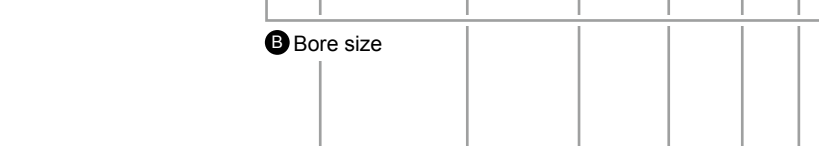
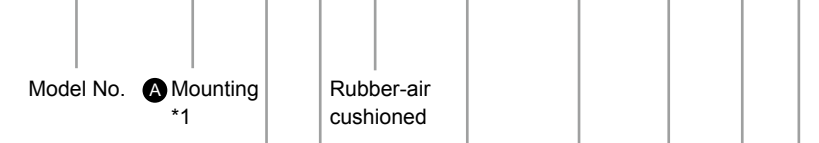
How to order

● Without switch (built-in magnet for switch)

CMK2 - 00 - 20 - C - 100 - V Y

● With switch (built-in magnet for switch)

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



⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 126.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *4 : The instantaneous max. temperature is the temperature when sparks, 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 82 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.]

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

Model: Medium bore size cylinder/rubber-air cushioned

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 100 mm
- E** Switch model No. : Proximity switch T0H switch, lead wire 1 m
- F** Switch quantity : 1 on rod side
- G** Option : Boss cutoff
- H** Accessory : Rod clevis

Code	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*9
25	φ25	*9
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
N	NPT thread (custom order product)
G	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*		●	●	1-color display	2-wire
T2H*	T2V*	Proximity	●	●	1-color display	2-wire
T3H*	T3V*		●	●	1-color display (custom)	
T3PH*	T3PV*		●	●	1-color display (custom)	3-wire
T2WH*	T2WV*		●	●	2-color display	2-wire
T2YH*	T2YV*		●	●	2-color display	
T3WH*	T3WV*		●	●	2-color display	3-wire
T3YH*	T3YV*	●	●	2-color display	2-wire	
T2JH*	T2JV*	●	●	1-color display off-delay		

* 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 attached)
B2	Clevis bracket (pin and snap ring attached)

F Switch quantity *8

G Option *3, *4

H Accessory *5

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

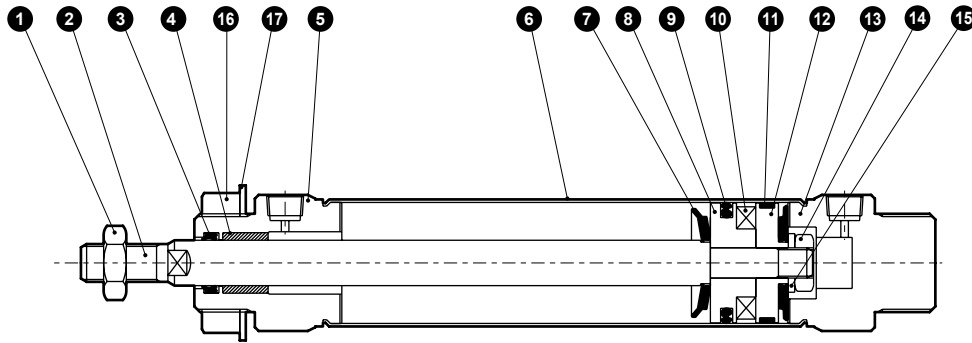
FJ

FK

Spd
Contr

Ending

SCP*3 Internal structure and parts list



Cannot be disassembled

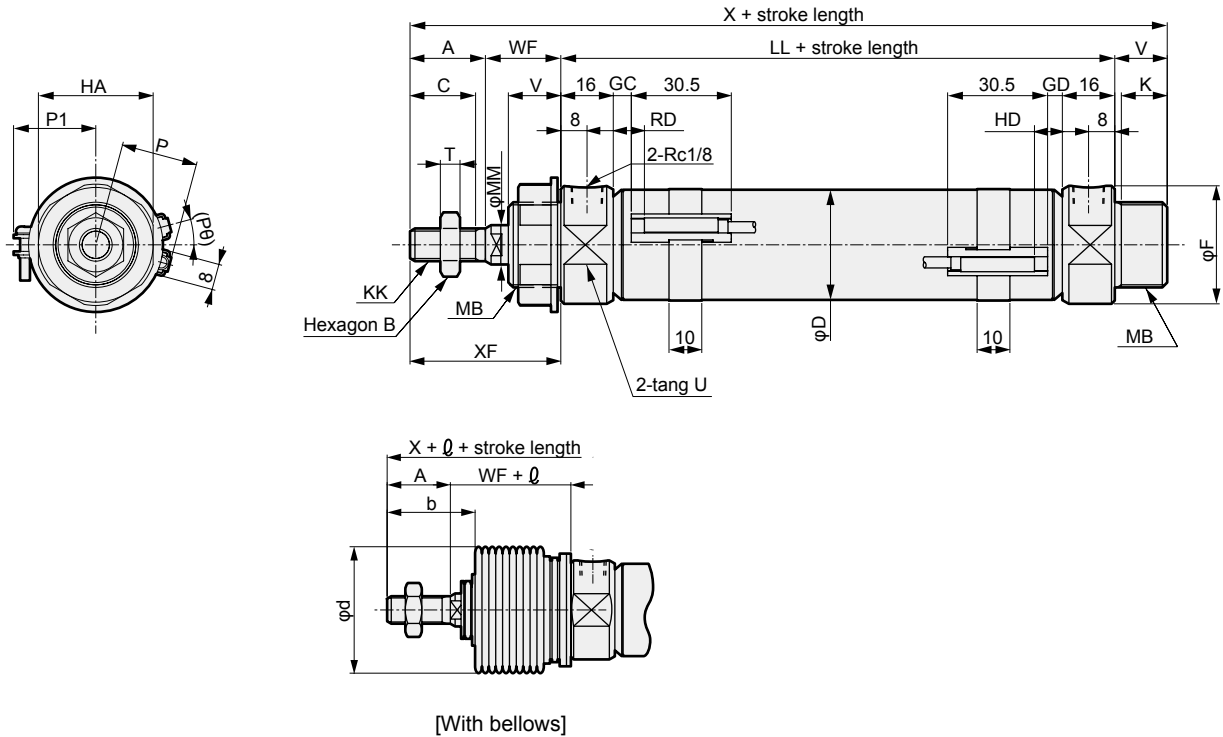
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	11	Wear ring	Polyacetal	
2	Piston rod	φ20/φ25: Stainless steel φ32/φ40: Carbon steel	Industrial chrome plating	12	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		13	Head cover	Aluminum alloy	
4	Bush	φ20: Dry bearing φ25/φ32/φ40: Copper-based		14	Hexagon nut	Steel	Zinc chromate
5	Rod cover	Aluminum alloy		15	Spacer	Steel	Zinc chromate
6	Cylinder tube	Stainless steel		16	Nut	Steel	Zinc chromate
7	Rubber-air cushion	Special rubber		17	Toothed washer	Steel	Zinc chromate
8	Piston A	Aluminum alloy					
9	Piston packing	Nitrile rubber					
10	Magnet	Plastic					

Dimensions



● Basic (00)



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

1: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
 *2: For the \varnothing dimension, round up below the decimal point.

Code	Basic (00) basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	X
φ20	20	13	18	21.4	28	26	12	M8×1.0	66	M18×1.5	10	5	24	14	24	124
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	131
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	131
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	137

Code	XF	With switch										With bellows					
		T0, T5, T2, T3					T2W, T3W					P	P1	(Pθ)°	b	d	ℓ
		GC	GD	RD	HD	GC	GD	RD	HD								
φ20	44	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6		
φ25	46	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7		
φ32	46	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7		
φ40	48	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7		

* Refer to pages 90 to 95 for mountings other than the basic one (00).
 * For the dimensions of the accessories, refer to page 96.

SCP*3
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS2
 CKV2
 CAV2/
 COVP/IN2
 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

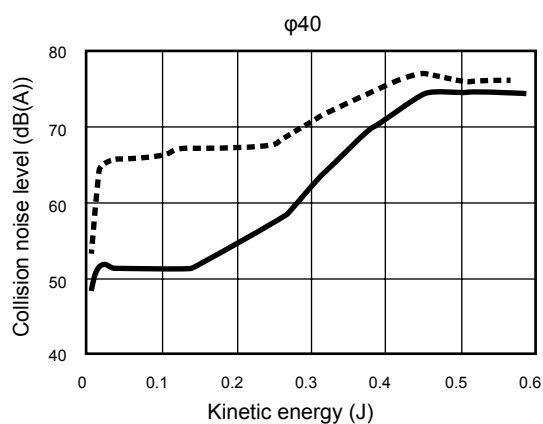
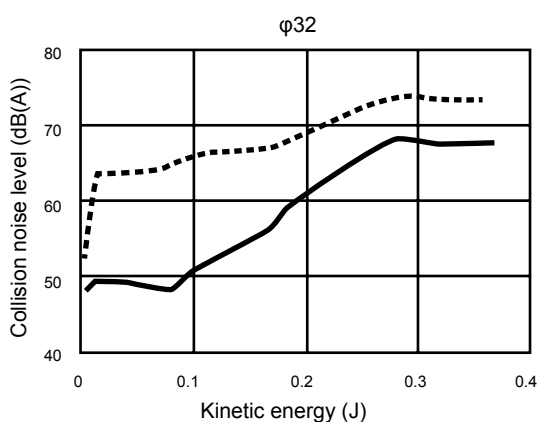
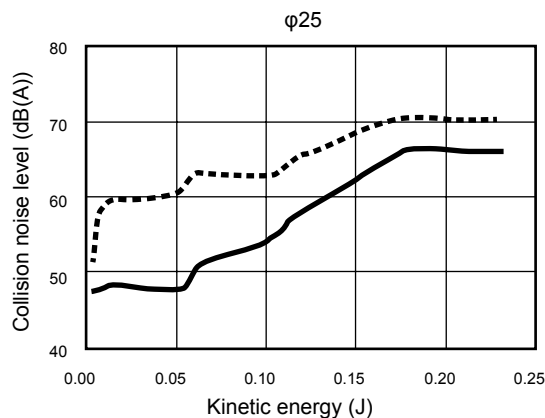
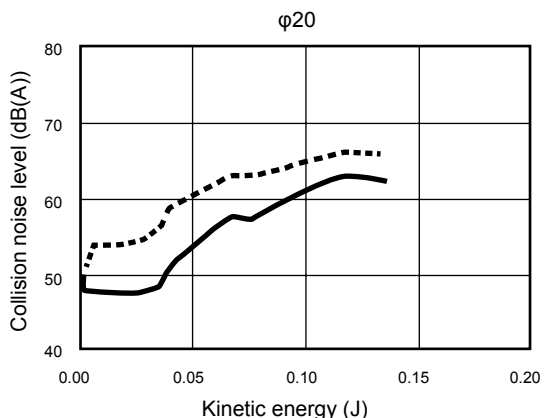
SCP*3

Technical data

CMK2

[Comparison of collision noise level]

Standard rubber cushion
 Rubber-air cushion



CAV2/
COVPIN2

SSD2

SSG

SSD

CAT

MDC2

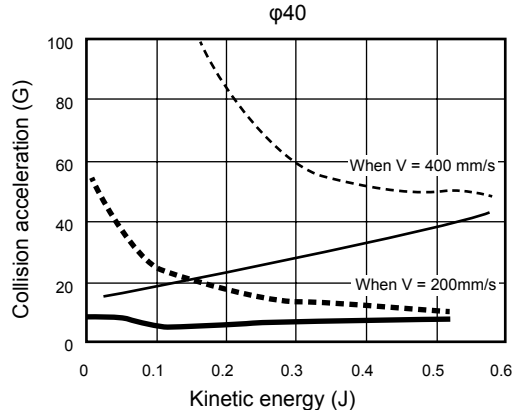
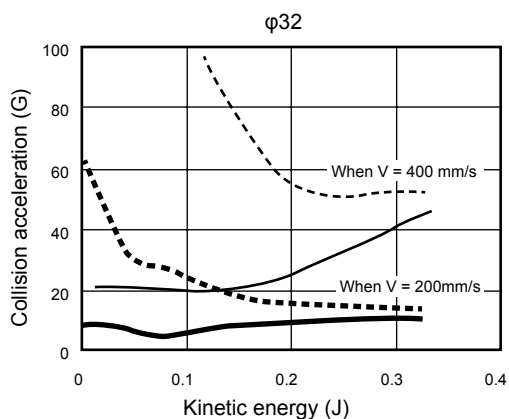
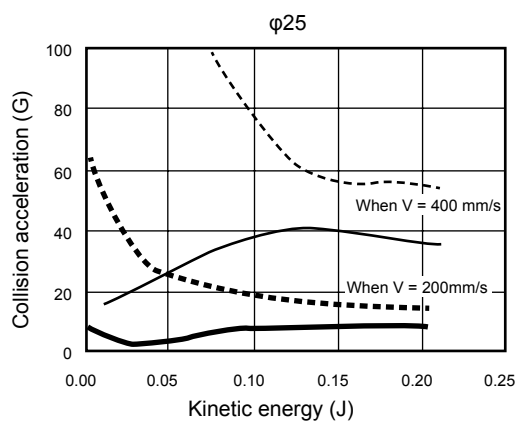
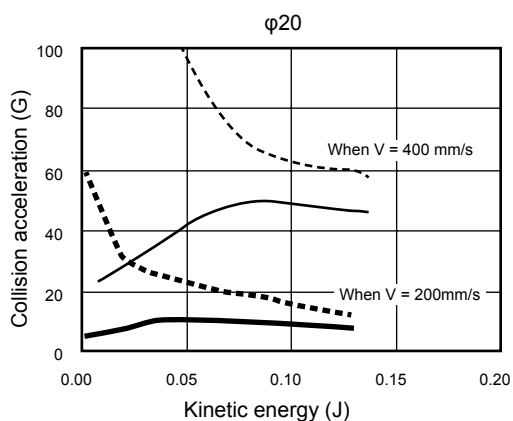
MVC

SMG

MSD/
MSDG

[Comparison of collision acceleration]

Standard rubber cushion
 Rubber-air cushion



FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

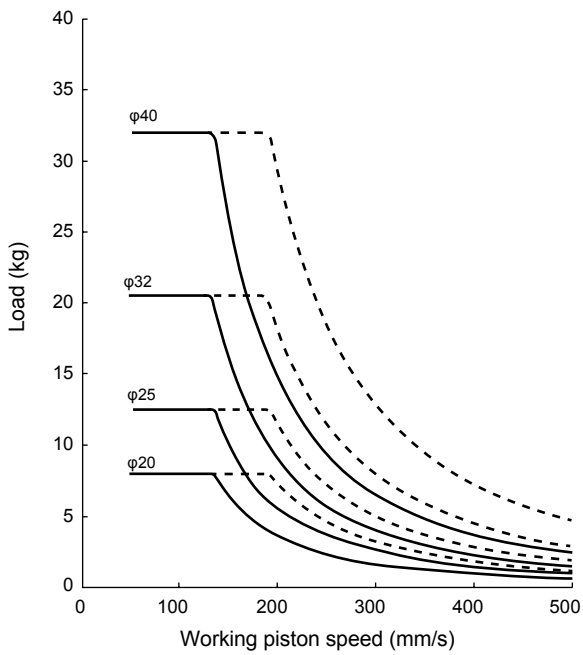
FK

Spd
Contr

Ending

Technical data

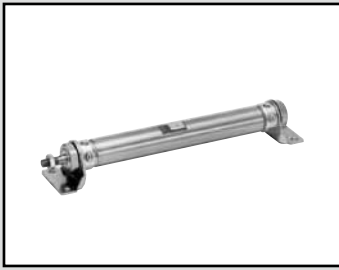
[Allowable energy value]



Usable in the range below and to the left of the curve.
 Although it can also be used in the range marked with --- in the figure, we recommend use within the range marked with a solid line to maximize the noise reduction and damping effects.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/ COVP/N2
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

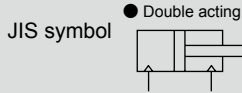
SCP*3
 CMK2
 CMA2
 SCM
 SCG
 SCA2
 SCS2
 CKV2
 CAV2/
 COVPIN2
 SSD2
 SSG
 SSD
 CAT
 MDC2
 MVC
 SMG
 MSD/
 MSDG
 FC*
 STK
 SRL3
 SRG3
 SRM3
 SRT3
 MRL2
 MRG2
 SM-25
 ShkAbs
 FJ
 FK
 Spd
 Contr
 Ending



Medium bore size cylinder
 double acting/air cushioned

CMK2-C Series

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



Specifications

Descriptions	CMK2-C			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
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°F) to 60 (140°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 length

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

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length with switch

(Unit: mm)

Switch quantity	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
$\phi 20$	10					25	30	35	25	35	50	55	55	50	55
$\phi 25$	10					25	30	35	25	35	50	55	55	50	55
$\phi 32$	10					25	30	35	25	35	50	55	55	50	55
$\phi 40$	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 display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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		24VDC±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 (*2)		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 lamp	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)		Without 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 other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	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 $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ 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
φ20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
φ25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
φ40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-C Series

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

How to order

Without 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 length

E Switch model No.

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

⚠ Precautions for model No. selection

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

*2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 134.

*3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.

*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 82 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 : φ20 mm
- C Port thread : Rc thread
- D Stroke length : 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	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*9
25	φ25	*9
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●	●	1-color display	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	1-color display (custom)	3-wire
T3PH*	T3PV*		●	●		
T2WH*	T2WV*		●	●	2-color display	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*	●	●	1-color display off-delay	2-wire	
T3YH*	T3YV*	●	●			
T2JH*	T2JV*	●	●			

* 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 attached)
B2	Clevis bracket (pin and snap ring attached)

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

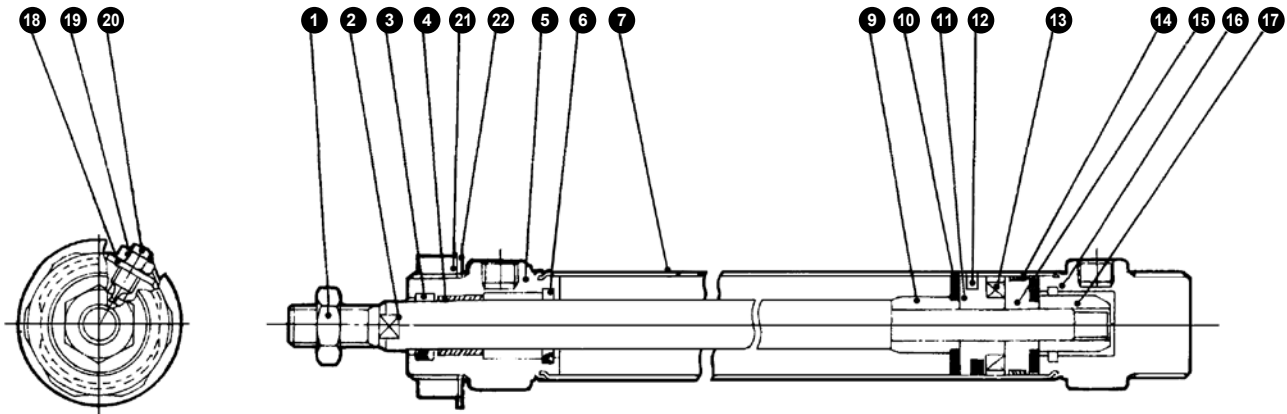
FK

Spd
Contr

Ending

CMK2-C Series

SCP*3 Internal structure and parts list



Cannot be disassembled

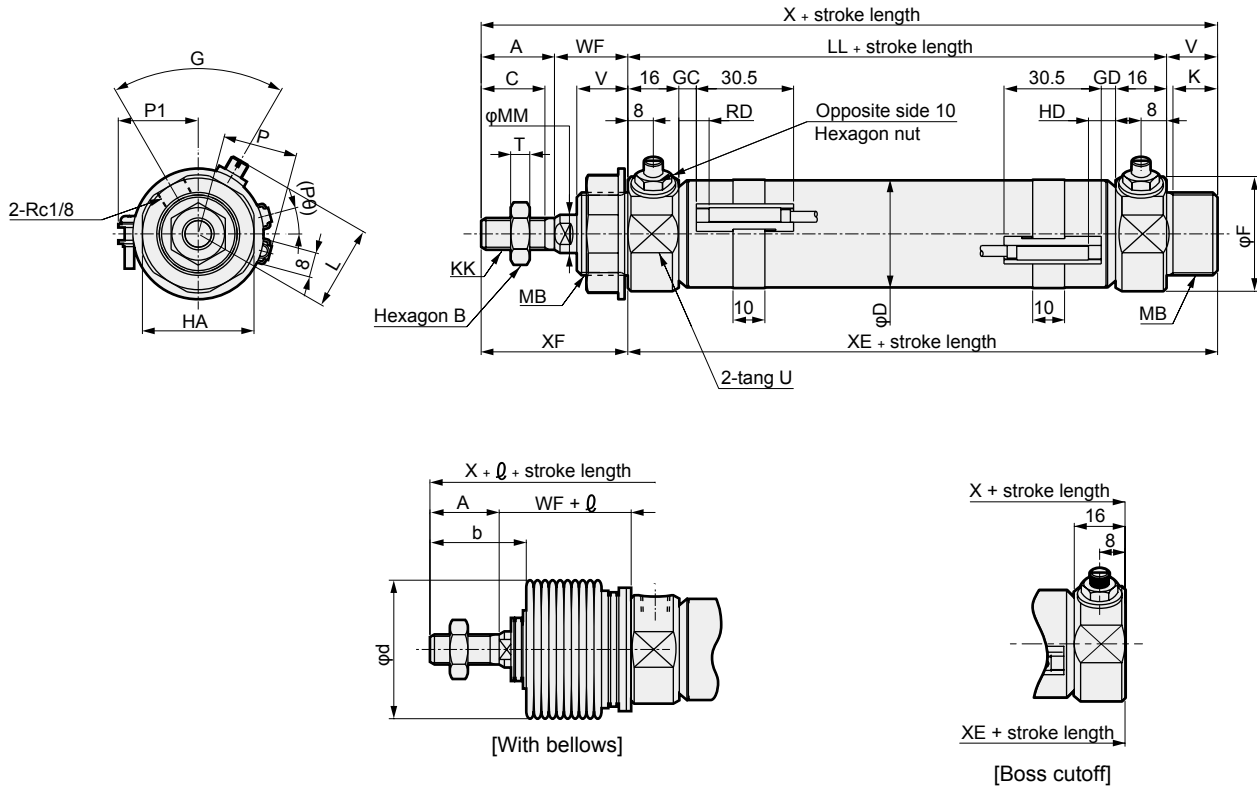
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	14	Wear ring	Polyacetal	
2	Piston rod	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating	15	Piston B	Aluminum alloy	
3	Rod packing	Nitrile rubber		16	Head cover	Aluminum alloy	
4	Bush	φ20, φ25, φ32 : Dry bearing φ40 : 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 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.
*2: For the Q dimension, round up below the decimal point.

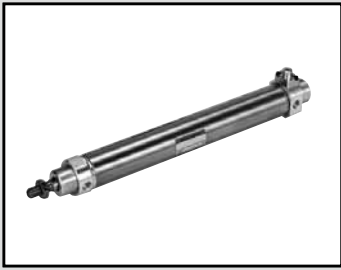
Code	A	B	C	D	F	G	HA	K	KK	L	LL	MB	MM	T	U	V	WF	X	XE	XF
Code																				
Bore size (mm)																				
φ20	20	13	18	21.4	28	70	26	12	M 8 × 1.0	23 to 25	66	M18 × 1.5	10	5	24	14	24	124	80	44
φ25	23	17	20	26.4	32	60	35	14	M10 × 1.25	25 to 27	69	M26 × 1.5	12	6	30	16	23	131	85	46
φ32	23	17	20	33.6	36	60	35	14	M10 × 1.25	25 to 26.5	69	M26 × 1.5	12	6	34	16	23	131	85	46
φ40	25	19	22	41.6	45	60	35	14	M12 × 1.5	31.5 to 33	73	M26 × 1.5	14	7	43	16	23	137	89	48
Code	With switch											With bellows				Boss cutoff				
Bore size (mm)	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X	XE				
	GC	GD	RD	HD	GC	GD	RD	HD												
φ20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	66				
φ25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	69				
φ32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	69				
φ40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	73				

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
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

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

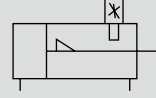
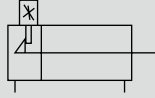


Medium bore size cylinder/
 double acting/position locking

CMK2-Q Series

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

JIS symbol



Specifications

Descriptions	CMK2-Q			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/position locking			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 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 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Position locking mechanism	Head side or rod side			
Holding force N	Max. thrust x 0.7			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows	With bellows
$\phi 20$	25/50/75/100/	750	Not supported	750	Not supported
$\phi 25$	150/200/250/				
$\phi 32$	300				
$\phi 40$					

*1: The custom stroke length is available in 1 mm increments.

Min. stroke length 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																		
$\phi 20$	10			25			30			35			25			35			50			55			55			50			55		
$\phi 25$	10			25			30			35			25			35			50			55			55			50			55		
$\phi 32$	10			25			30			35			25			35			50			55			55			50			55		
$\phi 40$	10			25			30			35			25			35			50			55			55			50			55		

*1: Up to 3 switches can be mounted.

Be sure to read the Safety precautions for the position locking on pages 187 to 189 before use.

Switch specifications

- 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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 (*2)		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 lamp	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)		Without 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	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33				
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49					3 m:87				
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80					5 m:142				

*1: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

- CMK2-Q-H

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	0.20	0.35	0.28	0.26	0.35	0.21	0.35	0.25	Refer to the weight in the switch specifications.	0.005	0.01
φ25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
φ32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
φ40	0.51	0.77	0.64	0.66	0.75	0.53	0.75	0.67		0.009	0.02

- CMK2-Q-R

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	0.19	0.34	0.27	0.25	0.34	0.20	0.34	0.24	Refer to the weight in the switch specifications.	0.005	0.01
φ25	0.29	0.55	0.42	0.44	0.53	0.29	0.53	0.39		0.005	0.01
φ32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
φ40	0.50	0.76	0.63	0.65	0.74	0.52	0.74	0.66		0.009	0.02

(Example) Product weight of CMK2-Q-FA-32-50-R-T0H-D

Product weight when S = 0 mm0.47 kg
 Additional weight when S = 50mm Additional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg
 Weight of 2 switches0.036 kg
 Weight of switch rail + 2 bands0.018 kg
 Product weight0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-Q Series

SCP*3 How to order

Without switch (built-in magnet for switch)

CMK2-Q-00-20-25-R-M-I

With switch (built-in magnet for switch)

CMK2-Q-00-20-25-R-T0H-R-M-I

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Position locking mechanism

F Switch model No.

G Switch quantity
*7

H Option
*3
*8

I Accessory
*4

⚠ Precautions for model No. selection

- *1 : Rod side position locking of TA and head side position locking of TB are not available.
- *2 : Refer to page 140 for min. stroke length with switch.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *4 : "I" and "Y" cannot be selected together.
- *5 : Refer to Ending Page 85 for custom specifications of rod end form.
- *6 : Refer to page 82 for combination of variations/options.
- *7 : 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.
- *8 : Only non-locking manual override is available if "M0" or "M1" of H Option is not selected. Release bolt is not included.
- *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-Q-00-20-25-R-T0H-R-M0Y

Model: Medium bore size cylinder, position locking

- A Mounting : Basic
- B Bore size : φ20 mm
- C Port thread : Rc thread
- D Stroke length : 25 mm
- E Position locking mechanism : With rod side position locking
- F Switch model No. : Reed T0H switch, lead wire 1 m
- G Switch quantity : 1 on rod side
- H Option : Non-locking manual override
- I Accessory : Rod clevis

Code	Content
A Mounting	
00	Basic
LB	Axial foot
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CB	Clevis bracket (pin and split washer pin attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*9
25	φ25	*9
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Position locking mechanism	
R	With rod side position locking
H	With head side position locking

F Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●	□	1-color display	2-wire
T2H*	T2V*		●	□		
T3H*	T3V*		●	□	1-color display (custom)	3-wire
T3PH*	T3PV*		●	□		
T2WH*	T2WV*		●	□	2-color display	2-wire
T2YH*	T2YV*		●	□		
T3WH*	T3WV*		●	□	2-color display	3-wire
T3YH*	T3YV*		●	□		
T2JH*	T2JV*	●	□	1-color display off-delay	2-wire	

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

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

H Option	
F	With push-in fitting (straight)
FE	With push-in fitting (elbow)
M	Piston rod material (stainless steel) *9
P6	Copper and PTFE free
M0	Non-locking manual override (with release bolt)
M1	Locking manual override

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

How to order switch

- Switch body + mounting bracket set

CMK2 - T0H - 20

Bore size (Item **B** on the previous page)

Switch model No. (Item **F** on the previous page)

- Switch body only

SW - T0H

Switch model No. (Item **F** on the previous page)

- Mounting bracket set

CMK2 - T - 20

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
Mounting bracket				
Basic (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB)	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.

Specifications for rechargeable battery (Catalog No. CC-1226A)

CMK2-Q - ... - P4*

- Design compatible with rechargeable battery manufacturing process

* Contact CKD for details.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

FK

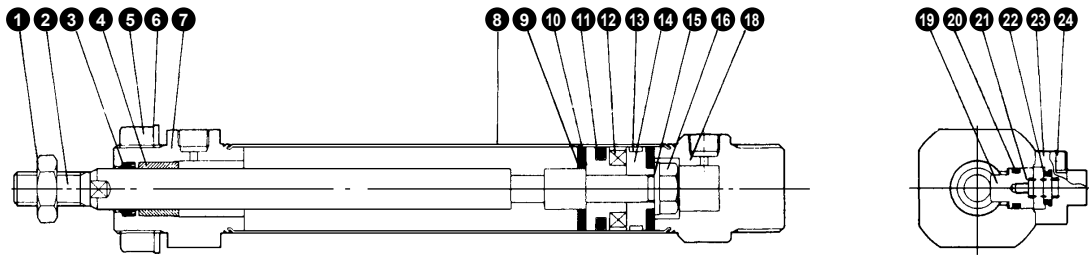
Spd
Contr

Ending

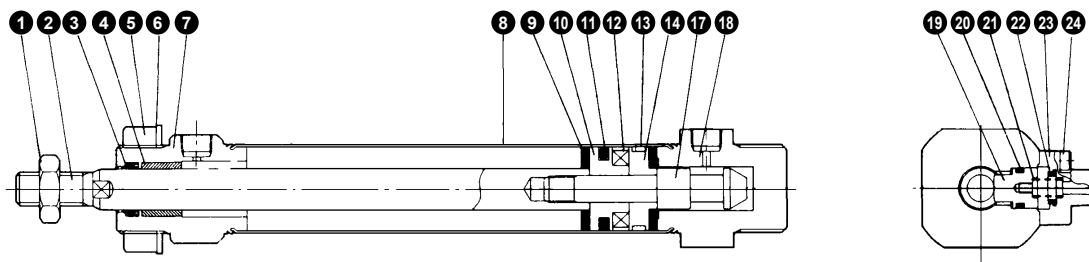
CMK2-Q Series

Internal structure and parts list

● CMK2-Q (rod side position locking)



● CMK2-Q (head side position locking)



Cannot be disassembled

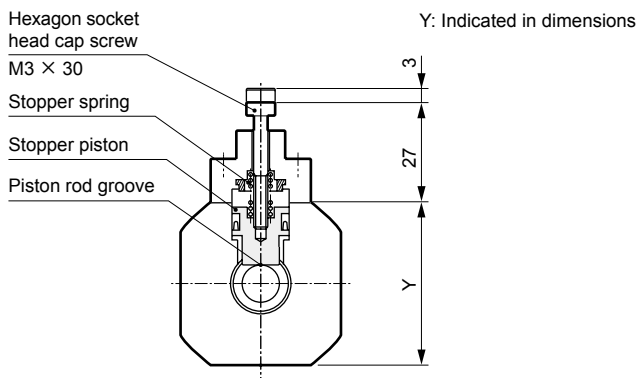
Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	12	Magnet	Plastic	
2	Piston rod	φ20, φ25: Stainless steel φ32, φ40: Steel	Industrial chrome plating	13	Wear ring	Acetal resin	
3	Rod packing	Nitrile rubber		14	Piston (B)	Aluminum alloy	
4	Bush	Dry bearing Oil impregnated bearing alloy	φ20 φ25, φ32, φ40 *1	15	Spacer	Steel	Zinc chromate
5	Nut	Steel	Zinc chromate	16	Nut	Steel	Zinc chromate
6	Toothed washer	Steel	Zinc chromate	17	Sleeve	Steel	Nitriding
7	Rod cover	Aluminum alloy		18	Head cover	Aluminum alloy	
8	Cylinder tube	Stainless steel		19	Stopper piston	Steel	Nitriding
9	Cushion rubber (A)	Urethane rubber		20	Piston packing (B)	Nitrile rubber	
10	Piston (A)	Aluminum alloy		21	Spring	Steel	Paint
11	Piston packing (A)	Nitrile rubber		22	Cushion rubber (B)	Urethane rubber	
				23	Stopper cover	Aluminum alloy die-casting	Chromate
				24	Hex socket screw	Alloy steel	Zinc chromate

*1: Oleoresin bearing for copper and PTFE free.

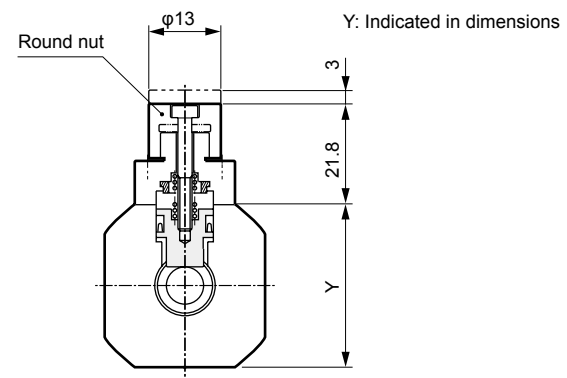
[Explanation of manual override]

● Non-locking manual override (option code: M0)



By screwing the hexagon socket head cap screw (M3 x 30) into the stopper piston and pulling the bolt 3 mm with force of 20 N or more, the stopper piston moves and the lock is released. (when horizontally installed with no load and with the opposite side port pressurized). When the screw is released, the internal spring causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.

● Locking manual override (option code: M1)

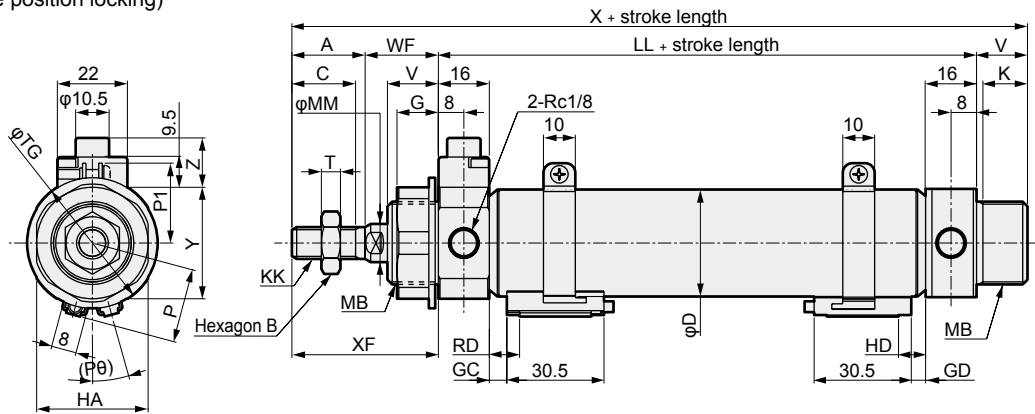


By rotating the round nut leftward (counterclockwise), the stopper piston moves and the lock is released. Rotating the round nut to the right (clockwise) to set it in the locked position causes the stopper piston to return. When it fits into the piston rod groove, the piston is locked.

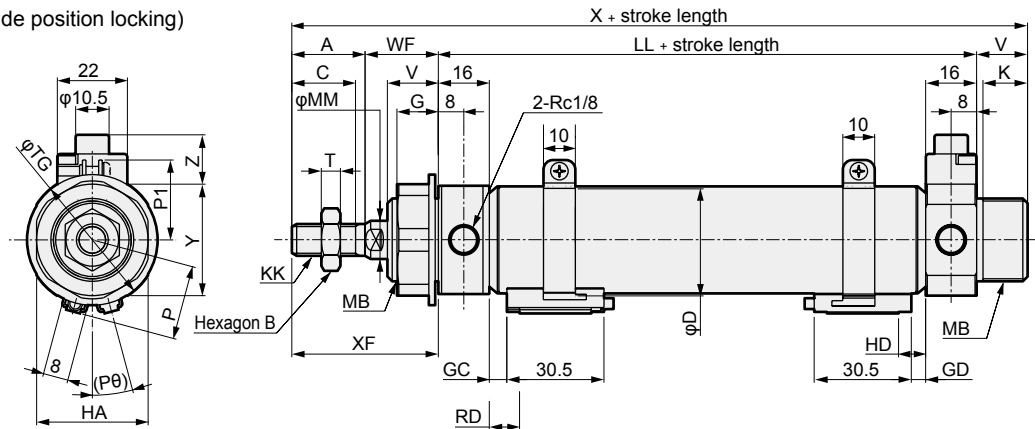
Dimensions



- Basic (00)
(with rod side position locking)



(With head side position locking)



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

*1: For dimensions of the type with manual override, refer to the [Explanation of manual override] figure on the previous page.
2: Refer to page 184 for HD, RD, and protruding dimensions of T1, T8* and 2-color display switches.

Code	Basic (00) basic dimensions										
Bore size (mm)	A	B	C	D	G	HA	K	KK	LL	MB	MM
φ20	20	13	18	21.4	(11)	26	12	M 8 × 1.0	66	M18 × 1.5	10
φ25	23	17	20	26.4	(13)	35	14	M10 × 1.25	69	M26 × 1.5	12
φ32	23	17	20	33.6	(13)	35	14	M10 × 1.25	69	M26 × 1.5	12
φ40	25	19	22	41.6	(13)	35	14	M12 × 1.5	73	M26 × 1.5	14

Code									With switch		
	T	TG	V	WF	X	XF	Y	Z	T0, T5, T2, T3		
Bore size (mm)									GC	GD	RD
φ20	5	29	14	24	124	44	31	15.5	4	3	8
φ25	6	41	16	23	131	46	35	15.5	5.5	4.5	9.5
φ32	6	41	16	23	131	46	35	15.5	5.5	4.5	9.5
φ40	7	41	16	23	137	48	43	15.5	7.5	6.5	11.5

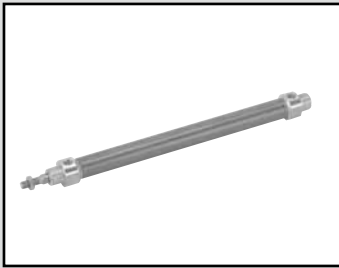
Code	T2W, T3W					P	P1	(Pθ)°
	HD	GC	GD	RD	HD			
φ20	7	6	5	10	9	17.3	19.5	22
φ25	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18
φ32	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15
φ40	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- 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

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

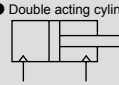


Medium bore size cylinder
 double acting/fine speed

CMK2-F Series

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

JIS symbol ● Double acting cylinder single rod



Specifications

Descriptions	CMK2-F			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting			
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 $^{\circ}\text{C}$	5 (41°F) to 60 (140°F)			
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	1 to 200			
Cushion	Rubber cushion			
Lubrication	Lubrication not possible			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows	With bellows
$\phi 20, \phi 25, \phi 32, \phi 40$	25, 50, 75, 100, 150, 200, 250, 300	750	Not supported	5	Not supported

*1: The custom stroke length is available in 1 mm increments.

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

Min. stroke length 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
$\phi 20$	10					25	30	35	25	35	50	55	55	50	55
$\phi 25$	10					25	30	35	25	35	50	55	55	50	55
$\phi 32$	10					25	30	35	25	35	50	55	55	50	55
$\phi 40$	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 display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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		24VDC±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 (*2)		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 lamp	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)		Without 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 other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (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)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product weight of CMK2-F-FA-32-50-T0H-D Product weight when S = 0 mm.... 0.45 kg
 Additional weight when S = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
 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)

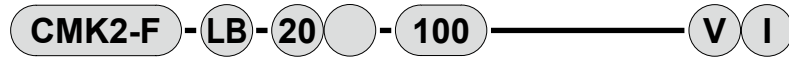
Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-F Series

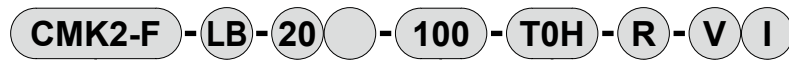
- SCP*3
- CMK2
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/
COVPIN2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/
MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd
Contr
- Ending

How to order

● Without switch (built-in magnet for switch)



● With switch (built-in magnet for switch)



Model No. **A** Mounting *1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity *6

G Option

H Accessory *3

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : Refer to page 146 for min. stroke length with switch.
- *3 : "I" and "Y" cannot be selected together.
- *4 : Refer to Ending Page 85 for custom specifications of rod end form.
- *5 : Refer to page 82 for combination of variations/options.
- *6 : 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.
- *7 : 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-F-LB-20-25-T0H-R-VI

Model: Medium bore size cylinder, fine speed

- A** Mounting : Two-sided axial foot
- B** Bore size : $\phi 20$ mm
- C** Port thread : Rc thread
- D** Stroke length : 25 mm
- E** Switch model No. : Reed switch T0H, lead wire 1 m
- F** Switch quantity : 1 on rod side
- G** Option : Boss cutoff
- H** Accessory : Rod eye

Code	Content
A Mounting	
00	Basic
LB	Two-sided axial foot
LS	Axial foot (one side) (rod side)
FA	Rod side flange
FB	Head side flange
CA	Eye bracket
CC	Eye bracket integrated
CB	Clevis bracket (pin and split washer pin attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	$\phi 20$	*7
25	$\phi 25$	*7
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	5 to 750	In 1 mm increments
$\phi 25$	5 to 750	
$\phi 32$	5 to 750	
$\phi 40$	5 to 750	

E Switch model No.					
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire
		Reed	AC DC		
T0H*	T0V*	●	●	1-color display	2-wire
T5H*	T5V*	●	●	Without indicator lamp	
T8H*	T8V*	●	●	1-color display	
T1H*	T1V*	●	●	1-color display	2-wire
T2H*	T2V*	●	●		
T3H*	T3V*	●	●		
T3PH*	T3PV*	●	●	1-color display (custom)	3-wire
T2WH*	T2WV*	●	●	2-color display	
T2YH*	T2YV*	●	●		
T3WH*	T3WV*	●	●		2-color display
T3YH*	T3YV*	●	●		
T2JH*	T2JV*	●	●	1-color display 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	
M	Piston rod material (stainless steel) *7
V	Boss cutoff

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

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)		φ20	φ25	φ32	φ40
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 the "M1-LB-*1" 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.

Dimensions

Same as CMK2 Series (double acting/single rod). Refer to pages 89 to 95.

Technical data

Refer to page 1161 for technical data regarding measuring methods.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

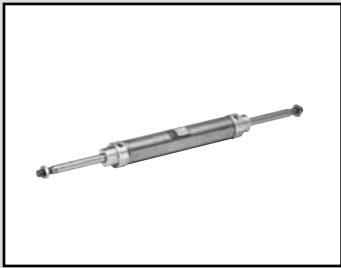
FJ

FK

Spd
Contr

Ending

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

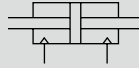


Medium bore size cylinder
 double acting/double rod

CMK2-D Series

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

JIS symbol ● Double acting cylinder double rod



Specifications

Descriptions	CMK2-D			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/double rod			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈ 22 psi, 1.5 bar)			
Proof pressure MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature $^{\circ}\text{C}$	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	Without bellows Bellows "L"	Bellows "J"
$\phi 20$	25/50/75/100/	480	300	5	25
$\phi 25$	150/200/250/				
$\phi 32$	300	450			
$\phi 40$					

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD whenever stroke length shorter than 25 mm is necessary for "J" bellows.

Min. stroke length with switch

(Unit: mm)

Switch quantity Bore size (mm)	1						2						3					
	Proximity			Reed			Proximity			Reed			Proximity			Reed		
	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8	T2, T3	T2W, T3W	T4, T*Y*	T0, T5	T8			
$\phi 20$	10						25	30	35	25	35	50	55	55	50	55	55	
$\phi 25$	10						25	30	35	25	35	50	55	55	50	55	55	
$\phi 32$	10						25	30	35	25	35	50	55	55	50	55	55	
$\phi 40$	10						25	30	35	25	35	50	55	55	50	55	55	

*1: Up to 3 switches can be mounted.

Switch specifications

- 1-color/2-color display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire						
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		
Applications	For programmable 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 (*2)			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 lamp	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)		Without 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:33 3 m:87 5 m:142				

*1: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm					Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)			
φ20	0.21	0.36	0.29	0.27	0.26	Refer to the weight in the switch specifications.	0.005	0.02
φ25	0.32	0.58	0.45	0.47	0.42		0.005	0.02
φ32	0.36	0.62	0.49	0.51	0.46		0.009	0.03
φ40	0.57	0.83	0.70	0.72	0.73		0.009	0.03

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
φ20	Push/Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push/Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push/Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push/Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-D Series

- 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

How to order

Without switch (built-in magnet for switch)

CMK2-D - 00 - 20 - 100 - J I

With switch (built-in magnet for switch)

CMK2-D - 00 - 20 - 100 - T0H - R - J I

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*7

G Option
*3, *4

H Accessory

⚠ Precautions for model No. selection

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

*2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 150.

*3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.

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

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

*6 : Refer to page 82 for combination of variations/options.

*7 : 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.

*8 : 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-D-00-20-100-T0H-R-JI

Model: Medium bore size cylinder, double acting/double rod

- A Mounting : Basic
- B Bore size : $\phi 20$ mm
- C Port thread : Rc thread
- D Stroke length : 100 mm
- E Switch model No. : Reed T0H switch, lead wire 1 m
- F Switch quantity : 1 on rod side
- G Option : Bellows, max. ambient temperature 100°C, instantaneous max. temperature 200°C
- H Accessory : Rod eye

Code	Content
A Mounting	
00	Basic
LB	Axial foot (Both sides)
LS	Axial foot (One side)
FA	Rod side flange
TA	Rod side trunnion

B Bore size (mm)		
20	$\phi 20$	*8
25	$\phi 25$	*8
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	5 to 500	In 1 mm increments
$\phi 25$	5 to 500	
$\phi 32$	5 to 480	
$\phi 40$	5 to 450	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	1-color display (custom)	3-wire
T3PH*	T3PV*			●		
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*		●	1-color display off-delay	2-wire	
T3YH*	T3YV*		●			
T2JH*	T2JV*		●			

* 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) *8		
P6	Copper and PTFE free		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30
Trunnion (TA)	M1-TA-20	M1-TA-30	M1-TA-30	M1-TA-40

*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/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

FJ

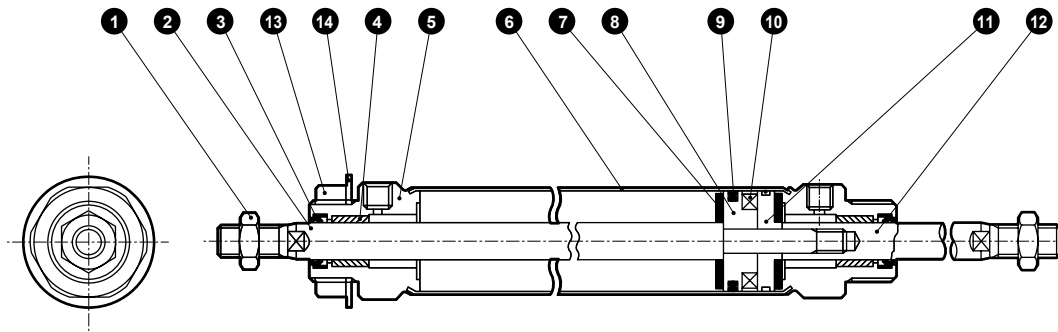
FK

Spd
Contr

Ending

CMK2-D Series

SCP*3 Internal structure and parts list



Cannot be disassembled

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

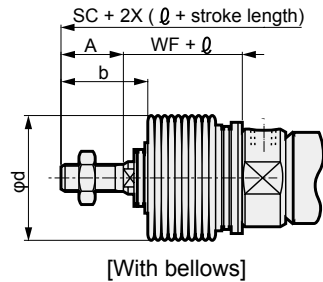
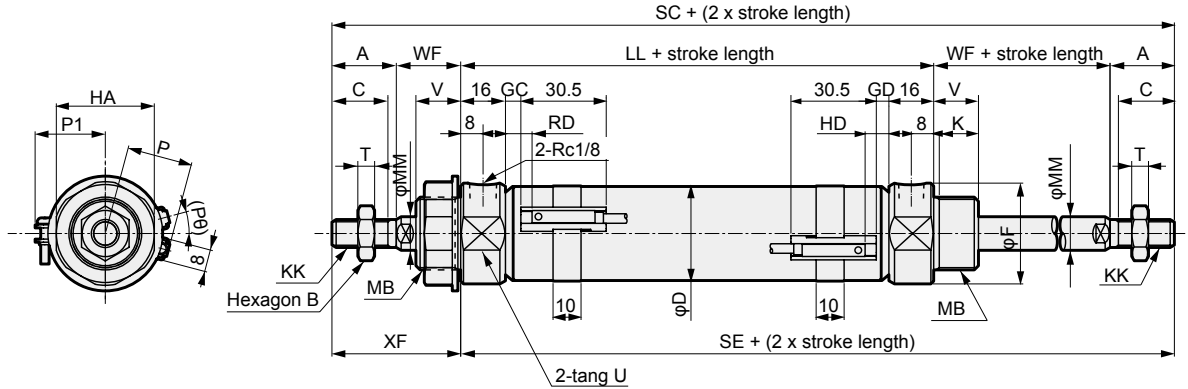
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	11	Piston B	Aluminum alloy	
2	Piston rod A	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating	12	Piston rod B	φ20, φ25: Stainless steel φ32, φ40: Carbon steel	Industrial chrome plating
3	Rod packing	Nitrile rubber		13	Nut	Steel	Zinc chromate
4	Bush	φ20: Dry bearing φ25, φ32, φ40: Copper-based	*1	14	Toothed washer	Steel	Zinc chromate
5	Rod cover	Aluminum alloy					
6	Cylinder tube	Stainless steel					
7	Cushion rubber	Urethane rubber					
8	Piston A	Aluminum alloy					
9	Piston packing	Nitrile rubber					
10	Magnet	Plastic					

*1: Oleoresin bearing for copper and PTFE free.

Dimensions



● Basic (00)



1: Refer to page 184 for HD, RD and protruding dimensions of T1, T8* and 2-color display switches.

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

*2: For the ϕ dimension, round up below the decimal point.

*3: The positions for the left and right tangs are unspecified.

Code	A	B	C	D	F	HA	K	KK	LL	MB	MM	T	U	V	WF	XF	SC	SE	With switch	
																			T0, T5, T2, T3	GC
φ20	20	13	18	21.4	28	26	12	M 8×1.0	66	M18×1.5	10	5	24	14	24	44	154	110	4	3
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	6	30	16	23	46	161	115	5.5	4.5
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	6	34	16	23	46	161	115	5.5	4.5
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	7	43	16	23	48	169	121	7.5	6.5

Code	T2W, T3W						With bellows					
	RD	HD	GC	GD	RD	HD	P	P1	(Pθ)°	b	d	ℓ
φ20	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
φ25	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
φ32	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
φ40	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

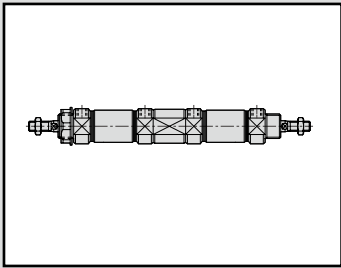
FJ

FK

Spd
Contr

Ending

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/back to back

CMK2-B Series

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

JIS symbol ● Double acting cylinder back to back



Specifications

Descriptions	CMK2-B			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/back to back			
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°F) to 60 (140°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 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

*2: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length 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			
$\phi 20$	10						25 30 35 25 35						50 55 55 50 55					
$\phi 25$	10						25 30 35 25 35						50 55 55 50 55					
$\phi 32$	10						25 30 35 25 35						50 55 55 50 55					
$\phi 40$	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 display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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 (*2)		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 lamp	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)		Without 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	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33				
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49	3 m:49 5 m:80				3 m:87				
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80	5 m:80				5 m:142				

*1: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm			Additional weight			Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Basic (00)	Axial foot (LB)	Flange (FA/FB)	Basic (00)	Axial foot (LB)	Flange (FA)			
φ20	0.17	0.32	0.23	0.03	0.18	0.09	Refer to the weight in the switch specifications.	0.005	0.01
φ25	0.26	0.52	0.41	0.03	0.29	0.18		0.005	0.01
φ32	0.30	0.56	0.45	0.05	0.31	0.20		0.009	0.02
φ40	0.48	0.74	0.63	0.10	0.36	0.25		0.009	0.02

[S₁ weight]

Product weight when S = 0 mm..... 0.45kg

Additional weight when S = 50 mm..... Additional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg

Weight of 2 switches..... 0.036 kg

Weight of switch rail + 2 bands..... 0.018 kg

Weight of S₁..... 0.45 kg + 0.1kg + 0.036 kg + 0.018 kg = 0.604 kg

[S₂ weight]

Product weight when S = 0 mm..... 0.45kg

Additional weight when S = 50 mm..... Additional weight when S = 10 mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg

Weight of 2 switches..... 0.036 kg

Weight of switch rail + 2 bands..... 0.018 kg

Weight of S₂..... 0.45 kg + 0.10kg + 0.036 kg + 0.018 kg = 0.604 kg

Product weight (S₁ weight + S₂ weight + additional weight).....

.... 0.604 kg + 0.604 kg + 0.20 kg = 1.408 kg

Theoretical thrust table

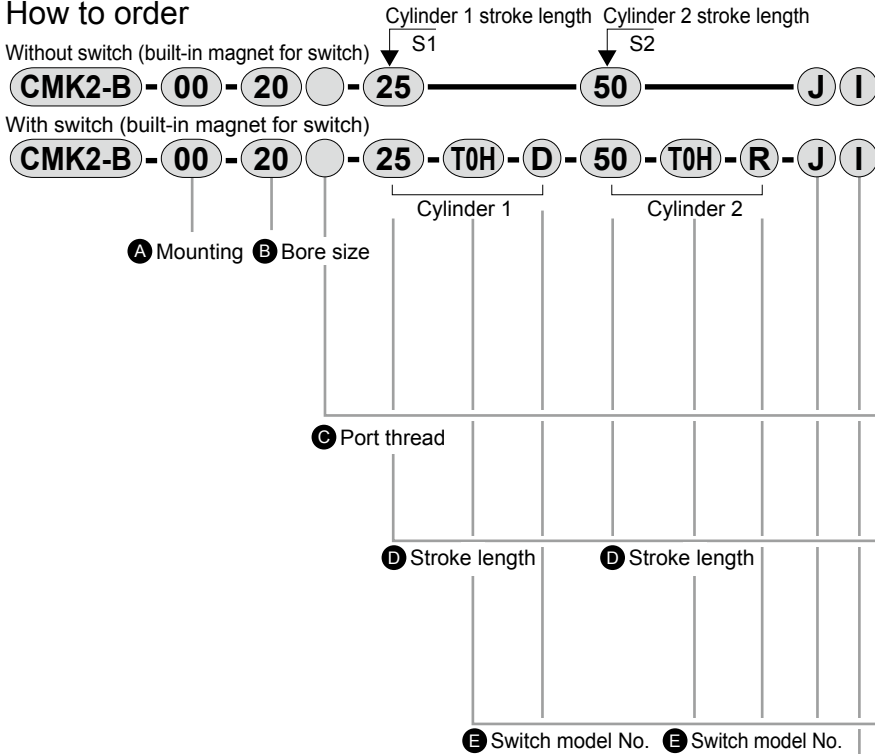
(Unit: N)

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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-B Series

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

How to order



Code	Content					
A Mounting						
00	Basic					
LB	Axial foot (Both sides)					
FA	Rod side flange					
B Bore size (mm)						
20	φ20	*8				
25	φ25	*8				
32	φ32					
40	φ40					
C Port thread						
Blank	Rc thread					
NN	NPT thread (custom order product)					
GN	G thread (custom order product)					
D Stroke length (mm)						
Bore size	Stroke length *1	Custom stroke length				
φ20	5 to 750	In 1 mm increments				
φ25	5 to 750					
φ32	5 to 750					
φ40	5 to 750					
E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage	Display	Lead wire	
T0H*	T0V*	Reed	AC	1-color display	2-wire	
T5H*	T5V*		DC			Without indicator lamp
T8H*	T8V*		AC	1-color display		
T1H*	T1V*	Proximity	AC	1-color display	2-wire	
T2H*	T2V*		DC			
T3H*	T3V*		AC	2-color display	3-wire	
T3PH*	T3PV*		DC			1-color display (custom)
T2WH*	T2WV*		AC			2-color display
T2YH*	T2YV*		DC			
T3WH*	T3WV*		AC	1-color display off-delay	2-wire	
T3YH*	T3YV*	DC				
T2JH*	T2JV*	AC				
* 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						
J	Bellows	Max. ambient temp. : 100°C	Instantaneous max. temp. : 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) *8					
P6	Copper and PTFE free					
H Accessory						
I	Rod eye					
Y	Rod clevis (pin and split washer pin attached)					
B2	Clevis bracket (pin and snap ring attached)					

⚠ Precautions for model No. selection

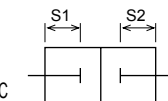
- *1: For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 156.
- *2: The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *3: The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *4: Refer to Ending Page 85 for custom specifications of rod end form.
- *5: Refer to page 82 for combination of variations/options.
- *6: As a spacer is used for port adjustment in the back to back, the X and M dimensions include 0 to 1.5 mm tolerance.
- *7: 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.
- *8: 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-B-00-20-25-T0H-D-50-T0H-R-JI

Model: Medium bore size cylinder, double acting/back to back

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length (S1) : 25 mm
 Stroke length (S2) : 50 mm
 Total stroke length : 75 mm S1 + S2
- E** Switch model No. (S1) : Reed T0H switch
 Lead wire 1 m : 1st stage stroke length 25 mm (S1)
 + 2nd stage stroke length 50 mm (S2)
- F** Switch quantity (S1) : 2
 Switch quantity (S2) : 1 on rod side
- G** Option : Bellows, max. ambient temperature 100°C, instantaneous max. temperature 200°C
- H** Accessory : Rod eye



How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
Mounting bracket				
Basic (00) *3	M1-00-20	M1-00-30	M1-00-30	M1-00-30
Axial foot (LB)	M1-LB-20	M1-LB-30	M1-LB-30	M1-LB-30
Flange (FA)	M1-FA-20	M1-FA-30	M1-FA-30	M1-FA-30

*1: All mounting brackets are supplied with mounting nuts and toothed washers.

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/
COVP/N2

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

CMK2-B Series

SCP*3 Internal structure and parts list

CMK2

CMA2

SCM

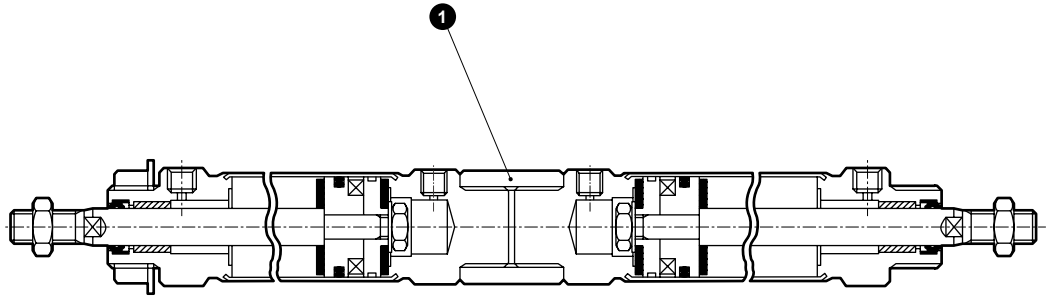
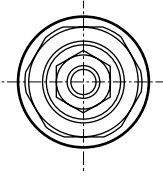
SCG

SCA2

SCS2

CKV2

CAV2/
COVPIN2



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

Cannot be disassembled

No.	Part name	Material	Remarks
1	Adaptor	Aluminum alloy	

SSD2

SSG

SSD

CAT

Applications

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

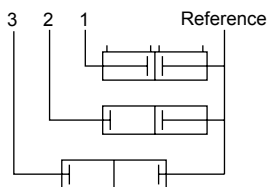
FJ

FK

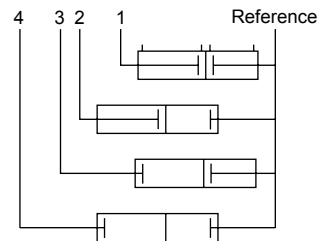
Spd
Contr

Ending

Three positions are available when the same stroke lengths are combined.

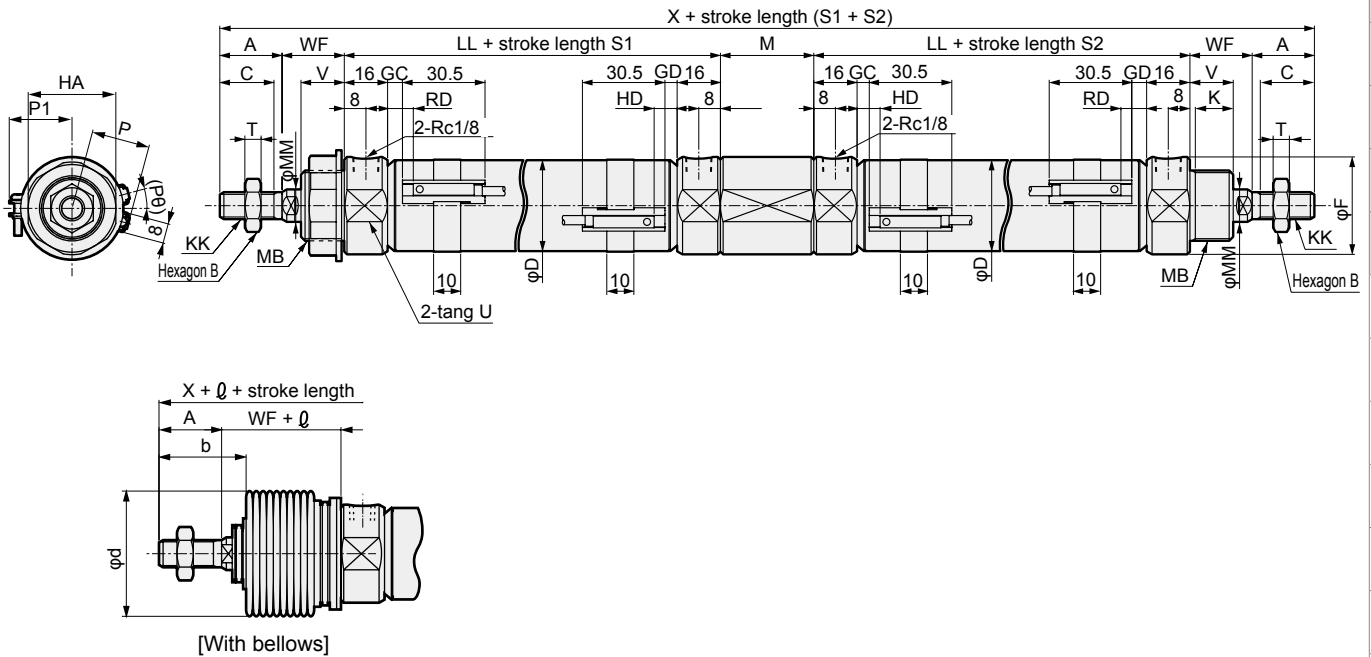


Four positions are available when different stroke lengths are combined.



Dimensions

● Basic (00)



1: Refer to page 184 for HD, RD and protruding dimensions of T1, T8* and 2-color display switches.

*2: For the ϕ dimension, round up below the decimal point.

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

Code	Basic (00) basic dimensions																
Bore size (mm)	A	B	C	D	F	HA	K	KK	LL	M	MB	MM	T	U	V	WF	X
φ20	20	13	18	21.4	28	26	12	M 8×1.0	66	29 to 30.5	M18×1.5	10	5	24	14	24	249 to 250.5
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	33 to 34.5	M26×1.5	12	6	30	16	23	263 to 264.5
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	33 to 34.5	M26×1.5	12	6	34	16	23	263 to 264.5
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	33 to 34.5	M26×1.5	14	7	43	16	23	275 to 276.5

Code	With switch									With bellows				
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ϕ
	GC	GD	RD	HD	GC	GD	RD	HD						
φ20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6
φ25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7
φ32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7
φ40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7

Note: As a spacer is used for port adjustment in the back to back, the X and M dimensions include 0 to 1.5 mm tolerance.

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

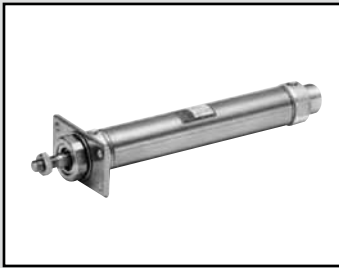
FJ

FK

Spd
Contr

Ending

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/rotation-stop

CMK2-M Series

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

JIS symbol ● Double acting, rotation-stop cylinder single rod



Specifications

Descriptions	CMK2-M			
Bore size mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation	Double acting/rotation-stop			
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	$^{+2.0}_0$ (Up to 200), $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Non-rotating accuracy (Note) $^{\circ}$	± 1.5			± 1.0
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Note: Value when stroke length is 0 mm (except for piston rod deflection)

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length with switch

(Unit: mm)

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

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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 (*2)		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 lamp	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)		Without 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	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18 3 m:49 5 m:80				1 m:33				
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49	3 m:49 5 m:80				3 m:87				
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80	5 m:80				5 m:142				

*1: Refer to Ending Page 1 for other switch specifications.

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

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 00mm								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)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product weight of CMK2-M-FA-32-50-T0H-D	Product weight when S = 00mm0.45 kg
	Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg
	Weight of 2 switches0.036 kg
	Weight of switch rail + 2 bands0.018 kg
	Product weight0.45kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.604kg

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
φ20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
φ25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
φ40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-M Series

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

How to order

Without switch (built-in magnet for switch)

CMK2-M - 00 - 20 - 100 - V I

With switch (built-in magnet for switch)

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

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 162.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is $\phi 6$.
- *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 82 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-M-00-20-100-T0H-R-VI

Model: Medium bore size cylinder, double acting/rotation-stop

- A Mounting : Basic
- B Bore size : $\phi 20$ mm
- C Port thread : Rc thread
- D Stroke length : 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	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	$\phi 20$	*9
25	$\phi 25$	*9
32	$\phi 32$	
40	$\phi 40$	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
$\phi 20$	5 to 750	In 1 mm increments
$\phi 25$	5 to 750	
$\phi 32$	5 to 750	
$\phi 40$	5 to 750	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●	●	1-color display	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●		
T3PH*	T3PV*		●	●	1-color display (custom)	3-wire
T2WH*	T2WV*		●	●	2-color display	2-wire
T2YH*	T2YV*		●	●		
T3WH*	T3WV*		●	●		
T3YH*	T3YV*		●	●	1-color display off-delay	2-wire
T2JH*	T2JV*		●	●		

* 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)		
V	Boss cutoff		
M	Piston rod material (stainless steel) *9		

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

How to order switch

- Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

- Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

- Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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)	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/
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

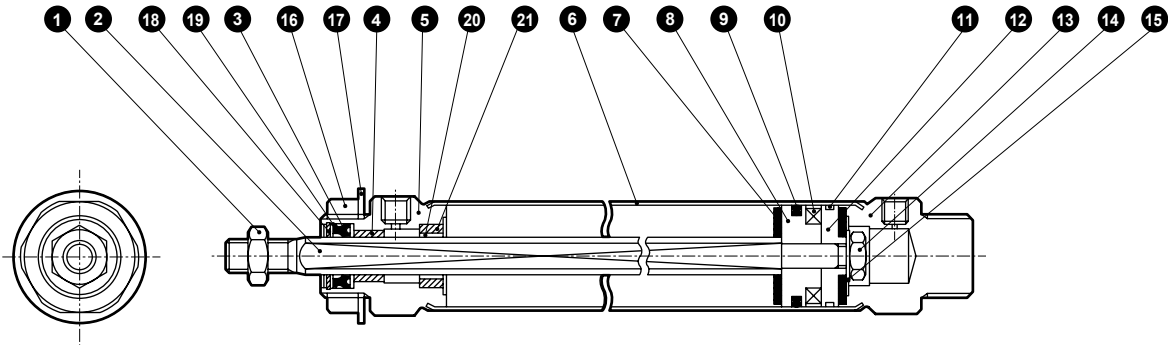
FJ

FK

Spd
Contr

Ending

SCP*3 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	Hexagon nut	Steel	Zinc chromate
2	Piston rod	Stainless steel		15	Spacer	Steel	Zinc chromate
3	Rod packing	Nitrile rubber		16	Nut	Steel	Zinc chromate
4	Bush	φ20: Dry bearing φ25, φ32, φ40: Copper-based		17	Toothed washer	Steel	Zinc chromate
5	Rod cover	Aluminum alloy		18	Round R snap ring	Steel	Zinc phosphate
6	Cylinder tube	Stainless steel		19	Packing holder	Steel	Zinc chromate
7	Cushion rubber	Urethane rubber		20	Rotation-stop bush	Copper-based oil impregnated alloy	
8	Piston A	Aluminum alloy		21	Taper pin	Stainless steel	
9	Piston packing	Nitrile rubber					
10	Magnet	Plastic					
11	Wear ring	Polyacetal					
12	Piston B	Aluminum alloy					
13	Head cover	Aluminum alloy					

Material of mounting bracket

Mounting	Material
LB/LS	Steel
FA/FB	Steel
TA/TB	Steel
CA	Steel
CB	Steel

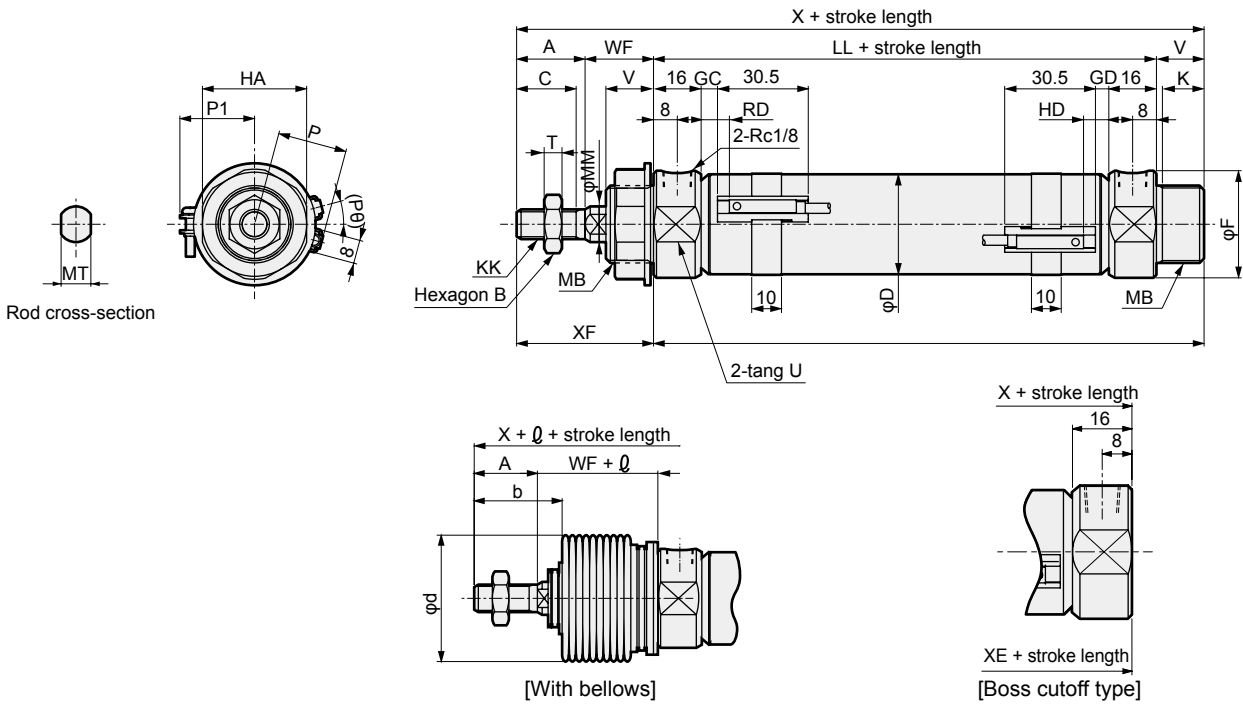
● Note: Mounting bracket will be shipped with the product.

However, if the product is supplied with bellows and the indicated bracket is LB, FA, or TA, it will be shipped assembled.

Dimensions



● Basic (00)



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

1: Refer to page 184 for HD, RD and protruding dimensions of T1, T8* and 2-color display switches.
*2: For the \varnothing dimension, round up below the decimal point.

Code	A	B	C	D	F	HA	K	KK	LL	MB	MM	MT	T	U	V	WF	X	XE	XF
φ20	20	13	18	21.4	28	26	12	M8×1.0	66	M18×1.5	10	8	5	24	14	24	124	80	44
φ25	23	17	20	26.4	32	35	14	M10×1.25	69	M26×1.5	12	10	6	30	16	23	131	85	46
φ32	23	17	20	33.6	36	35	14	M10×1.25	69	M26×1.5	12	10	6	34	16	23	131	85	46
φ40	25	19	22	41.6	45	35	14	M12×1.5	73	M26×1.5	14	12	7	43	16	23	137	89	48

Code	With switch								With bellows					Boss cutoff type		
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	φ	X	XE
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD								
φ20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110	66
φ25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115	69
φ32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115	69
φ40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121	73

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3
CMK2
CMA2
SCM
SCG
SCA2
SCS2
CKV2
CAV2/
COVP/N2
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/built-in speed controller

CMK2-Z Series

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



Specifications

Descriptions		CMK2-Z			
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation		Double acting/built-in speed controller			
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 300			
Cushion		Rubber cushion			
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

Stroke length

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

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length with switch

(Unit: mm)

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

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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		24VDC±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 (*2)		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 lamp	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)		Without 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 other switch specifications.

*2: The above 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)

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (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)			
φ20	0.18	0.33	0.26	0.24	0.33	0.19	0.33	0.23	Refer to the weight in the switch specifications.	0.005	0.01
φ25	0.28	0.54	0.41	0.43	0.52	0.28	0.52	0.38		0.005	0.01
φ32	0.32	0.58	0.45	0.47	0.56	0.32	0.56	0.42		0.009	0.02
φ40	0.51	0.77	0.64	0.66	0.75	0.53	0.75	0.67		0.009	0.02

(Example) Product weight of CMK2-Z-FA-32-50-T0H-D Product weight when S = 0 mm...0.47 kg
 Additional weight when S = 50mmAdditional weight when S = 10mm 0.02 x $\frac{\text{Product stroke length (50)}}{10}$ = 0.10 kg
 Weight of 2 switches0.036 kg
 Weight of switch rail + 2 bands ...0.018 kg
 Product weight.....0.47 kg + 0.1 kg + 0.036 kg + 0.018 kg = 0.624 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-Z Series

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

How to order

Without switch (built-in magnet for switch)

CMK2-Z - 00 - 20 - 100 - V - Y

With switch (built-in magnet for switch)

CMK2-Z - 00 - 20 - 100 - T0H - R - V - Y

A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*8

G Option
*3, *4

H Accessory
*5

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 168.
- *3 : The compatible tube O.D. of F (with push-in fitting (straight)) and FE (with push-in fitting (elbow)) is φ6.
- *4 : The instantaneous max. temperature is the temperature when sparks, 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 82 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-Z-00-20-100-T0H-R-VY

Model: Medium bore size cylinder, double acting/built-in speed controller

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 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 clevis

Code	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*9
25	φ25	*9
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Bore size
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●	□	1-color display	2-wire
T2H*	T2V*		□	●		
T3H*	T3V*		□	●	1-color display (custom)	3-wire
T3PH*	T3PV*		□	●		
T2WH*	T2WV*		□	●		
T2YH*	T2YV*		□	●	2-color display	2-wire
T3WH*	T3WV*		□	●		
T3YH*	T3YV*		□	●	1-color display off-delay	2-wire
T2JH*	T2JV*		□	●		

* 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 temperature	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		
P6	Copper and PTFE free (custom order product)		

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

How to order switch

● Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

● Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

● Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **B** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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/
COVP/IN2

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

SCP*3 Internal structure and parts list

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

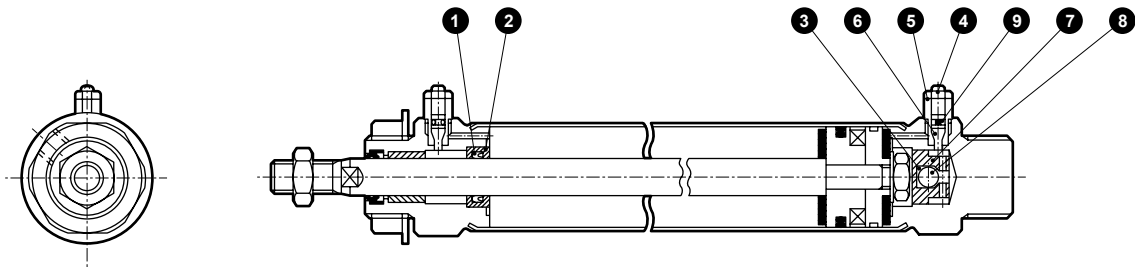
ShkAbs

FJ

FK

Spd
Contr

Ending



Cannot be disassembled

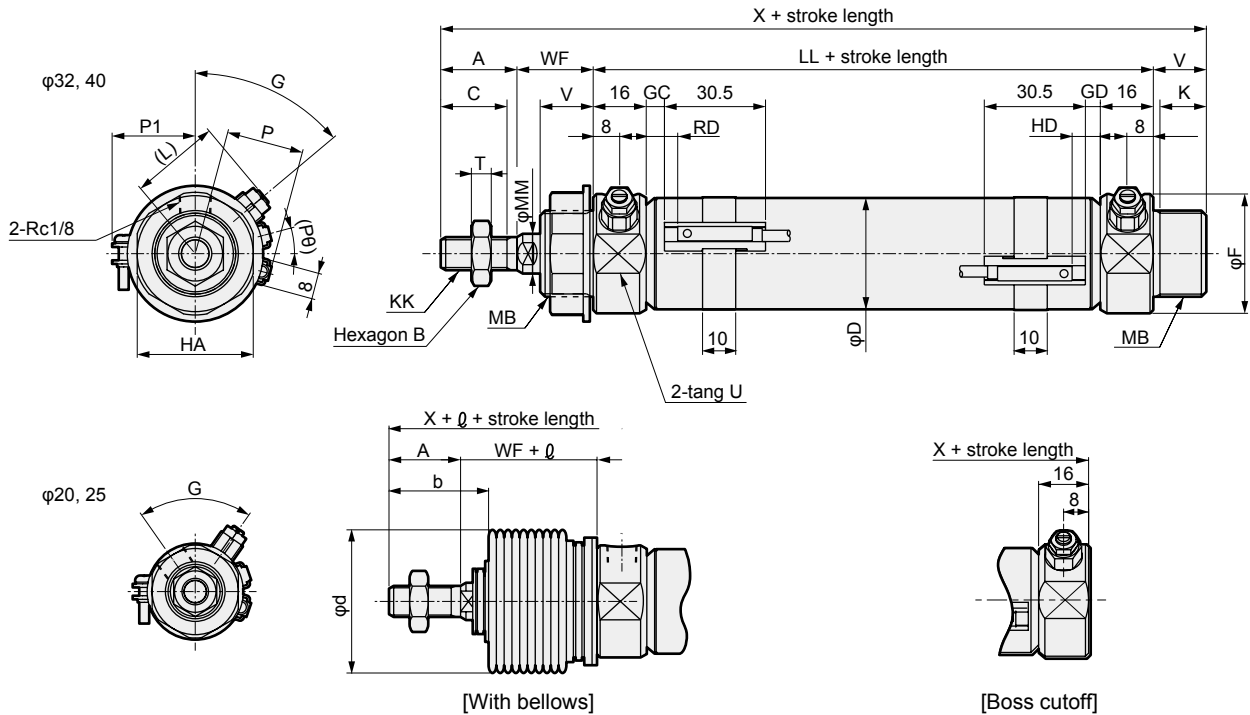
● Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Check packing	Nitrile rubber		5	Needle holder	Steel	Zinc chromate
2	Packing adaptor	Carbon steel	Chromate	6	Needle	Steel	Zinc chromate
3	Check ball holder	Steel	Zinc chromate	7	Check ball retainer	Carbon steel	Black finish
4	Hexagon nut	Steel	Zinc chromate	8	Urethane ball	Urethane rubber	
				9	Needle gasket	Nitrile rubber	

Dimensions



● Basic (00)



1 : Refer to page 184 for HD, RD and protruding dimensions of T1, T8* and 2-color display switches.

*2 : For the ϕ dimension, round up below the decimal point.

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

Code	Basic (00) basic dimensions																		
Bore size (mm)	A	B	C	D	F	G	HA	K	KK	L	LL	MB	MM	T	U	V	WF	X	
φ20	20	13	18	21.4	28	70°	26	12	M 8 × 1.0	23	66	M18 × 1.5	10	5	24	14	24	124	
φ25	23	17	20	26.4	32	60°	35	14	M10 × 1.25	26	69	M26 × 1.5	12	6	30	16	23	131	
φ32	23	17	20	33.6	36	50°	35	14	M10 × 1.25	27	69	M26 × 1.5	12	6	34	16	23	131	
φ40	25	19	22	41.6	45	50°	35	14	M12 × 1.5	31	73	M26 × 1.5	14	7	43	16	23	137	

Code	With switch								With bellows					Boss cutoff	
	T0, T5, T2, T3				T2W, T3W				P	P1	(Pθ)°	b	d	ℓ	X
Bore size (mm)	GC	GD	RD	HD	GC	GD	RD	HD							
φ20	4	3	8	7	6	5	10	9	17.3	19.5	22	30	30	(Stroke length/3) + 6	110
φ25	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	19.8	22.0	18	32	46	(Stroke length/3.25) + 7	115
φ32	5.5	4.5	9.5	8.5	7.5	6.5	11.5	10.5	24.3	25.5	15	32	46	(Stroke length/3.25) + 7	115
φ40	7.5	6.5	11.5	10.5	9.5	8.5	13.5	12.5	28.3	29.5	12	34	46	(Stroke length/3.25) + 7	121

* Dimensions of other mountings are the same as those of the standard. Refer to pages 90 to 95.

* For the dimensions of the accessories, refer to page 96.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/COVP/N2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

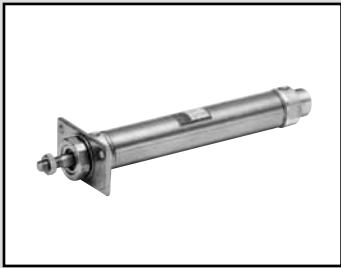
FJ

FK

Spd Contr

Ending

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

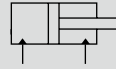


Medium bore size cylinder
 double acting/low hydraulic

CMK2-H Series

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

JIS symbol ● Double acting cylinder single rod



Specifications

Descriptions		CMK2-H			
Bore size	mm	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Actuation		Double acting/low hydraulic			
Working fluid		Hydraulic fluid			
Max. working pressure	MPa	1.0 (≈ 150 psi, 10 bar)			
Min. working pressure	MPa	0.15 (≈ 22 psi, 1.5 bar)			
Proof pressure	MPa	1.6 (≈ 230 psi, 16 bar)			
Ambient temperature	$^{\circ}\text{C}$	5 (41 $^{\circ}\text{F}$) to 50 (122 $^{\circ}\text{F}$)			
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	5 to 300			
Cushion		Rubber cushion			
Lubrication		Not required			
Allowable absorbed energy	J	0.166	0.308	0.424	0.639

● The product weight, thrust and dimensions are the same as those of CMK2 (standard).

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)	
		Without bellows	With bellows	No bellows Bellows "L"	Bellows "J"
$\phi 20$	25/50/75/100/	750	650	5	25
$\phi 25$	150/200/250/				
$\phi 32$	300				
$\phi 40$					

*1: The custom stroke length is available in 1 mm increments.

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

*3: Contact CKD when stroke length shorter than 25 mm is required for "J" bellows.

Min. stroke length with switch

(Unit: mm)

Switch quantity	1						2						3					
	Proximity			Reed			Proximity			Reed			Proximity			Reed		
Bore size (mm)	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			
$\phi 20$				10		25	30	35	25	35	50	55	55	50	55			
$\phi 25$				10		25	30	35	25	35	50	55	55	50	55			
$\phi 32$				10		25	30	35	25	35	50	55	55	50	55			
$\phi 40$				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 display

Descriptions	Proximity 2-wire		Proximity 2-wire		Proximity 3-wire				Reed 2-wire								
	T1H/T1V	T2H/T2V/ T2JH/T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/T3PV (custom)	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		24VDC±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 (*2)		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 lamp	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)		Without 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 other switch specifications.

*2: The above 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)

*3: The T0/T5 switch can also be used with 220 VAC. Contact CKD about working conditions.

*4: Dimensions depend on switch model No. Refer to Ending Page 18 for details.

Cylinder weight

(Unit: kg)

Item/mounting	Product weight when stroke length (S) = 0 mm								Switch weight (per 1 pc.)	Switch rail + band weight	Additional weight per S = 10 mm
	Bore size (mm)	Basic (00)	Axial foot (LB)	Axial foot (LS)	Flange (FA/FB)	Eye bracket (CA)	Clevis (CC)	Clevis bracket (CB)			
φ20	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
φ25	0.26	0.52	0.39	0.41	0.50	0.26	0.50	0.36		0.005	0.01
φ32	0.30	0.56	0.43	0.45	0.54	0.30	0.54	0.40		0.009	0.02
φ40	0.48	0.74	0.61	0.63	0.72	0.50	0.72	0.64		0.009	0.02

(Example) Product weight of CMK2-H-FA-32-50-T0H-D

Product weight when S = 0 mm.....0.45 kg
 Additional weight when S = 50mmAdditional weight when S = 10 mm 0.02x $\frac{\text{Product stroke length (50)}}{10}$ =0.10 kg
 Weight of 2 switches0.036 kg
 Weight of switch rail + 2 bands0.018 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
φ20	Push	31.4	47.1	62.8	94.2	1.26 × 10 ²	1.57 × 10 ²	1.88 × 10 ²	2.20 × 10 ²	2.51 × 10 ²	2.83 × 10 ²	3.14 × 10 ²
	Pull	23.6	35.3	47.1	70.7	94.2	1.18 × 10 ²	1.41 × 10 ²	1.65 × 10 ²	1.88 × 10 ²	2.12 × 10 ²	2.36 × 10 ²
φ25	Push	49.1	73.6	98.2	1.47 × 10 ²	1.96 × 10 ²	2.45 × 10 ²	2.95 × 10 ²	3.44 × 10 ²	3.93 × 10 ²	4.42 × 10 ²	4.91 × 10 ²
	Pull	37.8	56.7	75.6	1.13 × 10 ²	1.51 × 10 ²	1.89 × 10 ²	2.27 × 10 ²	2.64 × 10 ²	3.02 × 10 ²	3.40 × 10 ²	3.78 × 10 ²
φ32	Push	80.4	1.21 × 10 ²	1.61 × 10 ²	2.41 × 10 ²	3.22 × 10 ²	4.02 × 10 ²	4.83 × 10 ²	5.63 × 10 ²	6.43 × 10 ²	7.24 × 10 ²	8.04 × 10 ²
	Pull	69.1	1.04 × 10 ²	1.38 × 10 ²	2.07 × 10 ²	2.76 × 10 ²	3.46 × 10 ²	4.15 × 10 ²	4.84 × 10 ²	5.53 × 10 ²	6.22 × 10 ²	6.91 × 10 ²
φ40	Push	1.26 × 10 ²	1.88 × 10 ²	2.51 × 10 ²	3.77 × 10 ²	5.03 × 10 ²	6.28 × 10 ²	7.54 × 10 ²	8.80 × 10 ²	1.01 × 10 ³	1.13 × 10 ³	1.26 × 10 ³
	Pull	1.10 × 10 ²	1.65 × 10 ²	2.21 × 10 ²	3.31 × 10 ²	4.41 × 10 ²	5.51 × 10 ²	6.62 × 10 ²	7.72 × 10 ²	8.82 × 10 ²	9.92 × 10 ²	1.10 × 10 ³

CMK2-H Series

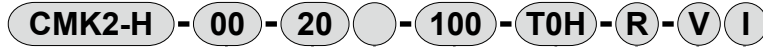
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 SCM
 SCG
 SCA2
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 CKV2
 CAV2/
 COVPIN2
 SSD2
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 CAT
 MDC2
 MVC
 SMG
 MSD/
 MSDG
 FC*
 STK
 SRL3
 SRG3
 SRM3
 SRT3
 MRL2
 MRG2
 SM-25
 ShkAbs
 FJ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

How to order

Without switch (built-in magnet for switch)



With switch (built-in magnet for switch)



A Mounting
*1

B Bore size

C Port thread

D Stroke length

E Switch model No.

F Switch quantity
*7

G Option
*3

H Accessory
*4

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : For the min. stroke length with switch and the max. and min. stroke lengths with bellows, refer to page 174.
- *3 : The instantaneous max. temperature is the temperature when sparks and cutting chips, etc., instantaneously contact the bellows.
- *4 : "I" and "Y" cannot be selected together.
- *5 : Refer to Ending Page 85 for custom specifications of rod end form.
- *6 : Refer to page 82 for combination of variations/options.
- *7 : 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.
- *8 : 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-H-00-20-100-T0H-R-VI

Model: Medium bore size cylinder, double acting/
low hydraulic

- A** Mounting : Basic
- B** Bore size : φ20 mm
- C** Port thread : Rc thread
- D** Stroke length : 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	Content
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 attached)
TA	Rod side trunnion
TB	Head side trunnion

B Bore size (mm)		
20	φ20	*8
25	φ25	*8
32	φ32	
40	φ40	

C Port thread	
Blank	Rc thread
NN	NPT thread (custom order product)
GN	G thread (custom order product)

D Stroke length (mm)		
Bore size	Stroke length *2	Custom stroke length
φ20	5 to 750	In 1 mm increments
φ25	5 to 750	
φ32	5 to 750	
φ40	5 to 750	

E Switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●		1-color display	2-wire
T2H*	T2V*			●		
T3H*	T3V*			●	1-color display (custom)	3-wire
T3PH*	T3PV*			●		
T2WH*	T2WV*			●	2-color display	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		
T3YH*	T3YV*			●	1-color display off-delay	2-wire
T2JH*	T2JV*		●			

* 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 temperature	Instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		*8
V	Boss cutoff		
P6	Copper and PTFE free		

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

How to order switch

● Switch body + mounting bracket set

CMK2 - **T0H** - **20**

Bore size (Item **B** on the previous page)

Switch model No. (Item **E** on the previous page)

● Switch body only

SW - **T0H**

Switch model No. (Item **E** on the previous page)

● Mounting bracket set

CMK2 - **T** - **20**

Bore size (Item **E** on the previous page)

Mounting bracket

How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
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.

Internal structure

Same as standard. Refer to page 88.

Dimensions

Same as standard. Refer to pages 89 to 95.

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/IN2

SSD2

SSG

SSD

CAT

MDC2

MVC

SMG

MSD/
MSDG

FC*

STK

SRL3

SRG3

SRM3

SRT3

MRL2

MRG2

SM-25

ShkAbs

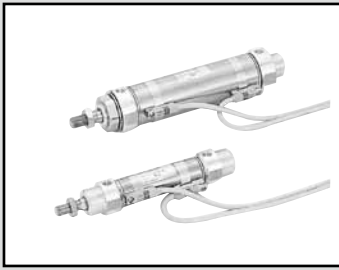
FJ

FK

Spd
Contr

Ending

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

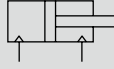


Medium bore size cylinder, double acting/coolant proof

CMK2-G2/G3 Series

● Bore size: φ20/φ25/φ32/φ40

JIS symbol



Specifications

Descriptions	CMK2-G2/G3			
Bore size mm	φ 20	φ 25	φ 32	φ 40
Actuation	Double acting/coolant proof			
Working fluid	Compressed air			
Max. working pressure MPa	1.0 (≈150 psi, 10 bar)			
Min. working pressure MPa	0.15 (≈22 psi, 1.5 bar)			
Proof pressure MPa	1.6 (≈230 psi, 16 bar)			
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)			
Port size	Rc1/8			
Stroke tolerance mm	$^{+2.0}_0$ (0 to 200) $^{+2.4}_0$ (More than 200)			
Working piston speed mm/s	50 to 500			
Cushion	Rubber cushion			
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)			
Allowable absorbed energy J	0.166	0.308	0.424	0.639

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)		Min. stroke length (mm)		Min. stroke with switch (mm)
		Without bellows	With bellows	Without bellows	With bellows	
φ 20, φ 25, φ 32, φ 40	25, 50, 75, 100, 150, 200, 250, 300	750	Not supported	5	Not supported	25

*1: The custom stroke length is available in 1 mm increments.
 *2: One side type (LS) has the max. stroke length of 50 mm.

Switch specifications

Type/model No. Descriptions	Proximity switch specifications	
	T2YLH/T2YLV	T3YLH/T3YLV
Applications	Dedicated for programmable controller	Programmable controller, relay
Output method	-	NPN output
Power supply voltage	-	10 to 28 VDC
Load voltage/current	10 to 30 VDC, 5 to 20 mA *1	30 VDC or less, 50 mA or less
Indicator lamp	Red/green LED (Lit when ON)	
Leakage current	1mA or less	10 μA or less
Shock resistance	980 m / S ²	
Weight	g 1 m:33 3 m:87 5 m:142	

*1 : The above 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)

*2: Refer to Ending Page 1 for other switch specifications.

Cylinder weight

(Unit: kg)

Item/mounting Bore size (mm)	Product weight when stroke length (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)			
φ20	0.21	0.36	0.29	0.27	0.36	0.22	0.36	0.26	Refer to the weight in the switch specifications.	0.005	0.01
φ25	0.27	0.53	0.40	0.42	0.51	0.27	0.51	0.37		0.005	0.01
φ32	0.31	0.57	0.44	0.46	0.55	0.31	0.55	0.41		0.009	0.02
φ40	0.49	0.75	0.62	0.64	0.73	0.51	0.73	0.65		0.009	0.02

(Example) Product weight of CMK2-G2-FA-32-50-T2YL-D

Product weight when S = 0 mm ... 0.45 kg

Additional weight when S = 50mm Additional weight when S = 10 mm $0.02 \times \frac{\text{Product stroke length (50)}}{10} = 0.10$ kg

Weight of 2 switches 0.062 kg

Weight of switch rail + 2 bands 0.018 kg

Product weight 0.45 kg+0.1 kg+0.062 kg+0.018 kg=0.63 kgn

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
φ20	Push	31.4	47.1	62.8	94.2	1.26×10^2	1.57×10^2	1.88×10^2	2.20×10^2	2.51×10^2	2.83×10^2	3.14×10^2
	Pull	23.6	35.3	47.1	70.7	94.2	1.18×10^2	1.41×10^2	1.65×10^2	1.88×10^2	2.12×10^2	2.36×10^2
φ25	Push	49.1	73.6	98.2	1.47×10^2	1.96×10^2	2.45×10^2	2.95×10^2	3.44×10^2	3.93×10^2	4.42×10^2	4.91×10^2
	Pull	37.8	56.7	75.6	1.13×10^2	1.51×10^2	1.89×10^2	2.27×10^2	2.64×10^2	3.02×10^2	3.40×10^2	3.78×10^2
φ32	Push	80.4	1.21×10^2	1.61×10^2	2.41×10^2	3.22×10^2	4.02×10^2	4.83×10^2	5.63×10^2	6.43×10^2	7.24×10^2	8.04×10^2
	Pull	69.1	1.04×10^2	1.38×10^2	2.07×10^2	2.76×10^2	3.46×10^2	4.15×10^2	4.84×10^2	5.53×10^2	6.22×10^2	6.91×10^2
φ40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.10×10^2	1.65×10^2	2.21×10^2	3.31×10^2	4.41×10^2	5.51×10^2	6.62×10^2	7.72×10^2	8.82×10^2	9.92×10^2	1.10×10^3

CMK2-G2/G3 Series

- 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

How to order

Without switch (built-in magnet for switch)

CMK2 - G2 - 00 - 20 - 100 - Y

With switch (built-in magnet for switch)

CMK2 - G2 - 00 - 20 - 100 - T2YLH - R - Y

A Degree of protection level

B Mounting
*1

C Bore size

D Port thread

E Stroke length

F Switch model No.
* indicates the lead wire length.

G Switch quantity
*5

H Accessory
*3

⚠ Precautions for model No. selection

- *1 : One side foot (LS) has the max. stroke length of 50 mm.
- *2 : Refer to page 178 for the min. stroke length with switch.
- *3 : "I" and "Y" cannot be selected together.
- *4 : Refer to page 82 for combinations of variations/options.
- *5 : 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.

[Example of model No.]

CMK2-G2-FA-32-100-T2YLH-R-Y

Model: Medium bore size cylinder

A Degree of protection level : Coolant proof scraper + packing NBR

B Mounting : Rod side flange

C Bore size : φ32 mm

D Port thread : Rc thread

E Stroke length : 100 mm

F Switch model No. : Proximity switch T2YLH, lead wire 1 m

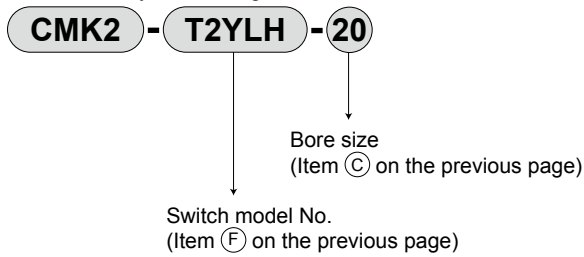
G Switch quantity : 1 on rod side

H Accessory : Rod clevis

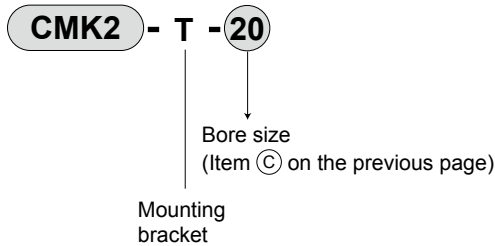
Code	Content					
A Degree of protection level						
G2	Coolant proof scraper + packing NBR					
G3	Coolant proof scraper + packing FKM					
B Mounting						
00	Basic					
LB	Axial foot (Both sides)					
LS	Axial foot (One side)					
FA	Rod side flange					
FB	Head side flange					
CA	Eye bracket					
CC	Eye bracket integrated					
CC1	Eye bracket bush pressfit					
CB	Clevis bracket (pin and split washer pin attached)					
TA	Rod side trunnion					
TB	Head side trunnion					
C Bore size (mm)						
20	φ20					
25	φ25					
32	φ32					
40	φ40					
D Port thread						
Blank	Rc thread					
NN	NPT thread (custom order product)					
GN	G thread (custom order product)					
E Stroke length (mm)						
	Bore size	Stroke length *2	Custom stroke length			
	φ20	5 to 750	In 1 mm increments			
	φ25	5 to 750				
	φ32	5 to 750				
	φ40	5 to 750				
F Switch model No.						
	Axial lead wire	Radial lead wire	Contact	Voltage	Indicator	Lead wire
	T2YLH*	T2YLV*	Proximity	DC	2-color display	2-wire
	T3YLH*	T3YLV*				
* Lead wire length						
	Blank	1 m (standard)				
	3	3 m (option)				
	5	5 m (option)				
G Switch quantity						
	R	1 on rod side				
	H	1 on head side				
	D	2				
	T	3				
H Accessory						
	I	Rod eye				
	Y	Rod clevis (pin and split washer pin attached)				
	B2	Clevis bracket (pin and snap ring attached)				

How to order switch

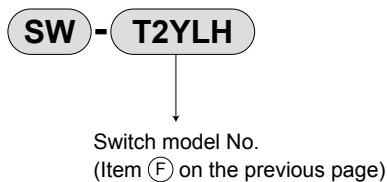
- Switch body + mounting bracket set



- Mounting bracket set



- Switch body only



How to order mounting bracket

Bore size (mm)	φ20	φ25	φ32	φ40
Mounting bracket				
Basic (00) *4	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 CMK2-G2-40-LS (LB rod side)
Flange (FA/FB)	M1-FA-20	M1-FA-30	M1-FA-30	CMK2-G2-40-FA(FA) M1-FA-30(FB)
Trunnion (TA/TB)	M1-TA-20	M1-TA-30	M1-TA-30	CMK2-G2-40-TA(TA) M1-TA-40(TB)
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: The rod cover nut, LS bracket (LB rod side), FA bracket and TA bracket for φ40 bore size are not the standard.

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

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

*4: 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/
COVP/IN2

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

CMK2-G2/G3 Series

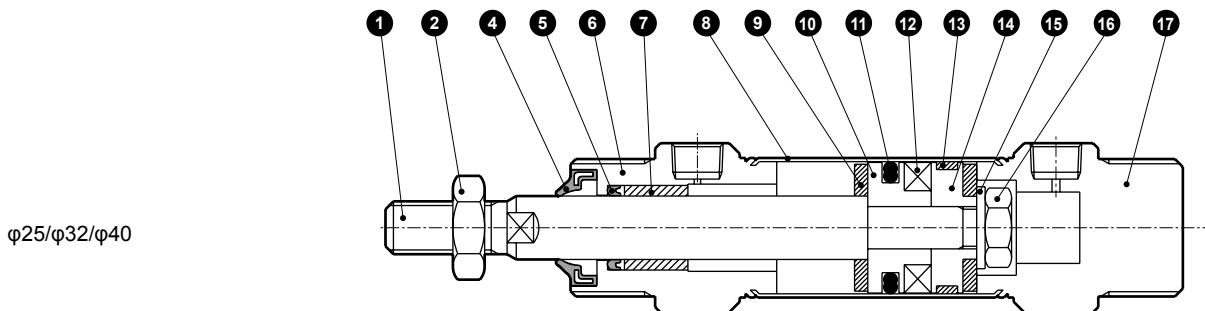
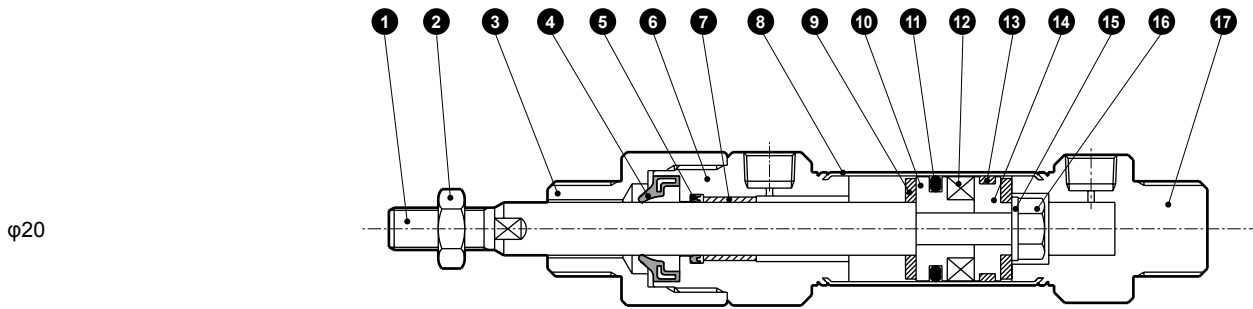
SCP*3 Internal structure and parts list

● Degree of protection: Packing NBR

CMK2-G2

● Degree of protection: Packing FKM

CMK2-G3



Cannot be disassembled

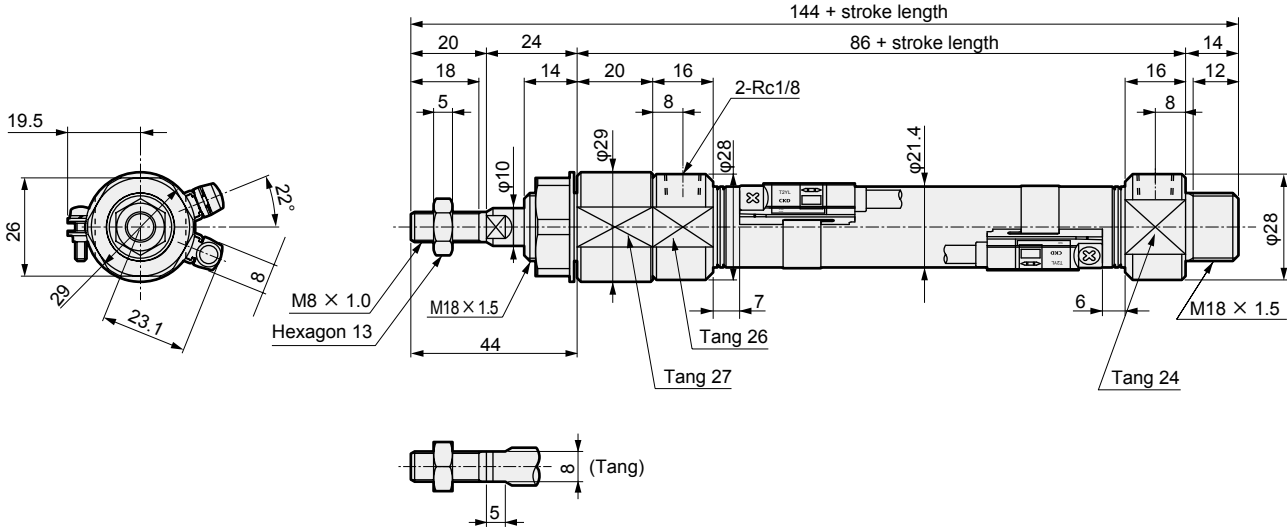
Note: This product is caulked and cannot be disassembled.

No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Piston rod	Stainless steel	Industrial chrome plating	9	Cushion rubber	Urethane rubber	
2	Hexagon nut	Stainless steel		10	Piston A	Aluminum alloy	Chromate treatment
3	Adaptor	Aluminum alloy	Chromate treatment	11	Piston packing	G2 Nitrile rubber	
4	Scraper	G2 Nitrile rubber		12		Magnet	Plastic
		G3 Fluoro rubber		13	Wear ring	Polyacetal	
5	Rod packing	G2 Nitrile rubber		14	Piston B	Aluminum alloy	Chromate treatment
		G3 Fluoro rubber		15	Spacer	Steel	Zinc chromate treatment
6	Rod cover	Aluminum alloy	Chromate treatment	16	Hexagon nut	Steel	Zinc chromate treatment
7	Bush	φ20: DU dry bearing		17	Head cover	Aluminum alloy	Chromate treatment
		φ25, φ32, φ40: Copper-based					
8	Cylinder tube	Stainless steel					

Dimensions

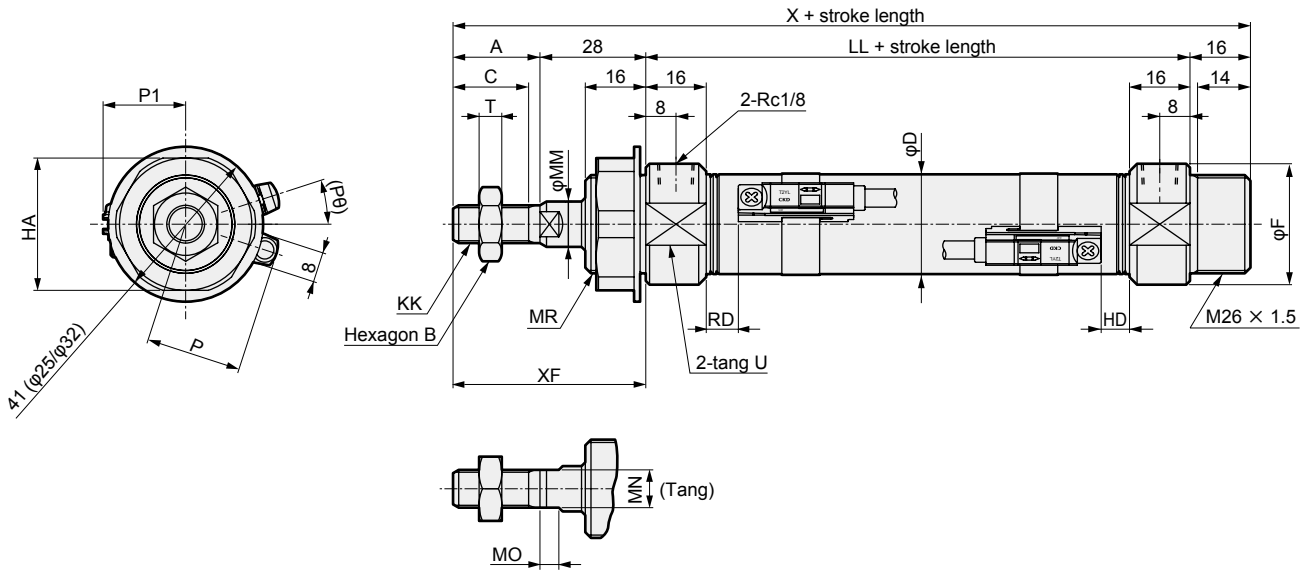


● Basic (00) φ20



* Position unspecified for adaptor tang.

● Basic (00) φ25/φ32/φ40



*1: Toothed washer is not supplied with φ40.

Code	Basic (00) basic dimensions															
Bore size (mm)	A	B	C	D	F	HA	KK	LL	MM	MN	MO	MR	T	U	X	XF
φ25	23	17	20	26.4	32	35	M10×1.25	69	12	10	5	M26×1.5	6	30	136	51
φ32	23	17	20	33.6	36	35	M10×1.25	69	12	10	5	M26×1.5	6	34	136	51
φ40	25	19	22	41.6	45	38	M12×1.5	73	14	12	6	M30×1.5	7	43	142	53

Code	With switch				
Bore size (mm)	RD	HD	P	(P0) ^o	P1
φ25	8.5	7.5	25.6	18	22.0
φ32	8.5	7.5	30.1	15	25.5
φ40	10.5	9.5	34.1	12	29.5

* For the dimensions of the accessories, refer to page 96.

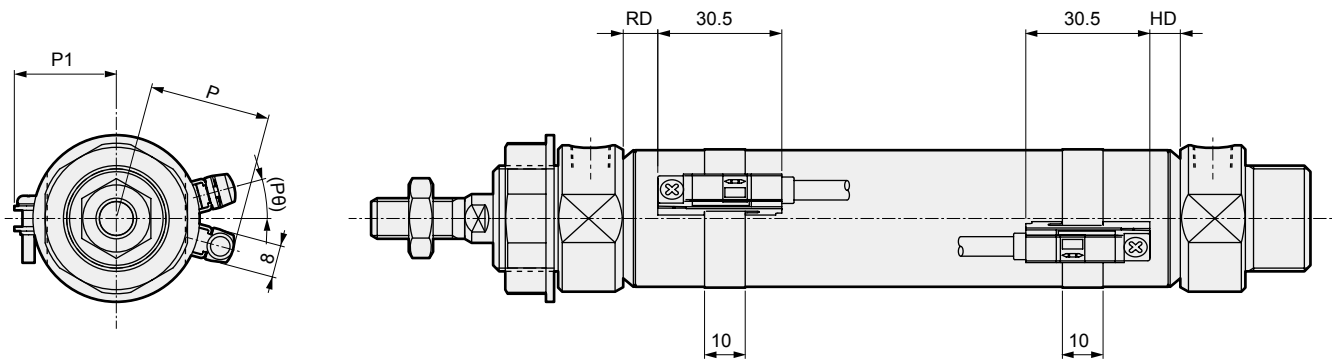
- SCP*3
- CMK2**
- CMA2
- SCM
- SCG
- SCA2
- SCS2
- CKV2
- CAV2/COVP/N2
- SSD2
- SSG
- SSD
- CAT
- MDC2
- MVC
- SMG
- MSD/MSDG
- FC*
- STK
- SRL3
- SRG3
- SRM3
- SRT3
- MRL2
- MRG2
- SM-25
- ShkAbs
- FJ
- FK
- Spd Contr
- Ending

CMK2 Series

SCP*3 CMK2 Series common dimensions (T1*, T8*, 2 color display, with switch)

● CMK2-**-**-T $\frac{2}{3}$ YH/V

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



2-color display switch mounting dimensions

Code	1-color display (T1, T8)		2-color display (T $\frac{2}{3}$ Y)		P	P1	(Pθ)°	
	RD *1		HD *2					
	T1, T $\frac{2}{3}$ Y	T8	T1, T $\frac{2}{3}$ Y	T8				
φ20	7.0	2.0	6.0	1	28.5	23.1	19.5	22
φ25	8.5	3.5	7.5	2.5	31.0	25.6	22.0	18
φ32	8.5	3.5	7.5	2.5	35.5	30.1	25.5	15
φ40	10.5	5.5	9.5	4.5	39.5	34.1	29.5	12

*1: RD dimension of CMK2-S is shown in Table 1 below.

*2: HD dimension of CMK2-SR is shown in Table 2 below.

Table 1

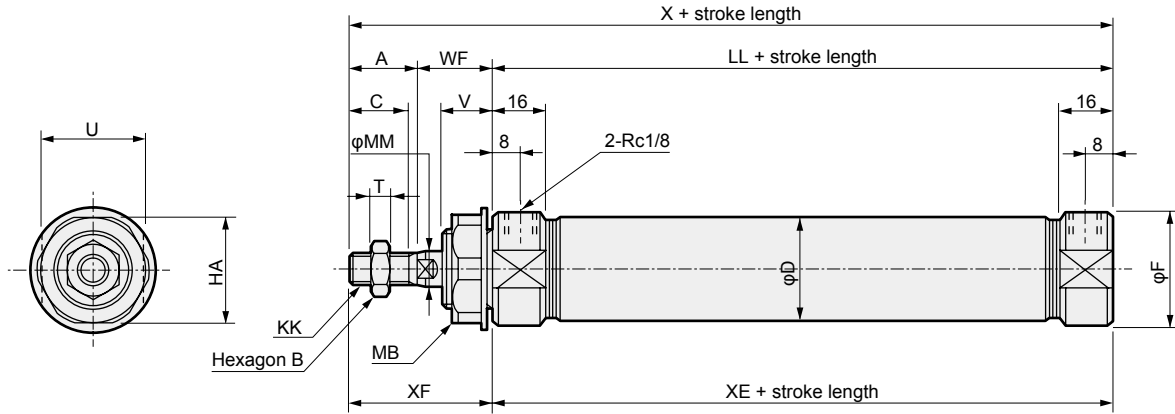
Code	RD													
	T1, T $\frac{2}{3}$ Y							T8						
	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300
φ20	32.0	34.0	61.0	88.0	115.0	142.0	169.0	27.0	29.0	56.0	83.0	110.0	137.0	164.0
φ25	33.5	38.5	68.5	98.5	128.5	158.5	188.5	28.5	33.5	63.5	93.5	123.5	153.5	183.5
φ32	33.5	38.5	68.5	98.5	128.5	158.5	188.5	28.5	33.5	63.5	93.5	123.5	153.5	183.5
φ40	35.5	40.5	70.5	100.5	130.5	160.5	190.5	30.5	35.5	65.5	95.5	125.5	155.5	185.5

Table 2

Code	HD													
	T1, T $\frac{2}{3}$ Y							T8						
	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300	25 or less	Over 25 to 50	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 250	Over 250 to 300
φ20	31.0	33.0	60.0	87.0	114.0	141.0	168.0	26.0	28.0	55.0	82.0	109.0	136.0	163.0
φ25	32.5	37.5	67.5	97.5	127.5	157.5	187.5	27.5	32.5	62.5	92.5	122.5	152.5	182.5
φ32	32.5	37.5	67.5	97.5	127.5	157.5	187.5	27.5	32.5	62.5	92.5	122.5	152.5	182.5
φ40	34.5	39.5	69.5	99.5	129.5	159.5	189.5	29.5	34.5	64.5	94.5	124.5	154.5	184.5

Dimensions with options

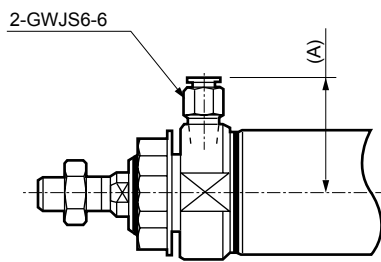
● Boss cutoff (V)



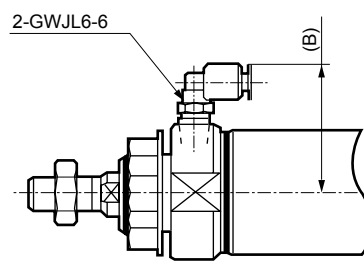
Note: Dimensions of other mountings are the same as those of the standard. Refer to pages 89 to 95. (Mountable, mounting: 00, LS, FA, TA)

Code	Basic (00) basic dimensions																
Bore size (mm)	A	B	C	D	F	HA	KK	LL	MB	MM	T	U	V	WF	X	XE	XF
φ20	20	13	18	21.4	28	26	M 8 × 1.0	66	M18 × 1.5	10	5	24	14	24	110	66	44
φ25	23	17	20	26.4	32	35	M10 × 1.25	69	M26 × 1.5	12	6	30	16	23	115	69	46
φ32	23	17	20	33.6	36	35	M10 × 1.25	69	M26 × 1.5	12	6	34	16	23	115	69	46
φ40	25	19	22	41.6	45	35	M12 × 1.5	73	M26 × 1.5	14	7	43	16	23	121	73	48

● With push-in fitting (-F)



● With push-in fitting (-FE)



Code	Basic (00) basic dimensions	
Bore size (mm)	A	B
φ20	30.5	34.5
φ25	32.5	36.5
φ32	34.5	38.5
φ40	39	43

SCP*3

CMK2

CMA2

SCM

SCG

SCA2

SCS2

CKV2

CAV2/
COVP/N2

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